LIST OF CONTENTS

LIST OF CONTENTS...........................................................................................................2

LIST OF TABLES..............................................................................................................14

LIST OF FIGURES...........................................................................................................16

ABSTRACT.........................................................................................................................18

DECLARATION...................................................................................................................19

COPYRIGHT STATEMENT.................................................................................................20

DEDICATION.....................................................................................................................21

ACKNOWLEDGEMENTS.................................................................................................22

LIST OF COMMON ABBREVIATIONS............................................................................23

CHAPTER 1.........................................................................................................................24

1. Introduction..................................................................................................................24

1.1. The problem and complexity of suicide .................................................................24

1.1.1. Definitions of suicide..........................................................................................24

1.1.2. The burden of suicide.......................................................................................26

1.1.3. The suicide continuum......................................................................................27

1.2. Suicide in prison.......................................................................................................29

1.2.1. Prison populations worldwide........................................................................29

1.2.2. Defining suicide in prison................................................................................30

1.2.3. The prevalence of suicide and suicidal behaviour in prisons.............................30

1.2.3.1. Suicide deaths...............................................................................................30

1.2.3.2. Suicidal ideation and behaviour....................................................................32

1.3. Overview of thesis..................................................................................................33

1.4. Note on collaboration and published material.......................................................35

CHAPTER 2.........................................................................................................................37
2. Methodological Considerations

2.1. Research designs

2.1.1. An introduction to Experience Sampling Methodology (ESM)

2.1.1.1. What is ESM

2.1.1.2. Advantages of using ESM

2.1.1.3. Difficulties associated with ESM

2.1.1.4. An overview of different ESM Methods

2.1.1.5. The assessment of suicidal thoughts and behaviours using ESM

2.1.1.6. Using ESM in prison settings

2.1.2. Specific methodological issues in the ESM studies of this thesis

2.1.2.1. Design of ESM diary items

2.1.2.2. Equipment, assessment schedule, and briefing

2.1.2.3. Monitoring of suicide risk information

2.2. Participants and recruitment strategy

2.2.1. First recruitment phase

2.2.2. Second recruitment phase

2.3. Choices of measures

2.3.1. Measuring suicidal thoughts and behaviours

2.3.2. Measuring defeat and entrapment

2.3.3. Measuring hopelessness

2.3.4. Measuring psychiatric symptomatology

2.3.5. Measuring depression

2.3.6. Difficulties associated with the use of specific measures

2.4. Statistical approaches

2.4.1. Multilevel Modeling
2.4.2. Bootstrapping

2.4.3. Sample size and statistical power

2.5. Ethical considerations

2.5.1. Ethical approval

2.5.2. Participant distress

CHAPTER 3

3. Theoretical accounts of suicidal behaviour and their applicability to the prison population: a narrative review

3.1. Abstract

3.2. Introduction

3.2.1. Risk Factors

3.2.1.1. Demographic

3.2.1.2. Clinical

3.2.1.3. Criminology and custodial

3.2.3. The need for a theory of suicide

3.2.4. Psychological models of suicidal behavior

3.2.4.1. The Cry of Pain Model

3.2.4.2. The Schematic Appraisals Model of Suicide (SAMS)

3.2.4.3. The Interpersonal psychological theory of suicidal behaviour

3.2.4.4. The Integrated Motivational-Volitional model of suicidal behaviour

3.2.4.5. Overlapping and distinguishing features of the four models

3.2.5. Goals of the current review

3.3. Selection of research articles

3.3.1. Eligibility criteria for studies included in the review
3.3.1.1. Inclusion criteria…………………………………………........94

3.3.1.2. Exclusion Criteria………………………………………………95

3.3.2. Search strategy for the identification of relevant research articles……..95

3.4. Research review…………………………………………………………96

3.4.1. Information processing biases and cognitive deficits…………………98

3.4.1.1. Review of empirical studies of information processing biases and
cognitive deficits in prison populations……………………………………100

3.4.1.1.1. Problem-solving………………………………………………..100

3.4.2. The presence of stressors……………………………………………105

3.4.2.1. Review of empirical studies of the presence of stressors in prison
populations ......................................................................................105

3.4.3. The appraisal system…………………………………………………115

3.4.3.1. Review of empirical studies of the role of appraisals in prison
populations ......................................................................................115

3.4.4. The roles of hopelessness, defeat and entrapment……………………116

3.4.4.1. Review of empirical studies of hopelessness, defeat and
entrapment in prison populations.....................................................117

3.4.5. The role of social factors: no rescue (social support), thwarted
belongingness, and perceived burdensomeness...............................119

3.4.5.1. Review of empirical studies of no rescue (social support) in prison
populations ......................................................................................121

3.4.5.2. Review of empirical studies of perceived burdensomeness and
thwarted belongingness in prison populations....................................123

3.4.6. Access to suicidal means and limitation models……………………126

3.4.6.1. Review of empirical studies of suicidal limitation models in
prison populations .................................................................127
3.4.6.2. Review of empirical studies of access to suicidal means in prison
populations .................................................................132
3.4.7. The acquired capability for suicide ............................................133
3.4.7.1. Review of empirical studies of the acquired capability for suicide
in prison populations .................................................................133
3.5. Discussion ...........................................................................136

CHAPTER 4 ..................................................................................142

4. Predicting suicidal ideation amongst prisoners at risk of suicide: examining the
roles of hopelessness, entrapment, and defeat ..............................................142

4.1. Abstract .................................................................................142
4.2. Introduction ...........................................................................143
4.2.1 Aims and Hypotheses .........................................................146
4.3. Method ...............................................................................147
4.3.1. Design ..............................................................................147
4.3.2. Participants .......................................................................147
4.3.3. Measures .........................................................................148
4.3.4. Procedure ..........................................................................150
4.3.5. Statistical analysis strategy ................................................150
4.3.6. Ethical approval .................................................................151
4.4. Results ...............................................................................152
4.4.1. Sample characteristics ......................................................152
4.4.2. The associations between suicidal ideation and hopelessness,
entrapment and defeat .................................................................154
4.4.3. Hopelessness, defeat and entrapment as predictors of suicidal ideation...156
5. Psychological processes in suicidal ideation: an ecological momentary assessment study of prison inmates

5.1. Abstract

5.2. Introduction

5.3. Method

5.3.1. Participants

5.3.2. Design

5.3.3. Measures

5.3.3.1. EMA Diary Measure

5.3.3.2. Questionnaire measures

5.3.4. Procedure

5.3.4.1. EMA Sampling Schedule

5.3.4.2. Ecological Momentary Assessment: Adaptations for the prison setting

5.3.4.3. Data collection

5.3.4.3.1. Pre EMA phase

5.3.4.3.2. EMA phase

5.3.4.3.3. Post EMA phase

5.3.5. Ethical approval

5.3.6. Statistical analyses

5.4. Results

5.4.1. Participant characteristics

5.4.2. Clinical and psychological characteristics
5.4.3. The moderating effect of positive self-appraisals on the relationship between negative situation appraisals and suicidal ideation…………………..177

5.4.4. The moderating effect of positive self-appraisals on the relationship between negative situation appraisals and self-harm ideation………………..180

5.5. Discussion………………………………………………………………………………183

CHAPTER 6…………………………………………………………………………………187

6. Resilience to suicidality amongst prisoners: examining the role of positive self-appraisals……………………………………………………………………………187

6.1. Abstract………………………………………………………………………………187

6.2. Introduction…………………………………………………………………………188

6.3. Method……………………………………………………………………………….192

6.3.1. Participants………………………………………………………………………..192

6.3.2. Design……………………………………………………………………………..193

6.3.3. Measures…………………………………………………………………………….193

6.3.4. Procedure…………………………………………………………………………..195

6.3.5. Ethical approval……………………………………………………………………..195

6.3.6. Analysis strategy…………………………………………………………………..195

6.4. Results………………………………………………………………………………….197

6.4.1. Descriptive statistics and correlations………………………………………….197

6.4.2. Preliminary analyses…………………………………………………………….197

6.4.3. Regression analyses……………………………………………………………….199

6.4.3.1. The moderating effect of resilience (RAS) on the relationships between hopelessness, internal entrapment, external entrapment and suicidal ideation…………………………………………………………199
6.4.3.2. The moderating effect of resilience subscales (RAS) on the relationships between hopelessness, internal entrapment, external entrapment and suicidal ideation...

6.4.3.2.1. Predictors of suicidal ideation: Interactions between hopelessness and resilience subscales...

6.4.3.2.2. Predictors of suicidal ideation: Interactions between internal entrapment and resilience subscales...

6.4.3.2.3. Predictors of suicidal ideation: Interactions between internal entrapment and resilience subscales...

6.5. Discussion...

CHAPTER 7...

7. Predicting suicidal ideation amongst at-risk prisoners: a short-term longitudinal study...

7.1. Abstract...

7.2. Introduction...

7.3. Method...

7.3.1. Participants...

7.3.2. Measures...

7.3.3. Procedure...

7.3.4. Analysis strategy...

7.3.5. Ethical approval...

7.4 Results...

7.4.1. Participant characteristics and descriptive statistics...

7.4.2. Comparing levels of suicidal ideation at baseline and follow-up...

7.4.3. Predicting suicidal ideations at follow-up...
8. Examining the role of impulsiveness and affect in suicidal ideation: a momentary assessment study of prison inmates

8.1. Abstract
8.2. Introduction
  8.2.1. Aims and hypotheses
8.3. Method
  8.3.1. Participants
  8.3.2. Design
  8.3.3. Measures
  8.3.4. Procedure
  8.3.5. Statistical analysis
  8.3.6. Ethical approval
8.4. Results
  8.4.1. Participant characteristics and ESM adherence
  8.4.2. Impulsiveness and affect as predictors of suicidal ideation
  8.4.3. Interaction effects between impulsiveness and affect as predictors of suicidal ideation
8.5. Discussion

9. Affect moderates the relationship between impulsiveness and self-harm ideation: an ecological momentary assessment study of prison inmates

9.1. Abstract
9.2. Introduction
9.3. Method .................................................................................................................. 257
9.3.1. Sample .............................................................................................................. 257
9.3.2. Design .............................................................................................................. 258
9.3.3. Materials .......................................................................................................... 258
9.3.4. EMA assessment schedule and adaptations for the prison setting ............... 258
9.3.5. Procedure ........................................................................................................ 259
9.3.6. Statistical analysis ......................................................................................... 260
9.3.7. Ethical approval ............................................................................................. 261
9.4. Results .................................................................................................................. 261
9.4.1. Sample characteristics ................................................................................... 261
9.4.2. Impulsiveness and affect as univariate predictors of self-harm ideation ...... 262
9.4.3. The interaction effect between impulsiveness and affect as predictors of self-harm ideation ................................................................. 264
9.5. Discussion ............................................................................................................ 266

CHAPTER 10 ................................................................................................................. 272

10. General Discussion ............................................................................................... 272
10.1. Overview ............................................................................................................. 272
10.1.1 Chapter Summary ............................................................................................ 273
10.1.2. Sample characteristics and comparison with general prisoner population .............................................................................................................. 278
10.2. Theoretical Implications .................................................................................... 282
10.2.1. Mechanisms underlying suicidal ideation in prisoners ............................... 282
10.2.1.1. The conceptualization of entrapment in prisoner samples: distinguishing internal entrapment and external entrapment ................................................ 282
10.2.1.2. Internal entrapment and hopelessness as proximal psychological drivers of suicidal thoughts and behaviours in prisoners..........................284

10.2.2. Resilience factors to suicidal ideation in prisoners.........................286

10.3. Clinical Implications.............................................................................290

10.3.1. Implications for the prediction of suicide risk.................................290

10.3.2. Implications for assessment and formulation...................................292

10.3.3. Implications for psychological intervention.....................................294

10.4. General Limitations.................................................................298

10.4.1. Sample.........................................................................................298

10.4.2. Cross-sectional designs...............................................................301

10.4.3. Choice of measures........................................................................302

10.4.4. Statistical power..............................................................................304

10.5. Directions for future research..........................................................306

10.5.1. A prospective investigation of psychological risk and resilience factors for suicide amongst prison inmates.................................................306

10.5.2. An experience sampling study of the social and contextual factors which underlie suicidality amongst prisoners..................................................308

10.5.3. A qualitative examination of protective factors in suicidality amongst prisoners...........................................................................................................310

10.5.4. A qualitative investigation of perceived entrapment, and its relationship with suicidal thoughts and behaviours, amongst prison inmates..................311

10.6. Conclusions.........................................................................................313

REFERENCES.............................................................................................315
APPENDICES ........................................................................................................................................349

APPENDIX I: EXCERPT FROM ESM DIARY (USED IN CHAPTERS 5, 8, AND 9) .................................................................349

APPENDIX II: ESM STUDY BRIEFING SESSION OVERVIEW AND CHECKLIST (USED IN CHAPTERS 5, 8, AND 9) ..................................................................................................................357

APPENDIX III: PARTICIPANT INFORMATION SHEET FOR RESEARCH PHASE (USED IN CHAPTERS 5, 8, AND 9) ..........................................................................................................................361

APPENDIX IV: PARTICIPANT INFORMATION SHEET FOR RESEARCH PHASE 2 (USED IN CHAPTERS 4, 6, AND 7) ..........................................................................................................................365

APPENDIX V: BECK SCALE FOR SUICIDAL IDEATION (USED IN CHAPTERS 4, 6, and 7) ........................................................................................................................................369

APPENDIX VI: DEFEAT SCALE (USED IN CHAPTERS 4, 6, and 7) .........................................................................................371

APPENDIX VII: ENTRAPMENT SCALE (USED IN CHAPTERS 4, 6, and 7) ...........................................................................372

APPENDIX VIII: BECK HOPELESSNESS SCALE (USED IN CHAPTERS 4, 6, and 7) ........................................................................................................................................373

APPENDIX IX: KEYWORD SEARCH TERMS USED IN LITERATURE REVIEW (CHAPTER 3) .................................................................374

APPENDIX X: BECK DEPRESSION INVENTORY II (USED IN CHAPTERS 4 and 7) ........................................................................................................................................375

APPENDIX XI: BECK ANXIETY INVENTORY (USED IN CHAPTER 4) .........................................................................................378

APPENDIX XII: BRIEF PSYCHIATRIC RATING SCALE – EXPANDED (USED IN CHAPTER 4) ........................................................................................................................................379

APPENDIX XIII: RESILIENCE APPRAISAL Scales (USED IN CHAPTER 6) .............................................................................396

Word count: 76,379 words
LIST OF TABLES

Table 1: Number of individuals recruited across the six empirical chapters presented in the current thesis.................................................................57

Table 2: Characteristics of studies included in the literature review..................107

Table 3: Sample characteristics (n=101).....................................................................153

Table 4: Means, standard deviations and Spearman’s rho correlation coefficients for all key variables..................................................................................155

Table 5: Multiple hierarchical regression analysis predicting suicidal ideation as measured by the BSS.................................................................157

Table 6: Descriptive statistics for individual diary items and standardized questionnaire measures..................................................................................176

Table 7: Multilevel modeling analysis of positive self-appraisals as moderator in relationship between negative situational appraisals and suicidal ideation/self-harm ideation.........................................................................................................................178

Table 8: Means, standard deviations and Spearman’s rho correlation coefficients for all key variables..................................................................................198

Table 9: Multiple regression analysis of positive self-appraisals as moderators in the relationship between hopelessness, internal entrapment, external entrapment, and suicidal ideation.................................................................................................................200

Table 10: Means, standard deviations, ranges, and Spearman’s rho correlation coefficients for key variables..................................................................................220

Table 11: Multiple hierarchical regression analysis predicting suicidal ideation at follow-up.............................................................................................................222
Table 12: Means (M), standard deviations (SD) and ranges for standardised questionnaire measures

Table 13: Descriptive statistics for individual and composite diary items

Table 14: Descriptive statistics for individual diary items

Table 15: Clinical characteristics of current sample and comparison with other ‘at risk’ sample

Table 16: Clinical characteristics of current sample and comparison with general UK prisoner population
LIST OF FIGURES

Figure 1: A diagrammatic illustration of the components of the Cry of Pain model (adapted from Williams, 1997)........................................................................................................83
Figure 2: A diagrammatic illustration of the components of the SAMS model as described in Johnson et al. (2008).................................................................................................85
Figure 3: A diagrammatic illustration of the components of the IPT model (Joiner, 2005), adapted from Van Orden et al., 2010)............................................................................................88
Figure 4: A diagrammatic illustration of the components of the IMV model (O’Connor, 2011a), adapted from O’Connor, Rasmussen & Hawton (2012)......................................................90
Figure 5: Flow diagram for study inclusion in literature review........................................96
Figure 6: Flow diagram of participant recruitment and assessment .................................152
Figure 7: The effect of social support scores on self-harm ideation split by low and high levels of negative appraisals of the present situation.........................................................181
Figure 8: The effect of social support scores on self-harm ideation split by low and high levels of negative appraisals of the future..............................................................................181
Figure 9: The effect of social reciprocity scores on self-harm ideation split by low and high levels of negative appraisals of the future..............................................................................182
Figure 10: Resilience appraisals (RAS Total) moderate internal entrapment to predict suicidal ideation (BSS)................................................................................................................203
Figure 11: Appraisals of Problem Solving ability (RAS Prob.) moderate internal entrapment to predict suicidal ideation (BSS)..................................................................................205
Figure 12: The effect of impulsiveness scores on suicidal ideation split by low and high levels of positive affect............................................................................................................246
Figure 13: The effect of impulsiveness scores on self-harm ideation split by low and high levels of negative affect.....................................................................................................................264

Figure 14: The effect of impulsiveness scores on self-harm ideation split by low and high levels of positive affect.....................................................................................................................265
ABSTRACT

A thesis submitted to the University of Manchester for the degree of Doctor of Philosophy.
Candidate: Kate Sheehy
Title: Understanding suicidality in prisoners
September 2015

Rates of suicidal thoughts and behaviours are heightened amongst prisoners, and present a significant challenge to correctional facilities globally. Despite this, there is a paucity of theoretically driven research examining the factors that underlie suicidality in prisoners. Two theoretical models of suicide, the Cry of Pain model (CoP; Williams, 1997) and the Schematic Appraisals Model of Suicide (SAMS; Johnson, Gooding & Tarrier, 2008) have highlighted the roles of negative appraisals and perceptions of defeat, entrapment, and hopelessness, as key psychological drivers for suicidal thoughts and behaviours. The overarching aim of this thesis was to investigate the psychological mechanisms that underlie suicidal thoughts and behaviours amongst prisoners. A corollary aim was to examine the psychological factors that may confer resilience to suicidal thoughts and behaviours amongst incarcerated individuals.

Firstly, a comprehensive narrative review examined evidence of the applicability of current theoretical approaches to suicide, as applied to prisoner samples. The findings of this review highlighted gaps in the literature, from which a number of research questions were developed for investigation in the current thesis. Next, three empirical studies were designed to investigate the roles of perceptions of defeat, entrapment, hopelessness, and negative appraisals in suicidal ideation. In the first of these studies, cross-sectional evidence was obtained that perceptions of internal entrapment and hopelessness were predictive of suicidal ideation amongst prisoners (Chapter 4). In a second study, the predictive effects of defeat, hopelessness, and entrapment were examined in a longitudinal investigation, finding no significant longitudinal relationship (Chapter 7). In a further empirical study, support was provided for the role of momentary negative appraisals of the present and future as proximal predictors of the severity of suicidal thoughts (Chapter 5). Two further studies examined the role of impulsiveness in suicidality, and provided evidence for the deleterious effect of impulsiveness upon both suicidal ideation (Chapter 8) and self-harm ideation (Chapter 9) in prisoners.

Two further studies provided the first theoretically driven investigations of potential resilience factors, conceptualized as positive self-appraisals, within a prisoner sample. Based on the Schematic Appraisals Model of Suicide (SAMS), it was proposed that positive self-appraisals would confer resilience against suicidal thoughts and behaviours. Two studies investigated this hypothesis. The first of these studies found that, contrary to predictions, positive self-appraisals of social support and social reciprocity did not buffer the impact of negative situational appraisals upon suicidal thoughts (Chapter 5). In the second study, evidence was obtained for a buffering effect of positive self-appraisals upon suicidal thoughts. In particular, positive appraisals of interpersonal problem-solving were found to buffer the effects of internal entrapment on suicidal thoughts (Chapter 6).

Overall, the findings of this thesis serve to further our understanding of the psychological processes underlying the development of, and resilience to, suicidality amongst prisoners. These results underscore the need to empirically examine the applicability and transferability of psychological models of suicide within prisoner populations. Theoretical and clinical implications of these findings are outlined throughout the thesis.
DECLARATION

No portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.
COPYRIGHT STATEMENT

i. The author of this thesis (including any appendices and/or schedules to this thesis) owns certain copyright or related rights in it (the “Copyright”) and s/he has given The University of Manchester certain rights to use such Copyright, including for administrative purposes.

ii. Copies of this thesis, either in full or in extracts and whether in hard or electronic copy, may be made only in accordance with the Copyright, Designs and Patents Act 1988 (as amended) and regulations issued under it or, where appropriate, in accordance with licensing agreements which the University has from time to time. This page must form part of any such copies made.

iii. The ownership of certain Copyright, patents, designs, trade marks and other intellectual property (the “Intellectual Property”) and any reproductions of copyright works in the thesis, for example graphs and tables (“Reproductions”), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property and/or Reproductions.

iv. Further information on the conditions under which disclosure, publication and commercialisation of this thesis, the Copyright and any Intellectual Property and/or Reproductions described in it may take place is available in the University IP Policy (see http://documents.manchester.ac.uk/DocuInfo.aspx?DocID=487), in any relevant Thesis restriction declarations deposited in the University Library, The University Library’s regulations (see http://www.manchester.ac.uk/library/aboutus/regulations) and in The University’s policy on Presentation of Theses.
DEDICATION

For those who have been affected by suicide in prison.
ACKNOWLEDGEMENTS

I am sincerely grateful to a number of people who have helped me in various ways throughout the course of my study, and without whom this work would not have been possible.

First, I would like to thank my supervisors, Dr. Trish Gooding and Dr. Daniel Pratt, for their academic input, advice, and for giving me this opportunity. Their ongoing support and encouragement has been invaluable in helping me to complete this work. Thank you to Prof. Nick Tarrier for his feedback and guidance, and to my advisor, Prof. Alison Wearden, for her support throughout. Thanks also to Dr. Richard Emsley for his statistical advice pertaining to Chapters 5, 8, and 9 of this thesis, and to Yvonne Awenat and the PROSPeR Service User Reference Group for their valuable guidance regarding data collection.

I wish to express my deepest gratitude to all of the individuals who generously offered their time, energy, and experience to participate in this research. This work could not have been completed without them. I also wish to thank the prison staff of the host establishment for their help and humour throughout my data collection. Thanks to Dr. Naomi Humber, for helping me to navigate the complexities of prison research, and for offering a listening ear when needed. Thanks also to my office mates, Anna, Aisha, and Karmepaul, for helping to keep my spirits up, even in times of stress.

I wish to say a huge thank you to my family, without whom I could not possibly have completed this thesis. I would like to thank my parents, Cheryl and Tom Sheehy, and my sister, Sophie, for their unconditional support and encouragement in all that I do. Finally, I would like to say a big thank you to my partner, James, for his love, support, and patience, and for reminding me that it will all be worth it in the end.
LIST OF COMMON ABBREVIATIONS

ACCT = Assessment, Care in Custody and Teamwork

BDI = Beck Depression Inventory

BHS = Beck Hopelessness Scale

BPRS = Brief Psychiatric Rating Scale

BSS = Beck Scale for Suicidal Ideation

COP = Cry of Pain

EMA = Ecological Momentary Assessment

ESM = Experience Sampling Methodology

IMV = Integrated Motivational Volitional model

IPT = Interpersonal Psychological Theory

MLM = Multi Level Modeling

SAMS = Schematic Appraisals Model of Suicide
CHAPTER 1

1. Introduction

This introductory chapter aims to provide an overview of the prevalence and complexity of suicidal thoughts and behaviours. The burden of suicide in general and specifically within prisoner populations is considered, and definitional issues surrounding suicide research are outlined. This chapter concludes with an overview of the rationale, contents and structure of this thesis.

1.1. The problem and complexity of suicide

1.1.1. Definitions of suicide

The way in which suicide is defined has major implications for its study. Issues surrounding classification and definition are encountered frequently by those wishing to empirically examine the phenomenon of suicide, and its related constructs. Within the context of suicide research, the specific definitions used are likely to have potentially far-reaching consequences in terms of research design, conduct, and subsequent findings. As such, the conclusions that may be drawn from empirical investigations will depend largely upon the definition that is used.

Definitions and classifications of suicide are known to vary by country, which may lead to some unreliability in international comparisons of official suicide data. For example, in the UK, suicide is defined as ‘deaths given an underlying cause of intentional self-harm, or injury/poisoning of undetermined intent’ (Samaritans, 2015). In contrast, the Republic of Ireland does not include deaths classified as of ‘undetermined intent’ in official suicide statistics (Samaritans, 2015). Whilst these differences between countries may impact upon cross-national comparisons of suicides statistics, it is estimated that these
definitional differences causes less than 10% of the variation in suicide rates (Öhberg, 1998). Therefore, these issues should not prevent comparisons being made between countries, but this limitation should be considered in the interpretation of data.

Within the suicidology literature, further variances in the definition of suicide can be seen. Perhaps one of the most frequently quoted definitions used within the field of suicide research, comes from Durkheim (1897, p110), who defined suicide as;

“The termination of an individual’s life resulting directly or indirectly from a positive or negative act of the victim himself which he knows will produce the fatal result”

That said, this definition has been criticized for its assumption regarding the depth of knowledge possessed by an individual about the extent of injuries that may be sustained following a suicidal act, as indicated by the phrase “which he knows will produce the fatal result” (Baechler, 1980). It is argued that this assumption cannot be made in all cases of suicide. It is clear that the definition of suicide remains a complex issue.

A further issue is presented in the definition and classification of suicidal or self-injurious thoughts, intentions, and behaviours, which do not result in suicide deaths (Silverman, 2011). According to Silverman (2011), the lack of a uniform set of terms or definitions for the range of thoughts and behaviours that are related to self-injury, presents a particular challenge for suicide researchers. At present, there is no agreed taxonomy regarding what constitutes suicide behavior (Silverman, 2011). Consequently, significant variations exist in how suicidal and self-injurious ideations and behaviours are defined. These differences must therefore be considered in the interpretation of empirical findings.
1.1.2. The burden of suicide

Globally, it is indicated that around 800,000 people die by suicide each year (World Health Organisation, 2015). In 2012, 1.4% of all deaths worldwide were the result of suicide, with this being the second leading cause of mortality among 15-29 year olds (World Health Organisation, 2015). In 2012, across 28 European union countries, the suicide death rate was recorded as 11.7 per 100,000 (Eurostat, 2015), and in the UK the rate was 7.2 per 100,000. Suicide rates for 2013 were quoted for the US as 13.0 per 100,000 (CDC, 2015), which exceeds European figures. In a cross-national study of 17 countries, 84,850 adults were interviewed regarding their experiences of suicidality. Results indicated a cross-national lifetime prevalence of suicidal ideation, plans, and suicide attempts of 9.2%, 3.1%, and 2.7% respectively (Nock et al., 2008).

There is some evidence that suicide death rates may be underestimated or underreported across a number of countries (Reynders, Scheerder & van Audenhove, 2011), with estimates of the degree of underreporting said to range from 10-50% (Jobes, Berman & Josselson, 1987; Litman, 1980). It is proposed that such underestimations are observed in countries where there are high levels of undetermined or unclassified deaths (Varnik et al., 2010). Furthermore, issues surrounding the stigma of suicide may also lead to its underreporting (De Leo et al., 2010), particularly within certain population groups. As Williams (2001; p18) highlights, the term ‘suicide’ is a legal one and so the true number of suicide deaths, particularly in the young, where there may be a reluctance to give a verdict of suicide, may be considerably higher than is reported.

There is now increasing evidence to suggest that the impact of a suicide death extends far beyond the deceased individual (Grad, 2011), with an estimated 6-10 individuals bereaved by every suicide death (Bland, 1994). Family members bereaved by suicide have been found to experience a range of negative outcomes, including increased depression,
loneliness, and physical health difficulties (De Groot, De Keijser & Neeleman, 2006). Moreover, experiences of suicidal thoughts and behaviours are not uncommon among individuals bereaved by suicide deaths (Pitman, Osborn, King & Erlangsen, 2014; Zhang & Zhou, 2011). Furthermore, there is evidence to suggest that these adverse outcomes extend to the relatives of individuals who attempt suicide (Kjellin & Ostman, 2005). Qualitative differences in the experience of suicide bereavement, as compared to other types of bereavement, have been reported (Grad, 2011), with empirical findings highlighting the particular effects of stigmatization, guilt and shame (Feigelman, Gorman & Jordan, 2009; Grad & Zavasnik, 1997; Grad, 2011). Additionally, professionals who experience the death of a client by suicide, may also experience the personal impact of grief (Darden & Rutter, 2011).

1.1.3. The suicide continuum

It has been proposed that suicidality exists on a continuum, encompassing suicidal thoughts, plans, and behaviours (Johnson, Gooding & Tarrier, 2008; O’Connor & Armitage, 2003; Sveticic & De Leo, 2012; Tarrier et al., 2013). Within this framework, suicide deaths may be viewed as the end point of a spectrum of increasingly severe suicidality, in which suicidal thoughts and behaviours increase the risk of eventual death by suicide. The continuum approach suggests that an individual’s suicide risk has the capacity to change over time, thus moving along the suicide spectrum. This idea is in contrast with the view posited by some, that individuals who attempt suicide and individuals who die by suicide constitute distinct population groups (Beautrais, 2001). That said, there is little evidence to support this claim. Evidence to support the continuum approach comes from the robust empirical finding that previous suicidal behaviour is one of the strongest predictors for both subsequent suicidal behaviour (Beghi & Rosenbaum,
2010; Joiner et al., 2005; Oquendo et al., 2004) and suicide deaths (Phillips et al., 2002; Suominen et al., 2004). Consistent with this, the presence of, and changes in, suicidal ideation are known to heighten the risk of future suicidal behavior (Prinstein et al. 2008), in particular where this suicidal ideation is severe and frequent (Miranda, Ortin, Scott & Schaffer, 2014).

The continuum view of suicidality offers two important advantages for the identification and treatment of suicidal thoughts, plans and acts. First, the continuum approach acknowledges the central role of suicidal thoughts in the trajectory towards suicidal behaviours. This method of focusing on less severe forms of suicidality, namely suicidal ideation, may aid in the early detection of individuals who may be at increased risk for future suicidal behaviour, and thus prevent acts of suicide. This is of particular relevance given that the risk of attempted suicide is at its highest in the year following the onset of suicidal ideation (Nock et al., 2008), suggesting a potentially rapid transition along the suicide continuum, at least for some individuals. Suicide prevention strategies and interventions that target the onset of suicidal thoughts have been advocated (Tarrier et al., 2013; van Spijker, van Straten & Kerkhof, 2010). This is especially important given that suicidal ideation is often accompanied by significant psychological distress, and is an important clinical target itself (Tarrier et al., 2013).

Second, the continuum view is supported by, and consistent with, recent theoretical accounts of suicidality (Johnson, Gooding & Tarrier, 2008; Williams, Crane, Barnhofer & Duggan 2005), which posit that suicidality emerges from the development and activation of suicide related schema (Tarrier et al., 2007). Suicide schema is defined as a network of interconnecting stimulus, response, and emotional information which, when activated, triggers thoughts of suicide (Johnson et al., 2008; Tarrier et al., 2007). These theories suggest that suicidogenic information i.e., thoughts and beliefs about suicide, is
incorporated into a suicide schema over time through the repeated experience of suicidal ideation together with associated emotional states. Each time the suicide schema is accessed or triggered, further information is incorporated into the network (Teasdale, 1988). The more elaborate the suicide schema becomes, the more often it will subsequently be activated. Consequently, the schema becomes associated with a wider range of contexts and affective states the more frequently it is activated. When similar contexts occur again the suicide schema is triggered and the risk of death by suicide is increased (Pratt, Gooding, Johnson, Taylor & Tarrier, 2010; Williams et al., 2005). These proposed developmental pathways to suicide are consistent with the view that suicidal thoughts, behaviours, and suicide deaths exist on a continuum. However, it should be noted that measuring suicide schema is difficult. That said, recent advances have been made in the measurement of suicide schema, and have provided preliminary support for the assertion that individuals with more extensive experience of suicidal thoughts and behaviours, evidence more elaborate suicide schema (Panagioti, Gooding, Pratt & Tarrier, 2015; Pratt et al., 2010).

1.2. Suicide in prisons

1.2.1. Prison populations worldwide

It is estimated that there are more than 10.2 million people incarcerated worldwide, with a global imprisonment rate of 144 per 100,000 individuals (Walmsley, 2013). Rates of imprisonment vary considerably between regions, with the highest imprisonment rate found in the United States of America (716 per 100,000 citizens). In contrast, rates of less than 150 per 100,000 are observed in over half of countries worldwide (Walmsley, 2013). In England and Wales, approximately 85,000 individuals are incarcerated at present
(Ministry of Justice, 2015a). The relevance of suicide and suicidal behaviour to the prisoner population will now be considered.

1.2.2. Defining suicide and suicidal behaviour in prison

In England and Wales, the term ‘self-inflicted death’ is used by the Prison Service to refer to all suicide deaths, or suspected suicide deaths, amongst prison inmates (Ministry of Justice, 2015b). The term self-inflicted death is applied where a death has resulted from non-natural causes, which appear to be the direct result of actions by the individual concerned, irrespective of intent (Ministry of Justice, 2015b; Snow, Paton, Oram & Teers, 2002). Though early studies of prisoner suicide relied heavily upon a coroner’s verdict of suicide being given (Towl & Crighton, 1998), more recently the prison service of England and Wales has broadened its classification of self-inflicted deaths to include coroner’s verdicts of suicide, open verdicts, deaths by misadventure, and accidental deaths (Snow & McHugh, 2000). A similarly broad approach has been adopted to the recording of self-injurious behaviour, in which the term ‘self-harm’ is used to refer to any incident in which a prisoner has deliberately harmed themselves, regardless of intent, method, or of the severity of any injury (Ministry of Justice, 2015b). This definition encompasses the range of self-injurious behaviours, which include, but are not exclusive to, those with suicidal intent. As such, routinely recorded figures pertaining to rates of suicidal behaviours and attempts, as differentiated from self-injury without suicidal intent, are unavailable.

1.2.3. The prevalence of suicide and suicidal behaviour in prisons

1.2.3.1. Suicide deaths

Death by suicide is the leading cause of mortality amongst prisoners, accounting for around half of all prison deaths (Fazel & Baillargeon, 2011). Rates of suicide deaths
amongst prisoners are estimated to be between three and eight times higher than in the general population (Fazel, Grann, Kling & Hawton, 2011). In a study of prisoner suicide across 12 countries, suicide rates amongst those incarcerated were found to be consistently higher as compared with general population statistics, although there was considerable variability across nations (Fazel et al., 2011). The highest rate of prison suicide was seen in Denmark, at 147 suicide deaths per 100,000 prisoners. In comparison, Australia was found to have the lowest prison suicide rate, at 58 suicide deaths per 100,000 prisoners (Fazel et al., 2011). In England and Wales, a suicide rate of 107 per 100,000 prisoners was recorded. Male prisoners were more than six times more likely to die by suicide than males in the general population (Fazel et al., 2011). Furthermore, rates of suicide death amongst female prisoners were vastly increased, with female prisoners 35 times more likely to die by suicide than females in the general population (Fazel et al., 2011). The reduction of suicide in prisoners forms a key objective in a number of national suicide prevention strategies, including the UK (Department of Health, 2012) and the US (US Department of Health and Human Services, 2012), highlighting the scale of the problem.

In the years between 2004 and 2011, rates of self-inflicted deaths among prisoners in England and Wales declined considerably, from 96 self-inflicted deaths in 2004, to 58 in 2011 (Ministry of Justice, 2015b). An exception to this trend was observed in 2007, when 91 prisoners died by suicide, following an unexpected increase in suicide deaths amongst foreign national prisoners (Borrill & Taylor, 2009). Since 2011, there has been an upturn in rates of self-inflicted death amongst prisoners in England and Wales. In the 12 months from April 2013 to March 2014, rates of self-inflicted death reached a peak compared to 2007, with a total of 84 self-inflicted deaths recorded. Recent figures suggest a decline over the past year, with 76 self-inflicted deaths recorded in the 12 months prior to March
2015 (Ministry of Justice, 2015b). However, it should be noted that a further 11 deaths were recorded as ‘unclassified’ at this time, awaiting further information.

### 1.2.3.2. Suicidal ideation and behaviour

There have been only a few studies which have documented the prevalence of suicidal thoughts and suicidal behaviours/attempts in prisoner samples. In a study of 996 prison inmates in New South Wales, Australia, lifetime rates of suicidal ideation and attempted suicide were examined (Larney, Topp, Indig, O’Driscoll & Greenberg, 2012). This study found high levels of lifetime suicidality within those sampled, with a third of prisoners reporting suicide ideation, and a fifth of prisoners having attempted suicide (Larney et al., 2012). Similarly, in a national study of prisoners in England and Wales, Jenkins et al. (2005) found that 40% of male prisoners and 55% of female prisoners had experienced suicidal thoughts in their lifetime, compared with around 14% of men and 4% of women in the general population. Moreover, suicide attempts were common within prisoner samples, with between 20-27% of male prisoners, and 37-43% of female prisoners having made a previous suicide attempt (Jenkins et al., 2005). Again, this was much higher than the community-based sample, where 3.6 % of males and 5.6% of females reported attempting suicide (Jenkins et al., 2005).

Over the last decade, rates of prisoner self-harm in England and Wales have fluctuated between 23,000 and 27,000 incidents per year (Ministry of Justice, 2015b). In this time, the number of self-harm incidents requiring hospital attendance has increased year on year. Furthermore, significant gender differences have been observed. Specifically, whilst there has been a substantial reduction in the incidence of female self-harm, from 13,361 incidents in 2005, to 6,780 in 2014, the opposite has been observed for male prisoners, increasing from 10,420 incidents in 2005, to 18,995 in 2014 (Ministry of Justice, 2015b).
As detailed earlier, the proportion of self-harm incidents with suicidal intent cannot be determined from this data. However, the increased prevalence of self-harm incidents requiring hospital admission may be indicative of increasingly severe indices of self-harming behavior. The high prevalence of suicide related thoughts and behaviours in prisoner populations underscore the need to further examine the mechanisms that underlie suicidal thoughts and behaviours in prisoners.

1.3. Overview of thesis

The overarching aim of the current thesis was to examine the psychological mechanisms that underlie suicidal thoughts and behaviours amongst prisoners. The secondary aim of this thesis was to investigate the presence of psychological resilience factors to suicidal thoughts and behaviours in prison inmates. In Chapter 2, a discussion of the methodological considerations, relevant to the subsequent thesis chapters, is provided. The third chapter of the thesis presents a narrative review, which summarises the existing literature pertaining to the relationships between theoretically derived psychological concepts and suicidal thoughts and behaviours, among those imprisoned. The subsequent chapters sought to examine a number of research questions, generated in response to gaps in the existing literature. Within the subsequent chapters, six empirical investigations are presented to address these research questions.

The first empirical investigation is presented in Chapter 4, and examined the roles of key psychological variables (Williams, 1997; Johnson et al., 2008), namely, perceptions of defeat, hopelessness, and entrapment, in predicting suicidal ideation in a sample of male prisoners. It was hypothesized that higher levels of hopelessness, defeat, and entrapment, would be associated with more severe suicidal ideation, and that these effects would remain after controlling for levels of depression, anxiety, and general psychopathology. In
a corollary aim, the differential effects of internal entrapment versus external entrapment upon suicidal thoughts were investigated. Chapter 5 sought to build upon the evidence presented in Chapter 4, to examine the roles of specific situational and self-appraisals in suicidal and self-harm ideation. Situational appraisals, or judgments, about the individuals past, present, and future were assessed, alongside self-appraisals of social reciprocity and social support. A novel, experience sampling methodology was used to elucidate the effects of these appraisals upon thoughts of suicide and self-harm, as experienced ‘in the moment’. Two overarching hypotheses were tested. First, that negative situational appraisals of the past, present and future, would predict the severity of suicidal and self-harm ideation, and second, that positive self-appraisals would buffer the impact of negative situational appraisals on suicidal and self-harm ideation, thus conferring resilience.

Following this, Chapter 6 presents a further investigation of potential resilience factors, conceptualised as positive self-appraisals, using a cross-sectional methodology. Three types of positive self-appraisal were assessed in addition to a measure of overall resilience. These were, appraisals of emotional coping ability, personal problem-solving, and social support. It was predicted that overall resilience would buffer the impact of psychological risk variables upon suicidal thoughts. In Chapter 7, the hypothesis was tested that perceptions of entrapment, defeat, and hopelessness would predict suicidal ideation. A short-term longitudinal, questionnaire design is presented, to determine the extent to which these core psychological variables predict future suicidal thoughts.

In Chapter 8, the relationship between impulsiveness and suicidal ideation is examined, and the role of affect as a moderator of this relationship is investigated. An experience sampling investigation is presented to examine the relationships between variables in real-time, and within the context of participants’ daily lives. Specifically, it was predicted that higher levels of impulsiveness would be associated with greater suicidal
ideation. In addition, interaction effects were examined to test the exploratory hypothesis that negative affect would amplify the effect of impulsiveness on suicidal ideation, whilst positive affect would protect against the effect of impulsiveness. In an extension of this, Chapter 9 further investigates the interactions between impulsiveness, positive affect, and negative affect, this time in relation to thoughts of self-harm. Three key predictions were made, which were tested using an experience sampling methodology. First, that higher impulsiveness would be predictive of more self-harm ideation. Second, that higher negative affect and lesser positive affect would be predictive of more self-harm ideation. And third, that greater negative affect would act to augment the relationship between impulsiveness and self-harm ideation, whilst positive affect would buffer against the effect of impulsiveness, protecting against self-harm ideation. By examining the effects of impulsiveness and affect, and the interactions between these, upon both suicidal ideation (Chapter 8) and self-harm ideation (Chapter 9), it was anticipated that the presence of any differential effects in the mechanisms underlying suicidal ideation as compared with self-harm ideation would be identified. In all empirical chapters, samples comprised male prison inmates, who had been identified as at increased risk for suicide.

The final chapter (Chapter 10) provides an overview and general discussion of the thesis findings. The theoretical and clinical implications stemming from these findings are discussed, and the limitations of the research are reviewed. Finally, directions for future research are proposed.

1.4. Note on collaboration and published material

The option of the alternative format thesis offered by the University of Manchester was used in the production of this thesis. The alternative format allows for the incorporation of empirical chapters presented in a format suitable for publication in a peer-
reviewed journal. The alternative format was considered appropriate for this thesis as it allowed for sections of the thesis to be submitted for publication during the course of the PhD. As such, Chapter 5 (Psychological processes in suicidal ideation: an ecological momentary assessment study of prison inmates) has been reviewed by Psychiatry Research, and has been resubmitted following revision. Chapter 4 (Predicting suicidal ideation amongst prisoners at risk of suicide: examining the roles of hopelessness, entrapment, and defeat) has been reviewed by Behaviour Research and Therapy, and is currently being revised for resubmission to this journal. The remaining empirical chapters (Chapters 6, 7, 8 and 9) have been written in a style and format that is suitable for submission to a peer-reviewed journal, and these will be submitted in due course.

The author collaborated with a number of other individuals in the completion of the research presented in this thesis. The author’s supervisory team, Dr. Patricia Gooding and Dr. Daniel Pratt, contributed to the research questions, design and write-up, and as such are recognized as co-authors. Dr. Richard Emsley is recognized as a co-author in Chapters 5, 8 and 9 for his assistance and feedback on the statistical analyses and contribution to the write-up of these chapters. Prof. Nick Tarrier was a co-supervisor to the author before leaving the University of Manchester in 2011. He is therefore recognized as a co-author in all empirical chapters, for his contribution to the research questions and write-up of the empirical chapters.

The recruitment of participants and data collection was solely the work of the author (Chapters 4 to 9). All analyses were undertaken exclusively by the author, with assistance and feedback provided by the supervisory team and co-authors. The write-up of the research presented in this thesis was undertaken solely by the author of this thesis, with contributions by the supervisory team and co-authors given in terms of feedback on drafts and ideas.
CHAPTER 2

2. Methodological Considerations

The methodologies employed in this thesis are described within each of the empirical chapters (Chapter 4 to Chapter 9). The current chapter aims to discuss and evaluate some of the methodological considerations that were beyond the scope of the empirical papers contained in this thesis. The aims of this chapter are threefold: i) to provide an overview of the recruitment procedures and the research designs used across the studies, ii) to discuss the choice of specific measures, and iii) to describe some of the lesser known statistical methods that were used to test the hypotheses of this research.

2.1. Research designs

The first methodological issue to consider concerns the research designs selected to examine the psychological mechanisms that underlie suicidal thoughts and behaviours in prisoners. Within this thesis, the data presented has been collected using three distinct, yet related, research designs. In Chapters 4 and 6, participants’ data was collected cross-sectionally at a single time-point in order to examine the relationships between the theoretically derived psychological factors and levels of suicidal ideation. In Chapter 7, a longitudinal research design was used to examine the predictive effects of key variables upon suicidal thoughts over a longitudinal period. Within this study, data was collected at two time points approximately four weeks apart. This timeframe was selected in order to allow for changes over time to occur, whilst also maximizing the retention of participants over the study period. The third research design was based upon an experience sampling methodology, which made use of a micro-longitudinal research design (Palmier-Claus et al., 2011) in which the experiences of prisoners at risk of suicide were examined over a
period of six consecutive days. A naturalistic assessment of all variables was, therefore, a predominant feature of each of the research designs selected.

Whilst an experimental research design may have aided in the extraction of causal mechanisms (Barker, Pistrang & Elliot, 2002), there are clear ethical issues related to the experimental manipulation of suicidality and its related affective components. This is especially important given that the participants recruited for the research presented in this thesis were approached upon the basis that they were currently, or had recently been, identified as at risk of suicide or self-harm (Chapters 4 to 9). Furthermore, the mechanisms underlying suicidal cognitions are not assumed to develop in such brief time periods, thus the use of experimental induction is likely to be of limited utility. Instead, research designs that allowed for the examination of the severity, frequency, and variability of the cognitive and affective states as experienced by participants were deemed to be more appropriate. Whilst cross-sectional and longitudinal naturalistic designs are commonplace in mental health research, the experience sampling methodology is somewhat lesser known and so is further discussed below.

### 2.1.1. An introduction to Experience Sampling Methodology (ESM)

#### 2.1.1.1. What is ESM?

The Experience Sampling Method (ESM), also known as Ecological Momentary Assessment (EMA)\(^1\), is a research procedure which aims to capture individuals’ daily experiences in real-time (Csikszentmihalyi & Larson, 1987; Shiffman, Stone & Huffard, 2008). Specifically, ESM involves a form of repeated self-assessment in which participants’ complete ambulant measures relating to the research variables of interest,

---

\(^1\) In the current thesis, the term Experience Sampling Methodology (ESM) is predominantly used. However, the term Ecological Momentary Assessment (EMA) is used in Chapters 5 and 9, in accord with the preferences of target academic journals.
such as their thoughts, emotions, behaviours, and social interactions, over a specified period of time and within a naturalistic setting.

ESM designs may take a number of different forms, with variations in the scheduling and temporal coverage of assessments (Shiffman et al., 2008). Three types of sampling, or scheduling, are commonly used, these are i) event-based ii) signal-based, and iii) time-based recording. In event-based approaches, information is recorded during or following a specified event, such as a specific eating behaviour (Stein & Corte, 2003) or social interaction (Côté & Moskowitz, 1998). This method is used when the researcher wishes to collect information pertaining only to the pre-specified event or behaviour, and, as such, it does not aim to be representative of an individual’s whole experience. In signal-based approaches, participants are prompted (i.e., signaled) to complete assessments at a fixed number of times each day, on a random or pseudorandom schedule. An advantage of this method is that prompts cannot be anticipated by participants, hence, expectancy effects are avoided (Palmier-Claus et al., 2011). In contrast with event-based recording, the signal contingent approach aims to obtain random ‘snapshots’ of participants’ everyday experiences. Finally, time-based approaches utilize a specific assessment schedule, in which participants complete measures at pre-specified times, or intervals (also known as interval-contingent recording). Time-based recording is particularly advantageous where the researcher wishes to sample a range of experiences, but in which signal-based recording is inappropriate, or unfeasible (Humber, Emsley, Pratt & Tarrier, 2013). The decision as to which of the above approaches to use should be informed by the study aims and research question.

In all ESM approaches, participants undergo an extensive briefing procedure as part of the general ESM protocol. The purpose of this is to ensure that participants adhere as closely as possible with the sampling schedule, and to allow participant to become
familiar with the types of items and method of recording. Once the ESM assessment period has begun, participants may be contacted to ensure that participants have not encountered any problems (Palmier-Claus et al., 2011). Finally, a debriefing session is held with participants following data collection, in which participant compliance and any difficulties experienced with the procedure may be reviewed.

### 2.1.1.2. Advantages of using ESM

In recent years, ESM has been increasingly used within mental health research to investigate the factors and experiences associated with a range of psychological difficulties, including psychosis (Myin-Germeys et al., 2003), depression (Bylsma, Taylor & Rottenberg, 2011), anxiety (Kashdan & Steger, 2006), and personality difficulties (Links et al., 2007). ESM is of particular use within this field due to the need to examine internal psychological experiences, such as cognition and emotion. Whilst these phenomena are typically investigated using self-report, questionnaire-based assessments, these measures do have limitations. In particular, such measures often require participants to report upon their experiences retrospectively, and to summarise or aggregate their experiences over a specified period of time, e.g., one week, into a single response. This raises two main issues. First, the recollection of experiences over time may be affected by biases in retrospective recall (Redelmeier & Kahneman, 1996) and autobiographical memory (Wang, 2001), thus impacting upon the accuracy of participant’ self-reports. Second, the aggregation of participants’ experiences in to one global, or ‘average’ measure, may result in the loss of potentially important information regarding within-person differences (Conner, Tennen, Fleeson & Barrett, 2009). ESM offers a valuable tool in which the impact of these potential issues may be minimized, as detailed below.
A key advantage of ESM is that participants’ complete assessments ‘in the moment’, providing information about their thoughts, feelings, or behaviours, in real-time. As such, the potential influence of biases in memory is significantly reduced (Shiffman et al., 2008). This is of particular benefit for research concerning the investigation of depression-related processes, due the associated biases in recall (Dalgleish & Watts, 1990). Moreover, biases in autobiographical memory have been observed amongst individuals hospitalized with suicidal behaviour (Williams & Broadbent, 1986), suggesting that ESM may be a useful research tool for the investigation of suicidal thoughts and the psychological mechanisms underlying these.

A further benefit of ESM concerns the use of multiple and repeated assessment, which acknowledges the potential variability in participants experiences. In contrast with global self-report measures, ESM methods allow for the examination of within-person, as well as between-person, variables (Barrett & Barrett, 2001). Consequently, ESM studies may overcome the limitation of aggregated self-report measures by accounting for within-person differences that occur over time. Thus, patterns in affect, cognition, and behaviour, which may be masked in traditional self-report measures, can be identified by the repeated assessments of ESM (Conner et al., 2009; Scollon, Kim-Prieto & Diener, 2003). In addition, this method of repeated assessment allows the temporal relationships between variables to be examined and the impact of variability, e.g., affective variability, to be assessed (Conner et al., 2009; Palmier-Claus, Taylor, Gooding, Dunn & Lewis, 2012).

Finally, in ESM research, assessments are completed within the context of daily life, and within the participants’ own environment. Thus, the potential influence of a researcher, and research setting, e.g., a university, upon participants’ responses is reduced. Hence, ESM provides an ecologically valid means of studying everyday experiences (Trull & Ebner-Priemer, 2009). Furthermore, ESM may be used to gather information about
participants’ environment, routines, and social exchanges, and the interactions of these with cognitive and affective processes (Myin-Germeys, Nicolson & Delespaul, 2001).

For the purpose of current thesis, ESM based methods allowed for the investigation of ‘in the moment’ cognitive and affective processes, and their relationships with thoughts of suicide and self-harm, within a vulnerable population. This allowed for a real-time depiction of the factors contributing to suicidal thoughts within this group. Moreover, the completion of measures within a naturalistic setting, i.e., the prison environment, offers good ecological validity. This was of particular significance within the current thesis given the potentially atypical research setting.

2.1.1.3. Difficulties associated with ESM

The advantages of ESM have been discussed above, however, there is need to consider some of the potential difficulties associated with the use of ESM approaches. The first issue to consider is related to the often intensive assessment procedure, in which completion of the assessments requires significant effort on the part of the participant. Whilst the specific burden to participants will depend on the sampling procedure of an individual study, this typically requires the participant to i) keep the ESM recording device with them throughout the assessment period, ii) remember to complete assessments several times per day, and iii) hand-in the recording device and meet with a researcher on at least two occasions (for assessment/briefing and debriefing). Resultantly, these factors may lead to increased rates of drop-out amongst participants (Barrett & Barrett, 2001). Alternatively, it has been suggested that ESM studies may attract a certain type of participant, who is particularly motivated or amenable, thus leading to potential sampling biases (Scollon et al., 2003).
A second point worthy of discussion relates to the issue of ‘reactivity’ within ESM studies, i.e., the extent to which the ESM procedure itself may impact upon participants’ responses (Scollon et al., 2003; Shiffman et al., 2008). Although ESM aims to capture participants’ experiences, as they would normally occur, there is a danger that the repeated assessment of ESM may impact upon the experiences under examination. For example, it is plausible that the ESM procedure could increase participants’ awareness of their own internal states and patterns within their experiences, which may subsequently be altered, either intentionally or otherwise. To date, there have been surprisingly few attempts to examine the issue of reactivity in ESM. However, at least two studies conducted within the field of pain research (Cruise, Broderick, Porter, Kaell & Stone, 1996; Stone et al., 2003) have shown that participants’ responses to ESM items remained constant over time, thus suggesting no reactivity effects.

A final issue to consider relates to the use of self-report assessments in ESM. Although ESM is advantageous due to its ability to capture experiences as they occur, within a naturalistic setting, ESM does still predominantly rely upon the use of self-report assessment. Consequently, some of the general limitations associated with the use of self-report measures, such as cognitive biases, social desirability, and the impact of cultural norms, may apply also to ESM (Conner et al., 2009; Scollon et al., 2003). That said, the issue of social desirability might, to some extent, be reduced, as ESM measures are completed in the absence of a researcher. Furthermore, given that ESM is often used to assess subjective experiences, such as participants’ thoughts, affect, and subjective experiences, self-report measures remain the most appropriate method for this purpose.
2.1.1.4. An overview of different ESM methods

A further issue relates to the different methods or materials used in the collection of ESM data. Traditionally, participants were provided with a paper diary to complete either in response to a particular event (event-based), at a scheduled time (time-based), or when prompted by a signaling device (signal-based), such as a digital wristwatch, PDA or mobile phone (Palmier-Claus et al., 2011). Over the past decade, advances in the usability and availability of mobile technology have led to an increasing amount of ESM studies utilizing electronic methods of data recording, including, most recently, the use of smartphones (Ainsworth et al., 2013; Palmier-Claus et al., 2014).

The use of computerized methods had been advocated due to the ability to verify participant compliance with the ESM procedure. For example, in a study with chronic pain patients, results suggested that compliance rates were significantly higher for participants using electronic diaries, as compared with those using paper diaries (Stone, Shiffman, Schwartz, Broderick & Hufford, 2003). In contrast, the results of another comparison study found that the two methods, i.e., electronic and paper-based, yielded largely equivalent results (Green, Rafaeli, Bolger, Shrout & Reis, 2006). As such, whilst electronic recording methods offer the added advantage of providing verifiable information regarding compliance, this must be weighed up against the factors such as the practicality and expense of using electronic devices.

2.1.1.5. The assessment of suicidal thoughts and behaviours using ESM

Findings from a number of empirical studies have highlighted the potentially variable and fluctuating nature of suicidal thoughts and intentions (Handley et al., 2013; Witte, Fitzpatrick, Joiner & Schmidt, 2005). Evidence suggests that whilst some individuals may experience suicidal ideation on a continuous, and stable, basis over a given period of time,
for the most part, suicidal thoughts are experienced intermittently (Handley et al., 2013), and with variable levels of severity (Selby & Yen, 2014). Hence, the assessment of suicidal thoughts and behaviours should adequately account for, and assess, these characteristics. It is suggested that ESM may provide a valuable tool for the assessment of suicidal thoughts and their related cognitive and affective experiences (Husky et al., 2014; Spangenberg, Forkmann & Glaesmer, 2015).

To date, ESM has been used to examine real-time predictors of suicidal ideation and self-injurious thoughts amongst individuals with borderline personality difficulties (Links et al., 2007; Nisenbaum et al., 2010), hospitalized depressed adults (Ben-Zeev et al., 2012), and individuals diagnosed with, or at risk of developing, psychosis (Palmier-Claus et al., 2012; Palmier-Claus et al., 2014). These investigations have shed light on the specific cognitive, affective, and environmental factors that precede suicidal thoughts and behaviours in their respective samples. Furthermore, in a study by Husky and colleagues (2014), issues related to the feasibility and acceptability of ESM approaches to suicide research were explored. The results suggested that the method was both feasible and acceptable to participants, as reflected by satisfactory participation rates and high levels of compliance. Importantly, the study also investigated the issue of reactivity, and whether the repeated assessment of suicidal thoughts would negatively impact upon participant well-being. The findings demonstrated that suicidal ideation was not reactive to the duration of the study, indicating that the repeated assessment of suicidal thoughts was not detrimental in terms of increased negative thoughts or suicidal ideation (Husky et al., 2014). In sum, the evidence to date suggests that ESM approaches to the investigation of suicide are generally experienced as acceptable to participants, and may be usefully applied to the exploration of suicidal ideation and its proximal predictors.
2.1.1.6. Using ESM in prison settings

Despite its growing use with a range of clinical and non-clinical groups, the use of ESM based methods with incarcerated samples remains a novel approach to research with this population. During the design phase of the ESM studies presented in this thesis (Chapters 5, 8, and 9), there were no published studies of ESM research within prison or jail settings. Since this time, two studies have adopted experience sampling methods in their research with incarcerated samples (Humber et al., 2013; Pihet, De Ridder & Suter, 2015). The methodological approaches of these two studies are now outlined.

In the first study, Humber et al. (2013) used ESM with a sample of 21 adult male prisoners in the UK, to investigate the relationships between anger, psychological distress, and thoughts of self-harm. Assessments were recorded using paper and pen, and a time contingent assessment schedule was utilized, with assessments completed at fixed time points, up to six times per day over six consecutive days. Within this study, ESM assessment completion rates were good, with participants on average completing over two thirds of assessments during the study period (Humber et al., 2013). Furthermore, participants were asked to indicate the extent to which filling in the diary had affected their mood, in order to assess the potential impact of the ESM procedure upon participants’ responses. The results indicated that the ESM procedure itself had little impact upon responses, and was not perceived as overly intrusive, thus suggesting good ecological validity (Humber et al., 2013). The authors of the study note that a number of adaptations were required in order to adapt the ESM procedure to the prison setting, namely, the use of a fixed assessment schedule and paper-based recording. Nonetheless, the results of the study demonstrate that ESM is feasible and may be appropriately utilized within prison settings.
The second study, conducted by Pihet et al. (2015), used ESM with a sample of incarcerated juvenile offenders in Switzerland. The primary aim of the study was to assess the feasibility and reliability of the ESM procedure within a juvenile offender sample. To achieve this, participants completed measures of anti-social behavior, negative affect, and fear of punishment, on a handheld computer over an eight-day assessment period. ESM assessments were completed daily at four fixed time points, which were designed to span the duration of the day whilst minimizing the potential disruption to participants’ regimes (Pihet et al., 2015). The study reported excellent participation rates, with 95% of eligible individuals agreeing to participate, although around a quarter of these subsequently dropped out. Moreover, a comparison of data collected by participants’ and staff members within the establishments, indicted no significant reactivity or lack of objectivity in participants’ responses (Pihet et al., 2015). It is noteworthy that participants in this study received a financial incentive for their participation, which may have contributed to the high participation rates observed.

Together, the studies from Humber et al. (2013) and Pihet et al. (2015) demonstrate that ESM approaches can be feasibly applied to shed light on the daily cognitive, affective, and behavioural experiences, of those who are imprisoned. Whilst there were differences in the specific methodologies of the two studies, e.g., the use of paper-based versus computerized recording, both were shown to be acceptable to participants, and to provide data that was high in ecological validity. As demonstrated by these studies, for ESM to be used within prison settings, it is likely that the methodology will need to be adapted to make it both feasible and accessible. The extent to which adaptations are required will be dependent upon a number of factors, such as the type of establishment, the level of security restriction, and the specific characteristics of the sample. Nevertheless, ESM can be seen to offer a potentially valuable tool within the field of prison research.
2.1.2. Specific methodological issues in the ESM studies of this thesis

The above sections have provided an overview of ESM, including the advantages, difficulties, and methodological issues associated with this approach. These considerations were subsequently taken in account during the design and implementation of ESM studies with the current thesis (Chapters 5, 8, and 9); the details of which are outlined below. In particular, this sections deals with some of the specific methodological issues encountered in adapting ESM for use with prisoners at risk of suicide, within a high-security setting.

2.1.2.1. Design of ESM diary items

The momentary assessment of ESM data collection means that the amount of questions that may be asked at each time point is limited. Hence, constructs that are typically assessed over much longer questionnaires are condensed down into only a few items. For this reason, ESM items must be carefully developed, to ensure that they are clear, valid, and will allow sufficient variability in their endorsement over the assessment period.

Within the current thesis, care was taken in the development of ESM items as used in Chapters 5, 8, and 9. Items were developed in line with research aims, and were designed to capture the key aspects of the psychological constructs under assessment. Items were developed and subsequently revised a number of times following discussions with the authors supervisory team and wider research group. In particular, issues related to the clarity and readability of the items, the potential to capture variation over the sampling period, and the assessment of an ‘in the moment’ (rather that general) experience, were considered. The items were then reviewed by members of a Service User Reference Group, including two male and two female ex-offenders, who each had personal experience of both imprisonment and of suicidal thoughts and behaviours. This led to a change in the
measurement scale of the ESM items, from a 7-point likert scale, to a 10-point likert scale, which was felt would more familiar and acceptable for a prisoner sample. Comments were also provided on the general layout of the ESM diary, which were adapted accordingly.

Following this, the ESM diary underwent a process of piloting. In the first instance, a non-clinical pilot sample of five participants was recruited via a convenience sample to complete the diary measure. The first two participants completed the diary measure for six consecutive days as would be the case for the main study. In response to advice given by members of the Experience Sampling Methodology group at the University of Manchester, the remaining three participants completed the diary measure for three consecutive days, as this was deemed suitable for the purposes of the pilot data collection. No issues were raised during this pilot period, although items related to suicidal thoughts and impulsiveness were endorsed at a low rate. This was, to some extent, to be expected given the use of a non-clinical sample.

Following this, the ESM diary was then piloted with a sample of three adult, male prisoners, recruited from the host establishment. All participants were managed under the ACCT system at the time of participation. Participants completed the ESM diary up to six times per day, over three consecutive days. Following the assessment period, feedback was gathered from pilot participants regarding the ESM procedure. No issues were raised at this time, and subsequently, no further changes were made prior to the main study. An excerpt from the final ESM diary measure can be found in the appendices (see Appendix I).

In addition to the quantitative items included in the ESM diary, a qualitative component was also included within each diary entry. Within this section, participants were able to provide qualitative information about their everyday experiences, and related thoughts and feelings, since their last diary entry (see Appendix I). This section of the
diary was included for two reasons. First, to provide supplementary information regarding the lived experience of prisoners at risk of suicide or self-harm, and second, as a contingency plan in the event of recruitment difficulties or high dropout rates. As recruitment to the research was successful, providing sufficient quantitative data for analysis, the analysis of the qualitative component was beyond the scope of the current thesis. However, there were plans for this data to be analysed separately.

2.1.2.2. Equipment, assessment schedule, and briefing

As detailed above, ESM research may be conducted using a variety of approaches and recording procedures, which may require adaptation for use within a prison setting. For the ESM studies presented in this thesis (Chapters 5, 8 and 9), the methods used were tailored to the specific requirements of the host prison establishment. These adaptations, and the rationale underpinning them, are now described. The first issue concerns choice of equipment. Due to security restrictions within the prison setting, it was not permitted to provide participants with any form of signaling device, to prompt participants to complete the ESM measure. As such, the study was designed to enable participants to complete the ESM measure without use of a prompting device. This meant that time points could no longer be random, but instead had to be pre-specified and provided to participants during the briefing procedure. This presented another challenge in that by providing participants with a list of times at which to complete the diary, participants were required to remember without cues the time at which to complete each diary entry. Furthermore, it could not be guaranteed that participants would always have access to the time. In order to resolve these issues, it was decided that time points should be tied to regular routines during the prison day, which would act as cues for participants to complete their diaries.
These event-related time points had to be sufficiently general so as to be appropriate for any area within the prison, such as ordinary location wings, vulnerable prisoner wings, and healthcare units, as differences of regime within the same prison can occur, i.e., on different prison wings. It was, therefore, decided that diary completion would be tied to events spanning the duration of the day, such as, waking up and meal times, in order to make these applicable to any potential participants. The consequence of this decision was that the time points selected might only have sampled certain daily experiences and their associated contexts. That said, this was deemed to be an acceptable limitation given the potential value of ESM in terms of collecting ecologically valid data regarding participants’ everyday experiences, and their relation to suicidal thoughts.

A final point concerns the briefing of participants in the ESM procedure. Due to the methodological intricacy associated with ESM, and the potentially significant participant effort required, the briefing of participants constitutes a vital part of the general ESM procedure (Palmier-Claus et al., 2011). Consequently, a detailed briefing protocol was put in place to ensure that participants were sufficiently informed about the requirements of the ESM procedure, in order to maximize the validity of the data collected. A full guide to the briefing protocol can be seen in Appendix II, which outlines the content of the briefing session and provides a checklist of items to be covered in all briefing sessions.

2.1.2.3. Monitoring of suicide risk information

The ESM studies presented in this thesis (Chapters 5, 8, and 9) involved the repeated assessment of participants’ thoughts and feelings, including suicidal cognitions, within a sample of prisoners identified as at risk of suicide. Consequently, procedures had to be put in place to ensure that over the six-day assessment period, any information indicative of increased suicide risk was appropriately monitored and promptly acted up. As such,
participants were seen by the researcher on each day of the study in order to i) collect the completed ESM diary of the previous day, ii) check with participants how they were finding participating in the study, and iii) identify any potential risk issues arising within the ESM diary measure. Each time a completed ESM diary was collected, the researcher read this immediately. Where the measure contained information indicative of cause for concern, this was first discussed with the participant to ascertain the level of suicidal thoughts, plans, or intentions, and to discuss any further actions required. Where further action was required, standard procedures, as detailed in Section 2.5.2, were followed. These procedures were agreed with the host prison site and were approved via the appropriate Research Ethics Committee.

2.2. Participants and Recruitment Strategy

Each of the empirical chapters contained in this thesis (Chapters 4 to 9) comprises a section detailing the participant group and recruitment procedure utilized for each study. However, as this thesis has been constructed in the alternative, paper-based format offered by the University of Manchester, it has sometimes been necessary to limit the detail provided regarding procedures for recruitment. The current section, therefore, aims to provide a detailed description of these procedures used for the recruitment of prisoner samples for all empirical chapters contained in this thesis.

The recruitment of participants from prisoner samples was completed in two phases. The first of these phases lasted for nine months (January 2012 – September 2012), during which time a total of 219 prisoners were identified as having been managed under the ACCT system within the past three months. Of these 219 prisoners, 74 (34%) had been released or transferred, 2 (1%) were deceased, 1 (1%) was transferred to a secure psychiatric unit, 8 (4%) were non-English speaking, and 12 (5%) were identified by prison
staff as posing a current risk of violence to the researcher. Of the remaining 122 prisoners that were eligible for participation, 65 were approached, opportunistically, to participate. Of these, 51 prisoners consented to participate and were recruited into the research. The participants recruited during this phase comprised the samples for three of the empirical chapters (Chapters 5, 8, and 9). The second recruitment phase was completed over a period of 17 months (April 2013 – August 2014). During this time, a total of 319 prisoners were identified as having been managed under the ACCT system within the past three months. Of these 319 prisoners, 21 (7%) were non-English speaking, 5 (2%) were deemed unable to provide informed consent, and 25 (8%) were identified by prison staff as posing a current risk of violence to the researcher. A further 33 (10%) were ineligible for participation as they had less than one month of a sentence left to serve. Of the remaining 235 prisoners that were eligible to participate, 76 were approached, opportunistically, regarding participation. Of these, a total of 65 participants were recruited; these participants comprised the samples for a further two empirical chapters (Chapters 6 and 7). Finally, a subsection of the data collected across both recruitment phases was combined, providing a final sample of 101 participants, and is presented in Chapter 4. Table 1 displays the number of individuals who were recruited in each study and the number of participants upon which analyses were based.

In all recruitment phases, the participants recruited were adult, male prisoners currently residing in a local, high-security prison in the North West of England. Previous research in England and Wales has identified that the majority of suicide deaths in prison occur in adult, male, local prisons (National Confidential Inquiry into Suicide and Homicide by People with Mental Illness, 2011, 2013; Towl & Crighton, 1998). As such, this was considered to be an appropriate setting within which to conduct the empirical research presented in this thesis. Across all studies, participants were required to have been
managed under the Assessment Care in Custody and Teamwork (ACCT) system (Ministry of Justice, 2013s) either at the time of recruitment, or during the three months prior to this. The ACCT system is the care-planning system currently used by HM Prison Service in England and Wales to identify and care for prisoners at risk of suicide or self-harm (Ministry of Justice, 2013a). In addition to this requirement, a basic set of inclusion criteria was applied to all prisoner participants and was designed to optimize recruitment rates. In all studies and phases of recruitment, participants were required to meet the following inclusion criteria of being i) male ii) aged 18-65 years, iii) English speaking, iv) able to provide informed consent, and v) not posing a current risk of violence to the researcher. Additional inclusion criteria were applied to the different recruitment phases, according to the research aims. Details of these additional criteria are provided below.

As described above, a primary inclusion criteria for the empirical studies presented in this thesis was that participants were managed under ACCT system either at the time of recruitment, or during the three months preceding this. This recruitment strategy was selected in order to maximize the potential identification of participants with recent experiences of suicidal thoughts and behaviours. A three-month window was selected in order to increase recruitment potential whilst ensuring that participants’ experiences of the ACCT system, and the factors associated with this, were within a reasonable temporal proximity to the research study interview and assessment period. However, the recruitment of participants based upon the ACCT system does raise an important methodological issue regarding the validity of the ACCT system as an indicator of suicide risk. This issue will now be explored further.

In a recent study by Humber et al. (2013), a case-control methodology was used to investigate risk factors for suicide deaths amongst prisoners in England and Wales. The study found that prisoners who died by suicide were more than nine times more likely to
have been identified and managed as at-risk of suicide or self-harm during the prison term, as compared with control participants. In a separate case-control study of near-lethal suicide attempts in female prisoners, 88% of participants with a near-lethal suicide attempt had been on an open ACCT document at the time of the incident (Marzano, Fazel, Rivlin & Hawton, 2010), suggesting that levels of heightened risk had been identified in the majority of cases. That said, there is evidence to suggest that not all suicide deaths amongst prisoners are accompanied by an open ACCT document (or previously an F2052SH) at the time of the incident (Humber et al., 2013), and there remains the potential for individuals who are at risk, to be missed by the system. For example, the results of a case-control study of near-lethal suicide attempts in male prisoners, found that only 40% of those who attempted suicide had been on an open ACCT document at the time of the suicide attempt (Rivlin, Hawton, Marzano & Fazel, 2010). Nonetheless, within the context of the current thesis, the identification of potential participants via the ACCT document was used primarily to maximize the recruitment of individuals with recent experiences of suicidality.

That said, alternative recruitment strategies utilizing a clinical measure of current suicidal ideation as the basis for participant inclusion, were also considered. This included using a measure of current suicidal ideation to screen a large, random sample of prisoners from within the host prison establishment. Those participants who scored above a predetermined clinical cutoff score for current suicidal ideation would then be invited to participate in the main research studies. A potential advantage of this approach relates to the use of an objective measure of suicidal thoughts and behaviours in determining suitability to participate. Furthermore, participants reporting no current suicidal ideation would be screened out prior to participation. However, results from previous research utilizing a random sampling approach suggest that around three-quarters of general population prisoners, in a local prison establishment, report no current suicidal ideation
(Slade & Edelmann, 2014). Consequently, the use of an initial screening measure would likely identify the vast majority of randomly sampled prisoners as reporting no suicidal ideation, and thus ineligible for participation. Hence, a large number of individuals would be required to undergo an initial screening assessment, in order to identify enough eligible participants for the main research studies. Within the current research, the use of the ACCT system as a primary recruitment strategy was felt to be appropriate as a means by which participants with recent experience of suicidality may be identified. This approach would also be less labour intensive. Finally, the findings of Humber et al. (2013) highlight the significantly heightened levels of suicide deaths amongst prisoners identified and managed at at-risk of suicide or self-harm. As such, this was felt to be an appropriate recruitment strategy in line with the research aims.
Table 1: *Number of individuals recruited across the six empirical chapters presented in the current thesis.*

<table>
<thead>
<tr>
<th></th>
<th>Chapter 4</th>
<th>Chapter 5</th>
<th>Chapter 6</th>
<th>Chapter 7</th>
<th>Chapter 8</th>
<th>Chapter 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants</td>
<td>144</td>
<td>65</td>
<td>76</td>
<td>76</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>approached (N)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of participants</td>
<td>118</td>
<td>51</td>
<td>65</td>
<td>59</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>recruited in to study (N)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of participants</td>
<td>17</td>
<td>9</td>
<td>6</td>
<td>12</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>excluded from analysis (N)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of</td>
<td>101</td>
<td>42</td>
<td>59</td>
<td>47</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>participants included in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>analysis (N)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.2.1. First recruitment phase

The first recruitment phase provided the samples for the ESM studies presented in Chapters 5, 8, and 9. Here, participant recruitment was conducted according to the basic inclusion criteria as set out above. In addition, individuals were also required to be in possession of sufficient literacy levels to complete the ESM diary measure unaided. In order to recruit participants, leaflets were first distributed to staff at the host site and information was provided in person about the research study and the eligibility criteria of participants. Potential participants meeting the inclusion criteria were first identified by prison staff and subsequently approached to establish whether they were willing to be contacted by the researcher (KS). Individuals who expressed an interest in the study and provided verbal consent to be contacted, were subsequently visited by the researcher. Following this initial contact, individuals who remained interested in participating were provided with a Participant Information Sheet (see Appendix III) and participation was scheduled at least 24 hours later, as per ethical guidelines, allowing individuals time to consider whether or not they wished to participate.

2.2.2. Second Recruitment Phase

For the second recruitment phase, in addition to the standard eligibility criteria set out above, an additional criterion were that participants should be expected to remain in the establishment for at least one month. This was due to the longitudinal aspect of Study 7, in which participants completed measures at two time points, approximately four week apart. Consequently, individuals with less than one month remaining in custody were not eligible to participate. As in the first recruitment phase, the recruitment of participants was conducted firstly with leaflets distributed to staff at the host site and information provided about the research study and the eligibility criteria of participants. Potential participants meeting the inclusion criteria were identified by prison staff and subsequently approached
to establish whether they were willing to be contacted by the researcher. Individuals who expressed an interest in the study, and provided verbal consent to be contacted, were visited by the researcher (KS). Following this initial contact, individuals who remained interested in participating were provided with a Participant Information Sheet (see Appendix IV) and participation was scheduled at least 24 hours later.

As HM Prison Service does not support the payment of prisoners (monetary or otherwise) taking part in research whilst resident in prison (Hayes, Lennox & Senior, 2010; HM Prison Service, 2010), the individuals recruited in all prisoner samples received no payment or other incentive for their participation in any of the research presented in this thesis. However, it was agreed, in conjunction with the host prison establishment, that participants would receive payment as usual, if research appointments clashed with other work or education activities. The strategy employed in each recruitment phase is now described.

2.3. Choice of measures

The third methodological consideration concerns the choice of measures employed to examine some of the key predictor and outcomes variables assessed within this thesis. The current section provides a discussion and critical evaluation of the chosen measures, which include suicidal ideation, defeat, and entrapment.

2.3.1. Measuring suicidal thoughts and behaviours

The examination of participants’ suicidal thoughts and behaviours was a fundamental aim of this thesis, and constituted the main outcome measure in all empirical chapters (Chapter 4 to 9). Suicidal ideation, rather than suicidal behaviour, was selected as an appropriate outcome measure for two main reasons. First, the continuum approach to
suicide recognizes the key role of suicidal thoughts in the trajectory towards suicidal behaviour and suicide deaths. As such, a focus on the earlier stages of the continuum, namely suicidal ideation, may have benefits for the early identification of individuals at risk of future suicidal behaviour. Second, it has been argued that suicidal ideation is itself an appropriate target for clinical intervention, as it is often accompanied by significant psychological distress (Tarrier et al., 2013). Nonetheless, a recognized limitation of this approach concerns the inability to draw firm conclusions regarding the mechanisms that underlie suicidal behaviour, as opposed to suicidal ideation. Despite this, suicidal ideation was felt to be an appropriate outcome variable within the current thesis, in order to first establish the key factors implicated in suicidality amongst prisoners.

Throughout this thesis (Chapters 4, 6, and 7), the Beck Scale for Suicidal Ideation (BSS; Beck & Steer, 1991; see Appendix V) was used to measure current suicidal thoughts and historical suicidal behaviour. The BSS is a 21-item self-report measure of suicidal ideation, planning and intent. For each item, participants are required to select the response, from a selection of three, which best describes how they have been feeling over the past week. The first 19 items are rated on a 3-point scale, ranging from 0 to 2. Responses are then summed to yield a total score, which ranges from 0 to 38. No specific clinical cut-off for suicide risk is provided for the BSS. Individual items assess characteristics, such as wish to die, desire to make an active or passive suicide attempt, and amount of actual preparation for a contemplated attempt. Two final items assess historical suicidal behaviour, consisting of the number of previous suicide attempts and the perceived seriousness of the intent to die associated with the last attempt, where applicable.

The BSS was deemed appropriate for the specific purposes of this thesis for the following four reasons. First, the BSS provides a measure of both current suicidal ideation and past suicidal behaviour. Whilst analyses were conducted in relation only to current
suicidal ideation, information concerning participants’ previous suicidal behaviour was used to characterize the study samples. Second, the BSS is reported to have a high degree of internal consistency, with alpha coefficients ranging from .87 to .97 (Beck, Steer & Ranieri, 1988; Beck & Steer, 1991; Steer, Kumar & Beck, 1993). The measure has also recently been found to display excellent internal consistency within a sample of adult, male prisoners (Mandracchia & Smith, 2015). As such, this measure was deemed to be more appropriate than the suicidal ideation subscale scale of the Depression, Hopelessness, and Suicide Screening form (DHS; Mills & Kroner, 2004) which has been shown to display much lower levels of internal consistency (alpha coefficient = .66) amongst prisoners (Slade, 2011). Third, the BSS has been widely used amongst male prison populations (Eidhin, Sheehy, O’Sullivan & McLeavey, 2002; Mandracchia & Smith, 2015; Palmer & Connelly, 2005; Pratt et al., 2015; Senior et al., 2007; Way, Kaufman, Knoll & Chlebowski, 2013; Zhang, Grabiner, Zhou & Li, 2010). Consequently, comparisons with previous research may be made with greater ease and accuracy. Finally, the BSS assesses a number of aspects of suicidal ideation, which are reflective of different stages of the suicide continuum, i.e., ideation, planning, and intention. It therefore has the potential to be more sensitive to variability between participants than shorter measures, such as the four item Suicidal Behaviour Questionnaire – Revised (Osman et al., 2001). This is particularly important when assessing suicide-related thoughts and behaviours, which may be susceptible to issues such as floor effects and skewed data. The use of a measure with the potential to detect variability, such as the BSS, can help to minimize such effects.

2.3.2. Measuring defeat and entrapment

Perceptions of defeat and entrapment are considered to be key predictors of suicidal thoughts and behaviours across a number of contemporary psychological models of suicide
Furthermore, empirical evidence from a range of clinical and non-clinical samples is accumulating for the roles of defeat and entrapment as proximal predictors of suicidal thoughts and behaviours (Panagioti et al., 2012; Taylor et al, 2010a; 2010b). As discussed in Chapter 1, the investigation of psychological variables, including defeat and entrapment, constitutes a primary goal of this thesis (Chapters 4, 6, and 7). In the current thesis, perceptions of defeat and entrapment were measured using two self-report measures, the Defeat and Entrapment Scales (Gilbert & Allan, 1998; see Appendix VI and VII). The Defeat and Entrapment scales (Gilbert & Allan, 1998) each consist of 16 self-report items that provide an assessment of generalized perceptions of defeat and entrapment respectively. These two measures were selected for use in the current thesis as they are the most widely validated, and frequently used, measures of defeat and entrapment in the extant literature (Taylor, Gooding, Wood & Tarrier, 2011). For example, the measures have been found to display a high level of internal consistency across both clinical and non-clinical samples (e.g., Cronbach’s alpha of .93 to .94 for defeat, .86 to .93 for internal entrapment, and .88 to .89 for external entrapment) (Gilbert & Allan, 1998).

In addition to the Defeat and Entrapment Scales (Gilbert and Allan, 1998), which were selected for use within the current thesis, a number of other self-report measures assessing perceptions of defeat and entrapment have been developed. Measures such as the Mental Defeat during Trauma Scale (Dunmore, Clark, & Ehlers, 1999), the Personal Beliefs about Illness Questionnaire (Birchwood, Mason, Macmillan & Healy, 1993), and the Caregiver’s Entrapment Scale (Martin, Gilbert, McEwan & Irons, 2006) each assess perceptions of defeat and entrapment, in relation to a specific experience, e.g. trauma, psychosis, and caregiving, respectively. Resultantly, these measures were not appropriate for use within the prisoner samples recruited throughout this thesis. In contrast, the Defeat
and Entrapment Scales developed by Gilbert and Allan (1998), provide an assessment of non-specific, generalized defeat and entrapment perceptions, i.e., not in relation to any specific experience or event. Consequently, these measures were deemed to be the most appropriate for use within the current thesis, in order to investigate perceptions of defeat and entrapment amongst prisoners. Furthermore, two studies have examined perceptions of defeat and entrapment amongst prisoners to date (Slade & Edelmann, 2014; Slade, Edelmann, Worrall & Bray, 2014). In both of these studies, the Defeat and Entrapment Scales (Gilbert & Allan, 1998) were used, and were shown to display high levels of internal consistency within a sample of adult, male prisoners (e.g. Cronbach’s alpha of .93 for defeat, .89 for internal entrapment, and .85 for external entrapment) (Slade et al., 2014). Taken together, these findings suggest that the Defeat and Entrapment Scales (Gilbert & Allan, 1998) were the most appropriate measures of defeat and entrapment within the context of the current thesis.

2.3.3. Measuring hopelessness

Hopelessness is defined as pessimistic thoughts and negative expectations of the future (Beck, Weissman, Lester, & Trexler, 1974), and has been identified as a robust risk factor for suicide (Hawton & van Heeringen, 2009). Within prisoner populations, hopelessness has been shown to correlate with the severity of suicidal thoughts and behaviours (Chapman, Specht & Cellucci, 2005; Ivanoff & Jang, 1991; Palmer & Connelly, 2005). Consequently, the assessment of hopelessness within prisoners at risk of suicide was considered central to the aims of the current work, and was examined within four of the empirical chapters (Chapters 4, 5, 6, and 7). In this thesis, perceptions of hopelessness were measured with a widely utilized self-report measure, the Beck Hopelessness Scale (BHS; Beck et al., 1974). The BHS is a 20-item measure of
hopelessness cognitions and beliefs occurring in the past seven days. Items are rated ‘true’ or ‘false’, and total scores range from 0-20, with higher scores indicative of greater levels of hopelessness (Beck et al., 1974).

The BHS was selected for use in this thesis for two mains reasons. First, the BHS has been shown to be psychometrically sound in a range of clinical and non-clinical samples (Beck et al., 1974; Steed, 2001). In particular, the measure has been shown to display high levels of internal consistency within clinical samples (Beck et al., 1974; Young, Halper, Clark, Scheftner & Fawcett, 1992). Moreover, this finding was recently replicated with a sample of prisoners at risk of suicide (Gooding et al., 2015), where an alpha coefficient of .93 was observed. Second, the measure has been widely used within prisoner samples (Biggam & Power, 1999; Gooding et al., 2015; Humber et al., 2013; Palmer & Connelly, 2005; Pratt et al., 2015; Senior et al., 2007), thus increasing the ease with which results may be compared.

2.3.4. Measuring psychiatric symptomatology

Psychiatric symptomatology is associated with an increased risk for suicide in prisoners (Fazel et al., 2008; Marzano, Fazel, Rivlin & Hawton, 2010; Rivlin, Hawton, Marzano & Fazel, 2010; Singleton et al., 1998). Consequently, a measure of general psychopathology, the Brief Psychiatric Rating Scale – Expanded (BPRS-E; Lukoff et al. 1986), was included as a control variable in Chapter 4, and to characterize the sample in Chapter 8. The BPRS-E is an interviewer rated assessment of psychiatric symptoms, comprising 24 items that are rated on a 7-point scale. Items assess a broad range of symptoms, with the extended version containing items measuring symptoms of psychosis, such as hallucinations and unusual thought content. Items 1-14 are rated based upon
participant self-report, whilst items 15-24 are rated according to participants’ observed behaviour during the assessment.

The BPRS-E was selected for use in this thesis due to its past use in prisoner populations. Previous studies have utilized the BPRS-E with a range of prisoner samples, including the general prisoner population (Senior et al., 2007), newly incarcerated prisoners (Hassan et al., 2011), and those prescribed anti-psychotic medication (Gray, Bressington, Lathlean & Mills, 2008). In addition, the BPRS-E has been used in a number of studies of prisoners at risk of suicide or self-harm (Gooding et al., 2015; Humber et al., 2013; Pratt et al., 2015; Senior et al., 2007), and has been shown to display acceptable levels of reliability within this subset of prisoners (Gooding et al., 2015).

2.3.5. Measuring depression

The Beck Depression Inventory – Second Edition (BDI-II; Beck, Steer & Brown, 1996) was used as a measure of depressive symptomatology within the current work. The BDI-II is a 21-item self-report measure, with items rated on a four-point scale (0-3) to indicate participants’ experiences over the past two weeks. Items relate to a range of cognitive and somatic depressive symptoms, including feelings of guilt, self-dislike, fatigue, and irritability. Responses are summed to provide an overall score ranging from 0 to 63, with higher scores reflecting greater depressive symptoms. A series of clinical cut-offs that may be used to categorize the severity of depressive symptoms, suggest that scores of 0-13 indicate minimal depression, scores of 14-19 indicate mild depression, scores of 20-28 indicate moderate depression, and scores of 29 and above indicate severe depression (Beck et al., 1996). Within prisoner populations, an initial clinical cut off of 20 has been suggested, due to the elevated levels of depressive symptoms reported within incarcerated populations (Boothby & Durham, 1999).
Within the current thesis, the BDI-II was considered to be an appropriate measure of depressive symptoms for use within a prisoner sample. In a survey of correctional psychologists, Boothby and Clements (2000) found that the BDI-II was the most commonly used depression inventory used in clinical practice with incarcerated individuals (Boothby & Clements, 2000). Moreover, in a study by Palmer and Binks (2008), the psychometric properties of the BDI-II were examined within a UK sample of young adult male offenders. Results suggested that the BDI-II displayed good internal consistency and concurrent validity, and was an appropriate measure for use in this population (Palmer & Binks, 2008). Finally, the BDI-II has been widely used within prison based empirical research, highlighting its validity within this population (Dear, 2000; Humber et al., 2013; Larney et al., 2012; Marzano et al., 2011; Palmer & Connelly, 2005; Pratt et al., 2015). In addition, the results of the current thesis may be directly compared with the findings of other prison-based studies.

2.3.6. Difficulties associated with the use of specific measures

Within the current thesis, a series of measures were selected for use within a sample of prisoners at risk of suicidal or self-harming behavior. These measures, whilst deemed appropriate for use within the current research, were not originally developed for use within incarcerated samples. Consequently, the use of these measures amongst prisoners raises some particular issues for data collection, for example, where the interpretation of a particular questionnaire item may be impacted upon by the participant’s specific environment, i.e., the prison environment. Here, issues raised around particular problematic items are considered, and the steps taken to resolve these difficulties are outlined.
Within the current thesis, the Beck Depression Inventory – II (BDI-II; Beck et al., 1996) and the Brief Psychiatric Rating Scale – Expanded (BPRS-E; Lukoff et al., 1986) were used to assess depressive symptoms and general psychopathology, respectively. Included within these measures, items pertaining to feelings of guilt and punishment may be particularly impacted by participants’ circumstances and environment. For those who are imprisoned, questions pertaining to guilt may be interpreted within the context of the offence with which they are charged or convicted. Similarly, feelings of punishment may be particularly germane within this group. Within the BPRS-E, the assessment of suspiciousness and unusual thought content, incorporating feelings of being watched, talked about, or controlled, is, too, potentially problematic, due to the highly controlled nature of the prison setting. It was, therefore, important for the researcher to be able to decipher the extent to which these experiences reflected a clinical problem.

To address these potential issues, all assessments were completed individually with participants, with the researcher reading items aloud. This allowed the opportunity for further clarification around problematic items, and further questioning where required. For example, this enabled the researcher to explain to participants that items around feelings of guilt were not offence-focused. It also allowed for the researcher to ascertain whether feelings of suspiciousness were reflective of a potential clinical difficulty, or whether they were, in fact, grounded in the reality of the prison environment, e.g., being subject to increased monitoring via the incentives and earned privileges scheme. More broadly, it was important for the researcher to have a good understanding of the prison environment, structure, and regime, in order to effectively facilitate the above discussions with participants.
2.4. Statistical approaches

The statistical analyses that were used to test the hypotheses contained in this thesis are explained in each empirical chapter. Nevertheless, two statistical techniques, Bootstrapping and Multilevel Modeling (MLM) require some further discussion since they might be less familiar than other statistical methods. A general overview of these two techniques is provided below. Details of the power calculations used to inform the required sample sizes for the empirical studies are also provided.

2.4.1. Multilevel Modeling

Multilevel modelling (MLM) is a statistical analysis technique that is used to analyse nested, or hierarchical, data (Hox, 2002). The term, nested data, is used to describe the structure of data in which units of analysis at one level are nested within units of analysis at a higher level (Sherry & MacKinnon, 2013). As such, MLM is the most commonly used technique for the analysis of ESM data (Palmier-Claus et al., 2011). This is because the data collected in ESM research is typically comprised of repeated assessments, which are nested within individual participants (Hox, 2002). An important assumption of many traditional data analysis techniques, such as linear regression, is that observations, or assessments, are independent of one another (Field, 2005; Sherry & MacKinnon, 2013). In ESM, this assumption is often violated as observations collected within participants, or within days, are more likely to be similar, and therefore correlated, than observations between participants. Where the assumption of independence is violated, the likelihood of Type I error is increased (Sherry & MacKinnon, 2013). Consequently, traditional statistical techniques are suboptimal in the analysis of ESM data, as they fail to account for the nested data structure (Schwartz & Stone, 1998). In contrast, MLM was developed specifically for use with nested, or hierarchical, data, where assumptions of independence
are unlikely to be met (Hox, 2002). Furthermore, MLM may be used to examine more complex statistical relationships, such as mediation and moderation effects (Sherry & MacKinnon, 2013).

For data collected by ESM methods, MLM analysis offers two further advantages. First, participants with missing data may still be included in the analysis, without significant difficulties (Sherry & MacKinnon, 2013). This is particularly beneficial for ESM research, in which there is often a substantial amount of missing data (Palmier-Claus et al., 2011). The second advantage is that by accounting for the hierarchical structure of the data, MLM is able to retain the idiographic method of ESM within its approach to data analysis (Conner, Tennen, Fleeson & Barrett, 2009). In contrast, traditional analysis techniques, which fail to take account of the hierarchical data structure and consequently collapse all data in to one level of analysis, may result in the loss of valuable information (Sherry & MacKinnon, 2013).

In light of the considerations outlined, MLM was used in Chapters 5, 8 and 9 of this thesis, to examine the relationships between key variables where data was collected using an ESM approach (Csikszentmihalyi & Larson, 1987). In Chapter 5, MLM was used to examine the effects of negative situational appraisals upon suicidal and self-harm ideation. Interaction effects of situational appraisals and self-appraisals on suicidal and self-harm ideation were also examined. In Chapter 8, MLM was used to test the hypothesis that momentary impulsiveness would predict levels of suicidal ideation, and that this relationship would be moderated by positive and negative affect. Finally, in Chapter 9, the effects of impulsiveness and affect upon self-harm ideation were assessed using MLM. The interactions of impulsiveness with positive affect and negative affect, as predictors of self-harm ideation, were also investigated.
2.4.2. Bootstrapping

Bootstrapping is a non-parametric approach to statistical inference through the use of random resampling (Mooney & Duval, 1993). Bootstrapping involves a process of iteratively resampling cases (it is suggested that at least 1000 re-samples are required for statistical inferences; Mooney & Duval, 1993) from a set of observed data, to yield precise estimates of population distributions (Russell & Dean, 2000). The statistic of interest (e.g., a regression coefficient) is calculated in each subsample, producing an empirically-derived sampling distribution for that statistic. A key assumption of the bootstrap method is that this empirically-derived sampling distribution mirrors the distribution of that statistic in the population (Fox, 2008; Mooney & Duval, 1993). A particular advantage of bootstrapping is that it does not rely on, and is not restricted by, the assumptions of parametric testing (Fox, 2008; Russell & Dean, 2000), for example, the assumption normality. Despite this, bootstrapping can also be appropriately used with traditionally parametric methods, such as regression analysis (Fox, 2008).

Bootstrapping was applied in all empirical chapters of this thesis, due to the non-normal distributions of the outcome variables throughout. In Chapters 4, 6, and 7, bootstrapping was used with multiple regression to generate 95% confidence intervals for regression coefficients. Bootstrapping has also been advocated for use with smaller sample sizes, and was therefore considered to be appropriate for use within Chapters 6 and 7 of the current thesis (Chapter 6, \(n = 59\); Chapter 7, \(n = 47\)) (Mooney & Duval, 1993). In Chapters 5, 8, and 9, bootstrapping was applied to multilevel modeling (MLM) analyses of ESM data, due to the non-normal distribution of the outcome variables. The bootstrap method has previously been applied to MLM analyses of data collected using ESM (Palmier-Claus, Dodd, Tai, Emsley & Mansell, 2015; Pavlickova et al., 2013). Furthermore, the use of bootstrapping was felt to be more appropriate than data transformation, which may lead to
difficulties in the interpretation of results, and, in particular, the interpretation of confidence intervals (Bland & Altman, 1996).

2.4.3. Sample sizes and statistical power

Power calculations were conducted using G*Power to estimate the number of participants needed for the empirical studies presented in Chapters 4, 6, and 7. In Chapters 4 and 7, associations between levels of hopelessness, defeat, internal entrapment, external entrapment, and suicidal ideation were hypothesised. Anticipated effect sizes were drawn from the relevant literature, which indicated medium to large effects of the independent variables upon measures of suicidality in other populations (Siddaway, Taylor, Wood & Schulz, 2015). Effect size estimates were not available for a number of the measures within prisoner populations. For Chapter 4, an a priori power analysis indicated that for a multiple linear regression with seven predictor variables, a sample size of 95 participants would provide 95% power to identify a medium effect size ($f = 0.25$), significant at the .05 level. For Chapter 7, a power calculation indicated that for a multiple linear regression with six predictor variables, a sample size of 53 participants would provide 80% power to detect a medium to large effect size of $f = 0.30$. In Chapter 6, the interaction effects of resilience and psychological risk variables, namely, hopelessness and entrapment upon suicidal ideation were examined. A power calculation indicated that for a multiple linear regression with three predictor variables, e.g., resilience, hopelessness, and resilience*hopelessness, a sample of size of 48 participants would provide 80% power to identify a medium effect size ($f = 0.25$).

In Chapters 5, 8, and 9, multilevel modeling was used in the analysis of experience sampling data. Consultation with a statistician confirmed that there were no valid or meaningful methods by which power calculations could be conducted within multilevel
designs. Consequently, the required sample size for the ESM study was guided by, and comparable with, that of previously conducted experience sampling research (Armey et al., 2011; Hartley et al., 2014; Palmier-Claus et al., 2014).

2.5. Ethical considerations

2.5.1. Ethical approval

Prior to commencement, all studies were approved by an NHS Research Ethics Committee, which specialized in research concerning prisoners. All studies in this thesis were granted ethical approval by the Research Ethics Committee for Wales (Reference: WA/11/0002) following attendance of the author (KS), and research team, at the research ethics committee. Approvals were also gained from the relevant NHS Trust Research and Development office (Manchester Mental Health and Social Care Trust) (ref 1035), and the Ministry of Justice National Offender Management Service’s National Research Committee (reference 16-11). The Governor of the host prison establishment also provided local approval.

2.5.2. Participant distress

As the present thesis was concerned with the investigation of suicidal thoughts and behaviours, and their related constructs, the possibility for participant distress was acknowledged. Moreover, this issue was of particular relevance given that participants were recruited according to their recent experiences of suicidality or psychological distress. As such, certain safeguards were put in place in order to minimize the potential for distress. First, and prior to consent, all potential participants were provided with detailed information about what to expect from the research interviews and questionnaire measures. In particular, it was stressed that participants would be asked questions about
their experiences of suicidal thought and behaviours, and about recent thoughts and feelings. It was also emphasized that individuals would not be obliged to answer any questions that they were uncomfortable with, and that they were free to withdraw from the research at any time.

Following all research interview sessions, the researcher checked with participants how they had found the session. Furthermore, participant information sheets provided information regarding what participants should do if they felt any distress following participation. Where participant responses to questionnaire and diary measures indicated cause for concern with regards to current suicidal thoughts or behaviours, the researcher first discussed this with participants in order to establish the severity of suicidal ideation and to discuss any further actions required. Issues of risk were then communicated appropriately according to local procedures, and documented within participants ACCT’s documents. Where an individual was not managed under the ACCT system at the time of participation, an ACCT document was opened as appropriate and necessary. Finally, all risk related issues and instances requiring further action were discussed with the author’s supervisory team, which included a qualified clinical psychologist. As such, the risk management protocols employed in this research programme provide an example of good ethical practice for prison research.
CHAPTER 3

3. Understanding suicidal risk and behaviour in prisoners: a psychological perspective

3.1. Abstract

The goal of the current review was to examine the extant literature pertaining to suicidal thoughts, behaviour, and death by suicide amongst prisoners, to determine the extent to which evidence supports each of four contemporary psychological theories of suicide, namely, the Cry of Pain model (Williams, 1997), the Interpersonal Psychological Theory of suicide (Joiner, 2005), the Schematic Appraisals Model of Suicide (Johnson et al., 2008), and the Integrated Motivational Volitional model of suicidal behaviour (O’Connor, 2011a). The review also aimed to determine the extent to which the evidence highlights mechanisms that have not yet been targeted by these four theories, and to determine the most optimal directions for future research. The review found moderate levels of support for each of the four theoretical approaches examined. However, the methodological quality of a number of studies limited the conclusions that could be drawn. Based on the findings of the review, areas for future research were identified. It is suggested that further research would benefit from adopting a broader range of methodological approaches.
3.2. Introduction

Suicidal behaviour and death by suicide pose a serious problem within incarcerated populations (Forrester & Slade, 2014; Jenkins et al., 2005). Worldwide, in excess of 10 million people are imprisoned (Walmsley, 2013) and it is estimated that death by suicide accounts for approximately half of all prison deaths, making it the leading cause of mortality amongst those incarcerated (Fazel & Baillargeon, 2011). Rates of suicidal thoughts and behaviour amongst prisoners are also known to far exceed those of community-based samples (Jenkins et al., 2005). Furthermore, the experience of suicidal cognitions and behaviours is itself associated with significant psychological distress (Tarrier et al., 2013). Hence, there is a need to further understand the reasons that underlie the increased prevalence of suicidal thoughts and behaviours within prisoner populations.

To be most effective, suicide prevention requires a dual approach, which aims to target both who is at risk of suicide and the reasons underpinning this. The first approach is epidemiological, and seeks to highlight the sectors of society and population groups in which death by suicide and suicidal behaviour is particularly prevalent (Kapur et al., 2006; Webb et al., 2012). As such, suicide prevention strategies and resources may be targeted at groups where the prevalence of suicidal thoughts and behaviours is heightened, such as those who are imprisoned. The second approach is psychological, and seeks to understand the mechanisms that underlie the development and maintenance of suicidal thoughts and behaviours (Bolton et al., 2007; O'Connor & Nock, 2014; Tarrier et al., 2013). As a result, this approach may enable the identification of individuals, from broader at-risk groups, who are more likely to experience suicidal thoughts and behaviours. Within a prison context, this approach may help to understand why suicidal thoughts and behaviours have emerged for an individual at a given time, and may highlight avenues for intervention. It is
this latter approach that will be the main focus of this chapter. However, a brief overview of the literature pertaining to risk factors for suicide in prison is provided first.

3.2.1. Risk factors

The findings from empirical research have identified several epidemiological risk factors that are associated with a heightened risk for suicidal ideation, behaviour, and suicide deaths amongst those incarcerated. These risk factors relate to a range of demographic, clinical, criminological, and custodial factors, which are briefly summarised below.

3.2.1.1 Demographic

The relationship between suicidality and a number of specific, often fixed, demographic factors has identified a number of groups who appear to be at increased risk for suicide in prison. Specifically, high levels of suicidal thoughts, behaviours, and suicide deaths have been observed amongst young, white prisoners (Fazel & Benning, 2009; Fazel, Benning & Danesh, 2005; Fazel, Cartwright, Norman-Nott & Hawton, 2008; Meltzer, Jenkins, Singleton, Charlton & Yar, 1999). Although, contrastingly, the results of UK based case-control study found that non-white ethnicity was an independent risk factor for suicide death amongst prisoners (Humber, Webb, Piper, Appleby & Shaw, 2013). With regards to gender, whilst the majority of suicide deaths in prison are of males (Fazel et al., 2008), female prisoners also show a dramatically increased risk when compared to the general female population (Fazel & Benning, 2009). Being single, and having few or no educational qualifications, are also associated with an increased likelihood of engaging in suicidal behaviour amongst prisoners (Marzano, Hawton, Rivlin & Fazel, 2011; Shaw, Baker, Hunt, Moloney & Appleby, 2004).
The examination of demographic factors in relation to the suicidal thoughts and behaviours of prisoners can, however, shed little light on the identification of individuals at, or susceptible to, suicidal risk. Many of the relationships demonstrated above are somewhat unsurprising as they largely reflect the make-up of the prisoner population in general (Berman, 2011). Consequently, demographic factors have been observed to hold little predictive value in differentiating between individuals with and without suicidal behaviour, when other, non-demographic, factors are considered (Fruehwald, Matschnig, Koenig, Bauer & Frottier, 2004; Marzano et al, 2011; Winter, 2003).

3.2.1.2. Clinical

The prevalence of mental health problems in prisoners is high, with prisoners twice and four times as likely to have major depression and psychosis, respectively, than members of the general population (Fazel & Danesh, 2002; Singleton, Meltzer & Gatward, 1998). Moreover, the presence of mental health difficulties, as well as co-morbidity of difficulties, has been associated with an increased risk for suicide in prisoners (Fazel et al., 2008; Marzano, Fazel, Rivlin & Hawton, 2010; Rivlin, Hawton, Marzano & Fazel, 2010; Singleton et al., 1998). Specifically, current major depression, psychosis, and anxiety disorders have all been identified as significant predictors of near lethal suicide attempts (Rivlin et al., 2010). Recent suicidal ideation, previous suicide attempts, receiving psychotropic medication and a history of psychiatric in-patient treatment have also been identified as major risk factors for suicide in prison (Fazel et al., 2008; Marzano et al., 2010).

Whilst rates of certain personality disorders are particularly high in the prison population (Fazel & Danesh, 2002), the level of risk associated with such difficulties is somewhat unclear. Anti-social personality disorder is particularly prevalent in the prison
population, with rates approximately ten times that found in the general population (Fazel & Danesh, 2002), yet there is little evidence of this constituting a particular risk factor for suicidality in prisoners (Jenkins et al., 2004; Rivlin et al., 2010). In contrast, the presence of a personality disorder, excluding anti-social personality disorder, has been found to constitute a risk factor for suicidal thoughts and behaviours in those who are incarcerated (Jenkins et al., 2004).

Substance misuse, whilst high in the prison population as a whole (Fazel, Bains & Doll, 2006), may also increase risk of suicide. Fazel et al.’s (2008) meta-analysis of risk factors for prisoner suicide identified a history of alcohol misuse as a specific risk factor for suicide in prisoners. Current drug dependence presents as a particular risk factor for suicide within the first week of incarceration, highlighting the need to recognise the potential risks associated with substance withdrawal (Shaw, Appleby & Baker, 2003).

### 3.2.1.3. Criminological and custodial

There is some evidence to suggest that a number of specific factors associated with criminological history and the custodial environment, may be associated with an increased suicide risk amongst prisoners. Custodial status is consistently reported to be a major risk factor for suicidal thoughts and behaviour, with prisoners of remand/detainee status disproportionately represented in suicide death statistics and at risk groups (Fazel et al., 2008; Humber, Piper, Appleby, & Shaw, 2011; Humber et al., 2013; Marzano et al., 2011; Shaw et al., 2004). It has been suggested that prisoners on remand may represent a particularly complex subgroup of the prison population, due to the multitude of factors that an individual may experience during this period (Humber et al., 2013). These include, but are not limited to, adjustment to the prison environment, perceived loss of social relationships, substance withdrawal, and uncertainty regarding the judicial process.
(Humber et al., 2013). For sentenced prisoners, longer sentence lengths, i.e., those of longer than 18 months, are associated with greater suicide risk (Dooley, 1990; Topp, 1979) with a particular over-representation of suicide deaths amongst those serving life sentences (Fazel et al., 2008). The early stages of incarceration, in particular, have been identified as a time at which many suicides occur (Bogue & Power, 1995; Shaw et al., 2004), with evidence to suggest that a significant proportion of suicide deaths occurring within the first week of custody are amongst individuals with a primary diagnosis of drug dependence (Humber et al., 2011).

Being convicted of a violent or sexual offence has also been identified as a risk factor for suicide (Blaauw, Kerkhof, & Hayes, 2005; Dooley, 1990; Fruehwald et al., 2004). However, as Lloyd (1990) highlights, the relationship between offence type, sentence length and suicide is difficult to disentangle, with violent offences often attracting longer sentences. Moreover, there is evidence to suggest that custodial factors, such as, incarceration in a local or remand prison, and the occupation of a single or segregation cell, are associated with a heightened risk for suicide (Bonner, 2006; Fazel et al., 2008; Fruehwald, et al., 2004; Humber et al., 2011; Marzano et al., 2011; Towl & Crighton, 1998). Research concerning the impact of incarceration history upon prisoner suicidality has thus far produced mixed findings. Across a number of controlled studies examining suicide deaths in prison, no evidence was obtained for an effect of prior imprisonment upon suicide deaths (Fruehwald et al., 2004; Kjelsberg & Laake, 2010; Winter, 2003). In contrast, the results of a case-control study of near-lethal self-harm found that prisoners who had engaged in self-harm were more likely to have had a previous sentence than prisoners without self-harm (Marzano et al., 2011). Taken together, these results suggest that previous imprisonment may constitute a risk factor for suicidal behaviour, but not for suicide deaths in this group. Although the impact of criminological and custodial factors
highlight the need to recognise the often unique circumstances surrounding suicide in prison, many of the factors identified above are inter-related and research in prisons cannot easily control for, or manipulate, these factors, making their unique contributions difficult to establish. Furthermore, research conducted by Liebling (2005) has sought to understand, from a sociological perspective, how institutional factors such as the treatment of prisoners, may contribute to prisoner suicide at a systemic level. Findings from a mixed methods investigation indicated that a significant contribution to prisoner distress, and therefore suicide, was due to the uneven experiences of unfairness, disrespect, and poor inmate safety (Liebling, 2005). These findings underscore the need to consider not only the specific environmental, i.e., custodial, risk factors, associated with an increased risk of suicide, but to consider how these are experienced by the individual and prison population as a whole.

3.2.3. The need for a theory of suicide

Thus far, it is clear that an extensive list of epidemiological factors have been identified as associated with increased risk of suicide in the prison population. However, this approach is limited in its ability to identify risk with sufficient accuracy. The adoption of an epidemiologically based risk factor approach to suicidality will identify large groups of individuals, the majority of whom will not die by suicide (Bolton et al., 2007). A theory of suicide which identifies the specific psychological mechanisms that underpin suicidal ideation and behaviour may enable the assessment of suicide risk to be carried out with greater accuracy (Towl & Crighton, 1997). Furthermore, an understanding of the psychological mechanisms that are implicated in the development and maintenance of suicidal thoughts and behaviours, will enable the design of psychological interventions to reduce suicidality. Specifically, such interventions would target the dysfunctional
psychological processes that lead to suicidal behaviour, whilst strengthening factors which confer resilience.

3.2.4. Psychological models of suicidal behaviour

The suicide literature contains a number of theoretical accounts that seek to explain the development of suicidal thoughts, and the transition to attempted suicide, and suicide deaths. There are four contemporary theories of suicide, namely, i) the Cry of Pain model (CoP; Williams, 1997), ii), the Schematic Appraisals Model of Suicide (SAMS; Johnson, Gooding & Tarrier, 2008) iii), the Interpersonal Psychological Theory (IPT) of suicide (Joiner, 2005), and iv) the Integrated Motivational-Volitional (IMV) model of suicidal behaviour (O’Connor, 2011a). Of these, William’s Cry of Pain model (1997) was the earliest to be developed, and has since been a key driver in the development of more recent, theoretically-driven accounts of suicidality, namely the SAMS (Johnson et al., 2008) and the IMV (O’Connor, 2011a). Each theory is now considered in turn. Following this, a consideration of the overlapping and distinguishing components of the four models is discussed.

3.2.4.1. The Cry of Pain model

The Cry of Pain model (CoP; Williams, 1997) provides a transdiagnostic, biopsychosocial framework, from which the presence of suicidal thoughts, behaviours, and suicide deaths can be understood. The model draws upon the earlier conceptualization of suicide as an escape from the self, as proposed by Baumeister (1990). Consequently, the CoP expands previous ideas put forward in the ‘suicide as escape from self’ model, and integrates these with other areas of evolutionary, social, and cognitive psychology (Williams, 1997; Williams, Crane, Barnhofer & Duggan, 2005). In particular, the CoP
model draws from evolutionary theories of psychopathology, namely the social rank theory of depression (Gilbert, 2006; Sloman, Gilbert, & Hasey, 2003). Indeed, the CoP was largely developed from work with people diagnosed with unipolar depression (Williams, 1997). Central to the CoP is the importance of transdiagnostic perceptions of defeat, entrapment, and hopelessness, which comprise the core components from which suicidal thoughts and behaviours arise.

The CoP asserts that when stressful life events are interpreted by the individual as defeating or humiliating, defined in terms of lost social rank or failed struggle (Gilbert & Allan, 1998), they become vulnerable to suicidality. When this defeating event or situation is appraised as inescapable, a sense of entrapment may ensue. According to the CoP, it is this perception of entrapment, and the subsequent desire to escape from this, that provides the central driver for suicidality. Importantly, for suicidality to arise, a third component of hopelessness must also be present, such that feelings of entrapment are perceived to be enduring, and without the prospect of improvement. Finally, the CoP proposes that the transition from suicidal motivations to suicidal behaviour is dependent upon the availability of suicidal means and imitation models (Williams, 1997; see Figure 1). More recently, it has been suggested that the CoP model may be broken down in to six component parts in an attempt to describe the cognitive and social factors that are implicated in the development of suicidal thoughts and behaviours (Bolton, Gooding, Kapur, Barrowclough & Tarrier, 2007). These are: i) deficits of information processing and cognitive biases, ii) the presence of stressors (external or internal), iii) the appraisal of stressors, iv) feelings of hopelessness, defeat and entrapment, v) the absence of rescue factors, and vi) access to suicidal means and imitation models.
Figure 1: A diagrammatic illustration of the components of the Cry of Pain model (adapted from Williams, 1997)
3.2.4.2. The Schematic Appraisals Model of Suicide (SAMS)

The Schematic Appraisals Model of Suicide (SAMS; Johnson et al., 2008) was developed in extension of the CoP, to further elucidate the specific components that underlie the suicidal process. The SAMS identifies what are proposed to be the key processes underlying the development of suicidal thoughts and behaviours, and explicates further the roles of defeat and entrapment. Furthermore, the SAMS provides a framework within which resilience to suicide may be understood.

The SAMS asserts that suicidal thoughts and behaviours arise from three primary, interacting components. These are i) negative information processing- biases, ii) an appraisal system and iii) a suicide schema. (see Figure 2) The first component implicated by the SAMS suggests that negative information processing biases are particularly prevalent during two main processes, which are the encoding of information to memory and the accessing or retrieval of information pertaining to suicide. These biases in information processing are said to affect attention, memory and reasoning, and are postulated to consequently impact upon a person’s appraisal system and facilitate the expansion and elaboration of suicide schemas.

The second component of the model is an appraisal system. Appraisals are defined as evaluative judgments, which influence the way in which events and experiences are viewed (Lazarus & Folkman, 1984; Roe, Yanos & Lysaker, 2006). According to the SAMS, the appraisal system constitutes three types of situational appraisal. These are 1) appraisals of the current situation, 2) appraisals of historical factors, and 3) appraisals of the future, which together form the situational appraisal subsystem. In addition, a self-appraisal subsystem is proposed, which is said to interact with, and impact upon, appraisals of the situation. Specifically, self-appraisals of personal agency, i.e., negative self-perception, a lack of emotional resilience, and negative expectations of social interactions, as well as appraisals of the agency of others, are identified as key self-appraisals
underlying the development of suicidal thoughts and behaviours (Johnson et al., 2008). Furthermore, the SAMS specifies a framework within which resilience to suicide may be considered (Johnson et al., 2008). Within the context of the self-appraisal system, positive self-appraisals are said to buffer against suicidality in the face of risk factors or stressors (Johnson, Gooding, Wood & Tarrier, 2010a). In particular, three types of positive self-appraisals are said to relevant to suicide resilience, namely, appraisals of i) interpersonal problem-solving or coping, i) the ability to cope with emotions, and iii) social support.

Figure 2: A diagrammatic illustration of the components of the SAMS model as described in Johnson et al. (2008).
The final component of the model is the presence of a suicide schema. According to Anderson (1990), schema representations contain a number of different elements, all of which form a network of both verbal and non-verbal information, known as semantic networks. This suicide schema can therefore be thought of as a semantic network comprising various stimulus, response and emotional stored information related to suicide (Panagioti, Gooding, Pratt & Tarrier, 2015; Pratt, Gooding, Johnson, Taylor & Tarrier, 2010; Tarrier, Gooding, Gregg, Johnson & Drake, 2007). Spreading activation theories suggest that each time this suicide schema is accessed or triggered further information is incorporated into it (Teasdale, 1988). However, individuals are thought to differ in the extent to which mood alterations will activate a network (Tarrier et al., 2007; Williams, Crane, Barnhofer & Duggan, 2005). The more elaborate the network becomes, the more often it will subsequently be activated. The schema, therefore, becomes associated with a wider range of contexts and affective states the more frequently it is activated (Williams et al., 2005) and when similar contexts occur again the schema is triggered and the greater the risk of suicidal behaviour becomes (Williams et al., 2005).

3.2.4.3. The Interpersonal Psychological Theory of suicidal behaviour

The Interpersonal-Psychological Theory (IPT) of suicidal behaviour (Joiner, 2005) proposes that suicide deaths occur when, and only when, an individual possesses both the desire for suicide, and the capability to act upon this desire (Ribeiro & Joiner, 2009; see Figure 3). According to the IPT, the desire for suicide emerges when two proposed interpersonal states occur simultaneously, and persist over time. These specific interpersonal states are i) perceived burdensomeness, and ii) thwarted belongingness (Joiner, 2005). The concept of perceived burdensomeness refers to the individual’s perception of being a burden to their family, friends and/or the wider society (Joiner, 2005; Joiner et al., 2009). These perceptions are evident in the individuals belief that their death
would be positive for their significant others, who would be ‘better off’ without them (Joiner et al., 2009). The second interpersonal state, as posited by the IPT, is thwarted belongingness, also referred to as social alienation (Joiner, 2005). Thwarted belongingness refers to a perceived lack of connectedness with or alienation from others and highlights the importance of feeling integrated within, and belonging to, a valued social group (Joiner, 2005; Joiner et al., 2009). Joiner’s (2005) theory proposes that it is the concurrent experience of these two interpersonal states that gives rise to suicidal thinking.

According to the IPT (Joiner, 2005), the transition from suicidal thinking to attempted suicide is dependent upon a third component of the theory, the acquired capability for suicide (Joiner, 2005). According to the IPT, this acquired capability is obtained via the repeated exposure to, and habituation to, painful stimuli or experiences (Joiner, 2005). It is only when these three components occur simultaneously, that a suicide attempt may be made (Joiner, 2005).
Figure 3: A diagrammatic illustration of the components of the IPT model (Joiner, 2005), adapted from Van Orden et al., 2010).

3.2.4.4. The Integrated Motivational-Volitional model of suicidal behaviour

The IMV Model of suicidal behaviour is the most recently developed of the four theoretical accounts considered here (O’Connor, 2011a; 2011b). As such, the model can be seen to draw upon, and incorporate, elements of both the CoP (Williams, 1997), and Joiner’s IPT model (2005). Within the IMV model, a diathesis-stress based framework is proposed, which attempts to explain the emergence of suicidal thoughts, and crucially, the transition from suicidal thoughts to action. The IMV proposes that to engage in suicidal behaviour, an individual must pass through three specific phases of suicidality, namely, the i) Pre-motivational phase, ii) the Motivational phase, and iii) the Volitional phase. The
transition between these three phases is said to be determined by the effects of state specific moderators (O'Connor, 2011b; see Figure 4).

In the Pre-motivational phase, an interaction between the proposed diathesis, i.e., a genetic or biological predisposition, and the environment, including the impact of life events, provides the background context within which suicidality may develop. This phase also incorporates the role of specific personality traits and individual differences, which increase the propensity for suicide risk. Within the next stage, the Motivational phase, suicidal ideation is said to arise from perceptions of entrapment, which have been triggered by the experience of defeat and/or humiliation. As such, the transition from the Pre-Motivational to the Motivational phase is dependent upon the core perceptions of defeat, and subsequent entrapment, which give rise to suicidal motivations (O’Connor, 2011b). Again, the movement between the individual model components is determined by a set of state specific moderators. In final stage of the IMV, the Volitional phase, the components necessary for the individual to move from suicidal intent to behaviour are hypothesized. Again, state specific moderators, termed ‘volitional moderators’, determine this transition. These include factors such as impulsiveness, and the acquired capability for suicide, as well as access to suicidal means and imitation models (O’Connor, 2011a; 2011b).
Pre-motivational phase: background factors and triggering events

- Diathesis
- Environment
- Life events

Motivational phase: ideation/intention formation

- Defeat and humiliation
- Entrapment
- Suicidal ideation and intent

Volitional phase: behavioural enactment

- Suicidal Behaviour

- Threat to self moderators (TSM)
  e.g. Social problem-solving, coping, memory biases, ruminative processes

- Motivational moderators (MM)
  e.g. Thwarted belongingness, burdensomeness, future thoughts, goals, social support, attitudes

- Volitional moderators (VM)
  e.g. Capability, impulsivity, implementation intentions (planning), access to means, imitation (social learning)

Figure 4: A diagrammatic illustration of the components of the IMV model (O'Connor, 2011a), adapted from O'Connor, Rasmussen & Hawton (2012).
3.2.4.5. Overlapping and distinguishing features of the four models

Across the four psychological models outlined above, a number of shared and overlapping components can be identified. This is to be anticipated, given that elements of earlier models i.e., the CoP (Williams, 1997) and the IPT (Joiner, 2005), have since been refined, extended, and incorporated into later theoretical developments, namely, the SAMS (Johnson et al., 2008) and the IMV model (O’Connor, 2011a). These overlapping features are now discussed, as well as those features that distinguish the individual models.

First, the CoP and the SAMS overlap in considering negative information processing biases and suicide schema as central in the pathways to suicide. The IMV also considers the role of information processing biases as factors that determine the transition from feeling defeated, to feeling trapped. There is also significant overlap between the CoP, the SAMS, and the IMV, which converge in their predictions that perceptions of defeat, entrapment, and hopelessness are central to the emergence of suicidal motivations.

The potential role of social factors is highlighted across all four contemporary models, although the centrality of these factors, and the mechanisms by which they may increase risk, do differ. In the CoP, social support is viewed as a potential rescue factor, defined as an external source of escape (O’Connor, 2003; Williams, 1997). The CoP asserts that the individual’s perceptions of their social support, and thus their escape potential, impacts upon perceptions of entrapment to determine subsequent suicidal intent. As such, perceptions of (lack of) social support are seen to moderate the pathway from entrapment perceptions to suicidal motivations. Based on the CoP, this same mechanism has since been incorporated within the IMV model (O’Connor, 2011a), in which social support is defined as a motivational moderator, which impacts upon the transition from perceived entrapment to suicidal cognitions (O’Connor, 2011b). This proposed mechanism is in contrast with that of the SAMS, in which the appraisals of social support are key (Johnson et al., 2008). Within the SAMS framework, appraisals of social support are said to contribute within the broader context of a negative appraisal system, which increases
suicide risk in the extent to which perceptions of defeat, entrapment, and hopelessness emerge. As such, social support can be seen to operate at an earlier stage in the suicidal trajectory, than proposed by both the CoP and the IMV. Of the four theoretical models, the IPT is the only model that does not explicitly implicate the role of social support within the suicidal process. Rather, the role of social support is subsumed within the wider construct of thwarted belongingness, together with feelings of loneliness and disconnection from others (Van Orden et al., 2010). Nonetheless, the role of interpersonal factors is core within this approach (Joiner, 2005). Two key interpersonal components from the IPT, namely perceived burdensomeness and thwarted belongingness, have since been incorporated into O’Connor’s IMV model (O’Connor, 2011a), where they are conceptualized to be a further motivational moderator, determining the transition from entrapment to suicidality (O’Connor, 2011b).

One particular point of divergence across studies concerns the extent to which the individual models endeavour to explain the transition from suicidal thoughts to suicidal behaviours. The CoP highlights the potential influence of factors such as access to suicidal means and exposure to imitation models, which are purported to increase the likelihood that an individual will engage in suicidal behaviour (Williams, 1997). In contrast, the IPT specifies that the development from suicidal thoughts and intentions through to suicide attempts is dependent upon one necessary condition, i.e., the acquired capability component. It could be argued that this position, as posited by the IPT, may represent an oversimplification of the complex processes by which a person comes to enact suicidal behaviour. Indeed, the IMV model has since incorporated the above factors, from both the CoP and IPT models within its framework. Specifically, a combination of volitional moderators, including access to suicidal means, imitation models, the capability to enact lethal self-injury, and impulsiveness are said to determine the transition from suicidal
thoughts to behaviours (O’Connor, 2011b). The approach taken by the SAMS differs from that of the other models, as it does not assume a separate component or point at which suicidal thoughts may be acted upon. Instead, the SAMS highlights the key role of a developing suicide schema, which becomes more extensive, entrenched, and more easily activated over time. The more frequently the schema is activated, the more suicide related information is incorporated within it (Pratt et al., 2010; Tarrier, et al., 2007). Recent empirical findings suggest that individuals who evidence suicidal thoughts and behaviours have qualitatively different cognitive representations of suicide than individuals without suicidal thoughts and behaviours. In particular, schema representations of suicidal individuals contain more information about suicidal means and methods (Panagioti et al., 2015; Pratt et al., 2010). According to the SAMS, it is the development of this schema, in interaction with the appraisal system, which gives rise to suicidal thoughts, and eventually suicidal behaviour (Johnson et al., 2008).

A final point relates to resilience in suicidality. Of the four theoretical approaches discussed, only the SAMS offers a framework within which resilience to suicide may be understood (Johnson Gooding, Wood & Tarrier, 2010b). This is a particular strength of the SAMS model, as the examination of both risk and resilience factors, and the interaction between these, is likely to enhance the accurate identification of individuals at risk of suicide. Within the context of the IMV, factors that increase risk, such as poor social problem-solving ability and negative future thinking, are purported to be protective when considered in their inverse form. However, recent advances in the field of resilience research have highlighted the limitations of considering risk and resilience as opposite ends of the same spectrum (Johnson, Wood, Gooding, Taylor & Tarrier, 2011). It is argued that resilience is best viewed as representing a separate dimension to risk, which it interacts
with to reduce its adverse impact (Johnson et al., 2011). It is this conceptualization of resilience that is adopted in the SAMS (Johnson et al., 2010b).

3.2.5. Goals of the current review

The goal of the current review was to interrogate the literature relevant to suicidal thoughts, behaviour, and death by suicide amongst prisoners to determine i) the extent to which the evidence supports each of the four contemporary psychological theories of suicide, ii) the extent to which the evidence highlights mechanisms which have not yet been targeted by these four theories, and iii) to determine the most optimal directions for current evidence and future research, to feed into the development of psychological interventions to address suicidal thoughts and behaviours in prisoners.

3.3. Selection of Research Articles

3.3.1. Eligibility criteria for studies included in the review.

3.3.1.1. Inclusion Criteria

Inclusion criteria for both quantitative and qualitative studies in this review were as follows: 1) were either original research articles published in a peer reviewed journal or published reports from correctional facilities/governmental departments, 2) were written in English, 3) employed a sample of participants held in a correctional facility (i.e., prison or jail) incarcerated at the time of the study, regardless of sentence status (i.e., sentenced or on remand), 4) investigated at least one component of any of the four psychological models of suicide within this population in relation to suicidality and/or psychological functioning.
3.3.1.2. Exclusion Criteria

Studies were excluded from this review if they were 1) case studies, 2) conference proceedings, 3) review, commentary or discussion articles, 4) clinical descriptions, 5) unpublished theses and all other grey literature except for those stated in the inclusion criteria, or 6) published before 1980.

3.3.2. Search strategy for the identification of relevant research articles

PsycINFO (1980 to June 2015), EMBASE (1980 to June 2015), Medline (1980 to June 2015) and Web of Science (1980 to June 2015) databases were searched for relevant research articles. Keyword searches were employed utilizing the terms PRISON* or JAIL* in combination with key words indexing the individual components of the four models (see Appendix IX for list of search terms). Abstracts of each article identified were read by the first author to determine eligibility for inclusion in the review. Where this was not clear, the article was read in full. In the event that the first author (KS) was unsure about the inclusion of a paper in the review, this was to be discussed with the author's supervisory team (PG & DP). However, there were no such ambiguities. Reference lists were also examined for any additional articles the search had failed to identify. A flow diagram detailing the search progress and identification of relevant studies is shown in Figure 5.
3.4. Research Review

The research review was structured according to the components of the four models examined. All of the components reviewed have been incorporated across two or more models, which are therefore presented together to avoid duplication. Relevant literature pertaining to all but one of the model components was identified, and is subsequently discussed in the review. The only exception to this was the suicide schema component implicated by the SAMS (Johnson et al., 2008), and, to a lesser degree, the CoP (Williams, 1997). As the search failed to locate any relevant empirical evidence for the role of suicide schema, as applied to a prison or jail sample, this component is not included any further in...
of the four models considered, three of these highlight the roles of information processing biases and cognitive deficits in the development of suicidal thoughts and behaviours (Johnson et al., 2008; O'Connor, 2011a; Williams, 1997), and are subsequently considered in tandem. Both the CoP (Williams, 1997) and the IMV (O'Connor, 2011a) implicate the role of stressors in suicidal thoughts and behaviours, whilst the role of appraisals is a feature common to both the CoP (Williams, 1997) and the SAMS (Johnson et al., 2008).

Central to three of the four models, and thus considered together in this review, are the roles of perceived defeat, entrapment, and hopelessness (Johnson et al., 2008; O'Connor, 2011a; Williams, 1997). Social factors are broadly implicated across all four of the models, with social support (no rescue) featured in both the CoP (Williams, 1997) and the IMV (O'Connor, 2011a). Similarly, the role of social support appraisals is emphasized within the SAMS framework (Johnson et al., 2008). In the IPT model (Joiner, 2005), social support constitutes one aspect within a broader component of thwarted belongingness, which also includes feelings of loneliness and disconnect (Van Orden et al., 2010). Consequently, thwarted belongingness, alongside the perceived burdensomeness component, is reviewed independently of social support. Next, the role of access to suicidal means and imitation models is explored, in line with the predictions of both the CoP (Williams, 1997) and the IMV (O'Connor, 2011a). Finally, the acquired capability for suicide component is considered. This model component was originally developed in the IPT (Joiner, 2005) and later incorporated in to O'Connor's (2011a) IMV model.

Each of the above model components will now be reviewed in turn. In each section, the component under review is briefly outlined and, where relevant, is considered within the context of the general suicide literature, before moving on to provide a review of the empirical evidence as it relates to prisoner populations. The characteristics of all included
studies, in terms of sample, study location, and establishment type, are provided in Table 2. Within the table, studies are organized according to the section of the review in which they are included. Where a study is included in more than one section of the review, it is displayed in all corresponding sections of Table 2.

3.4.1. Information processing biases and cognitive deficits

A range of information processing and cognitive biases have been identified as means by which negative affect and emotional difficulties may develop and be maintained (Beck & Clark, 1988). According to the Cry of Pain model, biases in autobiographical memory are central to the development of suicidality. Specifically, the model posits that it is the over-generality of autobiographical memory, i.e., the inability to retrieve specific personal memories, which inhibits problem-solving ability. This deficit of autobiographical memory inhibits the ability to draw upon specific past experiences which could aid in the solution of current problems. Further to this, difficulties in retrieving positive memories (Williams, 1997; Williams & Broadbent, 1986) may leave an individual with an over-general, negative recollection of past events which will in turn pervade thoughts about the future.

A body of evidence has now been established from studies with community-based samples, which provides empirical support for a relationship between suicidal behaviours and memory biases. Specifically, early research demonstrated a reduced ability to recall specific autobiographical memories in patients who had recently made a suicide attempt (Williams & Broadbent, 1986). Nonetheless, the possible confounding effects of affective disorders, primarily depression, were not controlled for in this study. More recently however, Leibetseder, Rohrer, Mackinger and Fartacek (2006) observed that this over-generality in autobiographical memory was present in participants who had made a suicide attempt, but who were not diagnosed with an affective disorder, i.e. depression. Thus,
results suggested that a lack of specificity in autobiographical memory may act as a vulnerability factor for suicidality, independently of depression (Leibetseder et al., 2006).

The relationship between the generality of autobiographical memory and other cognitive deficits in the development of suicidal ideation, most notably social/interpersonal problem-solving, has also received empirical support. A number of studies have demonstrated poorer social problem-solving ability in individuals with a history of suicidal ideation or behaviour (for a review, see Pollock & Williams, 1998; Pollock & Williams, 2004; Williams, Barnhofer, Crane & Beck, 2005). For example, in a study by MacLeavey and colleagues, the social problem-solving skills of individuals who had engaged in self-poisoning behaviour were compared with that of psychiatric patients and non-psychiatric controls (MacLeavey, Daly, Murray, O’Riordan & Taylor, 1987). Results indicated that individuals in the self-poisoning group displayed greater deficits in social problem-solving, as compared with both psychiatric patients and controls (MacLeavey et al., 1987). Moreover, in a study by Pollock & Williams (2004), participants with a recent suicide attempt were less able to generate solutions to interpersonal problems, as compared with non-suicidal psychiatric patients and non-psychiatric controls. In studies assessing the impact of mood upon problem-solving abilities, individuals with a history of suicidal ideation have been observed to experience a deterioration in social problem solving ability following negative mood induction, as compared with depressed participants without previous suicidal ideation (Williams et al., 2005). This effect was moderated by a lack of specificity in autobiographical memory (Williams et al., 2005).

The empirical findings regarding the relationship between problem-solving and suicidal behaviour have led to the development of a number of problem-solving based interventions for individuals with self-injurious behaviour. To date, evidence is mixed regarding the efficacy of problem-solving interventions in reducing subsequent suicidal
behaviour (Hatcher, Sharon, Parag & Collins, 2011; Morthorst, Krogh, Erlangsen, Alberdi & Nordentoft, 2012; Salkovskis, Atha & Storer, 1990), though there is limited evidence to suggest that such interventions may be more beneficial for individuals with repeat suicidal behaviour (Hatcher et al., 2011). Results of a meta-analysis have also indicated potential benefits of problem-solving interventions following an episode of self-harm, in terms of reduced hopelessness and depression (Townsend et al., 2001). The role of information processing biases and cognitive deficits in prison suicidality will now be considered.

3.4.1.1. Review of empirical studies of information processing biases and cognitive deficits in prison populations

The search failed to locate any research conducted thus far examining the role of memory, attention, or reasoning in the suicidality or psychological distress of the prison population. A number of studies did, however, examine how deficits in problem solving may relate to suicidality or psychological distress. These studies are now reviewed.

3.4.1.1.1. Problem-solving

Eight of the studies meeting the inclusion criteria examined the relationship between problem-solving and either suicidality and/or psychological functioning in a prison/jail population. All studies adopted one of two approaches to the measurement of problem solving. The first of these, the Means-End Problem Solving task (MEPS; Platt & Spivack, 1975), is an interpersonal problem-solving procedure that aims to examine participants’ abilities to generate solutions to real life problems. The procedure involves presenting participants with the beginning and end points of a set of stories. Participants are then required to generate solutions for how the end goal could be achieved. Responses are scored according a number of criteria, including, the number of relevant and irrelevant
means generated, the effectiveness of these means, and how active or passive the protagonist was in the solutions generated (Evans, Williams, O’Loughlin & Howells, 1992; Linehan, Camper, Chiles, Strosahl & Shearin, 1987).

Of the eight studies identified, five employed the MEPS. The first of these examined the relationship between problem solving and psychological distress, in a sample of male, young offenders (Biggam & Power, 1999a). In this study, psychological distress was operationalized in terms of the severity of anxiety, depression, and hopelessness. Four groups of inmates were examined: i) those placed in suicidal supervision, ii) those placed in protection due to concerns for their safety, iii) those who were identified as victims of bullying, and iv) control participants. The study demonstrated a significant and negative relationship between psychological distress and the number of relevant means produced on the MEPS, such that higher levels of distress were significantly related to the generation of fewer relevant problem-solving means. Contrary to predictions, no differences were observed between the four groups in terms of the number of relevant means generated. Although, the authors note that all groups performed at a very low level, indicating a potential floor effect. In contrast, the suicidal supervision group was found to produce the highest numbers of passive and irrelevant means during the task (Biggam & Power, 1999a). A similar pattern of results was observed in a comparison of three young offender samples (Biggam & Power, 1999b). In this study, participants were identified as either i) perpetrators of bullying, ii) victims of bullying, or iii) control participants, and performance on the MEPS was compared. The study found that participants in the ‘victim’ group demonstrated the highest levels of psychological distress. The ‘victim’ group also produced significantly fewer relevant and active means on the MEPS, as well as significantly more irrelevant and passive means, thus indicating poorer social problem solving ability (Biggam & Power, 1999b).
The remaining three studies which utilized the MEPS sought to examine the potential that the relationship between suicidality and problem-solving deficits may be state dependent rather than a trait vulnerability (Biggam & Power, 1999c; Eidhin, Sheehy, O’Sullivan & McLeavey, 2002; Ivanoff, Smyth, Grochowski, Jang & Klein, 1992). All three studies utilized a cross-sectional, between groups design employing three participant groups from which state and trait effects could be drawn. These included 1) participants with a history of suicidal behaviour and current suicidality, 2) participants with a history of suicidal behaviour and no current suicidality, and 3) participants with no history of suicidal behaviour or current suicidality.

Two of the three studies demonstrated some evidence for a state effect of problem solving deficits upon suicidality. Biggam and Power (1999c) found that within a sample of young offenders, participants with current suicidal ideation demonstrated poorer overall problem solving performance than participants with a history of suicidal behaviour, but who were not currently suicidal. A similar pattern was demonstrated in a study by Eidhin et al. (2002) with adult male prisoners. Participants who were currently suicidal were found to produce significantly more passive, relevant means than participants with a history of suicidality but no current suicidal ideation. In contrast, Ivanoff et al. (1992) found no effect of current suicidality upon problem solving performance in a sample of adult male prisoners, thus failing to support the hypothesized view that a state-based problem-solving deficit is implicated in the suicidal experience. Within this study, no relationship was observed between suicidality and social problem solving ability. Although this appears to contradict the findings of the other research reviewed here, as the earliest of all of the studies identified it did not include an examination of passivity, a facet of problem solving which was introduced to the MEPS at a later stage. This element of the activity or passivity of the protagonist in the solutions generated in the MEPS presents the
most consistent finding in the literature, that suicidality and psychological distress are consistently related to a more passive problem solving approach in the prisoner population (Biggam & Power, 1999a, 1999b, 1999c; Eidhin et al., 2002).

The second approach taken in the examination of problem-solving ability has been the use of self-report measures. Such studies require participants to evaluate the problem solving approaches and strategies with which they engage. Of the eight studies identified, three studies adopted this approach. All utilized the same measure of social problem-solving ability, namely, the Social Problem Solving Inventory – Revised (SPSI-R; D’Zurilla, Nezu & Maydeu-Olivares, 2002). The SPSI-R is a self-report questionnaire measure comprising five subscales which each measure an individual dimension of the social problem solving model put forward by Maydeu-Olivares and D’Zurilla (1996). Two of the studies identified sought to investigate the relationship between the individual problem solving subscales and psychological distress in adult prisoners. However, neither of the two studies included a measure of suicidality per se. The first of these studies (McMurran & Christopher, 2009) found only the Negative Problem Orientation subscale to be predictive of psychological distress, as measured by the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983). The Negative Problem Orientation subscale represents a dysfunctional approach to problem solving characterised by low self-efficacy and negative outcome expectancies. In the second study, Hayward, McMurran and Sellen (2008) found a dysfunctional problem solving approach and style to be associated with the ability to cope in prison. Despite this, no actual measures of suicidality or psychological distress were used in this study, and coping was inferred purely by prisoner location, that is, location within the general population versus a therapeutic landing for vulnerable prisoners. Resultantly, whilst both studies observed a relationship between a dysfunctional problem solving style and psychological distress, the impact of a
dysfunctional problem-solving style upon suicidality requires further investigation.

In response to their earlier work as described above, Biggam and Power (2002), sought to examine the utility of a problem-solving intervention for vulnerable prisoners, including participants deemed to be at risk of suicide. Compared to baseline, assessments completed following the intervention and at a three-month follow-up revealed participants’ levels of hopelessness, depression and anxiety were reduced whilst levels found in the control group remained unchanged. Social problem solving ability, as measured by the SPSI-R also improved in the intervention group, as would be expected. This represents the only study of problem-solving in a prisoner population with a longitudinal, intervention element. The use of the Beck Hopelessness Scale (BHS; Beck, Weissman, Lester & Trexler, 1974) and the changes demonstrated in this measure following intervention have particular relevance for suicidality, given that hopelessness is a strong predictor of suicidal behaviour (Hawton & van Heeringen, 2009), and show the potential clinical utility for targeting suicidality in this population.

To summarise, seven of the eight studies identified and reviewed here have demonstrated that deficits in social problem solving are related to psychological distress, and where examined, to suicidality in a prisoner population. An exception to this was observed in the study from Ivanoff et al. (1992), where neither current suicidality nor previous suicidal behaviour were associated with social problem-solving ability. A number of methodological issues arise concerning the body of literature surrounding problem solving in prisoner populations and its relationship with suicidality and psychological functioning. Firstly, all of the studies identified recruited male offenders. Consequently, the extent to which these findings extend to the female prisoner population is currently unknown. Furthermore, almost all studies identified employed a cross-sectional design, thus limiting the extent to which causality can be inferred. The overall low level of
problem solving ability in prisoners was noted in a number of the studies reviewed as a potential weakness, indicating a potential floor effect. However, with such convergence of results it appears fair to conclude that even in a population typically poor at problem solving, even lower levels can be seen to further discriminate those who may be at risk of suicide.

3.4.2. The presence of stressors

The presence of a stressor or stressors constitutes one of the first components of both the CoP and the IMV model, and a necessary condition for suicide risk. According to the Cry of Pain model a stressor may be either external i.e., a life event such as a job loss or relationship breakdown, or it may be internal and represent the stresses experienced in certain mental health difficulties, for example, psychotic experiences (Bolton et al., 2007). The experience of being incarcerated is accepted to be a highly stressful event in itself. Indeed it ranks fourth in Holmes and Rahe’s Life Events Stress Scale (Holmes & Rahe, 1967). The evidence pertaining to the role of stressors in prisoner suicidality is considered below.

3.4.2.1. Review of empirical studies of the presence of stressors in prison populations

A number of studies have examined the stressors experienced by the prison population both prior to and during imprisonment. It is recognised that being in prison is highly stressful and that the prison population as a whole are a group who experience great adversity. It has, however, been demonstrated that even within a group which experiences many stressors generally, suicidal inmates have been found to experience significantly more traumatic life events than comparison groups in total, and also at each life phase, i.e.,
in childhood, later life, and current detention (Blaauw, Arensman, Kraaij, Winkel & Bout, 2002). In a case-control study conducted by Marzano et al. (2011), 67% of female prisoners who had engaged in near-lethal self-harm had experienced a stressful event within the current prison term, compared to 47% of control prisoners without self-harm. Furthermore, the experience of being threatened with violence or intimidated to hand over belongings were both found to be significantly associated with near-lethal self-harm within a female prisoner sample (Marzano et al., 2011). Similarly, in a comparison study of young offenders, participants who had made a suicide attempt were significantly more likely to report difficulties with other inmates, than were participants with no previous suicide attempt (Liebling, 1995). It can be seen that even within a population which experiences greater levels of adversity in general, there is some evidence that those individuals experiencing suicidal thoughts or engaging in suicidal behaviour have experienced an even greater level of stressful life events, both inside and outside of the prison environment.
<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Establishment type</th>
<th>Participant sample</th>
<th>% Male</th>
<th>Study design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biggam &amp; Power (1999a)</td>
<td>Scotland</td>
<td>Young Offender</td>
<td>Suicidal supervision $N=25$, vulnerable prisoners $N=25$, victims of bullying $N=25$, comparison group $N=25$</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Institution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biggam &amp; Power (1999b)</td>
<td>Scotland</td>
<td>Young Offender</td>
<td>Victims of bullying $N=25$, bullying perpetrators $N=25$, comparison group $N=25$</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Institution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biggam &amp; Power (1999c)</td>
<td>Scotland</td>
<td>Young Offender</td>
<td>Suicidal group $N=15$, previous (but not current) suicidality group $N=21$, comparison group $N=25$</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Institution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biggam &amp; Power (2002)</td>
<td>Scotland</td>
<td>Young Offender</td>
<td>Vulnerable prisoners $N=46$</td>
<td>100</td>
<td>Quasi-experimental</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Institution</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Characteristics of studies included in the literature review
<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Setting</th>
<th>Group Description</th>
<th>Sample Size</th>
<th>Study Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eidhin, Sheehy, O'Sullivan &amp; MacLeavey (2002)</td>
<td>Republic of Ireland</td>
<td>Adult closed prison</td>
<td>Suicidal group N=15, previous (but not current) suicidality group N=12, comparison group N=19</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Hayward, McMurran &amp; Sellen (2008)</td>
<td>Wales</td>
<td>Category B adult local prison</td>
<td>Vulnerable prisoners N=68, normal location prisoners N=47</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Ivanoff (1992)</td>
<td>US</td>
<td>State prison</td>
<td>Suicidal group N=14, previous (but not current) suicidality group N=34, comparison group N=43</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>McMurran &amp; Christopher (2009)</td>
<td>Wales</td>
<td>Adult closed prison</td>
<td>Convicted prisoners N=68</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>The presence of stressors</td>
<td>Blaauw, Arensman, Kraaij, Winkel &amp; Bout (2002)</td>
<td>Netherlands</td>
<td>Adult jail (Pre-trial)</td>
<td>High-risk group $N=51$, comparison group $N=216$</td>
<td>93</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------------------------</td>
<td>-------------</td>
<td>-----------------------</td>
<td>------------------------------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>Marzano, Hawton, Rivlin &amp; Fazel (2011)</td>
<td>England and Wales</td>
<td>All closed female establishments</td>
<td>Cases (near lethal self harm) $N=60$, controls $N=60$</td>
<td>0</td>
<td>Case control</td>
</tr>
<tr>
<td>Liebling (1995)</td>
<td>England and Wales</td>
<td>Young Offenders Institutions</td>
<td>Suicide attempt group $N=50$, comparison group $N=50$</td>
<td>Unknown</td>
<td>Case control</td>
</tr>
<tr>
<td>The appraisal system</td>
<td>Gullone, Jones &amp; Cummins (2000)</td>
<td>Australia</td>
<td>Maximum security prison</td>
<td>Convicted prisoners $N=81$</td>
<td>100</td>
</tr>
<tr>
<td>Marzano, Hawton, Rivlin &amp; Fazel (2011)</td>
<td>England and Wales</td>
<td>All closed female establishments</td>
<td>Cases (near lethal self harm) $N=60$, controls $N=60$</td>
<td>0</td>
<td>Case control</td>
</tr>
</tbody>
</table>

The roles of hopelessness, defeat, and entrapment

Chapman, Specht & Cellucci (2005)

Ivanoff & Jang (1991)


Palmer & Connelly (2005)

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Setting</th>
<th>Sample Description</th>
<th>N</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porporino &amp; Zamble</td>
<td>Canada</td>
<td>Federal prison</td>
<td>Convicted prisoners N=106</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Chapman, Specht &amp; Cellucci (2005)</td>
<td>US</td>
<td>State prison</td>
<td>Female prisoners N=105</td>
<td>0</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Ivanoff, Jang &amp; Smyth</td>
<td>US</td>
<td>State prison</td>
<td>Convicted prisoners N=130</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Palmer &amp; Connelly (2005)</td>
<td>England</td>
<td>Category B adult local prison</td>
<td>Prisoners with previous suicidal behaviour N=24, comparison group N=24</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Setting</td>
<td>Participant Type</td>
<td>Sample Size</td>
<td>Study Design</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------</td>
<td>--------------------------</td>
<td>-------------------------------------------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Power &amp; Beveridge (1990)</td>
<td>Scotland</td>
<td>Detention centre</td>
<td>Young offenders $N=32$</td>
<td>100</td>
<td>Longitudinal</td>
</tr>
<tr>
<td>Slade &amp; Edelmann (2014)</td>
<td>England</td>
<td>Adult local prison</td>
<td>Newly incarcerated $N=198$</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Slade, Edelmann, Worrall &amp; Bray (2014)</td>
<td>England</td>
<td>Adult local prison</td>
<td>Newly incarcerated $N=177$</td>
<td>100</td>
<td>Longitudinal</td>
</tr>
<tr>
<td>The role of social factors: social support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biggam &amp; Power (1997)</td>
<td>Scotland</td>
<td>Young Offenders Institution</td>
<td>Young offenders $N=125$</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Jenkins et al. (2005)</td>
<td>England and Wales</td>
<td>All prison establishments</td>
<td>Prisoners $N=3139$</td>
<td>81</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Study</td>
<td>Location</td>
<td>Setting</td>
<td>Sample Description</td>
<td>Sample Size</td>
<td>Study Design</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------</td>
<td>------------------</td>
<td>---------------------------------------------</td>
<td>-------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Marzano, Hawton, England and Wales (2011)</td>
<td>England and Wales</td>
<td>All closed female establishments</td>
<td>Cases (near lethal self harm) $N=60$, controls $N=60$</td>
<td>0</td>
<td>Case control</td>
</tr>
<tr>
<td>Rivlin &amp; Fazel (2011)</td>
<td>England and Wales</td>
<td>All closed female establishments</td>
<td>Cases (near lethal self harm) $N=60$, controls $N=60$</td>
<td>0</td>
<td>Case control</td>
</tr>
<tr>
<td>The role of social factors: perceived burdensomeness and thwarted belongingness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cramer et al. (2012)</td>
<td>Australia</td>
<td>Archival data from forensic evaluations</td>
<td>Convicted, pre-trial offenders $N=307$</td>
<td>88</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Ireland &amp; York (2012)</td>
<td>England</td>
<td>Female closed adult prison</td>
<td>Female prisoners $N=191$</td>
<td>0</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Mandracchia &amp; Smith (2015)</td>
<td>US</td>
<td>State prison</td>
<td>Adult prisoners $N=399$</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Simlot, McFarland &amp; Lester (2013)</td>
<td>US</td>
<td>Adult jail</td>
<td>Pre-trial prisoners $N=38$</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
</tbody>
</table>
### Access to suicidal means and imitation models

<table>
<thead>
<tr>
<th>Study</th>
<th>Location</th>
<th>Data Source</th>
<th>Study Population</th>
<th>Sample Size</th>
<th>Study Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cox &amp; Skegg (1993)</td>
<td>New Zealand</td>
<td>Archival data of prison suicide deaths</td>
<td>Suicide deaths in prison</td>
<td>N=38</td>
<td>Cross-sectional, clustering analysis</td>
</tr>
<tr>
<td>Hales, Davison, Misch &amp; Taylor (2003)</td>
<td>England</td>
<td>Young Offenders Institution</td>
<td>Young offenders N=355</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Hales, Edmondson, Davison, Maughan &amp; Taylor (2015)</td>
<td>England</td>
<td>Young Offenders Institution</td>
<td>Prisoner who had witnessed suicidal behaviour in prison N=46, comparison (non-witness) group N=44</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Marzano, Hawton, Rivlin &amp; Fazel (2011)</td>
<td>England and Wales</td>
<td>All closed female establishments</td>
<td>Cases (near lethal self harm) N=60, controls N=60</td>
<td>0</td>
<td>Case control</td>
</tr>
<tr>
<td>McKenzie &amp; Keane (2007)</td>
<td>England and Wales</td>
<td>Archival data of prison suicide deaths</td>
<td>Suicide deaths in prison N=657</td>
<td>Unknown</td>
<td>Cross-sectional, clustering analysis</td>
</tr>
</tbody>
</table>
### The acquired capability for suicide

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Data Source</th>
<th>Sample Description</th>
<th>N</th>
<th>Study Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cramer et al. (2012)</td>
<td>Australia</td>
<td>Archival data from forensic evaluations</td>
<td>Convicted, pre-trial offenders N=307</td>
<td>88</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Ireland &amp; York (2012)</td>
<td>England</td>
<td>Female closed adult prison</td>
<td>Female prisoners N=191</td>
<td>0</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Simlot, McFarland &amp; Lester (2013)</td>
<td>US</td>
<td>Adult jail</td>
<td>Pre-trial prisoners N=38</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
<tr>
<td>Smith, Wolford-Clevenger, Mandracchia &amp; Jahn (2013)</td>
<td>US</td>
<td>State prison and correctional facility</td>
<td>Adult prisoners N=399</td>
<td>100</td>
<td>Cross-sectional</td>
</tr>
</tbody>
</table>
3.4.3. The appraisal system

Central to both the SAMS and the CoP model is the role of an appraisal system. According to the Cry of Pain model, the importance of external and internal stressors lies in whether they are appraised as defeating or entrapping. It is predicted that a propensity to appraise stressors as implying defeat, entrapment or loss of status will increase the likelihood that suicide will become a potential escape route. The Schematic Appraisals Model of Suicide further emphasizes the specific mechanisms by which the appraisal system may both increase feelings of suicidality and protect an individual against such feelings in the face of stressful life events (Johnson et al., 2008).

3.4.3.1. Review of empirical studies of the role of appraisals in prison populations

Three studies were identified as examining participants’ appraisals of their ability to cope whilst incarcerated. In an early study by Porporino and Zamble (1984) the role of a number of self-appraisals and feelings of depression and anxiety was examined. The study identified self-appraisals of personal efficacy and self-esteem to be significantly related to levels of both depression and anxiety. Participants’ appraisals of their level of control were found to be significantly related to anxiety, but not to depression. In addition, Gullone, Jones and Cummins (2000) sought to investigate the relationship between self-esteem and levels of depression and anxiety. Self-esteem, defined here as the extent to which an individual appraises themselves as competent, successful, significant and worthy, was found to be significantly associated with measures of anxiety and depression (Gullone et al., 2000).

Whilst both of the studies identified here have identified specific types of appraisals, namely self-esteem and personal efficacy, to be associated with psychological well-being, neither study examined how these appraisals relate to feelings of suicidality. Both of the studies considered were also conducted with male prisoners, thus limiting the
generalizability to the female prisoner population. Marzano et al.’s (2011) recent case-control study of female prisoners did, however, find levels of self-esteem to be significantly lower in participants who had engaged in recent near-lethal self-harm when compared to controls. In the same study, participants were required to appraise their situation in terms of how difficult they had found the prison experience. Those participants who had engaged in near-lethal self-harm were more likely than controls to appraise their experience of imprisonment as either difficult, or very difficult (Marzano et al., 2011) suggesting, albeit preliminarily, that in line with SAMS predictions, the way in which a stressor is appraised may play an important role in the development of suicidal thoughts.

3.4.4. The roles of hopelessness, defeat, and entrapment

Hopelessness, defined as generalized negative expectations of the future (Beck et al., 1974) has been well-documented in its relationship with suicidality and represents a psychological factor this is predictive of suicidality across a number of mental health difficulties (Hawton & van Heeringen, 2009). According to the CoP model, a sense of hopelessness, i.e., an inability to imagine positive events occurring in the future, is central to suicidal behaviour (Williams, 1997). Hopelessness may, according to the Cry of Pain, best be viewed as the ‘future’ component of entrapment. The consequence of hopelessness, therefore, being that not only does a person feel trapped in their current environment but they also can see no way out of their entrapping situation in the future.

Hopelessness, as measured by the Beck Hopelessness Scale (BHS; Beck et al., 1974), has been found to be predictive of suicidality across a number of populations (see McMillan, Gilbody, Beresford & Neilly, 2007 for a review). Prospective studies of up to 20 years have shown hopelessness to predict suicidality in psychiatric inpatients (Beck, Steer, Kovacs & Garrison, 1985), outpatients (Beck, Brown, Berchick, Stewart & Steer,
Alongside hopelessness, the roles of defeat and entrapment are central to three of the four contemporary models of suicidal behaviour considered here. According to both the CoP (Williams, 1997) and the IMV (O'Connor, 2011a), perceptions of defeat, followed by feelings of entrapment in light of no rescue, are said to comprise the necessary conditions from which suicidal ideation may emerge. In contrast, the SAMS suggests that defeat and entrapment may be conceptually synonymous, and has found evidence to support this assertion in a non-clinical, student sample (Taylor, Wood, Gooding, Johnson & Tarrier, 2009). That said, the model is also flexible, such that differential effects of defeat and entrapment upon suicidal thoughts and behaviours may be considered according to the population in question, such as those who are incarcerated. According to the SAMS, suicidality develops from the negative evaluation of the self and situation, when this is appraised in terms of being both defeating and entrapping (Taylor, Wood, Gooding, Johnson & Tarrier, 2009). For a full review of the roles of defeat and entrapment in psychopathology see Taylor, Gooding, Wood and Tarrier (2011).

**3.4.4.1. Review of empirical studies of hopelessness, defeat, and entrapment in prison populations**

A total of five studies were identified which had examined the role of hopelessness in prison or jail populations. Of these studies, three demonstrated hopelessness to be significantly related to suicidal behaviour (Chapman, Specht & Cellucci, 2005; Ivanoff & Jang, 1991; Palmer & Connelly, 2005), with participants with a history of suicidal behaviour demonstrating significantly higher levels of hopelessness than participants with no such history (Palmer & Connelly, 2005). Hopelessness has been observed to be a
stronger predictor of suicidality than depression, childhood abuse (Chapman et al., 2005), and social desirability (Ivanoff & Jang, 1991), although results have been mixed where participants are suffering from substance abuse disorders (Ivanoff, Jang & Smyth, 1996). In one study, the interaction between hopelessness and alcohol abuse history upon suicidal behaviour was examined. For participants with a history of alcohol abuse, the strength of the relationship between hopelessness and suicidal behavior was reduced (Ivanoff et al., 1996). These results suggest that the mechanisms underlying suicidal behaviours amongst prisoners with a history of alcohol misuse, may differ from those with no history of alcohol misuse.

What is clear is that levels of hopelessness have consistently been demonstrated to be increased in participants with a history of suicidal behaviour or current suicidal thoughts in prisoners, in line with community samples. The extent of its utility in aiding the identification of those at risk is as yet unknown. It has been demonstrated that levels of hopelessness, whilst high on entry into prison, do tend to decrease over time (Power & Beveridge, 1990), and so further research is required to establish which factors may interact in order to either maintain or decrease such feelings through both the initial period of adjustment and the prison term as a whole.

To date, only two studies have sought to examine the roles of defeat and/or entrapment in prisoner samples. In the first study, Slade and colleagues investigated the roles of defeat and entrapment as prospective predictors of self-harm in newly incarcerated prisoners (Slade, Edelmann, Worrall & Bray, 2014). Greater perceptions of defeat, and lower levels of entrapment, at baseline predicted the incidence of self-harming behaviours over a four-month follow-up period. These results provided initial support for the effect of defeat upon self-harming behaviour, in which greater perceptions of defeat were associated with a heightened risk of self-harm. In contrast, the finding that lower levels of entrapment

118
were associated with more self-harm is surprising. A possible explanation for this unexpected finding is that the mechanisms that underlie self-harming behaviour are different to those which give rise to suicidal thoughts or behaviours. Indeed, further research is required to determine this. In the second study, Slade and Edelmann (2014) conducted a cross-sectional investigation of the effects of defeat and entrapment on suicidal ideation, again with a sample of newly incarcerated prisoners. This study found that greater feelings of defeat predicted suicidal ideation, whilst no effects were observed for entrapment (Slade & Edelmann, 2014). This study provides the first empirical investigation of the defeat and entrapment concepts in suicidal ideation amongst prisoners. However, the extent to which these findings are generalizable to other prisoner groups, beyond those who are newly imprisoned, is unknown. Furthermore, there is a need to examine separately the constructs of internal entrapment and external entrapment, which have been observed to display differential effects upon both depression (Gilbert et al., 2005) and suicidal ideation (Rasmussen et al., 2010).

3.4.5. The role of social factors: social support (no rescue), thwarted belongingness, and perceived burdensomeness

As described earlier, all four of the theoretical approaches considered here incorporate the role of social factors within their respective frameworks. According to the CoP (Williams, 1997), an individual’s access to, or perceived access to, external sources of escape or rescue, may attenuate feelings of entrapment, thus preventing the activation of hopelessness and helplessness, which ultimately give rise to suicidal thoughts (Williams, 1997). The model highlights the role of social support (O’Connor, 2003) as a potential rescue factor and posits that the perceived availability of social support, in particular, will impact upon an individual’s ability to identify potential escape routes. More recently, it has
been suggested that positive future thinking may also be considered as a rescue factor, alongside social support (O'Connor, Fraser, Whyte, MacHale & Masterton, 2008; Rasmussen et al., 2010). However, the ability to think positively about the future represents a personal cognitive ability, which may have consequences for feelings of hopelessness. In contrast, the term 'rescue' implies the interjection of an external source once all personal resources have been exhausted. As such, a lack of positive future expectancies may be implicated earlier in the sequence from stressor to suicidality and thus for the purposes of this article, rescue factors refer to those considered as 'external' forms of rescue, i.e., social support.

In the IMV (O'Connor, 2011a) a comparable pathway is proposed, in which social support is seen to impact upon the likelihood that perceived entrapment will lead to suicidal intentions. The SAMS also highlights the role of social support appraisals within the context of a wider appraisal system (Johnson et al., 2008). According to the SAMS, when social support is appraised negatively, feelings of defeat, entrapment, and hopelessness may ensue and lead to suicidal thinking. In contrast, positive appraisals of social support may actually be protective against suicidal thoughts and behaviours, by lessening the impact of stressors (Johnson et al., 2010a). Within the IPT framework (Joiner, 2005), two specific interpersonal states, namely, thwarted belongingness and perceived burdensomeness, are said to form the core conditions from which suicidal thoughts and intentions may arise. Whilst social support represents one aspect of thwarted belongingness, perceptions of social isolation and disconnection from others are also included (Van Orden et al., 2010). Hence, studies examining social support and thwarted belongingness are considered separately within the review, although it is acknowledged that there is likely to be considerable overlap between these two factors.
3.4.5.1. Review of empirical studies of social support (no rescue) in prison populations

A total of four studies meeting the inclusion criteria were identified as having examined the relationship between rescue factors, in this case actual and/or perceived social support, and either suicidality or psychological functioning in a prisoner sample. The construct of social support can be seen to comprise two distinct elements, i) the objective measurement of size and frequency of support networks and 2) the perception of social support, which included judgments of the quality and availability of sources of support.

Within the context of the prison or jail environment, objective measures of social support may include factors such as the number of visits or letters a person receives, or, may relate to the size of the individual’s social network, with the inclusion of social contacts both within, and outside of, the prison environment. Research concerning the role of social support in prisoner suicidality, as measured objectively, has produced mixed findings to date. Of the three studies utilizing some form of objective measurement, all have produced somewhat differing results. In a study by Jenkins et al. (2005), participants with a history of suicidal ideation or behaviour were found to be significantly more likely to have smaller primary support networks, combining support within, and outside of, the prison, than participants with no history of suicidality. In contrast, Marzano et al.’s (2011) case-control study of female prisoners found there to be no differences between participants who had engaged in recent near-lethal self-harm and controls in terms of the size of social networks. Another study examining the impact of social integration upon psychological well-being in a prisoner sample, demonstrated a somewhat unexpected result with inmates who were deemed to be more ‘socially integrated’, as indexed by being married or reporting closer social relationships inside of prison, demonstrating higher
levels of psychological distress than those considered less socially integrated (Lindquist, 2000). The authors speculate that for prisoners who are married, these closer familial relationships may become a source of significant psychological distress when separated. Furthermore, the potential for greater interaction with family members that may be present for married inmates, may serve to amplify these feelings of separation and further highlight what is perceived to have been 'left behind' (Lindquist, 2000).

In summary, perceptions of social support, including the perceived quality and availability of social support, have shown greater consistency in their relationships with suicidality. Whilst the studies above reported inconsistent findings with regards to their objective measurements of social support, levels of perceived social support have been demonstrated to be lower in those with a history of suicidality or current hopelessness (Biggam & Power, 1997; Jenkins et al., 2005; Marzano et al., 2011). The examination of social support within a prison or jail environment must take into account the different social networks occurring in this setting.

In prison settings, fellow prisoners and prison staff may replace friends and family as the main sources of social interaction and so, these relationships may become as important as familial and friendship relationships outside of the prison setting. Indeed, Marzano et al. (2011) found that prisoners who had recently attempted suicide were significantly more likely than controls to describe their relationships with other prisoners as difficult or very difficult and to perceive negative relationships with staff. Furthermore, it has been observed that prisoners may be reluctant to approach staff regarding problems of an emotional nature as opposed to those of a practical nature (Hobbs & Dear, 2000), which could have serious implications for the identification of prisoners experiencing psychological distress. What is not yet clear is whether perceived social support is indeed a 'rescue factor' as posited by the Cry of Pain model, or whether it may actually be better
conceptualised as a buffer which moderates the relationship between risk and suicidality, as suggested in the SAMS (Johnson, Wood, Gooding, Taylor & Tarrier, 2011).

3.4.5.2. Review of empirical studies of perceived burdensomeness and thwarted belongingness in prison populations

Whilst it is recognized that perceived burdensomeness and thwarted belongingness are two separate constructs, and constitute distinct components within the models from which they are derived (Joiner, 2005; O'Connor, 2011a), they have, for the most part, been examined simultaneously. As a result, the present review will consider them in tandem. Four studies were located which examined the roles of either perceived burdensomeness or thwarted belongingness within prisoner samples, three of which examined the roles of both thwarted belongingness and perceived burdensomeness. These will now be considered in turn.

In the first of the four studies, Cramer et al. (2012) examined the effects of perceived burdensomeness and thwarted belongingness upon suicidal ideation. The study comprised a predominantly male, remand, corrections sample, and analyses were conducted using pre-existing, routinely collected data, from which proxy measures of thwarted belongingness and perceived burdensomeness were drawn (Cramer et al., 2012). These measures were derived from subscales of the Personality Assessment Inventory (PAI: Morey, 1991), in which two subscales of ‘non-support’ and ‘social detachment’ were combined to provide a measure of thwarted belongingness, whilst items from a ‘depression–cognitive’ subscale of the PAI were used to assess participants’ perceived burdensomeness (Cramer et al., 2012). The study found that the above proxy measures of both thwarted belongingness and perceived burdensomeness were predictive of suicidal ideation, thus lending support to the hypothesized role of these two concepts in
determining suicidal motivations. That said, the choice of measures used in this study raises concerns regarding the validity of the conclusions drawn from these results. In particular, the proxy measure of perceived burdensomeness comprises items that were originally designed to assess the cognitive components of depression, such as hopelessness and worthlessness. Consequently, the measure does not appear to accurately reflect the interpersonal nature of burdensomeness, which is concerned with the perception of self in relation to others (Van Orden, Cukrowicz, Witte & Joiner, 2012). As such, caution should be taken in the interpretation of these results.

The second study, conducted by Ireland and York (2012), examined the role of perceived burdensomeness, but not thwarted belongingness, in self-injurious behaviour, in a female UK prisoner sample. Within this study, perceived burdensomeness was assessed by a proxy measure of depressive symptoms, taken from the depression scale of the General Health Questionnaire (GHQ-28; Goldberg & Hillier, 1979) which the authors argue shares a number of features with perceived burdensomeness, such as low self-worth and hopelessness. Within the study, a consistent relationship between severe depressive symptomatology and self-injurious thoughts and behaviours was observed (Ireland & York, 2012). The authors of the study interpret this as providing support for the role of perceived burdensomeness in self-injurious behaviours amongst female inmates. However, the use of a depression inventory as a proxy measure for perceived burdensomeness raises a number of questions regarding the validity of the results, as in the previous study by Cramer et al. (2012). Whilst it is recognized that there is likely to be overlap between the concepts of depression and perceived burdensomeness, to consider them synonymous may be inappropriate. As described above, by measuring depression alone, the core interpersonal component of perceived burdensomeness is unlikely to be accurately captured.
In the third study identified, Simlot et al. (2013) assessed the impact of both perceived burdensomeness and thwarted belongingness upon suicidal behaviour. Key predictor variables were assessed using the Interpersonal Needs Questionnaire (INQ; Van Orden et al., 2012); a measure explicitly designed to assess perceptions of burdensomeness and thwarted belongingness. The study found a significant association between participants’ levels of suicidality and their perceptions of thwarted belongingness, although no correlation with perceived burdensomeness was observed. Whilst the small sample size recruited (n=38) presents a limitation to this study, the validity of the measures assessing the two key variables is a particular strength of this study.

The final study identified by the search examined the roles of perceived burdensomeness and thwarted belongingness, and the interaction between these, as predictors of suicidal ideation (Mandracchia & Smith, 2015). Results indicated significant main effects of perceived burdensomeness upon suicidal ideation, which held when the effects of hopelessness and depression were controlled for. There were no main effects of thwarted belongingness upon suicidal ideation, although a significant interaction effect was observed. Specifically, suicidal ideation was highest when both thwarted belongingness and perceived burdensomeness were also highest, and this effect remained whilst controlling for the severity of depression and hopelessness (Mandracchia & Smith, 2015). The results lend support to the IPT model of suicide (Joiner, 2005), which argues that it is the combination of perceived burdensomeness and thwarted belongingness that gives rise to thoughts about suicide. The results also suggest that these concepts may explain variance in suicidal ideation, beyond the effects of depression and hopelessness.

To conclude, four studies were identified which examined the role of perceived burdensomeness in suicidal thoughts and behaviours amongst prisoners. Of these, three studies reported significant relationships between perceived burdensomeness and suicidal
thoughts or behaviours (Cramer et al., 2012; Ireland & York, 2012; Mandracchia & Smith, 2015). Nevertheless, concern regarding the measurement of key variables raises questions regarding the validity of the findings in two of these studies (Cramer et al., 2012; Ireland & York, 2012). Three studies investigated the impact of perceived burdensomeness upon suicidal thoughts and behaviours in prisoner samples. Only one study observed a significant relationship between burdensomeness and suicidal ideation (Cramer et al., 2012). In the two studies that utilized the INQ (Van Orden et al., 2012), no significant bivariate relationship was observed (Mandracchia & Smith, 2015; Simlot et al., 2013). However, the finding that the interaction between perceived burdensomeness and thwarted belongingness was predictive of the highest levels of suicidal ideation (Mandracchia & Smith, 2015) is consistent with the IPT hypothesis that suicidal ideation emerges from the simultaneous experiences of these two interpersonal states (Joiner, 2005). A limitation of each of the four studies concerns the use of cross-sectional, observational research designs, which limit the extent to which conclusions regarding causal mechanisms can be drawn. Taken together, these studies provide preliminary evidence of a relationship between perceived burdensomeness and suicidal ideation. However, the validity of these finding may be considered questionable in light of the methodological issues outlined above.

3.4.6. Access to suicidal means and imitation models

The availability of suicidal means and imitation models constitutes the final component of the CoP (Williams, 1997). It is also characterised as a volitional moderator within the IMV (O'Connor, 2011a), in which it is proposed to influence the transition from suicidal thoughts and intentions, to suicidal behaviour. The restriction of access to suicide methods is a central tenet of many suicide prevention programmes, informed by epidemiological data and analysis (Hawton, 2005). When suicide methods are easily
available, the nature of the method will impact upon the likely outcome of any suicidal behaviour, with access to more dangerous and potentially lethal means increasing the prospect for fatality (Hawton & van Heeringen, 2009). In addition, exposure to others' suicidal behaviour is thought to provide imitation models, which, amongst other factors, may increase a person's knowledge of how to enact lethal self-injury and legitimize this as a potential escape mechanism (O'Connor, Rasmussen & Hawton, 2010). There is evidence to suggest that individuals who have been exposed to, and bereaved by, suicide, have an increased risk of suicide themselves (Qin, Agerbo & Mortensen, 2002; Swanson & Colman, 2013).

The issue of the availability of suicidal means within correctional facilities is of major importance. The nature of the establishments and degree of environmental control serves to further increase the pressure upon establishments to prevent suicide, as such limiting access to means forms the basis of prison and jail suicide prevention strategies internationally. Furthermore, the increased rates of suicidal behaviours observed in prisons and jails, as compared with the general population, may lead to the increased exposure to suicidal behaviour of those who are incarcerated and, thus, to potential imitation models. The literature pertaining to access to suicidal means and to exposure to imitation models within prison and jail facilities will now be reviewed.

3.4.6.1. Review of empirical studies of suicidal imitation models in prison populations

Five studies meeting the inclusion criteria were found to have examined the potential relationship between imitation models and suicidality in prisons. Two distinct methodologies were employed. The first were conducted at a participant level and required participants to self-report details of their exposure to the suicidal behaviour of others, both
inside and outside of the prison term. The second approach has been the utilization of clustering techniques to examine patterns of suicide deaths. In particular, cluster analysis has been used to investigate the phenomena of imitative, or so-called 'copycat', suicides (Mesoudi, 2009). This method enables the identification of suicide clusters, through consideration of the proximity, or closeness, of suicide deaths in space i.e., location, and in time, i.e., as frequent events within a specified time period (McKenzie et al., 2005).

Three of the five studies identified adopted the first approach, outlined above, of self-report details. Of these, two studies were conducted within Young Offenders Institutions in the UK, with males aged 15-21 years. The earliest of these studies, conducted by Hales and colleagues, investigated the impact of exposure to the suicidal behaviour of others, both inside and outside of prison, upon inmates own suicidal behaviour (Hales, Davison, Misch & Taylor, 2003). Almost half (43%) of the participants had known someone who had attempted suicide, whilst 14% knew someone who had died by suicide. This study found that exposure to the suicidal behaviour of others (i.e., attempted suicide and suicide deaths) was significantly and positively related to participants' own suicidal and self-harming behaviours. Furthermore, a significant relationship was found between exposure to others' suicidal behaviours and the length of time spent in prison, suggesting that the prison environment itself may increase the likelihood of exposure to suicidal behaviour (Hales et al., 2003). Alternatively, it could be conceived that individuals who receive longer prison sentences, have already been exposed to higher levels of other's suicidal behaviour within their usual, non-prison, environment. It is not possible to fully disentangle these effects with the study conducted by Hales et al. (2003). More recently, the impact of exposure to suicide-related behaviour, solely within the prison establishment, was investigated in a young offender sample (Hales, Edmondson, Davison, Maughan & Taylor, 2015). A case-control design was used to examine the effects of witnessing suicide-related behaviour on
levels of suicidal ideation and other indicators of psychological distress, e.g., hopelessness, anxiety, and depression. Within the study, the assessment of suicidal ideation and behaviour was conducted using a five-item, unvalidated measure from an earlier Office for National Statistics prison survey (Singleton et al., 1998). Results found that offenders who had witnessed others' suicide-related behaviour within the previous six months reported significantly more suicidal behaviours themselves, as compared to control participants (Hales et al., 2015). Levels of hopelessness, depression, and anxiety were also elevated in the witness group. A limitation of this study concerns the measurement of suicide ideation and behaviour, which was assessed over the previous year. As the witnessing event of suicide-related behaviour had taken place just six months prior to completion of the study measures, it is unknown to what extent participants' own suicide related behaviours occurred prior to or following the witnessed event.

The final study to assess potential imitation models at the individual participant level, was a case-control study of female prisoners who had engaged in recent near lethal self-harm (Marzano et al., 2011). The study found that although those who had engaged in near lethal self-harm (cases) were significantly more likely than controls to have been bereaved by the suicide of a family member, they were no more likely to have been exposed to the non-fatal suicidal or self-harming behaviour of friends, family or other prisoners (Marzano et al., 2011). This finding is in contrast with those of Hales et al. (2015) who found that exposure to others' suicide-related behaviour was associated with an increased prevalence of participants' own suicidal behaviours. These discrepancies may be explained by the age differences of the study samples, i.e., adult prisoners as compared with young offenders. Empirical findings from research in community-based samples have found that imitative suicidal behaviour is most prevalent amongst the young (Berman, 1988). As such, within the prison context, it is plausible that young people may be more
vulnerable to potential imitation effects than adult prisoners. To date, there have been no studies to examine the potential effects of imitation within an adult, male prisoner sample. The applicability of the above findings to this, the largest, subsection of prisoners is currently unknown.

A further two empirical studies investigated the potential role of imitative suicide, through an examination of suicide clusters. In the first of these studies, mortality data from New Zealand prisons over a 17-year period was examined for evidence of clustering of suicide deaths (Cox & Skegg, 1993). The results demonstrated that over the time period in question, four suicide clusters were identified, in which suicide deaths were seen to occur at an above average rate (Cox and Skegg, 1993). Moreover, results suggested that within each cluster, the risk of further suicide deaths was heightened within the four week period following a suicide death, after which point the risk was diminished (Cox & Skegg, 1993).

In a second, and more recent, study, McKenzie and Keane (2007) utilized space-time clustering to examine the contribution of imitative suicide to the suicide rates in English and Welsh prisons. Analyses of a ten-year case register of self-inflicted and natural deaths found significant clustering among 657 self-inflicted deaths across 90 establishments within this time, in which rates of suicide deaths were seen to be in excess of that which would be anticipated. No significant space-time clustering was found among deaths by natural causes. The authors concluded that there was a suicide imitation rate of 5.8% amongst prisoners, within a maximum imitation delay of 120 days. Nonetheless, alternative explanations for the clustering, such as changes within the prison regime or quality of care available, could not be ruled out by this method. Moreover, the use of a 120 day imitation delay, i.e., around four months, is a substantial period of time, and thus casts doubt on the role of imitation, per se, as the factor underpinning the observed clustering.
According to the Cry of Pain model, being exposed to the suicidal behaviour of others will increase risk for suicide, as it provides a model which may be imitated. The small numbers of studies which have sought to examine this in a prison setting have failed to lead to firm conclusions. It can be seen that exposure to the suicide deaths of others may increase risk of suicidal behaviour in this population (Hales et al., 2003; Marzano et al., 2011). However, the impact of exposure to non-fatal suicidal behaviour is as yet unknown. Furthermore, the extent to which any relationships represent actual imitation also cannot be known. This does perhaps represent a weakness of the Cry of Pain model in that there is a lack of clarity regarding the function of imitation, specifically regarding the mechanisms by which it will increase risk and the timing in which its effect contributes to the development of suicidality. It is unclear as to whether models of suicide may increase the likelihood of an attempt via a ‘copycat’ suicide in which the details of a suicide such as the method and location are imitated (Gould, Jamieson & Romer, 2003), or, whether models and exposure actually promote suicide as an acceptable escape route, as implied in the CoP (Williams, 1997).

The contribution of imitative suicide is further complicated in a prison or jail setting by the limited suicidal methods that are most readily available. Although none of the clustering studies conducted thus far have endeavored to examine whether there was clustering of methods, such information would likely be of limited use. The most common method of suicide in prisons is known to be hanging, and this constitutes the vast majority of suicides in this setting (Daniel & Fleming, 2006; Shaw et al., 2004). However, this represents the method that is most available. It does not, at least, not wholly, demonstrate imitation.
3.4.6.2. Review of empirical studies of access to suicidal means in prison populations

There has been a distinct lack of empirical research concerning the strategies employed by correctional facilities in preventing suicidal behaviour by restricting access to means of suicide. A report to the Prison Service of England and Wales provided a largely descriptive evaluation of the use of ‘safer cells’ across six prison establishments in England (Burrows, Brock, Hulley, Smith & Summers, 2003). The term ‘safer cell’ refers to the specially constructed prison cells that are designed to make the act of suicide or self-harm as unlikely as possible, primarily through the minimization of potential ligature points. Safer cells have been deemed to be more acceptable than the previously employed and heavily criticized ‘strip cells’, which were typically low stimulus, ligature-free rooms containing minimal furniture (usually only a low built-in bed) (Burrows et al., 2003). Due to the low base rates of suicidal behaviour within the respective establishments, and issues with the accuracy of recorded self-harm incidents, the authors were unable to conduct statistical analyses concerning the efficacy of safer cells. They did, however, conclude through other means of investigation, namely individual prisoner interviews and staff focus groups, that safer cells were an effective tool in prison suicide prevention. Of the 54 prisoners interviewed, 6% felt that they would have died by suicide if they had not been located in a safer cell at the time. The report also found that compared to those in normal cells, a higher proportion of prisoners in safer cells used methods of self-harm that were less likely to be associated with a fatal outcome, such as cutting, instead of method more likely to be fatal, such as hanging. The authors, therefore, concluded that impulsive suicides by methods more likely to have a fatal outcome may be prevented by the increased use of safer cells.
3.4.7. The acquired capability for suicide

The IPT model of suicide (Joiner, 2005) proposes that for an individual to engage in suicidal behaviour, they must first have acquired the capability to do so. In brief, the IPT suggests that this capability is developed over time, by the repeated exposure and habituation to painful and provocative events or stimuli (Joiner, 2005; Ribeiro & Joiner, 2009). According the model, it is by this mechanism that previous suicidal behaviour may increase the risk for future suicide attempts (Ribeiro & Joiner, 2009). Evidence to support this claim comes from Van Orden and colleagues (2008), who found that past suicide attempts predicted levels of acquired capability in a clinical outpatient sample (Van Orden, Witte, Gordon, Bender & Joiner, 2008). In addition to previous suicidal behaviour, it is said that life events that involve pain and/or fear will also enable the capability for suicide to be developed. Evidence to support this comes from work with military veterans, who have been observed to display higher levels of acquired capability for suicide, as compared with clinical outpatient and undergraduate samples (Bryan, Morrow, Anestis & Joiner, 2010). A review of the evidence examining the acquired capability for suicide within prisoner samples is now presented.

3.4.7.1. Review of empirical studies of the acquired capability for suicide in prison populations

A total of four studies were identified which investigated the acquired capability component for suicide within prisoner samples. The first of these studies examined the relationship between capability for suicide, and self-injurious thoughts and behaviours, in a sample of female prisoners (Ireland & York, 2012). Within this study, the capability for suicide was assessed by a specially designed self-report measure, encompassing information about risk taking behaviours, substance misuse, and previous self-injury, to
provide an overall capability score. The acquired capability component was found to be a significant predictor of self-injurious thoughts and behaviours, including previous suicide attempts. Further findings indicated that two specific aspects of the acquired capability component were consistently related to overall self-injurious thoughts and behaviours, namely, an increased history of self-injury, and engaging in risk-taking behaviours (Ireland & York, 2012).

In the second study identified, the relationship between the acquired capability component and two indices of suicidality, namely suicidal ideation and suicide potential, was investigated using archival data from a predominantly male corrections sample (Cramer et al., 2012). Within the study, suicide potential was defined as a measure of suicide risk or proneness. The acquired capability for suicide was indexed by two measures, one of physical aggression and one of the propensities to engage in reckless and impulsive behaviour. Results indicated that the acquired capability component was associated with greater suicide potential, but not suicidal ideation. These findings were consistent with the IPT posited role of acquired capability, in which the capability component is activated once the motivation for suicide is present. As such, the lack of a relationship between the acquired capability component and the measure of suicidal ideation is unsurprising (Cramer et al., 2012). However, the use of archival data which served as proxy measures for the model components does limit the validity of the findings, as these measures were not designed to assess to specific components per se, e.g., the acquired capability for suicide.

In a third study of male inmates, the relationship between the acquired capability for suicide, and a global measure of suicidality, the Suicidal Behaviours Questionnaire – Revised (SBQ-R; Osman et al., 2001) was examined (Simlot, McFarland & Lester, 2013). The SBQ-R is a four-item measure, which assesses past suicidal ideation and behaviours,
and the self-reported likelihood of future suicidal behaviour. In contrast to the previous two studies, the results indicated no significant relationship between the acquired capability component, and suicidal behaviour within this sample. It is possible that a small sample size ($n=38$) may have resulted in a lack of statistical power, although other significant result were observed (Simlot et al., 2013).

In the final of the four studies, the utility of the Acquired Capability for Suicide Scale (ACSS; Van Orden et al., 2008) within a prisoner sample was investigated (Smith, Wolford-Clevenger, Mandracchia & Jahn, 2013). The ACSS is a self-report instrument developed by the authors of the IPT (Joiner, 2005; Van Orden et al., 2008) to assess fearlessness of death and perceived tolerance for physical pain. The study specified two aims. First, to determine the extent to which the ACSS measure captured participants’ exposure to painful experiences, within a prisoner sample, and second, to investigate whether the ACSS could differentiate participants according to previous suicidal behaviour status. The results suggested that the ACSS was associated with the experience of more painful and provocative life events within the prisoner sample, indicating good construct validity. However, the scale failed to differentiate between participants who had, and had not, made a previous suicide (Smith et al., 2013), thus contrasting with predictions that individuals with a history of suicidal behaviour would differ from those with no previous suicidal behaviour in their acquired capability. The authors suggest that this lack of a relationship may be due to low levels of suicidality present within the sample. The authors also propose, based on the IPT model (Joiner, 2005), that as the acquired capability component only becomes relevant and activated once the desire for suicide has emerged, the relationship may not be observed where this suicidal desire is not present, as in the present sample (Smith et al., 2013). Nonetheless, as the acquired capability for suicide reflects a habituation process, which develops over time in response to exposure to painful
stimuli, it should be anticipated that a relationship between suicidal behaviour and the acquired capability would be observed regardless of current suicidality.

Taken together, the above four studies provide mixed findings regarding the role of the acquired capability component in relation to suicidal thoughts and behaviours amongst prisoners. Whilst there is emerging evidence to suggest that particular experiences of prior self-harm, risk-taking and impulsive behaviour may increase the propensity to engage in self-injurious behaviours, two methodological issues are identified which impact upon the extent to which conclusions may be drawn. First, there is a lack of consistency regarding the measurement of the acquired capability component. As such, it is unclear which aspects of acquired capability are particularly germane within prisoner samples. It is likely that this represents a broader issue pertaining to the way in which an acquired capability is conceptualised, and a lack of clarity regarding the experiences from which this capability ensues. In addition, three of the four studies identified utilized a self-report measure of the acquired capability component (Ireland & York, 2012; Simlot et al., 2013; Smith et al., 2013), thus, results are likely to represent perceived capability, rather than an observed, or proven, capability. Second, the inconsistent measurement of suicidal thoughts and behaviours across studies limits the extent to which comparisons between studies can be made. It is therefore suggested that future research would benefit from a more consistent conceptualization of the acquired capability for suicide. In addition, it has been suggested that more work is required to develop a measure of acquired capability as it relates to prisoner samples (Smith et al., 2013).

3.5. Discussion

The aim of this review was to examine the literature relevant to suicidal thoughts and behaviour amongst prison and jail inmates, to assess the extent to which the evidence
supports each of the four psychological models of suicide within this population. To achieve this, the literature pertaining to the individual components of the Cry of Pain model (Williams, 1997), the Interpersonal Psychological Theory (Joiner, 2005), the Schematic Appraisals Model of Suicide (Johnson, Gooding & Tarrier, 2008), and Integrated Motivational Volitional model (O'Connor, 2011a) was examined.

The first area to be considered was the role of information-processing biases and cognitive deficits, as related to suicidal thoughts and behaviours amongst prisoners. The search revealed a distinct lack of research concerning areas of memory and attention, although a number of studies examining the role of problem-solving were identified. These studies provided strong empirical support for the role of problem-solving deficits in prisoner suicidality and psychological distress. In particular, there was evidence of a relationship between a more passive problem solving approach and suicidality (Biggam & Power, 1999a, 1999b, 1999c; Eidhin et al., 2002) suggesting that a reliance upon others to aid in the solving of problems was related to psychological distress. Whilst these studies focused primarily upon the role of problem-solving abilities, a further avenue for exploration concerns the role of perceived problem-solving. Within the context of the SAMS, the individuals evaluation of their problem-solving abilities is said to be important. In particular, negative appraisals of problem-solving abilities may give rise to feelings of defeat, entrapment, and hopelessness. In contrast, positive appraisals of problem-solving abilities are said to confer resilience, thus reducing the possible impact of risk factors (Johnson et al., 2010a). Further research would therefore benefit from examining the role of problem-solving appraisals as a potential moderator of the relationship between risk and suicidality amongst prisoners.

The next components to be reviewed were that of stressors, and the appraisal system. The role of stressors is implicated in both the CoP and IMV, as a trigger from which
suicidal thoughts and behaviours may develop. From the review, it can be seen that prisoners appear to experience many stressful life events in general, although there is some evidence that even within a population with a high base rate of stressors, those who experience suicidal thoughts or engage in suicidal behaviour tend to report experiencing an even greater number of stressful life events (Blaauw et al. 2002; Marzano et al., 2011). Furthermore, the individual’s appraisal of their ability to cope with such stressors is postulated to play an important role in the development of suicidality (Johnson et al., 2008). To date, only a few studies have examined the role of self-appraisals, which is of relevance to the SAMS (Johnson et al., 2008) with even fewer studies examining the ways in which appraisals of the situation, including individuals appraisals of their past, their current situation and perceived coping, and their anticipated future, interact with suicidality. The few studies conducted thus far provided some evidence that self-esteem was inversely related to suicidality and psychological distress, as indexed by measures of anxiety and depression (Gullone et al., 2000; Marzano et al., 2011; Porporino & Zamble, 1984). Whilst only one study had examined the role of situational appraisals upon suicidal behaviour, namely of the perceived difficulty of the current prison term, the results were supportive of the theories examined (Marzano et al., 2011).

The SAMS (Johnson et al., 2008), CoP (Williams, 1997), and the IMV (O’Connor, 2011a) posit central roles for hopelessness, defeat and entrapment in the development of suicidal thoughts and behaviours. Whilst there appeared to be consistent evidence that hopelessness was related to suicidality and psychological distress in the prison and jail populations (Chapman et al., 2005; Ivanoff & Jang, 1991; Palmer & Connelly, 2005), only two studies had sought to examine the roles of defeat and entrapment amongst prisoner samples. Of these, only one examined this in relation to suicidal ideation, finding evidence to support the role of defeat, but not entrapment, in a sample newly incarcerated prisoners
Further research is, therefore, required before any firm conclusions can be drawn regarding the roles of defeat and entrapment in suicidality. In particular, there is a need to examine these concepts in other prisoner groups, beyond those who are newly imprisoned. It is possible that these relationships may be more complex within incarcerated populations, where the potential impact of enforced entrapment must be taken into account, i.e., in the secure prison environment. Despite this, there is evidence to suggest that for some individuals, the prison environment may be experienced as safer and more supportive than the community (Marzano et al., 2011), and so further work is required to establish these relationships.

Studies of the impact of social support demonstrated mixed evidence with regards to the relationship between objective measures of social support i.e., the number of telephone calls received or the size of social networks, and suicidality. Research concerning perceptions of social support, including its quality and availability, were, however, found to be consistently associated with suicidality (Biggam & Power, 1997; Jenkins et al., 2005; Marzano et al., 2011). This suggests that it is not the size of social networks that is important, but more so that the relationships and support are perceived to be both helpful and available. For the IPT component of perceived burdensomeness, evidence was observed for a relationship with suicidal ideation and behaviours (Cramer et al., 2012; Ireland & York, 2012; Mandracchia & Smith, 2015). However, methodological issues pertaining to the measurement of the key constructs may limit the validity of these findings.

The final component of the Cry of Pain model examined the impact of imitation models and access to suicidal means. Whilst there was some evidence that exposure to the suicidal and self-harming behaviour of others was significantly associated with inmates’ own suicidal and self-harming behaviour, this research was conducted within a young
offender setting (Hales et al., 2003) and as such the extent to which this applies to the adult prisoner population is not yet known. Furthermore, there was evidence of clustering of suicide deaths within prisons (Cox & Skegg, 1993; McKenzie & Keane, 2007) which was suggested to reflect imitation, however, other explanations for the presence of clusters cannot be ruled out, for example, changes in the prison regime. The access to suicidal means constitutes a central component of prison suicide prevention. Despite this, only two of the theoretical models examined here, the CoP (Williams, 1997) and the IMV (O'Connor, 2011a), have endorsed this role of access to methods. In the UK, 'safer cells' i.e., cells which are designed to contain no ligature points, are utilized in the prevention of suicide. There is some qualitative evidence that these are an effective means of suicide prevention (Burrows et al., 2003) yet little empirical research has been conducted to examine their efficacy, nor the underlying mechanisms elucidating why this procedure "may work". There are, however, limits to the way in which this factor can be studied. It would be unethical and unsafe to remove the use of these cells in order to conduct a study of their efficacy. An examination of the prevalence of suicidal behaviour and suicide deaths prior to and following the introduction of safer cells may have some utility. However, other changes in suicide prevention strategies during this time are likely to confound such results.

A further point worthy of consideration concerns the methodological approaches of the studies contained in this review. A majority of the empirical studies considered were cross-sectional, with all assessments completed at one time point. Whilst this approach is appropriate as a means of examining correlative relationships between variables, it is also associated with some limitations. First, it does not allow for the examination of temporal or casual effects, and second, it may be limited be cognitive and memory biases, in particular where participants are required to recall information about their experiences
over a specified timeframe. Consequently, future research would benefit from the use of a broader range of research approaches, including longitudinal designs and those that assess participants’ experiences as they occur, as in Experience Sampling Methodology (Csikszentmihalyi & Larson, 1987).

In sum, the research conducted so far and reviewed here appears to moderately support the assertions of each of the four theoretical models considered. It must however be noted that although the research considered here explored facets of each of these models, many were conducted to specifically test the models in question. Furthermore, for the most part these studies examined components of each of the models in isolation of one another. They therefore cannot tell us how the individual components of each of the models interact with one another, if at all, nor the potential importance of such interactions relative to the individual component themselves. As we have seen, there are aspects of the models which have been neglected so far, and so the extent to which they are supported cannot yet be determined. In particular, the suicide schema component of the SAMS has not received any empirical study in this population to date and so future research should aim to examine how this component may increase a person’s risk for suicide in this population.
CHAPTER 4

4. Predicting suicidal ideation amongst prisoners at risk of suicide: examining the roles of hopelessness, entrapment, and defeat.

4.1. Abstract

Prison inmates have a heightened risk for suicidal ideation, behaviours, and suicide deaths. Despite this, little is known about the psychological mechanisms underlying suicidality in this high-risk group. Perceptions of hopelessness, defeat, and entrapment are implicated as central factors underlying suicidality in a number of theoretical models. This study sought to examine the roles of hopelessness, defeat, and entrapment in predicting suicidal ideation in prison inmates. Participants (N=101) were recruited from a high secure prison establishment. All participants were recently assessed as being at increased risk of suicide or self-harm. A cross-sectional questionnaire design was used. Participants completed measures of entrapment (overall, internal, and external), defeat, hopelessness, and suicidal ideation. Measures of psychiatric symptoms, including anxiety, depression, and general psychopathology were also completed. There were associations between suicidal ideation and entrapment, defeat, and hopelessness. Multiple regression analyses showed that internal entrapment (feeling trapped by one’s own thoughts and feelings) and hopelessness were independently predictive of suicidal ideation, and that this effect held when psychiatric symptoms were controlled for. External entrapment and overall entrapment scores did not predict suicidal ideation. Results demonstrate the differential effects of internal and external entrapment upon suicidal ideation and highlight the need to assess these as independent constructs for prison inmates. Findings suggest that suicide risk assessments for those incarcerated should include measures of internal entrapment and hopelessness. Interventions designed to reduce suicidality in prisoners should aim to
alleviate feelings of hopelessness and internal entrapment, alongside the reduction of depressive symptoms.

4.2. Introduction

Suicidal behaviour and suicide deaths pose a substantial clinical and social problem for correctional facilities worldwide. For males, it is estimated that those who are imprisoned are at least three times more likely to die by suicide than those in the general population (Fazel et al. 2011). Moreover, prevalence rates across the suicide continuum, encompassing suicidal ideation and attempts, are higher amongst prisoners than in community samples, with lifetime prevalence rates of suicidal thoughts increased three-fold and suicide attempts increased five-fold, in incarcerated populations (Jenkins et al. 2005). It has been argued that suicide deaths form the end point of a spectrum in which suicidal thoughts and behaviours are seen to increase the risk for later deaths by suicide (Lekka et al. 2006; Larney et al. 2012; Hawton et al. 2014). This continuum view of suicidality highlights the importance of suicidal ideation as a clinical target in reducing later suicide attempts.

Psychiatric disorders are common amongst prisoners, with rates of major depression and psychosis being reported as two and four times greater, respectively, than rates in the general population (Fazel & Danesh, 2002). This increase in prevalence is important because the presence of a psychiatric disorder is known to be a risk factor for suicidal ideation, attempts, and suicide deaths in prisoners (Fruehwald et al. 2004; Fazel et al. 2008; Sarchiapone et al. 2009), as is comorbidity of psychiatric disorders (Rivlin et al. 2010). Although mental illnesses have been linked with increased suicidality in prisoners, not all individuals with such difficulties will go on to die by suicide. Hence, relying upon psychiatric diagnoses alone will produce too many false positives. Alternatively, a
psychological approach to understanding the underlying mechanisms that trigger and maintain suicidal thoughts and behaviours, considered alongside existing diagnostic frameworks, may offer a deeper understanding of the suicidal individual (Bolton et al. 2007; Tarrier et al. 2013).

Perceptions of defeat and entrapment have been identified as central components in the mechanisms underlying suicidal thoughts and behaviours by a number of recent psychological models (Williams, 1997; Williams et al. 2005; Johnson et al. 2008; O’Connor, 2011). Defeat is defined as the perception of failed struggle or loss of social position, whilst entrapment encompasses the motivation to escape, or move forward, when all escape routes appear blocked (Gilbert & Allan, 1998). One contemporary model of suicide, the Schematic Appraisals Model of Suicide (SAMS; Johnson et al. 2008), argues that suicidal thoughts and behaviours emerge from a negatively biased appraisal system. Events or stressors that are appraised or evaluated as being defeating and inescapable (entrapment) are purported to give rise to suicidal thoughts (Johnson et al. 2008). Empirical studies have demonstrated associations between defeat, entrapment, and suicidal ideation across a number of populations, including individuals with psychosis (Taylor et al. 2010a), post-traumatic stress disorder (Panagioti et al. 2012) and university samples of young adults (Taylor et al. 2010b; for a review see Taylor et al. 2011), Furthermore, perceptions of entrapment, alongside suicide attempt history, have been found to prospectively predict attempted suicides over a four-year period (O’Connor et al. 2013). High prison suicide rates (Fazel et al. 2011), coupled with a lack of theoretically driven research (Slade & Edelmann, 2014), underscore the need to extend current theoretical approaches to suicide, encompassing concepts of defeat and entrapment, to prisoner populations.
There is a dearth of research examining the roles of entrapment and defeat amongst prisoners at risk of suicide. To date, two studies have examined these concepts, focusing specifically on newly incarcerated samples. In the first of these studies, higher levels of defeat and lower levels of entrapment were found to predict self-harming behaviour (Slade et al. 2014). In the second study, higher levels of defeat predicted more severe suicidal ideation, whilst perceptions of entrapment showed no relationship with suicidal ideation (Slade & Edelmann, 2014). The results of these two studies provide preliminary evidence for the role of defeat in suicidality amongst prisoners, whilst the relationship between entrapment and suicidality is less clear. Given the focus on newly incarcerated subgroups in these two studies, there is a need to further extend this understanding of the suicidal process to those prisoners most likely to attempt suicide whilst incarcerated. In England and Wales, prisoners identified as being at-risk of suicide or self-harm are managed under the Assessment, Care in Custody and Teamwork (ACCT) system\(^2\). Prisoners managed under this system are almost ten times more likely to die by suicide than those not identified as at risk (Humber et al. 2013). The current study, therefore, sought to examine the roles of perceptions of defeat and entrapment in predicting suicidal thoughts in this vulnerable, high suicide risk group.

Further to this, given the potentially entrapping effect of imprisonment (i.e., physical entrapment, restricted movement) (Bottoms et al. 1990; Harvey, 2005), in an exploratory aim, perceptions of internal and external entrapment were considered separately in order to identify differential effects arising from feelings of entrapment related to a person’s own thoughts and feelings (internal) compared to those related to their situation or environment (external) (Gilbert et al. 2005). In a study by Rasmussen et al. (2010), internal, but not external, entrapment was found to mediate the relationship between defeat and suicidal

---

\(^2\) The care planning system used by HM Prison Service to identify and manage prisoners deemed to be at risk of suicide or self-harm.
ideation amongst individuals attending hospital following a self-harm episode. In addition, internal entrapment has been demonstrated as a stronger predictor of depression than external entrapment (Gilbert et al. 2005). Despite these findings, there have been few attempts in the literature to examine this distinction between internal and external entrapment to date.

Hopelessness has been identified as a robust risk factor for suicidality (Hawton & van Heeringen, 2009). Defined as negative expectations of the future (Beck et al. 1990), hopelessness has been shown to prospectively predict suicidal thoughts, behaviours and eventual suicide (Beck et al. 1990; Kuo et al. 2004). Additionally, hopelessness has been incorporated within a number of psychological frameworks for suicidality (Williams, 1997; Williams et al. 2005; Johnson et al. 2008). Furthermore, the suggestion that defeat, entrapment and hopelessness may overlap conceptually (Johnson et al. 2008) highlights the need to examine hopelessness, alongside entrapment and defeat, in order to minimize potential confounding effects. Research with prisoners has also highlighted the potentially pernicious effect of hopelessness. Specifically, a number of studies have identified that inmates who had engaged in suicidal or self-harming behaviours demonstrated higher levels of hopelessness than those who had not engaged in these behaviours (Chapman et al. 2005; Palmer & Connelly, 2005; Rivlin et al. 2013). There is a need to examine the role of hopelessness, alongside concepts of defeat and entrapment, in order to further understand the psychological mechanisms underlying suicidality amongst those imprisoned. The goal of the current study was to examine these mechanisms.

4.2.1. Aims and Hypotheses

This study had three over-arching aims. The first was to examine the associations between hopelessness, entrapment, defeat, and suicidal ideation in a sample of high suicide
risk prison inmates. It was predicted that higher levels of hopelessness, defeat, and entrapment, would be associated with more severe suicidal ideation. The second aim was to determine whether these variables would predict suicidal ideation after controlling for levels of anxiety, depression and general psychopathology. It was hypothesized that hopelessness, defeat, and entrapment would remain predictive of suicidal ideation following the inclusion of control variables. The third and final aim was exploratory in nature and sought to determine whether any differences existed in the relationships between separate constructs of internal and external entrapment in the prediction of suicidal ideation.

4.3. Method

4.3.1. Design

A cross-sectional questionnaire design was used. The outcome variable was suicidal ideation. Predictor variables were measures of defeat, entrapment (overall, internal, and external), and hopelessness. Control variables were measures of depression, anxiety and general psychopathology.

4.3.2. Participants

Participants were adult male prisoners recruited from a high security prison in England, UK. Individuals had to meet the following inclusion criteria to participate in the study: (1) being at risk of suicide or self-harm within the past three months, (2) fluent English speaking, (3) aged 21-65 years, (4) not posing a current risk of violence to the researcher, and (5) able to provide informed consent.
4.3.3. Measures

Demographic and custodial characteristics were collected including age, ethnic group, marital status, index offence type, and conviction status.

Suicidal ideation: Suicidal ideation was measured with the Beck Scale for Suicidal Ideation (BSS; Beck & Steer, 1991). This is a 21-item measure of suicidal thoughts, plans, intentions, and suicide attempt history. For each item, participants choose between three responses indicating increasing levels of suicidal ideation (e.g., ‘0=I have no wish to die’ ‘1=I have a weak wish to die’ ‘2=I have a moderate to strong wish to die’). Responses to items 1-19 are summed to generate a score for suicidal ideation over the past week ranging from 0-38. For the current study, Cronbach’s alpha was .93.

Defeat: Perceptions of defeat were assessed using the Defeat Scale (Gilbert & Allen, 1998), which is a 16-item measure of appraisals of powerlessness, loss of status, and failed struggle (e.g., ‘I feel that life has treated me like a punch bag’). Participants indicate the frequency of perceptions of defeat experienced over the past week. Each item is rated on a five-point scale (‘0=never’, ‘4=always’) with total scores ranging from 0-64. Cronbach’s alpha was .95 in the current sample.

Entrapment: Perceptions of entrapment were measured with the Entrapment Scale (Gilbert & Allan, 1998), which is a 16-item measure of appraisals of feeling trapped and a desire to escape. Participants indicate their response on a five-point scale (‘0=not at all like me’, ‘4=extremely like me’), with higher levels reflecting greater feelings of entrapment. There are two subscales: internal entrapment, comprising 6 items (e.g., ‘I would like to escape from my thoughts and feelings’) and external entrapment, composed of 10 items (e.g., ‘I am in a situation I feel trapped in’) (Gilbert & Allan, 1998; Gilbert et al. 2005). Cronbach’s alpha was .93 for the full scale (internal entrapment subscale α=.89; external entrapment subscale α=.88).
Hopelessness: Hopelessness was measured using the Beck Hopelessness Scale (BHS; Beck et al. 1974) which is a 20-item self-report measure of the prevalence of perceptions of hopelessness over the past week. Participants provide a ‘true’ or ‘false’ response to each statement (e.g., ‘all I can see ahead of me is unpleasantness rather than pleasantness’). Scores range from 0-20 with higher scores reflecting higher levels of hopelessness. In the current sample, the alpha coefficient was .92.

Depression: The Beck Depression Inventory – II (BDI-II; Beck et al. 1996; see Appendix X) was used to measure depressive symptoms experienced over the past two weeks. The BDI-II contains 21 items with each item rated on a 0-3 scale with higher scores indicating more severe depression (e.g., ‘I do not feel like a failure’ ‘I feel I am a total failure as a person’). Scores range from 0-63. The alpha coefficient in the current study was 85.

Anxiety: The Beck Anxiety Inventory (BAI; Beck & Steer, 1990, see Appendix XI), comprising 21-items was used to measure the severity of anxiety symptoms over the past week (e.g., fear of losing control, nervousness). Participants rate the extent to which they have been distressed by each symptom using a four-point scale (‘0=not at all, 3=‘severely’). Total scores range from 0-63 with higher scores indicating greater severity of anxiety. In the current study, the alpha coefficient was .94.

General Psychopathology: The Brief Psychiatric Rating Scale – Expanded (BPRS-E; Lukoff et al. 1986; see Appendix XII) is an interviewer rated assessment of general psychopathology comprising 24 items, each rated on a 7-point scale via a semi-structured interview format. Items 1-14 are scored according to participant self-report and items 15-24 are rated according to observed behaviour during the interview. Higher scores reflect greater levels of general psychopathology.
4.3.4. Procedure

Eligible individuals were first approached by prison staff. Those who expressed an interest at this stage then met with the researcher (KS) and were provided with an Information Sheet. Following this, potential participants were given at least 24 hours to consider the information provided before informed consent was obtained. Information about demographic and custodial factors was then collected, followed by completion of the questionnaire measures. All measures were administered by the first author (KS) in one or two sessions, as required.

4.3.5. Statistical Analysis Strategy

First, the distribution of the outcome variable was checked for normality by examining z-scores for skewness (Field, 2005). Associations between suicidal ideation and all predictor variables were examined using Spearman’s rho or Pearson's correlation coefficient as appropriate. Next, a hierarchical multiple regression analysis was conducted with suicidal ideation as the outcome variable. When the outcome variable was not normally distributed a non-parametric approach was taken using bootstrapping to generate 95% confidence intervals (CI) for regression coefficients, using 1000 repetitions as recommended (Mooney & Duval, 1993). Bootstrapping is a statistical procedure that uses random resampling to provide a non-parametric method of statistical inference (Mooney & Duval, 1993). Bootstrapping has been recommended as an alternative method where the assumptions of parametric testing are not met, including where the data distribution is skewed (Mooney & Duval, 1993). An examination of tolerance values and variance inflation factors (VIF) suggested that multicollinearity was not a substantial problem because all tolerance values above 0.2 (Menard, 1995) and all VIF’s were substantially below 10 (Myers, 1990).
As the regression analysis was theoretically driven, the enter method was used (Field, 2005). In the first step, control variables of depression, anxiety, and general psychopathology were entered. In the second step, hopelessness, defeat, and entrapment were entered to establish whether these variables added predictive value above that of the control variables. This analysis was then repeated, with the internal and external entrapment subscale scores substituted for total entrapment scores. In each step, standardized predictor variables were used. Prior to analyses, items 2 (Anxiety), 3 (Depression) and 4 (Suicidality) were removed from the total score of the BPRS-E measure of general psychopathology as suicidal ideation (BSS) was the outcome variable and depression (BDI-II) and anxiety (BAI) were included as control variables. Analyses were conducted using SPSS Version 22.

4.3.6. Ethical approval

This study was granted ethical approval by the National Health Service (NHS) Research Ethics Committee for Wales, UK (Ref: 11/WA/0002), which specializes in research with incarcerated samples. Approval was also gained from the relevant NHS Trust Research and Development office (ref 1035), and the Ministry of Justice National Offender Management Service’s National Research Committee (reference 16-11). The Governor of the host prison establishment provided local approval.
4.4. Results

4.4.1. Sample characteristics

A final sample of 101 participants was recruited to the study (See Figure 6 for participant flow through the study). Participants were male prisoners, aged 21-60 years ($M=35.48$, $SD=9.91$). Twenty-one (21%) participants reported no previous suicide attempts, seventeen participants (17%) reported one previous suicide attempt and sixty-three (62%) participants reported multiple previous suicide attempts. The demographic and custodial characteristics of the sample are shown in Table 3.

---

Figure 6: Flow diagram of participant recruitment and assessment.
Table 3: Sample characteristics (n=101)

<table>
<thead>
<tr>
<th>Socio-demographic characteristics</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnic group</td>
<td></td>
</tr>
<tr>
<td>White British</td>
<td>93</td>
</tr>
<tr>
<td>White Irish</td>
<td>3</td>
</tr>
<tr>
<td>Asian British</td>
<td>1</td>
</tr>
<tr>
<td>Black British</td>
<td>1</td>
</tr>
<tr>
<td>Mixed Caribbean</td>
<td>3</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>69</td>
</tr>
<tr>
<td>Married/cohabiting</td>
<td>26</td>
</tr>
<tr>
<td>Divorced/separated</td>
<td>5</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
</tr>
</tbody>
</table>

| Custodial and criminological characteristics |       |
| Custodial status                        |       |
| Remand/detainee                        | 24    |
| Convicted sentenced                    | 68    |
| Convicted unsentenced                  | 9     |
| Offence type                           |       |
| Violence against the person            | 18    |
| Sexual                                | 27    |
| Acquisitive                           | 21    |
| Breach of a court order                | 10    |
| Arson                                 | 5     |
| Drugs related                         | 4     |
| Motoring                              | 3     |
| Threats to kill                       | 2     |
| Other*                                | 4     |

<table>
<thead>
<tr>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time in custody (weeks)</td>
<td>16.84</td>
</tr>
</tbody>
</table>

*Other offences include: absconding the country (n=1), harassment (n=1), affray (n=1) and fraud (n=1)
4.4.2. The associations between suicidal ideation and hopelessness, entrapment and defeat

Means, standard deviations and correlations for all variables can be seen in Table 4. The first prediction was that higher levels of hopelessness, defeat, and entrapment would be associated with more severe suicidal ideation. Consistent with predictions, significant associations between suicidal ideation and hopelessness, defeat, and entrapment (internal, external and overall) were found. It is noteworthy that the correlation of external entrapment with suicidal ideation was weaker than that of overall entrapment and internal entrapment.
<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Suicidal ideation</td>
<td>11.26</td>
<td>9.28</td>
<td>.55**</td>
<td>.38**</td>
<td>.44**</td>
<td>.49**</td>
<td>.36**</td>
<td>.52**</td>
<td>.27**</td>
<td>.34**</td>
</tr>
<tr>
<td>2. Hopelessness</td>
<td>10.05</td>
<td>6.19</td>
<td></td>
<td>.64**</td>
<td>.62**</td>
<td>.56**</td>
<td>.58**</td>
<td>.56**</td>
<td>.26**</td>
<td>.24*</td>
</tr>
<tr>
<td>3. Defeat</td>
<td>39.73</td>
<td>15.60</td>
<td></td>
<td></td>
<td>.70**</td>
<td>.66**</td>
<td>.65**</td>
<td>.67**</td>
<td>.56**</td>
<td>.19</td>
</tr>
<tr>
<td>4. Entrapment (total)</td>
<td>36.54</td>
<td>15.72</td>
<td></td>
<td></td>
<td></td>
<td>.86**</td>
<td>.96**</td>
<td>.65**</td>
<td>.52**</td>
<td>.27**</td>
</tr>
<tr>
<td>5. Internal entrapment</td>
<td>15.22</td>
<td>6.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.70**</td>
<td>.65**</td>
<td>.53**</td>
<td>.36**</td>
</tr>
<tr>
<td>6. External entrapment</td>
<td>21.33</td>
<td>9.86</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.58**</td>
<td>.47**</td>
<td>.21*</td>
</tr>
<tr>
<td>7. Depression</td>
<td>33.26</td>
<td>10.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.47**</td>
<td>.37**</td>
</tr>
<tr>
<td>8. Anxiety</td>
<td>24.82</td>
<td>14.37</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.24*</td>
</tr>
<tr>
<td>9. General psychopathology</td>
<td>33.50</td>
<td>6.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* \( p<0.05 \), ** \( p<0.01 \)
4.4.3. Hopelessness, defeat and entrapment as predictors of suicidal ideation

It was predicted that hopelessness, defeat, and entrapment would remain predictive of suicidal ideation after controlling for levels of depression, anxiety and general psychopathology. The first step of the regression model including the control variables, was significant, $f\ (3, \ 97) = 11.67, \ p<.001$, accounting for 27% of the variance in suicidal ideation ($R^2 = .27$). In the second step, hopelessness, defeat, and entrapment were included in the model, resulting in a significant improvement in the variance explained in suicidal ideation, $\Delta R^2 = .12, \ f\ change \ (3, \ 94) = 6.38, \ p<.001$. In the final model, only hopelessness ($B=.459, \ p<.01, \ 95\% \ CI_{bootstrap} =.224-.691$) and depression ($B=.339, \ p<.01, \ 95\% \ CI_{bootstrap} =.113-.544$) were unique predictors of levels of suicidal ideation. Neither overall entrapment ($B=.046, \ p=.733, \ 95\% \ CI_{bootstrap} =-.219-.301$) nor defeat ($B= -.219, \ p=.155, \ 95\% \ CI_{bootstrap} =-.516-.105$) were found to be significant predictors of suicidal ideation in this model.

The final aim was to determine whether any differences existed in the relationships between the separate constructs of internal and external entrapment as predictors of suicidal ideation. A further hierarchical regression was conducted, with the first step including the control variables as above, $f\ (3, \ 97) = 11.67, \ p<.001$. In the second step, hopelessness, defeat, internal entrapment and external entrapment were added. This resulted in a significant improvement in the variance explained, $\Delta R^2 = .15, \ f\ change \ (4, \ 93) = 6.13, \ p<.001$, with the final model accounting for 42% of the variance in suicidal ideation. The regression coefficients and associated CI for all variables in the model are shown in Table 5. In the final model, hopelessness and internal entrapment, alongside depression, were found to be significant independent predictors of suicidal ideation. Levels of defeat and external entrapment did not independently predict suicidal ideation$^3$.

$^3$ Significant effects were found to be the same when standard parametric analysis was used.
Table 5: *Multiple hierarchical regression analysis predicting suicidal ideation as measured by the BSS.*

<table>
<thead>
<tr>
<th>Outcome variable</th>
<th>Step</th>
<th>Predictor variable</th>
<th>B</th>
<th>SE B</th>
<th>Sig.</th>
<th>CI (95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicidal ideation</td>
<td>1</td>
<td>Depression</td>
<td>.477</td>
<td>.101</td>
<td>.001**</td>
<td>.270-.690</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Anxiety</td>
<td>-0.060</td>
<td>.103</td>
<td>.549</td>
<td>-.262-.144</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gen. psychopathology</td>
<td>.131</td>
<td>.102</td>
<td>.188</td>
<td>-.071-.346</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Depression</td>
<td>.318</td>
<td>.113</td>
<td>.007**</td>
<td>.073-.526</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Anxiety</td>
<td>-.022</td>
<td>.107</td>
<td>.844</td>
<td>-.219-.192</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gen. psychopathology</td>
<td>.036</td>
<td>.091</td>
<td>.685</td>
<td>-.137-.221</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hopelessness</td>
<td>.451</td>
<td>.114</td>
<td>.002**</td>
<td>.228-.672</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Defeat</td>
<td>-.210</td>
<td>.154</td>
<td>.173</td>
<td>-.511-.099</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Internal entrapment</td>
<td>.305</td>
<td>.148</td>
<td>.042*</td>
<td>.014-.600</td>
</tr>
<tr>
<td></td>
<td></td>
<td>External entrapment</td>
<td>-.212</td>
<td>.152</td>
<td>.167</td>
<td>-.541-.069</td>
</tr>
</tbody>
</table>

* p<0.05, **p<0.01
4.5. Discussion

This was the first study to examine the relationship between suicidal ideation and appraisals of hopelessness, entrapment, and defeat in a prisoner sample at high risk of suicide. Three key aims were i) to examine the associations of suicidal ideation with hopelessness, defeat, and entrapment, ii) to determine whether hopelessness, defeat, and entrapment would be predictive of suicidal ideation once levels of psychiatric symptomatology (depression, anxiety and general psychopathology) were controlled for, and iii) to ascertain whether internal and external entrapment would show differential effects upon suicidal ideation within a sample of prisoners. There were three main findings.

First, and consistent with predictions, increased levels of hopelessness, defeat, and entrapment were associated with greater suicidal ideation. This finding is consistent with the wider suicide literature, in which correlations between these variables have been noted across a range of samples (Rasmussen et al. 2010; Taylor et al. 2010b; Panagioti et al. 2012; Panagioti et al. 2013; O’Connor et al. 2013). Moreover, it reinforces the need to consider hopelessness, defeat, and entrapment as important factors in suicidality amongst those imprisoned and underscores the importance of considering the psychological factors that trigger and maintain suicidal thoughts and behaviours, in addition to the established epidemiological factors (Slade & Edelmann, 2014; Tarrier et al. 2013).

Second, and in partial support of predictions, hopelessness, but not overall entrapment nor defeat, was found to predict suicidal ideation once levels of depression, anxiety, and general psychopathology were controlled for. Previous research within inmate populations has highlighted the role of hopelessness as a robust predictor of suicidality (Chapman et al. 2005; Palmer & Connelly, 2005; Rivlin et al. 2013) and the levels of hopelessness present in the current study were comparable to those seen in a recent study by Humber et al. (2013) who also sampled inmates at heightened risk for suicide. These results serve to
strengthen the evidence base for the importance of assessing perceptions of hopelessness in suicide risk assessments amongst those imprisoned. Within the wider suicidology literature, hopelessness is known to be a strong predictor of suicidality, and has been found to be a better predictor of eventual suicide than depression (Beck et al. 1985; Brown et al. 2000).

The third, and final, key finding was that internal, but not external, entrapment was found to independently predict suicidal ideation. Specifically, feelings of hopelessness and internal entrapment were found to independently predict suicidal ideation when clinical factors of depression, anxiety, and general psychopathology were accounted for. Whilst few studies have made the distinction between internal and external entrapment, the results of the current study complement those of Gilbert et al. (2005) and Rasmussen et al. (2010), whose findings demonstrated differential effects of internal versus external entrapment in predicting depression and suicidality. The finding that internal, but not external or overall, entrapment was predictive of suicidal ideation may, at first, appear counterintuitive, given the assumed entrapping nature of the external prison environment, i.e., the loss of liberty, privacy, autonomy and resources (Sykes, 1958; Harvey, 2011; Leigey & Ryder, 2015). While levels of both internal and external entrapment were high within the current sample, results indicate that although many inmates may perceive their environment as entrapping, this in itself does not lead to suicidal thinking. Instead, it is those who feel trapped by their internal thoughts and experiences who are more vulnerable to suicidal cognitions. This finding concurs with recent work suggesting that mental imagery may play an important role in the suicidal process amongst prison inmates (Rivlin et al. 2013). It is, therefore, highly recommended that future work examining the mechanisms that underlie suicidality in this group assess both internal and external entrapment as independent constructs.
To date, only one study has examined the relationship between suicidality, entrapment and defeat amongst prisoners (Slade et al. 2014). The findings of the current study are in contrast with those of Slade et al. (2014) who found that defeat, but not entrapment, was predictive of suicidal ideation in a sample of newly incarcerated prisoners. This divergence in findings should be examined further. The studies differed in regards to the samples assessed. Specifically, whereas the current study utilized a prisoner group recently identified by staff as at risk of suicide, the study by Slade et al. (2014) sampled inmates upon entry into prison, irrespective of their suicidal risk. It appears plausible that perceptions of entrapment and defeat differentially affect suicidality at different stages of imprisonment. For example, defeat, which is characterised by feelings of humiliation and a loss of social status, may be particularly pertinent within the earliest stages of imprisonment, in which individuals begin to adjust to the prison environment. Indeed, the average time imprisoned in the current study, at assessment, was around four months, in contrast with those sampled by Slade et al. (2014) who had been imprisoned for a maximum of four days. As such, it may be reasonable to suggest that participants in the current study had largely transitioned through this initial adjustment period, whilst those sampled by Slade et al. (2014) may not have made this transition. Though this hypothesis remains speculative at present, it is testable\(^4\). A different potential reason for this divergence in findings concerns the fact that hopelessness was not included in the model examined by Slade et al. (2014). It has previously been argued that there may be conceptual overlap between hopelessness, defeat, and entrapment (Johnson et al. 2008; Barzilay-Levkowitz & Apter, 2014). Therefore, this overlap, may lead to confounding effects when there is a failure to control for the effects of hopelessness. Future research

\(^4\) In an exploratory analysis, time imprisoned (weeks) was used as a proxy measure of adjustment to prison and examined as a predictor of suicidal ideation. No significant results were observed.
would benefit from the inclusion of distinct measures assessing hopelessness, entrapment, and defeat in order to minimize these potential confounding effects.

Whilst the current study focused solely on a prison-based sample, the results raise important questions regarding the impact of context, in this case imprisonment, upon suicidality more generally. An examination of the sample characteristics underscores the high levels of distress and clinical need experienced by participants, emphasising that the prison context should not detract from the severe distress experienced by many within such environments. Specifically, mean levels of depressive symptoms were found to be in the severe range (Beck et al. 1996) and equivalent to that seen in samples of participants diagnosed with major depressive disorder (Gilbert & Allan, 1998). Levels of hopelessness were higher than those seen in a recent study with psychiatric inpatients (Innamorati et al. 2015). Defeat, hopelessness, and entrapment levels were greater than those seen in community based samples of individuals diagnosed with PTSD and psychosis spectrum disorders (Taylor et al. 2010a; Panagioti et al. 2012) and were comparable to those seen in a sample of individuals admitted to hospital following an incident of self-harm (Rasmussen et al. 2010). It is clear that this population present significant mental health needs. Moreover, the social inequalities faced by prisoners, including high levels of homelessness, poverty, educational, and employment disadvantage, underline the complexity and vulnerability of this group (Social Exclusion Unit, 2002; Williamson, 2006). In order to reduce the distress felt by many in prison, the need to consider individual vulnerability factors and their interaction with contextual (prison-based) factors has been stressed (Harvey, 2011).

Two limitations of the current study warrant further consideration. First, the study was conducted in a male prison in the UK. As such, the extent to which these findings are generalizable to female prisoners and non-UK samples is unknown. Second, the cross-
sectional design precludes the ability to draw conclusions regarding causality. Future studies would, therefore, benefit from a longitudinal approach. It should be noted, however, that research addressing psychological factors that amplify suicidality in prisoners is in its infancy. In the first instance it is necessary to establish where relationships between psychological factors and suicidality are present, as the current study has done, before longitudinal methodologies are introduced.

For clinicians and correctional staff, the results of this study highlight the potential utility of internal entrapment as a key indicator of increased suicide risk. These results raise the possibility that standardised tools measuring perceptions of hopelessness and internal entrapment, considered alongside assessments of depression, may aid in the accurate identification of suicide risk. Furthermore, the psychological formulation of a prisoner’s suicidal behaviour should include a consideration of the individual’s relationship with their internal psychological experiences within the context of such a constrained external environment. Similarly, psychological interventions targeting the reduction of suicidal behaviour amongst prisoners need to focus upon this internal relationship between the individual and their cognitions. Specifically, strategies that aim to increase self-esteem, broaden attention and promote positive reappraisals of coping abilities may lessen perceptions of internal entrapment and subsequently reduce suicidal behaviour (Taylor et al. 2011; Tarrier et al. 2013). This is in line with the recent finding that high levels of entrapment, coupled with more negative perceptions of coping ability, were predictive of increased suicidality amongst prison inmates (Gooding et al. 2014). Furthermore, the disparity found between internal and external entrapment, and the lack of an overall effect when examining total entrapment, emphasise the importance of distinguishing between internal and external entrapment in this population. By focusing
solely on levels of total entrapment, clinicians may overlook key information regarding a person’s suicide risk.

To conclude, this study is the first to examine the roles of key psychological factors of hopelessness, defeat, and entrapment as predictors of suicidal ideation amongst prison inmates. These results provide evidence for the roles of both internal entrapment and hopelessness as key indicators of suicide risk amongst prisoners at elevated risk. The current study also underlines the need to examine, separately, the constructs of internal and external entrapment, which were shown to differentially impact upon suicidal thinking.
CHAPTER 5


5.1. Abstract

Levels of suicidal behaviour are elevated amongst prisoner populations yet few studies have explored the factors that underlie the development of suicidality in this group. A recent model, the Schematic Appraisals Model of Suicide, suggests that a negative appraisal system is central to the development of suicidality and that positive self-appraisals may buffer against this, conferring resilience. The current study sought to examine the role of negative appraisals in suicidal and self-harm ideation and explore whether positive self-appraisals buffered against this. Ecological Momentary Assessment was used to examine the roles of negative situation appraisals and positive self-appraisals in predicting suicidal and self-harm ideation. Prison inmates \( n=42 \) completed self-report diary measures up to six times per day over a six-day assessment period. Data were analyzed using Multi Level Modeling analyses. Negative situational appraisals of the present and future were predictive of increased suicidal and self-harm ideation. Positive self-appraisals of social reciprocity were predictive of lower suicidal ideation. Positive self-appraisals of reciprocity and social support did not buffer against suicidality in the face of negative situational appraisals. These results provide preliminary support for the application of the Schematic Appraisals Model of Suicide to a prison population. Implications for clinical practice are discussed.

*Resubmitted to Psychiatry Research.*
5.2. Introduction

Globally, almost one million people die by suicide each year (World Health Organization, 2012). Rates of suicidal behaviour are even higher than those for suicide deaths with a recent large-scale study estimating a cross-national prevalence of suicidal ideation and attempts at 9.2% and 2.7% respectively (Nock et al., 2008). Levels of suicidal behaviour are heightened amongst those who have been in contact with criminal justice systems (Linsley et al., 2007; Webb et al., 2011). In particular, suicidal behaviour poses a substantial problem within prisoner populations (Hawton et al., 2014; Jenkins et al., 2005), with death by suicide being the leading cause of mortality amongst those incarcerated (Fazel and Baillargeon, 2011). Recent suicidal ideation and a history of suicide attempts have both been found to increase the risk of eventual suicide in prison samples (Fazel et al., 2008). Similarly, a prospective case-control study found that inmates who reported suicidal ideation at baseline were at increased risk of later engaging in suicidal behaviours (Lekka et al., 2006), thus highlighting the potential utility of examining suicidal ideation as a clinically relevant target.

The study of suicidal behaviour within inmate populations has largely been epidemiological in nature, and focused upon identifying groups who are at heightened risk of suicide. It has been argued that relying on epidemiological risk factors, such as being male, of white ethnicity, detainee/remand status and with a history of self-harm (Fazel et al., 2008; Hawton et al., 2014; Humber et al., 2011; Humber et al., 2013; Marzano et al., 2011; Shaw et al., 2004), results in too many false positives and does not give insight into the mechanisms underlying suicidality (Bolton et al., 2007). An understanding of such mechanisms has the potential to increase specificity and identify concrete targets for psychological interventions (Bolton et al., 2007; Forrester and Slade, 2014; Tarrier et al., 2013).
The Schematic Appraisals Model of Suicide (SAMS; Johnson et al., 2008) provides a theoretical, and testable, framework within which suicidality may be understood in terms of underlying, transdiagnostic, psychological mechanisms. To date, evidence is accumulating in support of the model in those experiencing severe mental health difficulties, namely, psychosis spectrum disorders (Johnson et al., 2010a; Johnson et al., 2010b; Taylor et al., 2010a) and post-traumatic stress disorders (Panagioti et al., 2012; Panagioti et al., 2013), as well as from non-clinical populations (Taylor et al., 2010b).

According to the SAMS (Johnson et al., 2008), the development and maintenance of suicidality is dependent upon the presence of three main components, which are i) negative information-processing biases, ii) suicidal memory schema, and iii) a negatively biased appraisal system. Negative appraisals of the self and of past, present and future situations are purported to give rise to feelings of defeat and entrapment, which in turn lead to suicidal thoughts and behaviours (Johnson et al., 2008; Tarrier et al., 2013). In addition, the SAMS provides a framework in which resilience to suicidality may be understood. Specifically, whilst negative self-appraisals may increase risk, positive self-appraisals may protect against the development of suicidality (Johnson et al., 2010a).

Perceptions of social support have been identified as a potential buffer against suicidality, therefore acting as a resilience factor as postulated by the SAMS (Johnson et al., 2011; Panagioti et al., 2014). However, the need to further identify the specific risk variables for which social support may act as a protector has been highlighted (Johnson et al., 2011). Empirical studies of the relationship between perceived social support and suicidality within inmate samples have revealed lower levels of perceived social support to be present in both those with a history of suicidal behaviour (Jenkins et al., 2005; Marzano et al., 2011) and those experiencing high levels of hopelessness (Biggam and Power, 1997), an established risk factor for suicide (Beck et al., 1990; Kuo et al., 2004).
Consequently, whilst a negative relationship between appraisals of social support and suicidality appears to be present within this population, the mechanism by which social support may protect against suicidality remains unclear. The current study aims to redress this.

In addition to perceived social support, Johnson et al. (2008) highlighted the potential role of social reciprocity as a further component of the self-appraisal system. Social reciprocity may be characterized as evaluative judgments of personal abilities in social interactions. It refers to the extent to which one feels able to help others, which in turn may be used to gain support from others when needed (Johnson et al., 2008; Tarrier and Humphreys, 2003). Although there is some evidence of potential health benefits in providing support to others (Brown et al., 2003), with one study demonstrating a buffering effect on depressive symptoms (Takizawa et al., 2006), there have, as yet, been no empirical studies examining the role of social reciprocity as a potential resilience factor for suicidality.

Whilst the development of suicidal thoughts and behaviours are the focus of the SAMS, the model is based upon a continuum view of suicidality which encompasses self-harm behaviours (Johnson et al., 2008). It is known that self-harm in prison is associated with subsequent suicide (Hawton et al., 2014) yet it is also recognized that self-harming behaviours may serve a number of functions, not only those of suicidal intent (Klonsky, 2007; Nock, 2009). As such, there is a need to examine whether the processes underlying suicidal thoughts differ from those underlying thoughts of self-injury. As the SAMS makes no specific predictions regarding this, the current study used an exploratory approach to examine the role of negative situational appraisals and positive self-appraisals in predicting self-harm ideation.
Ecological Momentary Assessment (EMA), also known as Experience Sampling (Csikszentmihalyi and Larson, 1987), involves assessing participants’ experiences as they occur. Typically, participants are required to respond to questions about their experiences in the moment, within the context of their daily life. The method has advantages because recordings are made firstly in the participants’ own environment, thus increasing ecological validity, and secondly, as behaviours occur, thus reducing the potential for biases in memory to affect responses (Palmier-Claus et al., 2011). The use of this method with prisoner samples remains novel, with only one study using EMA methods with prison inmates being conducted so far (Humber et al., 2013).

To date, few studies have examined suicidal behaviour amongst prison inmates from a psychological and theoretically driven perspective (Ireland and York, 2012; Slade et al., 2014; Slade and Edelmann, 2014). As such, the current study sought to examine the applicability of the SAMS within an inmate population. There were two main aims. First, to examine the role of the appraisal system, as postulated by the SAMS, in suicidal ideation and self-harm ideation. It was anticipated that higher levels of negative appraisals of the past, present and future would be predictive of both increased suicidal ideation and increased self-harm ideation. Positive self-appraisals of social reciprocity and social support were hypothesized to inversely predict both suicidal and self-harm ideation. Second, positive self-appraisals of social support and social reciprocity were considered as potential moderating variables of the relationship between negative situational appraisals and suicidal ideation. It was predicted that positive self-appraisals of both social support and social reciprocity would interact with situational appraisals to demonstrate a buffering effect upon thoughts of suicide and self-harm.
5.3. Method

5.3.1. Participants

Participants were recruited from a local high security prison establishment in North West England, UK, housing adult male prison inmates. Eligible participants were identified as having been considered to be at risk of suicidal or self-harming behaviour by prison staff within the past three months and, therefore, managed under the Assessment, Care in Custody and Teamwork (ACCT) system of HM Prison Service\(^5\). Participants also had to be aged between 21-65 years, English speaking, in possession of sufficient literacy levels to complete a written diary measure unaided, and considered able by prison staff to provide informed consent and not deemed to pose a current risk to the researcher. Individuals meeting the inclusion criteria were provided with information about the study. Participants were not offered any payment or other incentive for taking part.

5.3.2. Design

An Ecological Momentary Assessment method was used. There was a nested design at three levels (participant, day, time-point). Outcome variables were momentary measures of Suicidal Ideation and Self Harm Ideation. Predictor variables were three measures of Situation Appraisals pertaining to the i) past, ii) present and iii) future and two measures of Self Appraisals, namely i) social support and ii) social reciprocity.

---

\(^5\) The Assessment, Care in Custody and Teamwork (ACCT) system is the care planning and management system used by the prison service in England and Wales (UK) to identify and manage prisoners at risk of suicide or self-harm.
5.3.3. Measures

5.3.3.1. EMA Diary Measure

Descriptor items assessing situational and self-appraisals, suicidal ideation and self-harm ideation were presented to participants at each assessment time. Items were developed by the research team based on the SAMS (Johnson et al., 2008). A service user reference group, comprising individuals with experience of being incarcerated, was consulted to finalize the diary measure (see Table 6 for items). Participants were asked to rate each descriptor item on a ten-point Likert scale (1-10; 1=Not at all, 10=Extremely) in terms of their thoughts at that time.

5.3.3.2. Questionnaire measures

The Beck Scale for Suicidal Ideation (BSS; Beck and Steer, 1991) is a 21-item self-report measure of suicidal ideation, planning and intent over the past week, as well as historical suicidal behaviour. Items 1-19 are summed to provide a current (within the past week) severity score whilst items 20 and 21 assess previous suicidal behaviour. Responses are selected from three response categories (e.g., 0 = ‘I have never attempted suicide’. 1 = ‘I have attempted suicide once’, 2 = ‘I have attempted suicide two or more times’). The alpha coefficient in the current sample was .95.

The Beck Hopelessness Scale (BHS; Beck et al., 1974) is a 20-item self-report measure of hopelessness. Participants respond to statements indicating whether the attitude expressed in the statement is true or false for them in the past week (e.g. ‘I just can’t get the breaks and there’s no reason I will in the future’). Scores range from 0 to 20 with

---

6 In addition to the items measuring appraisals and suicidal/self-harm ideation, each diary entry also consisted of a number of other items measuring constructs not examined here.
higher scores indicative of a higher level of hopelessness. In the current study, the alpha coefficient was .94.

The Defeat Scale (Gilbert and Allan, 1998) is a 16-item self-report measure of perceptions of low social rank (‘I feel that I have sunk to the bottom of the ladder’) and failed struggle (‘I feel that I have not made it in life’) over the past seven days. Participants respond to each item using a five-point scale from ‘Never’ to ‘Always/All the time’. Total scores range from 0 to 64 with higher scores indicative of greater feelings of defeat. Cronbach’s alpha in the current sample was .95.

The Entrapment Scale (Gilbert and Allan, 1998) is a 16-item self-report inventory measuring perceptions of being trapped (‘I am in a situation I feel trapped in’) and a desire to escape (‘I often have the feeling that I would just like to run away’). Items are rated on a five-point scale from ‘Not at all like me’ to ‘Extremely like me’. Possible scores range from 0 to 64 with higher scores representing greater perceived entrapment. The alpha coefficient was .93 in the current study.

5.3.4. Procedure

5.3.4.1. EMA sampling schedule

A time-contingent recording protocol was adapted for within the prison setting. Participants were required to complete a self-report paper diary measure at a fixed schedule over a six-day assessment period. The specific study duration was selected in order to gain a comprehensive overview of participants daily experiences i.e., sampling both weekday and weekend experiences (Kimhy et al., 2012) whilst being sensitive to managing participant burden. A six-day assessment period was also in keeping with the typical duration of momentary assessment studies (Palmier-Claus et al., 2011). Entries were self-initiated and completed across the duration of the day.
5.3.4.2. Ecological Momentary Assessment: Adaptations for the prison setting

The current study was conducted within a high security prison establishment. As such, adaptations to more traditional EMA protocols were required in order to increase feasibility and comply with local security procedures. First, the use of electronic devices was prohibited meaning that participants could not be prompted to complete their diaries, and electronic data collection (e.g., with a PDA/Smartphones) was not possible. Therefore, paper and pen diaries with a fixed schedule were used. The schedule was designed to cover the duration of the day whilst selecting times when it would be appropriate for participants to complete entries i.e., when they were in their cells and had easy access to the diary and pen. Participants were instructed to complete a diary entry at the following times: i) ‘when you wake up’, ii) ‘breakfast time’, iii) ‘lunch time’, iv) ‘dinner time’, v) ‘in the evening’ and vi) ‘before you go to sleep’.

5.3.4.3. Data Collection

5.3.4.3.1. Pre EMA phase

Informed consent was first of all obtained. Following this, participants completed a number of demographic and psychometric measures with questions read aloud by the researcher. Participants were then trained extensively in the EMA procedure and completed a practice diary entry representing one time point\(^7\). Adherence to the EMA protocol was emphasized and the rationale for this was explained. Participants were provided with six individual diary booklets, one for each day of the EMA study period, and instructed to begin completing these the following day for six consecutive days.

\(^7\) For further details of the procedures used to train participants in the EMA procedure contact the corresponding author.
5.3.4.3.2. **EMA phase**

Participants completed up to six diary entries per day over six consecutive days. Completed diaries were collected from participants daily by the researcher in order to assess for any suicide risk issues arising and ensure participants’ understanding and adherence to the protocol. It should be noted that daily collection may also help to minimize the risk of participants backfilling diary entries (Christensen et al., 2003).

5.3.4.3.3. **Post EMA phase**

At the end of the assessment period, participants met with the researcher for a debriefing session. Adherence to the EMA procedure was again checked and participants were given the opportunity to discuss their participation and explore any concerns that had arisen.

5.3.5. **Ethical approval**

This study was granted ethical approval by the National Health Service (NHS) Research Ethics Committee for Wales, UK (Ref: 11/WA/0002), which specializes in research with incarcerated samples. Approval was also gained from the relevant NHS Trust Research and Development office (ref 1035), and the Ministry of Justice National Offender Management Service’s National Research Committee (reference 16-11). The Governor of the host prison establishment provided local approval.

5.3.6. **Statistical analyses**

The diary data was organized with a three level structure with momentary ratings (Level 1) nested within days (Levels 2) which were nested within participants (Level 3). Ratings made within the same days/participants were likely to be correlated and, therefore,
not independent. Hence, multilevel modeling (MLM) was selected as the most appropriate means of analysis due to the hierarchical data structure and because it allows for clustering within the same days/participants. Due to the non-normal distribution of the outcome variables (Suicidal Ideation, Self-harm Ideation), all analyses were conducted with bootstrapping (1000 repetitions). Bootstrapping has been identified as an acceptable alternative to parametric analysis when the assumptions of parametric data are not met (Mooney and Duval, 1993).

Outcome and predictor variables were calculated using momentary ratings data from the EMA diary measure. Where variables were assessed using multiple diary items, then those items were summed to generate variables for analysis (see Table 6 for individual and composite items).

EMA momentary data were analyzed using STATA (Version 9.2). MLM analyses were conducted using the XTMIXED command. Participant and day level random effects were adjusted for in all analyses. For interaction analyses, the predictor and moderator variable were entered alone, as well as, as an interaction term between the two variables. All variables were centered to aid interpretation (Aiken and West, 1991). If the interaction effect was significant, this indicated a moderating effect. Due to issues of multicollinearity, interactions were examined in a series of separate analyses. As there were three situational appraisal variables (past, present, future) and two potential resilience variables (social support, reciprocity) in the study, a series of six analyses were conducted for each outcome variable (suicidal ideation, self-harm ideation) meaning a total of 12 analyses are reported.
5.4. Results

5.4.1. Participant characteristics

In total, 65 prison inmates meeting eligibility criteria were approached to participate. Of these, 53 (82%) agreed to participate. However, two participants were transferred to another establishment prior to participation, leaving a sample of 51 participants. Nine participants completing entries at less than 10 assessment points were excluded from analyses. Therefore, a final sample of 42 participants, aged between 21 and 60 years ($M=36.5, SD=9.07$), was included in the analyses. The majority of participants identified themselves as White British (93%; Mixed: 5%; Black British: 2%) and single (74%; married/cohabiting: 21%; divorced/separated: 5%). More than two thirds of participants were of convicted sentenced status (71%; remand/detainee: 17%; convicted unsentenced: 12%). Violent or sexual offences were the most common index offence type in the current sample (43%), followed by acquisitive offences (31%), breach of a restraining order (10%), arson (5%), and other offences\(^8\) (12%).

5.4.2. Clinical and psychological characteristics

Over three quarters of participants reported a suicide attempt during their lifetime (79%; 33/42) with over half reporting multiple suicide attempts (55%; 23/42). Participants’ scores on standardized questionnaire measures of suicidality, hopelessness, defeat and entrapment can be seen in Table 6. On average, participants provided data for almost three quarters of the 36 diary assessment points ($M=26.90, SD=8.51$) over an average of 5.60 days ($SD = .91$). Descriptive statistics for individual diary items can be seen in Table 6.

\(^8\) Other offences were: drug related (2%); fraud (2%); motoring offence (2%); breach of community service order (2%); breach of anti-social behaviour order (2%).
Table 6: *Descriptive statistics for individual diary items and standardized questionnaire measures*

<table>
<thead>
<tr>
<th>Diary Item</th>
<th>No. of observations</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Suicidal Ideation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I want to live (R)</td>
<td>1099</td>
<td>5.30</td>
<td>3.01</td>
</tr>
<tr>
<td>Life is worth living (R)</td>
<td>1093</td>
<td>5.55</td>
<td>3.03</td>
</tr>
<tr>
<td><strong>Self-harm Ideation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I want to hurt myself</td>
<td>1094</td>
<td>3.45</td>
<td>2.69</td>
</tr>
<tr>
<td><strong>Situation Appraisal - Future</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am optimistic about my future (R)</td>
<td>1107</td>
<td>6.58</td>
<td>3.20</td>
</tr>
<tr>
<td>I feel hopeless about my life</td>
<td>1101</td>
<td>5.69</td>
<td>3.16</td>
</tr>
<tr>
<td>My future seems dark</td>
<td>1097</td>
<td>6.00</td>
<td>3.23</td>
</tr>
<tr>
<td><strong>Situation Appraisal - Present</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I’m doing okay right now (R)</td>
<td>1105</td>
<td>6.58</td>
<td>2.59</td>
</tr>
<tr>
<td>I’m struggling right now</td>
<td>1094</td>
<td>5.42</td>
<td>3.12</td>
</tr>
<tr>
<td><strong>Situation Appraisal - Past</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I’ve never done very well</td>
<td>1100</td>
<td>4.79</td>
<td>2.78</td>
</tr>
<tr>
<td><strong>Social Support Appraisal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have no-one to turn to(R)</td>
<td>1104</td>
<td>5.90</td>
<td>2.95</td>
</tr>
<tr>
<td>Other people care about me</td>
<td>1100</td>
<td>4.51</td>
<td>2.86</td>
</tr>
<tr>
<td><strong>Social Reciprocity Appraisal</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I will be able to help others</td>
<td>1093</td>
<td>4.13</td>
<td>2.80</td>
</tr>
<tr>
<td><strong>Standardized Questionnaire Measures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beck Scale for Suicidal Ideation</td>
<td>41</td>
<td>10.90</td>
<td>9.67</td>
</tr>
<tr>
<td>Beck Hopelessness Scale</td>
<td>42</td>
<td>11.00</td>
<td>6.42</td>
</tr>
<tr>
<td>Defeat Scale</td>
<td>41</td>
<td>43.00</td>
<td>14.49</td>
</tr>
<tr>
<td>Entrapment Scale</td>
<td>41</td>
<td>38.71</td>
<td>15.81</td>
</tr>
</tbody>
</table>
5.4.3. The moderating effect of positive self-appraisals on the relationship between negative situation appraisals and suicidal ideation

It was predicted that positive self-appraisals of social support and social reciprocity would moderate the relationship between negative situation appraisals and suicidal ideation. To examine this, a series of six multilevel regression analyses were conducted (see Table 7). Analyses revealed significant main effects of negative situation appraisals of the present and future, but not the past, in all analyses. In addition, significant main effects of a lack of social reciprocity alongside negative past and future appraisals were found to predict suicidal ideation. Contrary to hypotheses, no interaction effects were revealed, suggesting that positive self-appraisals of social support and social reciprocity did not moderate the relationship between negative situational appraisals and suicidal ideation.
Table 7: Multilevel modeling analysis of positive self-appraisals as moderator in relationship between negative situational appraisals and suicidal ideation/self-harm ideation

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Moderator</th>
<th>Predictor</th>
<th>Coefficient</th>
<th>SE</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicidal Ideation</td>
<td>Social Support (SS)</td>
<td>Past Appraisal</td>
<td>-0.024</td>
<td>0.123</td>
<td>0.848</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SS</td>
<td>-0.260</td>
<td>0.068</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Past Appraisal x SS</td>
<td>0.008</td>
<td>0.010</td>
<td>0.401</td>
</tr>
<tr>
<td>Social Support (SS)</td>
<td>Present Appraisal</td>
<td></td>
<td>0.364</td>
<td>0.062</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SS</td>
<td>-0.080</td>
<td>0.074</td>
<td>0.280</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Present Appraisal x SS</td>
<td>-0.004</td>
<td>0.006</td>
<td>0.526</td>
</tr>
<tr>
<td>Social Support (SS)</td>
<td>Future Appraisal</td>
<td></td>
<td>0.282</td>
<td>0.046</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SS</td>
<td>-0.088</td>
<td>0.072</td>
<td>0.219</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Future Appraisal x SS</td>
<td>-0.001</td>
<td>0.004</td>
<td>0.823</td>
</tr>
<tr>
<td>Soc.Reciprocity(SR)</td>
<td>Past Appraisal</td>
<td></td>
<td>0.065</td>
<td>0.090</td>
<td>0.472</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SR</td>
<td>-0.449</td>
<td>0.108</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Past Appraisal x SR</td>
<td>0.018</td>
<td>0.018</td>
<td>0.308</td>
</tr>
<tr>
<td>Soc.Reciprocity(SR)</td>
<td>Present Appraisal</td>
<td></td>
<td>0.351</td>
<td>0.048</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SR</td>
<td>0.189</td>
<td>0.112</td>
<td>0.093</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Present Appraisal x SR</td>
<td>-0.006</td>
<td>0.009</td>
<td>0.464</td>
</tr>
<tr>
<td>Soc.Reciprocity(SR)</td>
<td>Future Appraisal</td>
<td></td>
<td>0.277</td>
<td>0.035</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SR</td>
<td>-0.289</td>
<td>0.102</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td></td>
<td>Future Appraisal x SR</td>
<td>Past Appraisal</td>
<td>SS</td>
<td>Past Appraisal x SS</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------</td>
<td>----------------</td>
<td>----</td>
<td>---------------------</td>
<td></td>
</tr>
<tr>
<td>Self-harm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Support (SS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ideation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past Appraisal</td>
<td>0.01</td>
<td>0.035</td>
<td></td>
<td>0.992</td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>-0.115</td>
<td>0.028</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past Appraisal x SS</td>
<td>-0.001</td>
<td>0.06</td>
<td>0.927</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Appraisal</td>
<td>0.299</td>
<td>0.033</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>0.041</td>
<td>0.029</td>
<td>0.162</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Appraisal x SS</td>
<td>-0.008</td>
<td>0.003</td>
<td>&lt;0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Support (SS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future Appraisal</td>
<td>0.190</td>
<td>0.028</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS</td>
<td>0.027</td>
<td>0.035</td>
<td>0.436</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future Appraisal x SS</td>
<td>-0.005</td>
<td>0.002</td>
<td>&lt;0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soc.Reciprocity(SR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past Appraisal</td>
<td>0.143</td>
<td>0.056</td>
<td>&lt;0.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR</td>
<td>-0.111</td>
<td>0.047</td>
<td>&lt;0.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past Appraisal x SR</td>
<td>-0.007</td>
<td>0.010</td>
<td>0.481</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soc.Reciprocity(SR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Appraisal</td>
<td>0.258</td>
<td>0.027</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR</td>
<td>0.023</td>
<td>0.049</td>
<td>0.640</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Appraisal x SR</td>
<td>-0.007</td>
<td>0.005</td>
<td>0.100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soc.Reciprocity(SR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future Appraisal</td>
<td>0.176</td>
<td>0.020</td>
<td>&lt;0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SR</td>
<td>0.046</td>
<td>0.048</td>
<td>0.330</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future Appraisal x SR</td>
<td>-0.008</td>
<td>0.054</td>
<td>&lt;0.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.4.4. The moderating effect of positive self-appraisals on the relationship between negative situation appraisals and self-harm ideation

As above, a series of six analyses were conducted, this time to examine whether positive self-appraisals of social support and social reciprocity moderated the relationship between negative situation appraisals and self-harm ideation (see Table 7). First, analyses revealed significant main effects of negative present and future perceptions on self-harm ideation in all analyses. Significant main effects of past situational appraisals on self-harm ideation were only found in one analysis. Second, a number of significant interaction effects were found. Specifically, positive appraisals of social support were found to interact with negative situation appraisals of both the present and future to predict self-harm ideation (see Figures 7 and 8). More negative appraisals of the present and future predicted high levels of self-harm ideation, which was not affected by positive appraisals of social support. However, when appraisals of the present and future were less negative, perceived low levels of social support resulted in the lowest levels of self-harm ideation. Positive appraisals of social reciprocity were also found to interact with negative appraisals of the future, in predicting self-harm ideation in a similar manner (see Figure 9). Findings from these moderation analyses were in direct contrast to predictions. Rather than positive perceptions of social support and reciprocity acting as a buffer, they were seen to make self-harm ideation worse, but only when situational appraisals were less negative.
Figure 7: The effect of social support scores on self-harm ideation split by low and high levels of negative appraisals of the present situation.

Figure 8: The effect of social support scores on self-harm ideation split by low and high levels of negative appraisals of the future.
Figure 9: The effect of social reciprocity scores on self-harm ideation split by low and high levels of negative appraisals of the future.
5.5. Discussion

The current study had two primary aims. The first was to examine the role of the appraisal system, as postulated by the SAMS, in predicting suicidal ideation and self-harm ideation (Johnson et al., 2008). The second was to explore whether positive self-appraisals of social support and social reciprocity buffered against the development of suicidal ideation and thoughts of self-harm in the face of negative situational appraisals. The key finding was that negative appraisals of the present situation (current coping) and of the future predicted increased severity of both suicidal thoughts and self-harm ideation, thus highlighting the role of negative present and future appraisals as common predictors of both suicidal and self-harm ideation. Contrary to predictions, appraisals of the past showed no consistent relationship with either suicidal ideation, or self-harm ideation. Positive appraisals of social reciprocity were predictive of lesser suicidal ideation, although no relationship was observed with respect to self-harm ideation. Diverging from predictions, positive perceptions of social support and social reciprocity did not buffer against the impact of negative situational appraisals in the development suicidal or self-injurious thoughts.

This study was the first to examine the applicability of a contemporary model of suicidality to an inmate population through the use of an ecologically valid, in the moment, assessment protocol. The study provides empirical support for the role of the appraisal system in suicidal thoughts, as suggested by the SAMS (Johnson et al., 2008) within an inmate population. In addition, the current study goes beyond previous work by teasing out both common and differential mechanisms which were predictive of suicidal versus self-harm ideation, in real time and in participants’ own environment.

The finding that positive self-appraisals of neither social support nor reciprocity displayed a buffering effect on the relationship between negative appraisals and suicidality
is in contrast to our hypotheses. Whilst a number of studies have found perceived social support to be depleted amongst prisoners with more extensive suicidal histories, or current suicidality (Biggam and Power, 1997; Jenkins et al., 2005; Marzano et al., 2011) in the current study, this was not predictive of either suicidal or self-harm ideation when situational appraisals were accounted for. When perceptions of the present and future were highly negative, social support and social reciprocity did not affect levels of self-harm ideation. However, it can be seen that more negative perceptions of social support and reciprocity were actually protective against self-injurious thoughts when participants’ had less negative situational appraisals.

This finding can be explained by research concerning the negative impact of imprisonment upon intimate relationships, highlighting that prisoners in relationships may be particularly affected by feelings of isolation and as such may emotionally withdraw from these relationships as a means of coping (Harman et al., 2007). In addition, relationship difficulties and conflicts with family and friends outside of prison are often the trigger for suicide attempts amongst prisoners (Rivlin et al., 2013). It may be that within the prison context, in which relationships with family are disrupted (La Vigne et al., 2005), perceptions of social support and reciprocity are impacted upon by the enforced separation experienced, such that their potential protective role is reduced. It is tentatively suggested that social support in prison may have a paradoxical effect i.e. support may be experienced as both positive and negative, highlighting frustrations associated with separation from family and friends. As such, thoughts about self-harm may indicate a potential emotion regulation strategy in response to these frustrations, although this occurred only at lower levels of negative situational appraisals. Further research is, therefore, needed to examine these nuanced relationships and more generally to identify specific factors that may buffer against suicidal thoughts and behaviours within inmate populations. Whilst the current
study supports the notion of both common and differential pathways to suicidal versus self-harm ideation, there is also a need to examine the psychological factors that differentiate those who think about suicide or self-harm from those who act upon these thoughts (O’Connor et al., 2012) amongst prisoner populations.

A number of limitations should be considered of this study. First, the requirement for participants to possess sufficient levels of literacy in order to complete the assessment measure may have impacted upon the extent to which the current sample could be considered representative of the wider prisoner population given the low levels of literacy present in inmate populations (Social Exclusion Unit, 2002). This was, however, an unavoidable limitation given the diary measure used. Second, the use of a fixed schedule at which participants completed diary entries may have led to a more limited range of situations being assessed compared to if a random schedule had been used. That said, this was also unavoidable due to the constraints of a prison environment. Third, the use of paper and pen recording has been criticized because compliance with the sampling procedure cannot be recorded and examined in contrast to computerized data collection techniques (Christensen et al., 2003). The paper diary may, therefore, be more prone to back or forward filling, thus, decreasing response validity (Palmier-Claus et al., 2011). However, adherence to the protocol was stressed during briefing and participants reported complying with procedures when questioned. The daily collection of diary records has also been suggested as a means by which compliance may be increased (Christensen et al., 2003) which was done in the current study.

The findings of the current study suggest clinical implications for the management of inmates who may be at risk of suicide or self-harm. Results highlight the pernicious effect of negative situational appraisals upon both thoughts about suicide and self-injurious thoughts. Interventions designed to equip those at risk with coping strategies may prove
beneficial in reducing negative appraisals of coping in the present. Furthermore, the targeted reduction of negative appraisals of the future may be an appropriate goal for intervention. For individuals at risk of suicide, but not self-harm, these results suggest that interventions that enable prisoners to help others, thus developing a sense of social reciprocity, may be beneficial in reducing suicide risk. The Listener Scheme in England and Wales\(^9\) has reported positive effects for its volunteers in developing a sense of purpose through helping others, with many volunteers citing previous difficulties with coping in prison as motivation to take up this role (Jaffe, 2012). This study also highlights the need to thoroughly assess the nature of an individual’s social support and social relationships when formulating suicide and self-harm risk assessments, indicating that the presence of social/familial relationships should not necessarily be considered protective.

To conclude, the current study provides preliminary support for the applicability of the Schematic Appraisals Model of Suicide (Johnson et al., 2008) to an inmate population. Results advance the assertion that dysfunctional, negative appraisals play an important role in suicidality. Furthermore, this relationship pertains in the context of participants’ daily lives. Interventions targeting these dysfunctional appraisals may prove beneficial to those experiencing suicidal thoughts. Further research is required to identify the specific factors that may confer resilience to suicidal behaviour within this population.

\(^9\)The Listener Scheme is a peer support scheme available in prisons in England and Wales. Prisoners are trained and supported by the Samaritans, a charitable organisation, to provide confidential support to fellow prisoners.
CHAPTER 6

6. Resilience to suicidality amongst prisoners: examining the role of positive self-appraisals.

6.1. Abstract

Rates of suicidal behaviour and suicide deaths are elevated amongst prisoner populations. Whilst a number of factors that increase the risk of suicidality have been identified, there is a dearth of research examining those factors that protect against the development of suicidal thoughts and behaviours in prisoners. The current study aimed to examine whether resilience, characterized as positive self-appraisals, could buffer against perceptions of hopelessness, entrapment, and defeat in predicting suicidal ideation in this high-risk group. Fifty-nine male prisoners identified as at risk of suicide were recruited from a high security prison. Participants completed questionnaire measures of suicidal ideation, hopelessness, defeat, entrapment, and resilience. Hierarchical regression analyses indicated that positive self-appraisals interacted with internal entrapment in predicting suicidal ideation. Specifically, positive self-appraisals weakened the relationship between high levels of internal entrapment and suicidal ideation, indicating a buffering effect. Positive self-appraisals did not buffer the impact of hopelessness on suicidal ideation. The results of the current study emphasise the importance of examining resilience factors in ameliorating suicidality amongst prisoners. From a clinical perspective, psychological interventions that target the development of positive self-appraisals may help to lessen the impact of specific psychological risk factors upon suicidality in this population.
6.2. Introduction

Suicidal behaviour and death by suicide present significant challenges to correctional institutions worldwide. Rates of suicide deaths amongst prisoners are between three and seven times higher than those of the general population (Fazel, Grann, Kling & Hawton, 2011; Rabe, 2012). In Europe, it is estimated that over a third of prisoner deaths are by suicide (Rabe, 2012). As a group, prisoners experience high levels of social and economic disadvantages, mental health difficulties, and psychological distress. Rates of depression and psychosis amongst those imprisoned are 11.4% and 3.7% respectively (Fazel & Seewald, 2012). Furthermore, traumatic experiences are common, with many prisoners being exposed to multiple traumatic events prior to imprisonment, often beginning during childhood or adolescence (Gibson et al., 1999; Sindicich et al., 2014). Imprisonment itself may also expose individuals to further traumatic events and victimization (Blitz, Wolff & Shi, 2008; Schneider et al., 2011). More traumatic life events have been associated with increased suicide risk in prisoners (Blaauw, Arensman, Kraaij, Winkel & Bout, 2002).

Risk factors for suicidal ideation and behaviour have been extensively studied within prisoner populations (Fazel, Cartwright, Norman-Nott & Hawton, 2008; Lekka, Argyriou & Beratis, 2006; Sarchiapone, Carli, di Giannantonio & Roy, 2009). However, these investigations have been largely atheoretical in nature, highlighting the need for a coherent framework within which prisoner suicidality can be understood (Slade & Edelmann, 2014). Hopelessness is one such factor that has been identified as a strong, and consistent, predictor of suicide (Hawton & van Heeringen, 2009). In addition, hopelessness has been identified as a putative factor in the development of suicidality by a number of theoretical models (Johnson, Gooding & Tarrier, 2008; Williams, 1997; Williams, Crane, Barnhofer & Duggan, 2005) and has been shown to be an important risk factor for suicidal thoughts and behaviour amongst prisoners (Chapman, Specht & Cellucci, 2005; Palmer & Connelly,
It is clear that suicide rates within prisons are high. Research to date has largely focused upon identifying those factors that increase a person’s risk of suicidal behaviour (Forrester & Slade, 2014). An alternative, yet equally important, approach is to consider those factors that protect against the development, and maintenance, of suicidal thoughts and behaviour, thus conferring resilience. This approach may be particularly germane within prisoner populations, where large proportions of prisoners often possess a multitude of risk factors, yet the majority of these individuals do not die by suicide. The question as to why such individuals show resilience to suicide is important both theoretically and clinically.

The Schematic Appraisals Model of Suicide (SAMS; Johnson et al., 2008) is a contemporary model of suicidality. The SAMS not only provides a framework within which suicidal behaviour may be understood, but also offers a basis upon which resilience to suicide may be considered (Johnson et al., 2008). Within the context of the SAMS, resilience has been conceptualised as positive self-appraisals that buffer against suicidality in the face of risk factors or stressors (Johnson, Gooding, Wood & Tarrier, 2010a). According to the SAMS, three areas of positive self-appraisals may be protective against suicidality in light of high levels of risk. These are i) emotion coping, ii) problem solving (also referred to as situation coping), and iii) social support.

The buffering hypothesis suggests that resilience can be viewed as existing on a separate dimension to risk, from which it interacts with risk factors to reduce their negative impact (Johnson, Wood, Gooding, Taylor & Tarrier, 2011). This means that resilience is not merely the absence of risk, but a separate factor that may attenuate the impact of risk. The results of three recent studies lend support to this hypothesis. In the first of these
studies, positive self-appraisals, comprising appraisals of emotion coping, social support, and problem solving, were found to moderate the relationship between stress and a measure of suicidality, encompassing suicidal thoughts and behaviours, in a student sample (Johnson, Gooding, Wood & Tarrier, 2010a). In the second study, positive self-appraisals of the ability to cope with negative emotions moderated the association between hopelessness and suicidal ideation among individuals experiencing psychosis (Johnson et al., 2010b). In the third, and final, study, perceptions of social support were found to moderate the impact of PTSD symptoms on a measure of general suicidality, including past and present suicidal thoughts and behaviours (Panagioti. Gooding, Taylor & Tarrier, 2014). Taken together, these studies provide important insights into the protective role of resilience comprising positive self-appraisals with respect to suicidality.

Previous research regarding resilience to suicide amongst prisoners has been sparse. The few studies that have examined this concept have typically used questionnaire measures designed to assess resilience, examining the basic relationships between resilience and suicidality. Results of these studies found lower levels of resilience in prisoners with a history of attempted suicide, compared to those without suicide attempts (Sarchiapone et al., 2009). In addition, prisoners who had made multiple suicide attempts displayed lower levels of resilience than those who had made a single suicide attempt (Roy, Carli, Sarchiapone & Branchey, 2014). A similar pattern has emerged with respect to suicidal ideation, with suicide ideators being lower in resilience than non-ideators (Roy, Carli & Sarchiapone, 2011). Finally, in a study by Slade and Edelmann (2014), the predictive value of resilience in a model of suicide was examined. The study found that low levels of resilience was not predictive of suicidal ideation once other factors, such as previous suicidal behaviour, suicide permissive thoughts, and an external locus of control, were accounted for (Slade & Edelmann, 2014). A limitation of these studies is the failure
to examine interaction effects. Hence, whilst resilience may be seen to be inversely associated with suicidality, its ability to actually protect the individual in the face of risk factors is unknown. Two relevant studies have, however, gone beyond this approach, examining the buffering hypothesis within forensic samples. In an earlier study of adolescents in juvenile detention, problem solving appraisals was found to moderate the relationship between childhood physical abuse and suicidal ideation, whilst positive appraisals of social support moderated the impact of childhood sexual abuse upon suicidal cognitions (Esposito & Clum, 2002). More recently, in a sample of prison inmates at risk of suicide, appraisals of social support and social reciprocity were found not to buffer the impact of negative present and future perceptions upon suicidal ideation (Sheehy, Pratt, Emsley, Tarrier & Gooding, submitted; Chapter 5 of this thesis). The different patterns of results from these latter two studies may have been due to disparities in perceived social support between the respective samples, namely, incarcerated adolescents and adult prisoners experiencing suicidal thoughts and behaviours. These findings underscore the need to consider that different risk and resilience factors may be pertinent across diverse clinical groups, including those in a range of forensic contexts. Clearly there is a need to further understand the interactions between specific risk and resilience factors in predicting suicidal thoughts and behaviours amongst incarcerate individuals.

According to the SAMS (Johnson et al., 2008) positive self-appraisals of the ability to cope with emotions, gain social support, and solve problems may confer resilience to suicide. Within prisoner populations, an inverse relationship between social support and suicidality has been consistently reported (Jenkins et al., 2005; Marzano, Hawton Rivlin & Fazel, 2011; Zhang, Liang, Zhou & Brame, 2010). In addition, investigations of problem solving ability, as measured by the Means-Ends Problem-Solving procedure (Platt & Spivack, 1975), have shown that suicidality and psychological distress are consistently
related to a more passive problem solving approach in the prisoner population (Biggam & Power, 1999a, 1999b; Eidhin, Sheehy, O’Sullivan & McLeavey, 2002). Nonetheless, there have been no attempts to examine the relationship between perceived problem solving abilities and suicidality amongst prisoners. There is a need to examine the impact of these potential resilience factors, in conjunction with theoretically driven risk factors, such as hopelessness, entrapment and defeat. In a recent study, internal entrapment, alongside depression and hopelessness, was found to be an independent predictor of suicidal ideation amongst prisoners at high risk for suicide (Sheehy et al., submitted). In addition, Slade and Edelmann (2014) found that defeat was an important factor predicting prisoner suicidality.

There were two key goals of the current study. The first was to investigate whether resilience in the form of positive self-appraisals would protect against suicidal ideation in a sample of male prisoners at identified as at-risk for suicide. Specifically, the current study investigated whether positive self-appraisals would buffer against the impact of defeat, entrapment, and hopelessness on suicidal thoughts. The second, more exploratory, goal was to investigate which types of positive self-appraisals may confer resilience within this population. Three types of positive self-appraisals, namely, emotion coping, problem solving, and social support, were investigated.

6.3. Method

6.3.1. Participants

Participants were adult male prisoners recruited from one high secure prison in the North of England, UK. Potential participants had to meet the following four inclusion criteria: i) identified as at risk of suicide or self-harm by prison staff and monitored via the
Assessment, Care in Custody and Teamwork (ACCT) system\(^{10}\) (Ministry of Justice, 2013) within the past three months, ii) able to provide informed consent, iii) fluent English speaking, and iv) not presenting a risk of violence to the researcher. Participants did not receive any payment or other incentive for their participation.

### 6.3.2. Design

A cross-sectional, questionnaire based design was used. Predictor variables were hopelessness, defeat, internal entrapment, and external entrapment. Moderator variables were positive self-appraisals of i) overall resilience, ii) problem solving, iii) social support and iv) emotion coping. The outcome variable was suicidal ideation.

### 6.3.3. Measures

**Resilience.** The Resilience Appraisals Scale (RAS; Johnson et al., 2010a; see Appendix XII) is a 12-item measure of psychological resilience. Participants respond to items using a five-point scale ranging from ‘Strongly Disagree’ to ‘Strongly Agree’. The RAS comprises three subscales examining Emotion Coping (e.g., ‘I can handle my emotions’), Problem Solving (e.g., ‘I can usually solve problems that occur’) and Social Support (e.g., ‘I have family or friends who would listen to me if I needed them to’). In the current study the alpha coefficient was .89 for the total scale, .87 for the social support subscale, .89 for the problem solving subscale, and .89 for the emotion coping subscale.

**Suicidal ideation.** The Beck Scale for Suicidal Ideation (BSS; Beck & Steer, 1991) is a 21-item of current suicidal ideation and past suicidal behaviour. Items 1-19 assess the severity of suicidal ideation occurring over the past week. Participants respond to each

---

\(^{10}\) The Assessment, Care in Custody and Teamwork (ACCT) system is the care planning system used by HM Prison Service (England and Wales) to identify and manage prisoners at risk of suicidal behaviour.
item by choosing one of three responses, each reflecting increased severity of suicidal thoughts (e.g., ‘0=My reasons for living outweigh my reasons for dying’ ‘1=My reasons for living or dying are about equal’ ‘2=My reasons for dying outweigh my reasons for living’). Responses are summed providing a total score between 0-38, with higher scores indicating more severe suicidal ideation. Items 20 and 21 are used to assess previous suicidal behaviour. The alpha coefficient in the current sample was .92.

**Defeat.** The Defeat Scale (Gilbert & Allan, 1998) comprises 16-items assessing perceptions of failed social struggle and loss of rank occurring over the past seven days (e.g., ‘I feel that there is no fight left in me’). Each item is rated on a five-point scale, from ‘0=Never’ to ‘4=Always’. Scores are summed to give a total between 0-64, with higher scores reflecting greater perceptions of defeat. The alpha coefficient for the current sample was .96.

**Entrapment.** The Entrapment Scale (Gilbert & Allan, 1998) is a 16-item measure of perceived entrapment and escape motivation. The measure comprises two subscales; internal entrapment, referring to the motivation to escape from internal stressors (six items; e.g., ‘I feel trapped inside myself’), and external entrapment, indicating perceptions of entrapment from external or situational factors (10 items; e.g., ‘I feel trapped by other people’). Responses are provided on a five point scale, from ‘0 = Not at all like me’ to ‘4 = Extremely like me’. Alpha coefficients were .93 for the total scale, .89 for internal entrapment, and .88 for external entrapment in the current study.

**Hopelessness.** The Beck Hopelessness Scale (BHS; Beck, Weissman, Lester & Trexler, 1974) is a 20-item measure of negative future perceptions occurring over the past week (e.g. ‘It’s very unlikely that I will get any real satisfaction in the future’). Participants respond to items as ‘True’ or ‘False’. Scores are summed to give a total between 0-20, with
higher scores indicative of greater perceived hopelessness. The alpha coefficient in the current study was .92.

6.3.4. Procedure

Potential participants meeting the inclusion criteria were provided with a participant information sheet, which they were given at least 24 hours to consider. Where individuals wished to participate, written informed consent was then sought. Following this, participants’ demographic and custodial information was collected. Questionnaire measures were then read aloud to participants by the researcher (KS), as appropriate.

6.3.5. Ethical approval

This study was granted ethical approval by the National Health Service (NHS) Research Ethics Committee for Wales, UK (Ref: 11/WA/0002), which specializes in research with incarcerated samples. Approval was also gained from the relevant NHS Trust Research and Development office (ref 1035), and the Ministry of Justice National Offender Management Service’s National Research Committee (reference 16-11). The Governor of the host prison establishment provided local approval.

6.3.6. Analysis strategy

Data were initially screened for normality, using z-scores for skewness (Field, 2005). The variable suicidal ideation was positively skewed, thus violating the normality assumption of parametric analysis. As such, associations between variables were examined using Spearman’s rho correlation coefficients. Preliminary univariate analyses were conducted to examine relationships between all key variables and suicidal ideation.
Variables with non-significant relationships were not included in further analyses. Next, a hierarchical regression analysis was conducted to examine whether positive self-appraisals, as measured by the Resilience Appraisals Scale (RAS), moderated the associations between defeat, entrapment, hopelessness and suicidal ideation. Due to the non-normal distribution of the outcome variable, analyses were conducted with bootstrapping (1000 repetitions). Bootstrapping is a non-parametric approach to statistical testing using random resampling (Mooney & Duval, 1993). It has been recommended as an alternative to parametric testing where assumptions of normality are not met, and its use has been advocated with small samples and where data distributions are skewed (Mooney & Duval, 1993).

For the regression analyses, predictor and moderator variables were centred prior to analysis (Aiken & West, 1991). In the first step of the analysis, the predictor variable (hopelessness, defeat, entrapment) was entered into the regression model. In the second step, the predictor variable of resilience was entered. In the third step, the interaction term between the predictor and the resilience measure was entered. If the inclusion of the interaction term added significant predictive variance to the model, a moderating effect was indicated (Cohen & Cohen, 1983). Significant interaction effects were plotted using algorithms provided by Dawson (2013). This analysis was then repeated with each predictor variable, and for each of the resilience subscales to investigate whether positive self-appraisals of problem solving, emotion coping, and social support would have a buffering effect when examined in isolation. This analysis strategy was deemed to be appropriate to provide initial evidence regarding the interactions of each of the specific risk and resilience factors. A power calculation, conducted using G*Power, indicated that for a multiple linear regression with three predictor variables, e.g., resilience, internal entrapment, and resilience*internal entrapment, a sample of size of 48 participants would
provide 80% power to identify a medium effect size ($f = 0.25$). All tolerance values were above 0.2 (Menard, 1995), whilst all variance inflation factor (VIF) values were substantially below 10 (Myers, 1990), indicating that multicollinearity was not an issue in the analyses. All analyses were completed using SPSS Version 22.

6.4. Results

6.4.1. Descriptive statistics and correlations

Seventy-six individuals meeting eligibility criteria were provided with information about participation in the current study. Of these, 11 declined to participate, leaving 65 consenting participants. Two participants later withdrew, one participant was unable to meaningfully engage, and a further three participants were transferred to another establishment part way through their participation. A final sample of 59 male prisoners was, therefore, included in the analysis, with a mean age of 34.73 years ($SD=10.44$, $Range=21-55$ years). Participants were mostly white British ($n=54, 92\%$). The majority of prisoners were single ($n=38, 64\%$), followed by married or cohabiting ($n=17, 29\%$). Thirty-eight prisoners (64%) were of convicted sentenced status, 17 (29%) were on remand, and the remaining four (7%) were convicted awaiting sentencing. Means, standard deviations and correlations of all key variables are shown in Table 8.

6.4.2. Preliminary analyses

Initially, univariate regression analyses of predictor variables, hopelessness, defeat, internal entrapment, and external entrapment, with the outcome variable suicidal ideation (BSS) were conducted. For defeat, the model was not significant, $f(1,57) = 2.82$, $p=0.099$, $R^2 = 0.05$, indicating that defeat did not explain a significant proportion of the variance in suicidal ideation. As such, defeat was not included in any further analyses.
<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Suicidal ideation (BSS)</td>
<td>10.92</td>
<td>8.83</td>
<td>.52**</td>
<td>.29*</td>
<td>.47**</td>
<td>.44**</td>
<td>-.28*</td>
<td>-.43**</td>
<td>-.12</td>
<td>-.13</td>
</tr>
<tr>
<td>2. Hopelessness (BHS)</td>
<td>9.14</td>
<td>5.96</td>
<td>.66**</td>
<td>.56**</td>
<td>.68**</td>
<td>-.63**</td>
<td>-.71**</td>
<td>-.29*</td>
<td>-.41**</td>
<td></td>
</tr>
<tr>
<td>3. Defeat</td>
<td>37.36</td>
<td>16.10</td>
<td>.55**</td>
<td>.61**</td>
<td>-.45**</td>
<td>-.32*</td>
<td>-.28*</td>
<td>-.37**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Internal entrapment</td>
<td>15.05</td>
<td>6.89</td>
<td>.73**</td>
<td>-.40**</td>
<td>-.31*</td>
<td>.31*</td>
<td>-.28*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. External entrapment</td>
<td>19.71</td>
<td>9.66</td>
<td>-.45**</td>
<td>-.40**</td>
<td>-.24</td>
<td>-.33*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Positive self appraisals (RAS Total)</td>
<td>37.42</td>
<td>9.37</td>
<td></td>
<td></td>
<td>.75**</td>
<td>.78**</td>
<td>.85**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Social Support appraisals subscale (RAS Soc.)</td>
<td>14.76</td>
<td>4.48</td>
<td></td>
<td></td>
<td></td>
<td>.34**</td>
<td>.47**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Emotion Coping appraisals subscale (RAS Emo.)</td>
<td>10.10</td>
<td>3.68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.60**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Problem Solving appraisals subscale (RAS Prob.)</td>
<td>12.56</td>
<td>3.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.01. Note. BSS = Beck Scale for Suicidal Ideation, BHS = Beck Hopelessness Scale, RAS = Resilience Appraisals Scale.
6.4.3. Regression analyses

6.4.3.1. The moderating effect of resilience (RAS) on the relationships between hopelessness, internal entrapment, external entrapment and suicidal ideation.

The first prediction was that resilience, as measured by the RAS, would moderate the impact of predictor variables hopelessness, internal entrapment, and external entrapment upon suicidal ideation. To test this, a series of three regression analyses were conducted. The results from each predictor variable are presented in turn. As can be seen in Table 9, there were main effects of hopelessness and external entrapment on suicidal ideation, but there were no significant interaction effects with the resilience moderator. However, for internal entrapment there were significant main effects upon suicidal ideation. Furthermore, the interaction between internal entrapment and positive self-appraisals was found to be significant, indicating that positive self-appraisals moderated the relationship between internal entrapment and suicidal ideation. From Figure 10 it can be seen that low resilience and high internal entrapment resulted in the highest levels of suicidal ideation, which were reduced when resilience was high. In sum, positive self-appraisals were found to buffer the impact of internal entrapment on suicidal ideation, although this effect was not found for either hopelessness or external entrapment.
Table 9: *Multiple regression analysis of positive self-appraisals as moderators in the relationship between hopelessness, internal entrapment, external entrapment, and suicidal ideation.*

<table>
<thead>
<tr>
<th>Moderator</th>
<th>Predictor</th>
<th>Coefficient</th>
<th>SE</th>
<th>p-value</th>
<th>CI (95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience</td>
<td>Hopelessness</td>
<td>0.827</td>
<td>0.204</td>
<td>0.001***</td>
<td>.394-.1.150</td>
</tr>
<tr>
<td>(RAS Total)</td>
<td>RAS Total</td>
<td>0.098</td>
<td>0.152</td>
<td>0.487</td>
<td>-.209-.391</td>
</tr>
<tr>
<td></td>
<td>Hopelessness x RAS Total</td>
<td>-0.027</td>
<td>0.023</td>
<td>0.222</td>
<td>-.073-.025</td>
</tr>
<tr>
<td>Resilience</td>
<td>Internal Entrapment</td>
<td>0.641</td>
<td>0.118</td>
<td>0.001***</td>
<td>.396-.872</td>
</tr>
<tr>
<td>(RAS Total)</td>
<td>RAS Total</td>
<td>-0.014</td>
<td>0.126</td>
<td>0.897</td>
<td>-.266-.239</td>
</tr>
<tr>
<td></td>
<td>Int. Entrap x RAS Total</td>
<td>-0.039</td>
<td>0.015</td>
<td>0.004**</td>
<td>-.070-.006</td>
</tr>
<tr>
<td>Resilience</td>
<td>External Entrapment</td>
<td>0.375</td>
<td>0.108</td>
<td>0.003**</td>
<td>.153-.579</td>
</tr>
<tr>
<td>(RAS Total)</td>
<td>RAS Total</td>
<td>-0.099</td>
<td>0.125</td>
<td>0.412</td>
<td>-.329-.149</td>
</tr>
<tr>
<td></td>
<td>Ext. Entrap x RAS Total</td>
<td>-0.023</td>
<td>0.015</td>
<td>0.096</td>
<td>-.050-.016</td>
</tr>
<tr>
<td>Social Support</td>
<td>Hopelessness</td>
<td>0.683</td>
<td>0.252</td>
<td>0.009**</td>
<td>.183-.998</td>
</tr>
<tr>
<td>(RAS Soc.)</td>
<td>RAS Soc.</td>
<td>-0.093</td>
<td>0.398</td>
<td>0.788</td>
<td>-.943-.357</td>
</tr>
<tr>
<td></td>
<td>Hopelessness x RAS Soc.</td>
<td>-0.038</td>
<td>0.047</td>
<td>0.384</td>
<td>-.127-.093</td>
</tr>
<tr>
<td>Social Support</td>
<td>Internal Entrapment</td>
<td>0.530</td>
<td>0.174</td>
<td>0.007**</td>
<td>.155-.757</td>
</tr>
<tr>
<td>(RAS Soc.)</td>
<td>RAS Soc.</td>
<td>-0.430</td>
<td>0.324</td>
<td>0.146</td>
<td>-1.134-.011</td>
</tr>
<tr>
<td></td>
<td>Int. Entrap x RAS Soc.</td>
<td>-0.050</td>
<td>0.038</td>
<td>0.133</td>
<td>-.114-.064</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>------------</td>
</tr>
<tr>
<td><strong>Social Support</strong></td>
<td>External Entrapment</td>
<td>0.272</td>
<td>0.137</td>
<td>0.064</td>
<td>0.022-0.454</td>
</tr>
<tr>
<td>(RAS Soc.)</td>
<td>RAS Soc.</td>
<td>-0.532</td>
<td>0.333</td>
<td>0.096</td>
<td>-1.188-.114</td>
</tr>
<tr>
<td></td>
<td>Ext. Entrap x RAS Soc.</td>
<td>-0.017</td>
<td>0.035</td>
<td>0.587</td>
<td>-0.065-.100</td>
</tr>
<tr>
<td><strong>Problem Solving</strong></td>
<td>Hopelessness</td>
<td>0.841</td>
<td>0.181</td>
<td>0.001***</td>
<td>0.496-1.105</td>
</tr>
<tr>
<td>(RAS Prob.)</td>
<td>RAS Prob.</td>
<td>0.321</td>
<td>0.356</td>
<td>0.349</td>
<td>-.376-.904</td>
</tr>
<tr>
<td></td>
<td>Hopelessness x RAS Prob.</td>
<td>-0.052</td>
<td>0.053</td>
<td>0.296</td>
<td>-.153-.066</td>
</tr>
<tr>
<td><strong>Problem Solving</strong></td>
<td>Internal Entrapment</td>
<td>0.633</td>
<td>0.127</td>
<td>0.001***</td>
<td>0.384-0.896</td>
</tr>
<tr>
<td>(RAS Prob.)</td>
<td>RAS Prob.</td>
<td>0.103</td>
<td>0.317</td>
<td>0.737</td>
<td>-.510-.750</td>
</tr>
<tr>
<td></td>
<td>Int. Entrap x RAS Prob.</td>
<td>-0.089</td>
<td>0.035</td>
<td>0.007**</td>
<td>-.161-.010</td>
</tr>
<tr>
<td><strong>Problem Solving</strong></td>
<td>External Entrapment</td>
<td>0.426</td>
<td>0.104</td>
<td>0.001***</td>
<td>0.192-.634</td>
</tr>
<tr>
<td>(RAS Prob.)</td>
<td>RAS Prob.</td>
<td>0.015</td>
<td>0.355</td>
<td>0.977</td>
<td>-.596-.685</td>
</tr>
<tr>
<td></td>
<td>Ext. Entrap x RAS Prob.</td>
<td>-0.054</td>
<td>0.037</td>
<td>0.138</td>
<td>-.119-.041</td>
</tr>
<tr>
<td><strong>Emotion Coping</strong></td>
<td>Hopelessness</td>
<td>0.795</td>
<td>0.188</td>
<td>0.001***</td>
<td>0.417-1.126</td>
</tr>
<tr>
<td>(RAS Emo)</td>
<td>RAS Emo.</td>
<td>0.241</td>
<td>0.361</td>
<td>0.491</td>
<td>-.487-.799</td>
</tr>
<tr>
<td></td>
<td>Hopelessness x RAS Emo.</td>
<td>-0.030</td>
<td>0.056</td>
<td>0.570</td>
<td>-.138-.102</td>
</tr>
<tr>
<td><strong>Emotion Coping</strong></td>
<td>Internal Entrapment</td>
<td>0.737</td>
<td>0.121</td>
<td>0.001***</td>
<td>0.505-.950</td>
</tr>
<tr>
<td>(RAS Emo)</td>
<td>RAS Emo.</td>
<td>0.475</td>
<td>0.356</td>
<td>0.171</td>
<td>-.191-.935</td>
</tr>
<tr>
<td></td>
<td>Int. Entrap x RAS Emo.</td>
<td>-0.076</td>
<td>0.044</td>
<td>0.064</td>
<td>-.146-.031</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------------</td>
<td>-------------</td>
<td>-------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Emotion Coping (RAS Emo)</td>
<td>External Entrapment</td>
<td>0.441</td>
<td>0.113</td>
<td>0.001***</td>
<td>.210-.642</td>
</tr>
<tr>
<td></td>
<td>RAS Emo.</td>
<td>0.124</td>
<td>0.332</td>
<td>0.724</td>
<td>-.465-.588</td>
</tr>
<tr>
<td></td>
<td>Ext. Entrap x RAS Emo.</td>
<td>-0.051</td>
<td>0.044</td>
<td>0.188</td>
<td>-.113-.092</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.01, ***p<0.001; Note: RAS = Resilience Appraisals Scale.
Figure 10: Resilience appraisals (RAS Total) moderate internal entrapment to predict suicidal ideation (BSS).

6.4.3.2. The moderating effect of resilience subscales (RAS) on the relationships between hopelessness, internal entrapment, external entrapment and suicidal ideation.

The second goal was to investigate which types of positive self-appraisals may confer resilience to suicidal ideation within this population. To address this aim, each of the RAS subscales was examined, in turn, as potential moderators of hopelessness, internal entrapment and external entrapment (see Table 9).
6.4.3.2.1. Predictors of suicidal ideation: Interactions between hopelessness and resilience subscales.

For hopelessness, significant main effects upon suicidal ideation were observed in all analyses. However, when considered alongside hopelessness, none of the resilience factors showed any significant effect upon suicidal ideation, and no significant interaction effects were found.

6.4.3.2.2. Predictors of suicidal ideation: Interactions between internal entrapment and resilience subscales.

Next, the moderating effect of each subscale on internal entrapment was examined. Significant main effects of internal entrapment on suicidal ideation were found in all analyses. Furthermore, a significant moderating impact was found for the problem solving subscale of the RAS, which predicted suicidal ideation in interaction with internal entrapment. As shown in Figure 11, this pattern was similar to that found for the overall resilience scale. By contrast, neither the emotion coping subscale nor the social support subscale was found to predict suicidal ideation either in addition to internal entrapment, or when interacting with it.
6.4.3.2.3. Predictors of suicidal ideation: Interactions between external entrapment and resilience subscales.

Lastly, significant main effects of external entrapment upon suicidal ideation were observed alongside problem solving and emotion coping appraisals. However, when considered alongside social support appraisals, the effects of external entrapment were reduced to non-significance. Moreover, none of the resilience factors showed any significant effect upon suicidal ideation, and no significant interaction effects were found.
6.5. Discussion

The overarching aim of the present study was to examine whether resilience, conceptualised as positive self-appraisals, buffered the associations between hopelessness, defeat, entrapment (internal and external) and suicidal ideation in a sample of prisoners at high risk of suicide. The results demonstrated that positive self-appraisals moderated the impact of internal entrapment on suicidal ideation. Specifically, it was found that suicidal ideation was greatest when internal entrapment was high, but that this effect was reduced when resilience was also high. This finding is consistent with those of Johnson et al. (2010a; 2010b), in which resilience, conceptualised as positive self-appraisals, was found to protect against suicidality amongst both student and psychosis samples.

Interestingly, within the present study, positive self-appraisals were not found to buffer the impact of hopelessness upon suicidal thoughts. This result is in contrast with that of Johnson et al (2010a), and should be considered further. One possible explanation may relate to the levels of hopelessness present in each sample. In the current study, the mean hopelessness score was 9.14, compared with 7.21 in Johnson et al’s (2010a) study. Whilst this difference may not appear substantial, it should be noted that scores of 9 and above have been found to predict suicide deaths amongst depressed inpatients over an extensive follow-up period (Beck, Steer, Kovacs & Garrison, 1985), suggesting that this difference is of clinical significance. Thus, it may be suggested that at the high levels of hopelessness seen in the current study, resilience is less equipped to buffer the impact of hopelessness on suicidal thoughts. Alternatively, it is possible that resilience may simply operate differently amongst diverse clinical groups. In the current study, levels of depressive and anxious symptoms were high, being in the severe and moderate ranges, respectively (Beck & Steer, 1990; Beck, Steer & Brown, 1996), whilst the primary symptom of those sampled in Johnson et al.’s (2010a) study was psychosis. It is suggested that further research is
required to identify those factors which buffer against the impact of hopelessness amongst suicidal prison inmates.

A corollary aim of the current study was to investigate which specific types of positive self-appraisals may confer resilience within this population. According to the Schematic Appraisals Model of Suicide (Johnson et al., 2008), positive self-appraisals of social support, problem solving, and emotion coping abilities may confer resilience to suicidality. When these specific types of positive self-appraisals were examined independently, positive self-appraisals of problem solving abilities were seen to moderate the relationship between internal entrapment and suicidal ideation. Specifically, at high levels of internal entrapment, individuals who reported more positive appraisals of problem solving abilities showed less suicidal ideation than individuals with more negative problem solving appraisals. This finding mirrors that of Esposito and Clum (2002), who found that problem solving appraisals moderated the relationship between childhood physical abuse and suicidal ideation in a forensic adolescent sample. In contrast, this buffering effect was not observed with external entrapment, indicating that these two forms of entrapment, internal and external, do indeed appear to measure different constructs (Gilbert & Allan, 1998; Sheehy, Gooding, Tarrier & Pratt, submitted).

The finding that neither appraisals of emotion coping nor social support buffered against suicidal thoughts is consistent with a recent study by Sheehy et al. (submitted) in which perceived social support was found not to buffer the impact of negative situational appraisals upon suicidal ideation. In contrast, social support perceptions were shown to be protective against suicidal behaviour amongst trauma victims (Panagioti et al., 2014) whilst emotion coping appraisals were identified as protective in a psychosis sample (Johnson et al., 2010a). These results highlight the differential effects of specific positive self-appraisals within a range of clinical samples, and underscore the need to examine the
components of resilience to suicidality across different populations and settings. The findings of the current study provide empirical support for the Schematic Appraisals Model of Suicide (Johnson et al., 2008), confirming that this may be a useful framework within which suicidality amongst prisoners, and other clinical groups, can be understood.

The current study has two main implications for clinical practice. First, the results of the present study were consistent with recent theoretical approaches in which resilience can be understood as existing on a separate dimension to risk (i.e. the buffering hypothesis; Johnson et al., 2011). This approach has considerable implications for the development of psychological interventions, namely, that interventions designed to reduce suicide risk must take a two-stranded approach, in which both the reduction of risk and the promotion of resilience are targeted. Second, as positive self-appraisals were found to alter the impact of risk factors, such as internal entrapment, on suicidality, psychological interventions designed to strengthen positive self-appraisals may prove effective in reducing suicide risk. The specific relevance of problem solving appraisals further indicates this as a target for such interventions. Indeed, a recently developed Cognitive Behavioural Suicide Prevention (CBSP) programme (Tarrier, Gooding, Pratt, Kelly, Awenat & Maxwell, 2013) aims to enhance both problem solving abilities and the appraisals of these abilities. Findings from Biggam and Power (2002) further highlight the potential utility of problem solving interventions to reduce psychological distress within incarcerated samples. However, it should be noted that in enhancing problem-solving abilities, it cannot be assumed that problem-solving appraisals will also be affected. Future work should aim to incorporate the measurement of these appraisals, and the impact of intervention strategies upon such appraisals.

A number of limitations to the current study are worthy of further discussion. First, a single measure of resilience was employed which has not previously been used with a
prisoner sample (Johnson et al., 2010). This measure was selected as it was developed specifically to measure resilience to suicidality, based on a theoretical model of suicide (Johnson et al., 2008). However, the use of this measure does mean that it is problematic to make comparisons with other studies that have used different measures of psychological resilience with prison samples (Roy et al., 2011; Sarchiapone et al., 2009; Slade et al., 2014). Second, the current study included a relatively small sample size, although power calculations indicated that this was sufficient to detect the anticipated effect size. Bootstrapping was also used to counter this limitation (Mooney & Duval, 1993). In addition, participants recruited to the current study were identified as elevated risk for suicide, and therefore constituted a highly relevant clinical group. Third, the use of a cross-sectional design does not allow for cause and effect to be confirmed. It is, therefore, not possible to be sure that predictor variables of internal entrapment, combined with positive self-appraisals, lead to subsequent suicidal thoughts. It could be considered that experiencing suicidal ideation may precipitate increased feelings of entrapment. Future longitudinal studies are required to ascertain the direction of the relationship.

In conclusion, the current study was the first to investigate the interaction of risk and resilience factors within an adult prisoner sample at increased risk of suicide. The results demonstrated a protective effect of resilience comprising positive self-appraisals, and more specifically, appraisals of problem solving abilities, which were found to buffer the impact of internal entrapment on suicidal thinking. Results extend the findings of previous research and provide empirical support for the Schematic Appraisals Model of Suicide (Johnson et al., 2008), which shows considerable promise in its applicability to prisoner populations and in highlighting targets for clinical intervention.
CHAPTER 7

7. Predicting suicidal ideation amongst at-risk prisoners: a short-term longitudinal study

7.1. Abstract

Suicidal thoughts and behaviours are common amongst prisoner populations and are associated with high levels of psychological distress. Contemporary models of suicidality highlight the central role of perceptions of defeat, entrapment, and hopelessness, in the development of suicidal thoughts. Evidence is emerging that these concepts may help to explain suicidality in prisoner populations. However, previous empirical studies have been cross-sectional. The current study provides the first short-term, longitudinal examination of hopelessness, entrapment, and defect in predicting suicidal ideation amongst prisoners. A sample of male inmates ($n = 47$) at risk for suicidal behaviour was recruited from a high security prison in the UK. A short-term longitudinal, questionnaire based design was used. Participants completed self-report measures of entrapment, defeat, hopelessness, depression and suicidal ideation at baseline (T1). Participants then completed a further measure of suicidal ideation one month later (T2). Multiple regression analysis was used to examine the predictive effects of entrapment, defeat, and hopelessness on suicidal ideation, whilst controlling for baseline suicidal ideation and depression. Perceptions of entrapment, hopelessness, and defeat at baseline did not predict suicidal ideation at follow-up, whilst controlling for baseline suicidal ideation and depressive symptoms. In the final model, only baseline suicidal ideation independently predicted suicidal ideation at follow-up. The results underscore the need for continued support and assessment of prisoners with suicidal ideation. Further research is required to identify those factors that can prospectively predict suicidality amongst this at-risk group.
7.2. Introduction

Suicide is a global public health concern with significant social and emotional effects (World Health Organization, 2012; Pitman, Osborn, King & Erlangsen, 2014). For incarcerated individuals the risk of suicide is high, with suicide death rates being at least three times greater than rates within general population samples. Suicide is the leading cause of death amongst those imprisoned (Fazel & Baillargeon, 2011; Fazel, Grann, Kling & Hawton, 2011). In addition, incarcerated individuals often report suicidal thoughts and behaviours at rates far greater than those of community dwelling samples (Jenkins et al., 2005). Furthermore, the notion of a suicide continuum, encompassing ideation, planning, attempts and death by suicide, is empirically supported within prisoner samples in which suicidal ideation increases the risk for suicidal behaviour, which in turn increases the probability of eventual suicide (Hawton, Linsell, Adeniji, Sariaslan & Fazel, 2014; He, Felthouse, Holzer, Nathan & Veasey, 2001; Lekka, Argyriou & Beratis, 2006). Despite this, relatively little is known about the pathways leading to suicide in prisoners.

Empirical research has identified a number of psychological correlates of suicidality amongst those incarcerated. Higher levels of emotional lability, aggression, hostility, and impulsiveness, have been observed amongst prisoners who have engaged in suicidal behaviour, compared to those who have not done so (Rivlin, Hawton, Marzano & Fazel, 2013; Sarchiapone et al., 2009; Sarchiapone, Carli, di Giannantonio & Roy, 2009). Furthermore, levels of self-esteem, resilience, and problem-solving abilities are depleted amongst suicidal prisoners (Biggam & Power, 1999; Roy, Carli & Sarchiapone, 2011; Rivlin et al., 2013). Whilst these are important findings, their lack of grounding in a theoretical framework is problematic for two reasons. First, the mechanisms by which these factors may trigger and/or maintain feelings of suicidality cannot be determined. Second, the lack of a coherent theory limits the extent to which targets for suicide
prevention and interventions can be identified (Tarrier, Gooding, Pratt, Kelly, Awenat & Maxwell, 2013).

There has been growing interest in the development of theoretical accounts for suicide over recent years. Within this, perceptions of defeat, entrapment, and hopelessness, have emerged as key constructs across a number of contemporary models of suicidality (Williams, 1997; Williams, Crane, Barnhofer & Duggan, 2005; Johnson, Gooding & Tarrier, 2008; O’Connor, 2011). The concepts of entrapment and defeat are derived from psychobiological theories of depression (Gilbert & Allan, 1998; Gilbert, Allan, Brough, Melley & Miles, 2002). Defeat is conceptualised as a loss of social status and failed struggle, whilst entrapment encompasses a motivation to escape, when all escape routes appear to be blocked (Gilbert & Allan, 1998). Entrapment may be further subdivided into perceptions of i) internal entrapment and ii) external entrapment (Gilbert, Cheung, Irons & McEwan, 2005). Internal entrapment is defined as the perceived entrapment by, and motivation to escape from, one’s own inner thoughts or feelings, whilst external entrapment comprises perceptions of being trapped by external situations and/or other people (Gilbert & Allan, 1998; Gilbert et al., 2005). Whilst only a few studies have utilized the separate constructs of internal entrapment and external entrapment, these studies have found differential effects of the two concepts on depression and suicidality, highlighting the need to consider internal and external entrapment perceptions separately (Gilbert et al., 2005; Rasmussen et al., 2010; Carvalho, Pinto-Gouveia, Pimentel, Maia, Gilbert & Mota-Pereira, 2013).

Findings from cross-sectional research have consistently shown associations between perceptions of defeat, entrapment, hopelessness and suicidal thoughts and behaviours across a range of clinical and non-clinical samples (Panagioti, Gooding & Tarrier, 2012; Rasmussen et al., 2010; Taylor, Gooding, Wood, Johnson, Pratt & Tarrier, 2010a; Taylor,
Wood, Gooding & Tarrier, 2010b). Amongst individuals diagnosed with PTSD, defeat and entrapment prospectively predicted suicidal ideation over a 13-15 month period (Panagioti, Gooding & Tarrier, 2015). In a study by Taylor and colleagues, defeat, but not entrapment, was seen to predict changes in suicidal ideation over a 12 month period (Taylor, Gooding, Wood, Johnson & Tarrier, 2011). In a study that had the longest follow up to date of 48 months, O’Connor and colleagues examined whether defeat, entrapment, and hopelessness would predict repeat suicidal behaviours in a sample of suicide attempters (O’Connor, Smyth, Ferguson, Ryan & Williams, 2013). In the final multivariate model, only perceptions of entrapment and past frequency of suicide attempts were predictive of suicidal behaviour over the follow up period (O’Connor et al., 2013).

Within prisoner samples, evidence is emerging in support of the roles of defeat and entrapment in suicidality, although patterns of results have, so far, been mixed. There have been only two studies that have examined the effects of defeat and entrapment on suicidal ideation, amongst prisoner samples. In a study of newly incarcerated prisoners, Slade and Edelmann (2014) found that greater feelings of defeat, but not entrapment, predicted suicidal ideation (Slade & Edelmann, 2014). In contrast, greater perceptions of internal entrapment were shown to predict more severe suicidal ideation amongst prisoners at high risk for suicide, whilst perceptions of defeat showed no such effect (Sheehy, Gooding, Tarrier & Pratt, submitted; Chapter 4 of the current thesis).

There has been a dearth of prospective research examining suicidality amongst those incarcerated, with only two studies conducted to date. The first of these was a prospective case control study carried out with adult, male inmates in Greece (Lekka et al., 2006). The results from this study found that suicidal ideation at baseline predicted suicidal behaviour across the 12-month follow-up period. However, this study did not measure perceptions of defeat, hopelessness, or entrapment. In the second study, Slade and colleagues examined
the roles of defeat and entrapment as prospective predictors of self-harming behaviours, over a four-month period (Slade, Edelmann, Worrall & Bray, 2014). In the final model, greater perceptions of defeat, and lower levels of entrapment at baseline predicted the incidence of self-harm over the follow-up period. These findings provided initial support for a prospective effect of defeat upon self-harming behaviour, whilst the effect of entrapment was in contrast with expectations. This unusual relationship may have resulted from the use of self-injurious behaviour as the outcome variable, rather than suicidal thoughts or behaviours. There is a need to extend these findings to the prediction of suicidal ideation and behaviours amongst prison inmates.

To date, there have been no studies that have examined the relationship between perceptions of entrapment, defeat, hopelessness, and suicidal ideation amongst prisoners, over a longitudinal timeframe. Therefore, the aim of the current study was to examine whether perceptions of hopelessness, defeat, and entrapment would predict levels of suicidal ideation amongst prison inmates at risk of suicide, over a short-term follow-up period. As the separate constructs of internal and external entrapment may operate differently amongst incarcerated individuals (Sheehy et al., submitted; Chapter 4), the effects of internal entrapment and external entrapment were examined separately.

7.3. Method

7.3.1. Participants

A sample of adult prisoners was recruited from one male, high-security prison in England. Participants were recruited on the basis of having been identified as at risk of suicide within the previous three months. Further eligibility criteria included being able to provide informed consent, not presenting a current risk of violence, being fluent in
English, and expected to remain in the establishment for the duration of participation, i.e., at least one month.

### 7.3.2. Measures

**Beck Depression Scale – II (BDI-II):** The BDI-II (Beck, Steer & Brown, 1996) is a 21-item measure of depressive symptoms (e.g., guilt, sadness, irritability) occurring over the past seven days. Participants rate each item using a four-point scale to indicate symptom severity (0-3). Total scores range from 0-63 with higher scores indicating greater severity of depression. The alpha coefficient in the current sample was 81.

**Beck Hopelessness Scale (BHS):** The BHS (Beck et al., 1974) consists of 20 true or false items assessing the prevalence of hopelessness perceptions in the past week (e.g., ‘I just can't get the breaks and there is no reason I will in the future’). Total scores ranges from 0-20, with higher scores reflecting greater perceived hopelessness. In the current sample, the alpha coefficient was .92.

**Beck Scale for Suicidal ideation (BSS):** The BSS (Beck & Steer, 1991) is a 21-item measure of recent suicidal ideation and lifetime suicidal behaviour. Items 1-19 assess the severity of current suicidal ideation occurring over the past week. Participants indicate their response to each item using a three-point scale (0-2) (e.g., ‘0=I have a moderate to strong wish to live’, ‘1=I have a weak wish to live’, ‘2=I have no wish to live’). Responses to items 1-19 are summed to provide a total score between 0-38, with higher scores indicating more severe suicidal ideation. Items 20-21 are used to assess previous suicide attempt history. Cronbach’s alpha was .93 at Time 1, and .96 at Time 2.

**Entrapment Scale:** The Entrapment Scale (Gilbert & Allan, 1998) is a 16-item questionnaire measure of perceptions of entrapment and a desire to escape. The measure comprises two subscales: i) internal entrapment, comprising six items (e.g., ‘I want to get
away from myself”) and ii) external entrapment, containing ten items (e.g., I feel trapped by other people’) (Gilbert & Allan, 1998; Gilbert et al., 2005). Items are rated on a five point scale from ‘0=Not at all like me’ to ‘4=Extremely like me’, providing a total score between 0-64. In the current study the alpha coefficient was .92 for the total scale, .87 for the internal entrapment subscale, and .87 for the external entrapment subscale.

**Defeat Scale:** The Defeat Scale (Gilbert & Allan, 1998) consists of 16 items measuring perceived loss of social status and failed struggle (e.g., ‘I feel that there is no fight left in me’). Items are rated on a five point scale, from ‘0=Never’ to ‘4=Always/All the time’ to indicate the prevalence of defeat perceptions over the past seven days. Total scores range from 0-64 with higher scores indicating more perceived defeat. Cronbach’s alpha was .95 in the current study.

### 7.3.3. Procedure

Potential participants were informed of the research study by prison staff, with further information provided by the researcher (KS). Individuals were given at least 24 hours to consider the information provided before informed consent was obtained. Baseline questionnaire measures (Time 1) of defeat, entrapment, hopelessness, suicidal ideation, and depression, were completed across one or two sessions, as required\textsuperscript{11}. Consent to be contacted for participation in the second stage of the study (follow-up) was obtained.

Participants were re-contacted one month later for a follow-up assessment. The outcome variable, Time 2 suicidal ideation, was completed at this assessment. Following this assessment, all participants were debriefed and given the opportunity to provide feedback regarding their experience of participation.

\textsuperscript{11} Measures taken in the current study at both baseline and follow-up were completed as part of a larger battery of questionnaires. Please contact the corresponding author for further details.
7.3.4. Analysis strategy

Associations between all key variables were assessed using Spearman’s rho or Pearson's correlation coefficient as appropriate for the distribution of the data. A hierarchical multiple regression analysis was conducted with suicidal ideation at follow up as the outcome variable. Prior to this, the distribution of the outcome variable was checked for normality by inspecting z-scores for skew (Field, 2005). The outcome variable (Suicidal ideation – T2) was positively skewed in the current study (z score skew = 2.71), thus violating the assumption of a normal distribution. Hence, regression analyses were conducted with bootstrapping (1000 repetitions). Bootstrapping has been recommended as an acceptable approach to statistical inference where the assumptions of parametric analysis are not met, for example, with small sample sizes or skewed data (Mooney & Duval, 1993). In the current study, bootstrapping was used to generate 95% confidence intervals (CI) for regression coefficients.

For the multiple regression analysis, the enter method was chosen, due to the theoretically driven approach to analysis (Field, 2005). Standardized predictor variables were used in each step. In the first step of the regression model, control variables of depression and baseline suicidal ideation (T1) were entered. In the second step, internal entrapment, external entrapment, defeat, and hopelessness were entered to determine whether these variables added predictive value above that of the control variables. With an anticipated medium to large effect size of $f = 0.30$, a power calculation indicated that a sample size of 53 participants would be appropriate to detect an effect with 80% power, based upon a multiple linear regression with six predictor variables. Multicollinearity was not a substantial problem in the current study since all tolerance values were above 0.2 (Menard, 1995), with the lowest value being 3.14. Moreover, all variance inflation factor
(VIF) values were substantially below 10 (Myers, 1990), with the highest being 3.19. Analyses were completed using SPSS Version 22.

7.3.5. Ethical approval

This study was granted ethical approval by the National Health Service (NHS) Research Ethics Committee for Wales, UK (Ref: 11/WA/0002), which specializes in research with incarcerated samples. Approval was also gained from the relevant NHS Trust Research and Development office (ref 1035), and the Ministry of Justice National Offender Management Service’s National Research Committee (reference 16-11). The Governor of the host prison establishment provided local approval.

7.4. Results

7.4.1. Participant characteristics and descriptive statistics

Fifty-nine participants meeting the inclusion criteria consented to participate and completed the first part of the study (Baseline/T1). All participants consented to being re-contacted to participate in the follow-up stage. Twelve individuals (20%) were subsequently lost to follow up (T2), one month later. Reasons for this included being transferred to another establishment (n=7), release/bail (n=3), and declined to participate (n=2). The remaining 47 participants completed all baseline and follow-up assessments and were included in the analyses.

The average age of participants was 35.32 years (Range = 21-55 years), with most participants identifying themselves as White British (n=43). The majority of participants were of convicted sentenced status (n=30), followed by remand (n=15), with the remaining participants convicted but not sentenced (n=2). Table 10 shows the means, standard deviations and bivariate correlations of key variables.
7.4.2. Comparing levels of suicidal ideation at baseline and follow-up

Levels of suicidal ideation, as measured by the BSS, were compared at baseline (T1) and at follow-up (T2). A non-parametric approach, the Wilcoxon signed-rank test, was used due to the non-normal distribution of the data. Levels of suicidal ideation at baseline (T1) ($Mdn=12$) were significantly higher than levels of suicidal ideation at follow-up (T2) ($Mdn=2$), $z = -2.54$, $p < .05$, $r = -.26$. 
Table 10: Means, standard deviations, ranges, and Spearman’s rho correlation coefficients for key variables

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Suicidal ideation T1</td>
<td>11.76</td>
<td>9.33</td>
<td>0-29</td>
<td>.67***</td>
<td>.50***</td>
<td>.24</td>
<td>.49***</td>
<td>.45***</td>
<td>.53***</td>
</tr>
<tr>
<td>2. Suicidal ideation T2</td>
<td>8.73</td>
<td>9.87</td>
<td>0-36</td>
<td>.40***</td>
<td>.26</td>
<td>.43***</td>
<td>.38***</td>
<td>.46***</td>
<td></td>
</tr>
<tr>
<td>3. Hopelessness T1</td>
<td>9.27</td>
<td>6.07</td>
<td>0-19</td>
<td>.61***</td>
<td>.52***</td>
<td>.68***</td>
<td>.51***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Defeat T1</td>
<td>36.07</td>
<td>15.61</td>
<td>0-64</td>
<td>.41***</td>
<td>.55***</td>
<td>.56***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Internal entrapment T1</td>
<td>14.69</td>
<td>6.70</td>
<td>0-24</td>
<td></td>
<td>.71***</td>
<td>.64***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. External entrapment T1</td>
<td>18.89</td>
<td>9.52</td>
<td>0-35</td>
<td></td>
<td></td>
<td>.61***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Depression T1</td>
<td>33.00</td>
<td>9.20</td>
<td>14-57</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

***p<0.001
7.4.3. Predicting suicidal ideation at follow-up

A multiple regression analysis was conducted to determine whether hopelessness, defeat, and entrapment scores at baseline (T1) would predict suicidal ideation at follow-up (T2), after controlling for baseline levels of suicidal ideation and depressive symptoms. The first step of the regression model including suicidal ideation and depressive symptoms at baseline, was significant, $f(2, 44) = 15.57, p < .001$, accounting for 41% of the variance in suicidal ideation at follow-up ($R^2 = .41$). In the next step, hopelessness, defeat, internal entrapment, and external entrapment were included in the model. There was no significant improvement in the variance explained in suicidal ideation at follow-up, $\Delta R^2 = .03 p = .738$ n.s. In the final model, only suicidal ideation at baseline was an independent predictor of suicidal ideation at follow-up (see Table 11).
Table 11: *Multiple hierarchical regression analysis predicting suicidal ideation at follow-up*

<table>
<thead>
<tr>
<th>Outcome variable</th>
<th>Step</th>
<th>Predictor variable</th>
<th>B</th>
<th>SE B</th>
<th>Sig.</th>
<th>CI (95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicidal ideation T2</td>
<td>1</td>
<td>Depression</td>
<td>1.516</td>
<td>1.466</td>
<td>.315</td>
<td>-.955 - 4.799</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suicidal ideation T1</td>
<td>5.392</td>
<td>1.715</td>
<td>.003**</td>
<td>1.810 - 8.323</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Depression</td>
<td>2.084</td>
<td>1.706</td>
<td>.211</td>
<td>-.571 - 6.082</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suicidal ideation T1</td>
<td>4.723</td>
<td>1.709</td>
<td>.013*</td>
<td>1.137 - 7.409</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hopelessness</td>
<td>.937</td>
<td>1.921</td>
<td>.623</td>
<td>-2.542 - 3.733</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Defeat</td>
<td>-2.144</td>
<td>2.019</td>
<td>.264</td>
<td>-5.380 - 2.949</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Internal entrapment</td>
<td>-.209</td>
<td>1.967</td>
<td>.906</td>
<td>-3.987 - 4.210</td>
</tr>
<tr>
<td></td>
<td></td>
<td>External entrapment</td>
<td>.934</td>
<td>2.067</td>
<td>.630</td>
<td>-2.984 - 4.028</td>
</tr>
</tbody>
</table>

* p<0.05, **p<0.01
7.5. Discussion

This was the first study to test whether perceptions of hopelessness, entrapment, and defeat would predict suicidal ideation over a short-term follow-up, in a sample of prisoners at risk of suicide. Associations were observed between all variables, except for defeat, which did not correlate significantly with suicidal ideation. Results of the regression analysis showed no longitudinal effect of hopelessness, defeat, internal entrapment, or external entrapment in predicting suicidal ideation at follow up. Only levels of suicidal ideation at baseline made a significant unique contribution to the final model.

The results of the current study are in contrast with findings from community based samples, showing that defeat and entrapment prospectively predict suicidal ideation amongst non-clinical and PTSD samples (Panagioti et al., 2015; Taylor et al., 2011). The differing levels of psychological distress observed in these two samples, as compared to those of the current study, may help to explain this divergence in findings. Namely, within the present study, mean levels of defeat ($M=36.07$), hopelessness ($M=9.27$), entrapment ($M=33.74$), and depression ($M=33.00$) were substantially higher than those of Panagioti et al. (2015) (defeat, $M=20.17$; hopelessness, $M=6.39$; entrapment, $M=17.34$; depression, $M=15.32$) and Taylor et al. (2011) (defeat, $M=17.04$; entrapment, $M=14.46$; depression, $M=11.46$), indicating greater levels of psychological distress. As such, the ability of these key variables to prospectively predict suicidal ideation within this already high-risk group may have been reduced, suggesting a potential overshadowing effect. Additionally, the predictive effect of perceived entrapment upon suicidality, as observed by O’Connor and colleagues (O’Connor et al., 2013), was not replicated in the present study. In contrast with those studies described above, the levels of distress observed by O’Connor et al. (2013) parallel those of the present study. Hence, this lack of convergence points to the potentially unique conditions of the prison environment.
A further point relates to the overall changes that were observed in levels of suicidal ideation across the two time points. Specifically, levels of suicidal ideation at baseline were significantly higher than levels of suicidal ideation at follow-up, thus showing an overall reduction in the severity of suicidal thoughts within the sample. This finding highlights the potentially variable nature of suicidality amongst prisoners, which may have implications for the prediction of future suicidal thoughts and behaviours amongst prisoners. As the majority of participants were currently being managed as at-risk of suicide at baseline, it is possible that, overall, this reflected a period of acute distress, which subsequently lessened over the follow-up period. As such, future research may benefit from examining the longitudinal impact of psychological factors upon suicidal thoughts and behaviours, using a multi-wave approach to assessment. This would enable suicidal ideation and behaviour to be assessed at a number of time points, and not just at times of acute distress and suicidality.

To date, only two studies have prospectively examined the roles of psychological variables in the prediction of suicidal or self-harming behaviours (Lekka et al., 2006; Slade et al., 2014). In the first of these studies, a prospective case-control design was used to examine the effect of baseline measures of anxiety, depression, and suicidal ideation, upon subsequent suicidal behaviour (Lekka et al., 2006). Cases were defined as prisoners who reported suicidal ideation within the week preceding baseline interviews, whilst control participants reported no history of suicidal ideation. The findings of the study indicated that levels of anxiety and depression did not differentiate those prisoners who subsequently engaged in suicidal acts, from those who did not (Lekka et al., 2006). Only baseline suicidal ideation predicted subsequent suicidal behaviour over the follow-up period (Lekka et al., 2006). This finding is convergent with the results of the present study, in which suicidal ideation at baseline was the sole unique predictor of suicidal ideation at follow-up.
An examination of participant characteristics in both the current study and that of Lekka et al. (2006), suggests significant overlap in the populations examined. Specifically, both studies comprised adult, male prisoners, recruited from a high-security establishment. Similarities were observed in terms of participant ages, ($M = 35.32$ years present study; $M = 33.80$ years, Lekka et al., 2006), and conviction status, with the majority of participants in both samples of convicted sentenced status. The lack of a prospective effect of key psychological variables on suicidality in both the present study and that of Lekka et al. (2006) may reflect the high levels of distress seen in these samples.

In the second prospective study, conducted by Slade et al. (2014), higher levels of defeat predicted the incidence of self-harming behaviours over a four month follow up period. Interestingly, and in contrast with predictions, an inverse relationship between entrapment and self-harm was observed, such that self-harming behaviours were associated with lower levels of perceived entrapment (Slade et al., 2014).

The present study has important implications for clinical practice in the management of prisoners identified as at risk of suicide. The results highlight the need for the on-going assessment and support of prisoners with suicidal ideation. The current study found that levels of suicidal ideation at baseline prospectively predicted the severity of suicidal thoughts. Furthermore, prisoners with suicidal ideation are known to be a high-risk group for future suicidal behaviour (Lekka et al., 2006). These findings underscore the need to introduce the routine assessment of suicidal ideation in prisons, a practice that is not currently in place. This would be of particular importance for those prisoners with a history of suicidal thoughts and/or behaviours, where thoughts about suicide may be more likely to resurface.

The current study has two main limitations as follows. First, the study employed a short follow-up period of one month. As such, the longer-term, prospective impact of
defeat, hopelessness, and entrapment perceptions upon suicidality is unknown. As the study was conducted in a local\textsuperscript{12} prison establishment, with a highly transient population, a shorter follow-up period was selected in order to maximize participant retention. The increased suicide rates observed within local prisons made this an appropriate establishment type within which to conduct the current study (Humber, Piper, Appleby & Shaw, 2011). The second limitation concerns the relatively small sample size included in the final analysis. One fifth of participants assessed at baseline were subsequently lost to follow-up, with the primary cause for this being the transfer of participants to other establishments. This may have impacted upon the statistical power, as the final sample size was slightly below the number of participants indicated by the power analysis. However, this was unavoidable. To counter this, analyses were conducted using bootstrapping, which is recommended for use in smaller samples (Mooney & Duval, 1993). Future studies employing larger sample sizes would be useful to replicate the present findings, whilst a longer follow-up period would be beneficial to establish the direction of the relationships between key variables.

To conclude, the current study provided the first empirical investigation of hopelessness, defeat, and entrapment, as predictors of suicidal ideation over a short-term follow up, amongst prisoners. Whilst none of key psychological variables examined were seen to prospectively predict subsequent suicidal thoughts, levels of suicidal ideation at baseline were found to predict suicidal ideation at follow-up. Consequently, this study is important because it underscores the need for the continued assessment and support of prisoners with suicidal ideation, who constitute a particularly high-risk group for future suicidal behaviour. However, the small sample size constitutes a potential limitation of the

\textsuperscript{12} The term ‘local’ prison refers to a prison establishment that serves the courts. As such, local prisons typically hold prisoners who are detained awaiting trial or who are recently convicted.
study, which may have impacted upon statistical power. Further research utilizing larger sample sizes is needed to determine those factors that prospectively predict suicidal thoughts and behaviours amongst prison inmates.
8. Examining the role of impulsiveness and affect in suicidal ideation: a momentary assessment study of prison inmates

8.1. Abstract

Suicidal behaviours pose a significant public health problem worldwide. Impulsiveness appears to be a risk factor for suicidality yet little is known about the mechanisms by which it may increase risk. Using experience sampling based methods, the current study sought to investigate the role of impulsiveness, and its interactions with affect, in predicting suicidal ideation. Prison inmates \((n = 42)\) identified as at risk of suicide completed self-report diary measures of impulsiveness, positive and negative affect, and suicidal ideation up to six times per day over six consecutive days. Multilevel modelling analyses showed impulsiveness, positive affect and negative affect to be significant univariate predictors of suicidal ideation. However, there was also a significant interaction effect whereby high levels of impulsiveness together with low levels of positive affect predicted the highest levels of suicidal ideation. No such interaction effects were observed with negative affect. These findings highlight the importance of impulsiveness in suicidal ideation, and further emphasise the role of low levels of positive affect in exacerbating the relationship between impulsiveness and suicidal thoughts amongst prisoners at risk of suicide. Future work should disentangle which aspects of impulsiveness are particularly prone to low positive affect. Clinically, efforts should be made to develop sensitive assessments of relationships between impulsiveness, emotional states, and suicidality, and to develop interventions which counter such relationships.
8.2. Introduction

Suicidal behaviour and suicide deaths present a significant public health concern worldwide (World Health Organization, 2014). Globally, around 800,000 people are estimated to die by suicide each year (World Health Organization, 2014). Furthermore, it is projected that for every death by suicide there are an additional 25 suicide attempts (Crosby, Han, Ortega, Parks & Gfroerer, 2011). A number of factors have been found to increase the risk of eventual suicide (Hawton & van Heeringen, 2009). Most notably, the presence of a psychiatric disorder and a history of suicidal behaviour are seen to markedly increase risk (Oquendo, Galfalvy, Russo, Ellis, Grunebaum, Burke & Mann, 2004; Crump, Sundquist, Sundquist & Winkleby, 2014). Those who are incarcerated are identified as a particularly high-risk group, in which suicidal behaviour and suicide deaths pose a serious and substantial problem (Jenkins et al., 2005). Worldwide, in excess of 10 million people are imprisoned (Walmsley, 2013) with suicide accounting for approximately half of all prison deaths. This makes suicide the leading cause of mortality amongst prisoners (Fazel & Baillargeon, 2011). The reduction of suicide by prisoners forms a key objective in a number of national suicide prevention strategies, including the US (US Department of Health and Human Services, 2001) and the UK (Department of Health, 2012), thus, highlighting the magnitude of the problem.

Risk factor based approaches have identified a number of demographic and clinical characteristics, which are associated with an increased risk of death by suicide. Factors, such as, unemployment, lower socioeconomic status, and mental illness, increase the risk of suicide within the general population (Mortensen, Agerbo, Erikson, Qin & Westergaard-Nielsen, 2000; Li, Page, Martin & Taylor, 2011). For those who are imprisoned, being male (Fazel, Cartwright, Norman-Nott & Hawton, 2008), of remand/detainee status (Fazel et al., 2008; Humber, Piper, Appleby, & Shaw, 2011; Shaw, Baker, Hunt, Moloney &
Appleby, 2004), and experiencing mental illness (Fazel et al., 2008; Singleton, Meltzer & Gatward, 1998) have, amongst other factors, come to be associated with an increased risk for death by suicide. However, relying on a risk factor based approach is problematic, as it typically identifies large groups of individuals, the majority of whom will not go on to engage in suicidal behaviour. Therefore, there is also a need to develop and examine theoretically driven accounts of the psychological processes underlying suicidal thoughts and behaviour in a number of populations, including the prison population (Bolton, Gooding, Kapur, Barrowclough & Tarrier, 2007; Tarrier Gooding, Pratt, Kelly, Maxwell & Awenat, 2013). Furthermore, research examining the way in which individual psychological processes implicated in suicidality interact with one another is necessary (Nock, 2012). Such an approach would not only enable the identification of those at risk to be performed with greater specificity, but would also permit the development of psychological interventions designed to reduce risk and alleviate distress.

The role of impulsiveness in suicidal behaviour has been the focus of a large body of research in many populations (Carli et al., 2010; Koller, Preuss, Bottlender, Wenzel & Soyka, 2002; Perroud, Baud, Mouthon, Courtet & Malafosse, 2011; Witte et al., 2008). It has often been postulated that there is a direct link between impulsiveness and suicide (Smith et al., 2008) with many suicide attempts thought to be impulsive or ‘spur of the moment’ actions. Nevertheless, it is extremely difficult to evidence such a claim in studies of suicide deaths. In these cases the ‘impulsive’ attribution may demonstrate only that an individual had not communicated any suicidal thoughts or intentions to others. Furthermore, studies concerning the impulsiveness of non-fatal suicide attempts indicate that most suicide attempts are not impulsive and do, in fact, involve a plan (Simon et al., 2001). Whilst links between impulsiveness and various indices of suicidality have been found (Conner, Meldrum, Wieczorek, Duberstein & Welte, 2004; Dougherty et al., 2004;
Dumais, et al., 2005; Maser et al., 2002), the psychological mechanisms by which impulsiveness may contribute to suicidality is unclear.

Recent models of suicidal behaviour have attempted to conceptualise the ways in which impulsiveness may increase suicide risk (Joiner, 2005; O’Connor, 2011). Despite this, there is a lack of convergence concerning the role of impulsiveness across these theoretical accounts. One theory, proposed in the Interpersonal Psychological Theory of Suicide (Joiner, 2005), is that impulsive individuals may be more likely to have experiences that allow them to acquire the capability for suicide. According to Joiner’s model (2005), the capability for suicidal behaviour is acquired through exposure to painful experiences. These experiences allow the individual to become habituated to pain, enabling suicidal behaviours of increasing severity to be enacted (Joiner, 2005). As such, impulsiveness is said to increase suicide risk indirectly by exposing the individual to painful experiences that allow for the capability to engage in suicidal behaviours to be acquired. In contrast, O’Connor’s (2011) Integrated Motivational-Volitional (IMV) Model of Suicidal Behaviour implicates impulsiveness as a volitional moderator that increases the likelihood of transition from suicidal ideation to attempts. A criticism of the IMV model (O’Connor, 2011) is that the mechanism by which impulsiveness influences this transition from cognition to behavioural enactment is unclear and descriptive, rather than explanatory. An alternative view, proposed in the Schematic Appraisals Model of Suicide (Johnson, Gooding & Tarrier, 2008), argues that seemingly impulsive suicides may occur within the context of an extended suicide schema. Spreading activation theories suggest that each time this suicide schema is accessed or triggered further information is incorporated into it (Teasdale, 1988). The more elaborate the network becomes, the more often it will subsequently be activated. When the schema is activated, i.e., triggered by internal or external events, this leads to suicidal thoughts and behaviours (Tarrier,
Gooding, Gregg, Johnson & Drake, 2007; Pratt, Gooding, Johnson, Taylor & Tarrier, 2010). Crucially, these triggering events may on the surface seem unrelated to suicidality. However, through the connections in the schema network, such events may trigger the rapid onset of suicidal thoughts (Tarrier, Gooding, Pratt, Kelly, Awenat & Maxwell, 2013). Hence, the Schematic Appraisals Model of Suicide postulates that seemingly impulsive suicides are not, in fact, impulsive, but are the result of rapid schema activation (Tarrier et al., 2013).

Prisoners have been found to demonstrate higher levels of impulsiveness compared to university undergraduates, psychiatric inpatients, and those with substance misuse difficulties (Patton, Stanford & Barratt, 1995). Nevertheless, the extent to which impulsiveness plays a role in suicidality amongst prisoners remains unclear. In a landmark study of prison suicide, results suggested that in over half of the cases examined, the fatal suicide attempt had taken place on impulse (Topp, 1979). However, this information was gathered by the retrospective examination of prison records, thus raising questions regarding the quality and reliability of the data from which these conclusions were drawn. It has previously been noted that the quality of information contained in prison records is variable (Offender Health Research Network, 2010). Furthermore, it is plausible that suicidal cognitions were simply not communicated to prison staff, rather than reflecting genuine impulsiveness. Research has shown that prisoners are often reluctant to disclose their distress to prison and medical staff (Hobbs & Dear, 2000; Howerton, Byng, Campbell, Hess, Owens & Aitken, 2007). Higher levels of impulsiveness have been found in prisoners reporting a history of suicidal ideation, as compared to those reporting no such history, although no differences were found according to suicide attempt status (Sarchiapone, Carli, Di Giannantonio & Roy, 2009). In a separate study, whilst prisoners described as high in impulsiveness were more likely to engage in suicidal behaviour,
impulsiveness was not found to be predictive of suicidality once other psychological variables, such as depression and resilience, were accounted for (Carli, Jovanovic, Podlesek, Roy, Rihmer et al., 2010). In a case control study, female prisoners who had recently engaged in near lethal self-harm scored significantly higher on questionnaire measures of impulsiveness than did control participants (Marzano, Hawton, Rivlin & Fazel, 2011). To date, research concerning the role of ‘state’ impulsiveness has largely been concerned with examining the impulsiveness of a past suicide attempt (Baca-Garcia et al., 2005). No studies have examined the relationship between ‘state’ impulsiveness and suicidal thoughts, that is, how current feelings of impulsiveness, assessed ‘in the moment’, may relate to concurrent feelings of suicidality. An examination of this relationship is important in order to further understand the mechanisms by which impulsiveness may increase risk of suicide. The current study aims to redress this gap.

The use of novel idiographic methods of studying aspects of thoughts and behaviours has long been advocated (Conner, Tennen, Fleeson & Barrett, 2009). Experience sampling methods (ESM; Csikszentmihalyi & Larson, 1987) provide a means for achieving this, because they allow for the in-depth study of experiences as they occur in daily life. ESM has been shown to demonstrate good ecological validity and to reduce the potential for memory biases to affect responses (Myin-Germeys et al., 2009). Moreover, ESM has been found to be both a feasible and acceptable methodology for participants with recent suicidal behaviour (Husky, Olié, Guillaume, Genty, Swendsen & Courtet, 2014). Importantly, the repeated assessment of suicidal ideation, as used in ESM, has been shown not to have detrimental effects for participants in terms of increasing the frequency of suicidal thoughts (Husky et al., 2014).

In recent years, ESM has been used to investigate the role of ‘in the moment’ affect in suicidality across a range of samples (Ben-Zeev, Young & Depp, 2012; Links et al., 2007;
Nisenbaum, Links, Eynan & Heisel, 2010; Palmier-Claus, Taylor, Gooding, Dunn & Lewis, 2012; Humber, Emsley, Pratt & Tarrier, 2013), This approach has allowed for the detailed examination of the affective experiences associated with suicidal cognitions, as they occur in real-time. In a study of depressed inpatients, feelings of boredom, tension, and sadness predicted greater subsequent suicidal thoughts (Ben-Zeev et al., 2012). Similarly, in a study of adolescents and young people, suicidal thoughts were most commonly experienced within the context of feeling sad/worthless, followed by feelings of anger (Nock, Prinstein & Sterba, 2009). Links et al. (2007) observed that more intense negative mood was related to the severity of suicidal ideation amongst individuals diagnosed with borderline personality disorder. In contrast, more variable affect, but not mean levels of affect, was seen to predict suicidal ideation amongst individuals at ultra-high risk for psychosis (Palmier-Claus et al., 2012), although it should be noted that this study used a single point measure of suicidal ideation, and did not assess suicidal cognitions in real time (Palmier-Claus et al., 2012). Overall, results from ESM studies highlight the potential role of negative affective experiences in suicidal ideation. In addition, findings from cross-sectional studies underscore the need to examine further the role of positive affect in suicidality. For example, positive affect was found to distinguish suicide ideators from non-ideators, after controlling for the effects of negative affect, in a sample of older adults in primary care (Hirsch, Duberstein, Chapman & Lyness, 2007). Finally, recent evidence suggests that an interaction between affective experiences, such as depressed mood, and impulsiveness may impact upon suicidality (Dvorak, Lamis & Malone, 2013). The current study aimed to extend recent findings, examining the roles of, and interactions between, impulsiveness and affect in a group at high risk for suicide.
8.2.1. Aims and Hypotheses

The current study, therefore, aimed to examine the impact of impulsiveness and positive and negative affect upon suicidal ideation in a sample of prisoners identified as being at high risk of suicide. To examine the relationships between these variables in detail, ESM was selected enabling ‘in the moment’ ratings of impulsiveness, affect, and suicidal ideation to be collected within the context of participants’ daily lives. There were three overarching goals. The first was to examine the relationship between feelings of impulsiveness and suicidal thoughts. It was hypothesised that increased impulsiveness would predict increased suicidal ideation. The second goal was to examine the role of affect (positive and negative) in predicting suicidal ideation. It was anticipated that higher levels of negative affect and lower levels of positive affect would be predictive of increased suicidal ideation. Finally, a third, more exploratory goal was to identify any potential moderation effects between impulsiveness and affect in predicting suicidal ideation. Specifically, the study sought to investigate whether negative affect would amplify the effect of impulsiveness on suicidal ideation, and whether positive affect would protect against the effect of impulsiveness.

8.3. Method

8.3.1. Participants

Participants were adult male prisoners recruited from a high security prison establishment in the UK. Eligibility to participate was based upon the primary inclusion criteria of being identified as at-risk of suicide or self-harm within the past three months. This information was obtained via the Assessment, Care in Custody and Teamwork (ACCT) system of Her Majesty’s Prison Service, a care-planning system used to identify and care for prisoners deemed to be at risk of suicide or self-harming behaviour (Ministry
of Justice, 2012). Further to this, potential participants were required to meet the following additional criteria of being aged 18-65, English speaking, having sufficient literacy levels to complete the diary measure, and being considered suitable to participate by prison staff i.e., able to provide informed consent/not thought to pose a current risk of violence to the researcher.

Potential participants meeting the inclusion criteria were first informed of the research study by prison staff. Those who expressed an interest were then visited by the researcher who provided further information. Individuals were then given at least 24 hours to consider this information before informed consent was sought. Participants did not receive any payment or incentive for taking part in this study.

8.3.2. Design

An experience sampling methodology was used. Outcome variables were in the moment ratings of suicidal ideation. Predictor variables were in the moment ratings of impulsiveness, positive affect and negative affect.

8.3.3. Measures

Standardised questionnaire measures were used to characterise participants in terms of their overall level of suicidality, impulsiveness, depression, anxiety, and general psychopathology.

Barratt Impulsiveness Scale - Version 11 (BIS-11; Patton, Stanford & Barratt, 1995). The BIS-11 is a 30-item self-report measure of general trait impulsiveness. Participants are required to indicate on a four-point scale the extent to which they act or think in a certain way (e.g., ‘I act on impulse’) with responses ranging from ‘rarely/never’ to ‘almost always/always’. In addition to providing a total trait impulsiveness score, the BIS-11
contains three subscales which each represent a component of impulsiveness. These are non-planning impulsiveness, motor impulsiveness, and attentional impulsiveness. Responses are summed to provide a total impulsiveness score ranging from 30 to 120, with higher scores representing greater trait impulsiveness. In the current sample, the BIS-11 displayed good internal consistency ($\alpha = .86$).

*Beck Scale for Suicidal Ideation (BSS; Beck & Steer, 1991).* The BSS is a 21-item self-report measure of suicidal ideation, planning, and intent. For each item, participants are required to choose the response from a selection of three, which best describes how they have been feeling over the past week. The first 19 items are rated on a three-point scale, ranging from zero to two (e.g., ‘0 = I have no wish to die’, ‘1 = I have a weak wish to die’, ‘2 = I have a moderate to strong wish to die’). Responses are then summed to yield a total score, ranging from 0 to 38. Individual items assess characteristics, such as, wish to die, desire to make an active or passive suicide attempt, and amount of actual preparation for a contemplated attempt. Items 20 and 21 assess the number of previous suicide attempts and the level of intent to die associated with the last suicide attempt if applicable. Cronbach’s alpha indicated excellent internal consistency in the present study, $\alpha = .95$.

*Beck Depression Inventory - Version 2 (BDI-II; Beck, Steer & Brown, 1996).* The BDI-II is a 21-item multiple-choice, self-report measure of depressive symptoms and cognitions. For each item, participants are required to choose from a set of four statements (0-3), the one that best describes the way that they have been feeling over the past two weeks (e.g., ‘0 = I do not feel sad’, ‘3 = I am so sad or unhappy that I can’t stand it’). Responses are summed to provide a total score, ranging from 0 to 63, with higher scores indicative of greater depressive symptoms. The BDI-II has been found to demonstrate high internal consistency in a sample of prisoners with an alpha coefficient of .90. In the current study, Cronbach’s alpha was $\alpha = .85$. 
Beck Anxiety Inventory (BAI; Beck, Epstein, Brown & Steer, 1988). The BAI is a 21-item self-report inventory designed to assess the severity of participants’ anxiety. Participants are required to indicate how much they have been affected by each symptom assessed over the last week and to respond on a four point scale ranging from zero (Not at all) to three (Severely) (e.g., ‘unable to relax’, ‘fear of the worst happening’). Scores range from 0 to 63, with higher scores indicative of greater levels of anxiety. Cronbach’s alpha in the current sample was $\alpha = 96$.

Brief Psychiatric Ratings Scale - Expanded (BPRS-E; Lukoff et al., 1986). The BPRS-E is a 24-item measure of general psychopathology that expands upon the original BPRS developed by Overall and Gorman (1962). The measure provides an assessment of general psychopathology, with the extended version containing items designed to assess psychotic symptoms in greater detail. The measure takes the form of a semi-structured interview in which the first 14 items are rated on the basis of participants’ self-reported responses to the questions asked. The remaining items are rated according to the observed speech and behaviour of the participant during the interview. Scores range from 0 to 168, with higher scores reflecting greater severity of psychopathology.

ESM diary measure. A total of 17 items assessing positive and negative affect, impulsiveness, and suicidal ideation were developed by the research team. Items were then finalised following consultation with a Service User Reference Group (SURG) comprising individuals with lived experiences of imprisonment and suicidality. For each item, participants were asked to provide a rating on a ten-point Likert scale indicating the extent to which the item reflected their thoughts or feelings at that time. (1-10; 1 = not at all, 10 = extremely). The ten-point Likert scale was selected following consultation with the SURG who suggested that this scale would be most familiar to participants in prison settings, thus, optimising the acceptability of the ESM diary measure. In addition to the items
measuring impulsiveness, affect, and suicidal ideation, each diary entry also consisted of other items measuring appraisals not examined in this paper\textsuperscript{13}.

\textbf{8.3.4. Procedure}

Experience sampling methods using a time-contingent recording protocol were adapted for use within the prison setting. Participants completed a self-report paper diary measure assessing in the moment impulsiveness, affect, and suicidal ideation up to six times per day over six consecutive days. Entries were self-initiated and completed at a fixed schedule throughout the day which was as follows: i. ‘when you wake up’, ii. ‘breakfast time’, iii. ‘lunch time’, iv. ‘dinner time’, v. ‘in the evening’ and vi. ‘before you go to sleep’. Participants could, therefore, complete a total of 36 diary entries over the assessment period.

During the briefing session, informed consent was first obtained and demographic (i.e., age, ethnic group, marital status) and custodial (i.e., index offence, conviction status) information was gathered. Following this, questionnaire measures were completed. Additional psychometric measures not pertaining to the current research question and, therefore, not reported here were also completed during this session. All briefing sessions were conducted on a one to one basis with the researcher reading questionnaire items aloud to participants as necessary.

Participants were extensively briefed in an hour long session about the diary completion procedure. This comprised i. explaining the procedure including the request not to back-fill items, ii. the participant filling-in the diary together with the researcher, iii. the participant independently completing the diary, and iv. the researcher checking with the participant the reasons for making responses. When it was clear that participants

\textsuperscript{13} For further information regarding the items used in the diary, please contact the corresponding author.
understood the diary procedure, they were provided with six separate paper diaries and instructed to begin filling-in the diaries the following day for six consecutive days.

The researcher collected completed diaries directly from participants on a daily basis in order to ensure that any imminent suicide risk issues presenting within the diary entries could be addressed in a timely manner in accord with suicide risk assessment procedures of the prison. Participants’ ability to adhere to the procedure was also checked when the first diary was collected such that any problems arising could be remedied. At the end of the six-day assessment period, participants met with the researcher for a debriefing session in which adherence to the assessment protocol was checked and the acceptability of the procedure was discussed.

8.3.5. Statistical Analysis

The hierarchical data structure generated through use of the ESM design required regression analyses to be conducted using Multilevel Modelling (MLM). There was a three level structure with impulsiveness, affect, suicidal ideation ratings completed at each time point (Level 1) nested within days (Levels 2) which were further nested within participants (Level 3). Individual diary items were summed to generate both outcome and predictor variables for analysis as follows:

Items ‘I want to live (R)’ and ‘Life is worth living (R)’ were summed to generate the composite item ‘Suicidal ideation’. Items ‘low’, ‘worried’ and ‘anxious’ were summed to generate the composite item ‘Negative Affect’. Items ‘happy’, ‘relaxed’ and ‘cheerful’ were summed to generate the composite item ‘Positive Affect’. Finally, items ‘restless’, ‘impulsive’, ‘spontaneous’, ‘fidgety’, ‘I can control myself (R)’, ‘I’m having trouble concentrating’, ‘I may do something without thinking’, ‘My thoughts are all over the

\[14\] (R) Indicates a reverse scored item.
place’ and ‘I feel like doing something on the spur of the moment’ were summed to generate the composite item ‘Impulsiveness’.

Regression analyses were conducted with bootstrapping (1000 repetitions) as data were not normally distributed. Bootstrapping has been identified as an acceptable alternative to parametric analysis when the assumptions of parametric data are not met (Mooney & Duval, 1993). Only participants who completed at least 10 diary entries during the assessment period were included in the analysis. Previous research has suggested that only participants who complete approximately one third of the possible entries should be included in analyses (Palmier-Claus et al., 2011). The threshold for the current study was, therefore, slightly lower than this cut-off. ESM data were analysed using the XTMIXED command in STATA (Version 12) and in all analyses participant and day level random effects were adjusted for.

In order to assess whether impulsiveness and affect (positive and negative) were associated with concurrent suicidal ideation a series of separate regression analyses were conducted. Measures of positive and negative affect were highly inversely associated and as such these variables required separate analysis. To test for interaction effects the independent variable (impulsiveness) was entered first, followed by the moderator variable (affect) and then the interaction term (impulsiveness*affect). Where interaction effects were tested, all predictor variables were centred prior to analysis (Aiken & West, 1991; Kraemer & Blasey, 2004).

---

15 Example of an XTMIXED command used in the present study (for illustrative purposes only): bootstrap, strata (Participant) reps (1000): XTMIXED suicidalideation impulsiveness || participant: || day:, mle
8.3.6. Ethical approval

This study was granted ethical approval by the National Health Service (NHS) Research Ethics Committee for Wales, UK (Ref: 11/WA/0002), which specializes in research with incarcerated samples. Approval was also gained from the relevant NHS Trust Research and Development office (ref 1035), and the Ministry of Justice National Offender Management Service’s National Research Committee (reference 16-11). The Governor of the host prison establishment provided local approval.

8.4. Results

8.4.1. Participant Characteristics and ESM Adherence

Sixty-five potential participants were identified as meeting the inclusion criteria. Twelve individuals declined to participate and two were transferred to another establishment prior to the briefing phase. The remaining 51 agreed to participate. Of these, 42 participants completed at least 10 diary entries over the six-day assessment period and were, therefore, included in the analyses. The majority of participants identified themselves as White British (93%; Mixed: 5%; Black British: 2%) and single (74%; married/cohabiting: 21%; divorced/separated: 5%). The mean age of participants was 36.5 years ($SD=9.07$), ranging from 21 to 60 years. The majority of participants were of convicted sentenced status (71%; remand: 17%; convicted unsentenced: 12%). Most were charged with, or convicted of, violent or sexual offences (43%), followed by acquisitive offences (31%), breech of a restraining order (10%), arson (5%), and other offences (fraud: 2%; motoring: 2%; breach of community service order: 2%; breach of anti-social behaviour order: 2%; drug related: 2%). The majority of participants reported a suicide attempt in the past (79%; 33/42) with over half reporting multiple attempts (55%; 23/42). The scores of the sample on the standardised questionnaires can be seen in Table 12.
Table 12: Means ($M$), standard deviations ($SD$) and ranges for standardised questionnaire measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Descriptive statistics</th>
<th></th>
<th></th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N$</td>
<td>$M$</td>
<td>(SD)</td>
<td></td>
</tr>
<tr>
<td>Barratt Impulsiveness Scale – 11</td>
<td>42</td>
<td>75.67</td>
<td>13.92</td>
<td>40-106</td>
</tr>
<tr>
<td>Beck Scale for Suicidal Ideation</td>
<td>41</td>
<td>10.90</td>
<td>9.67</td>
<td>0-33</td>
</tr>
<tr>
<td>Beck Depression Inventory - II</td>
<td>42</td>
<td>33.33</td>
<td>10.03</td>
<td>10-58</td>
</tr>
<tr>
<td>Beck Anxiety Inventory</td>
<td>41</td>
<td>25.34</td>
<td>15.62</td>
<td>0-59</td>
</tr>
<tr>
<td>Brief Psychiatric Rating Scale – Expanded</td>
<td>41</td>
<td>43.34</td>
<td>7.37</td>
<td>30-67</td>
</tr>
</tbody>
</table>

Of the 42 participants completing at least 10 diary entries, participants on average provided data at almost three quarters of the 36 assessment points ($M = 26.90$, $SD = 8.51$) over a mean of 5.60 days ($SD = .91$). Descriptive statistics for individual diary items and composite predictor and outcome variables assessing impulsiveness, negative affect, positive affect and suicidal ideation are presented in Table 13.
Table 13: Descriptive statistics for individual and composite diary items

<table>
<thead>
<tr>
<th>No. of observations</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n)*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Individual Diary Items**

**Suicidal Ideation**
- I want to live (R) 1099 4.30 3.01 1-10
- Life is worth living (R) 1093 4.55 3.03 1-10

**Negative Affect**
- Worried 1121 5.52 3.18 1-10
- Low 1110 5.83 3.35 1-10
- Anxious 1099 5.02 3.13 1-10

**Positive Affect**
- Happy 1121 3.85 2.64 1-10
- Relaxed 1119 4.04 2.53 1-10
- Cheerful 1114 3.45 2.50 1-10

**Impulsiveness**
- Restless 1119 4.89 2.86 1-10
- Impulsive 1114 3.01 2.48 1-10
- Spontaneous 1084 2.80 2.35 1-10
- Fidgety 1103 4.53 2.90 1-10
- I can control myself (R) 1106 4.58 2.77 1-10
- I’m having trouble concentrating 1099 5.73 3.13 1-10
- I may do something without thinking 1099 4.06 2.95 1-10
- My thoughts are all over the place 1099 6.17 3.19 1-10
- I feel like doing something on the spur of the moment 1097 3.34 2.79 1-10

**Composite Diary Items**

- Suicidal Ideation 1085 10.86 5.71 2-20
- Negative Affect 1083 16.37 8.17 3-30
- Positive Affect 1100 11.36 6.63 3-30
- Impulsiveness 1035 39.44 18.16 9-90

(R) = Reversed item; * Of a possible 1512 observations.
8.4.2. Impulsiveness and affect as predictors of suicidal ideation

As expected, both impulsiveness ($\beta = 0.09$, $p<0.001$, 95% CI = 0.07—0.12) and negative affect predicted concurrent levels of suicidal ideation ($\beta = 0.21$, $p<0.001$, 95% CI = 0.15—0.26). As levels of both impulsiveness and negative affect increased, so too did levels of suicidal ideation. Also in line with predictions, positive affect inversely predicted suicidal ideation ($\beta = -0.27$, $p<0.001$, 95% CI = -0.32—-0.21), such that as positive affect increased, suicidal ideation decreased.

8.4.3. Interaction effects between impulsiveness and affect as predictors of suicidal ideation

First, the interaction between impulsiveness and negative affect was examined. When entered together, analyses revealed no significant main effects of impulsiveness ($\beta = -0.02$, $p=0.614$, 95% CI = -0.04—-0.07) or negative affect ($\beta = 0.09$, $p=0.112$, 95% CI = -0.02—0.19) in predicting suicidal ideation. No significant interaction effects between impulsiveness and negative affect were found ($\beta = 0.002$, $p=0.124$, 95% CI = 0.001—0.004).

Second, the interaction between impulsiveness and positive affect was tested. A significant main effect of impulsiveness ($\beta = 0.12$, $p<0.001$, 95% CI = 0.09—0.15) but not positive affect ($\beta = -0.03$, $p=0.605$, 95% CI = -0.12—0.07) was found to predict suicidal ideation. Furthermore, there was a significant interaction effect between impulsiveness and positive affect ($\beta = -0.01$, $p<0.001$, 95% CI = -0.003—-0.008). As shown in Figure 12, high levels of impulsiveness resulted in greater levels of suicidal ideation. As predicted, this effect was amplified by low positive affect, which led to greater suicidal ideation, as compared with high positive affect.
Figure 12: The effect of impulsiveness scores on suicidal ideation split by low and high levels of positive affect.

8.5. Discussion

The current study used a novel, ecologically valid method of examining the role of impulsiveness and affect in suicidal ideation within a group identified as at high risk for suicide. An experience sampling procedure (Csikszentmihalyi & Larson, 1987) allowed for the detailed examination of 'in the moment' relationships between suicidal thoughts, impulsiveness, and affect within the context of participants’ daily lives. Importantly, this approach acknowledges both the potentially variable nature of individuals’ experiences, and also the need for ecologically valid assessment, which takes place in the individuals lived environment. There were three main findings. First, and as expected, ‘in the moment’ impulsiveness was found to predict suicidal ideation, such that as impulsiveness increased so too did suicidal ideation. Second, and consistent with predictions, both positive and
negative affect were found to be significant predictors of suicidal ideation. Specifically, positive affect was inversely predictive of suicidal ideation, whilst increases in negative affect were predictive of increased suicidal ideation. The third finding was that positive affect, but not negative affect, interacted with impulsiveness to predict suicidal ideation. High levels of impulsiveness predicted suicidal ideation, but this effect was even greater when coupled with lower levels of positive affect.

The first finding of the current study, that momentary perceived impulsiveness was predictive of suicidal ideation, concur with those of Marzano et al. (2011) and Sarchiapone et al. (2009) who both reported significant relationships between impulsiveness and suicidal cognitions within prisoner samples. Whilst the above studies sought to examine the relationships between trait impulsiveness and suicidal ideation, the current study focused upon feelings of perceived, in the moment, impulsiveness rather than retrospective ratings of impulsive actions and behaviour. Using this approach, it can be seen that greater feelings of impulsiveness were predictive of increased levels of suicidal ideation in the current sample. Conversely, an inspection of the relationship between the questionnaire measures of trait impulsiveness and suicidal ideation, which were collected to characterise the sample, found no significant correlation between trait impulsiveness and suicidal ideation, suggesting that within the current sample the ESM measure displayed greater sensitivity.

The second finding, and concurrent with predictions, was that greater negative affect and lesser positive affect, were predictive of more severe suicidal ideation. The observed association of negative affect and suicidal ideation mirrors the findings of previous ESM studies that have highlighted the role of negative affective experiences as a key driver for

---

16 Results of a bivariate correlational analysis, conducted using Spearman's rho correlation coefficient, found no significant correlation between trait impulsiveness, as measured by the BIS-11, and suicidal ideation, as measured by the BSS, $r_s = .086, p = .595$. 

247
suicidality, across a range of clinical groups (Links et al., 2007; Nock et al., 2009; Ben-Zeev et al., 2012). The outcomes of the present study contrast with those of Palmier-Claus et al. (2012) in which levels of positive and negative affect were found not to predict suicidality amongst those at ultra-high risk for psychosis. This divergence in findings may reflect the different clinical presentations of these two subgroups, such that differences in findings may reflect genuine differences in the role of affect on suicidality. Alternatively, differences in the measurement of suicidal thoughts and behaviours across the two studies may be a factor contributing to the different patterns of findings. In the current study, the relationships between momentary ratings of suicidal thoughts and affect were examined. In contrast, Palmier-Claus et al. (2012) utilized a one-off assessment of suicidality, encompassing both suicidal ideation and behaviour, conducted following the ESM period. A tentative suggestion is that affect levels may be less influential when a more general measure of suicidal behaviour is examined.

The third, and final finding, was that positive affect, but not negative affect, interacted with impulsiveness to predict suicidal ideation. At high levels of impulsiveness suicidal ideation was significantly increased. Moreover, this effect was further amplified when coupled with low positive affect. Interestingly, neither impulsiveness nor negative affect significantly impacted suicidal ideation when considered together. The interaction between these factors also failed to reach statistical significance, although it is possible that a larger sample size may have produced a significant interaction. There is a need to further examine the extent to which these findings apply to other clinical groups, including those in environments resembling the prison context, such as, in-patient settings and forensic units. The present findings extend the current literature on the relationship of impulsiveness in suicidality, highlighting the impact of positive affect on this relationship. In particular, these findings underscore the need to consider separately the roles of both
positive and negative affect, which have previously been shown to be largely independent of one another (Diener & Emmons, 1984; Watson, Clark & Tellegen, 1988). Furthermore, these results bear similarities with the empirical finding that hopelessness, a robust predictor of suicidality (Hawton & van Heeringen, 2009), is driven more by a lack of positive future thinking, than by the presence of negative future thoughts (MacLeod et al., 2005). Within the current study, a lack of positive affect was shown to exacerbate the deleterious effect of impulsiveness upon suicidal ideation, whilst high levels of negative affect showed no such effect.

Based on the present findings, it is suggested that the association between impulsiveness and suicidal ideation is dynamic and likely to be state dependent. This has implications for theoretical accounts of the mechanisms underlying suicidality. As such, three directions for future work should be prioritized to extend, from a theoretical standpoint, the present findings. First, identifying which psychological processes driving impulsiveness are especially amplified by low positive affect. Second, to examine the extent to which the interaction between positive affect and impulsiveness is linked to an extended suicide schema, as proposed by the SAMS (Johnson et al., 2008; Tarrier et al., 2007). And third, to determine the extent to which this interaction may relate to pain habituation, as suggested by the Interpersonal Psychological Theory of suicide (Joiner, 2005).

A number of important limitations of this study warrant further discussion. First, the assessment procedure relied upon the use of a paper diary measure, as compared to an electronic device, meaning that the degree to which participants adhered to the diary schedule and did not back or forward fill diaries cannot be confirmed (Palmier-Claus et al., 2011). That said, during debriefing, participants reported to have adhered to the assessment protocol, and mean completion rates of approximately 75% indicate that participants were
unlikely to be back or forward filling diaries given that around a quarter of the potential entries were not completed. A further limitation came from the requirement for participants to self-initiate diary responses at the pre-specified times which meant that i) participants could have had difficulty in remembering when to complete entries and ii) that the range of experiences sampled within the day may have been fewer than if participants had been randomly or pseudo-randomly prompted as in other experience sampling research (Palmier-Claus et al., 2011). This was, however, an unavoidable requirement. The decision to carry out the research study in a high security prison establishment meant that significant adaptations had to be made to traditional ESM protocols including the inability to use any form of electronic or digital signalling or recording device. These limitations were thought to be acceptable given the potential for furthering understanding of the experiences of those who find themselves incarcerated.

The clinical implications of the current study are three fold. First, the findings highlight the need to consider whether clinical assessments are based on daily experiences of individuals rather than retrospective reports. Second, the study underlines the potentially deleterious impact of impulsiveness in suicidal ideation amongst prisoners identified as at-risk of suicide. The results suggest that in the context of daily life, individuals who experience increased feelings of impulsiveness together with low levels of positive affect should be considered particularly vulnerable to thoughts about suicide. Furthermore, it is important to emphasize that a lack of positive emotion is not necessarily synonymous with the presence of negative emotion (Diener & Emmons, 1984), and that the effects of both positive and negative emotions should be explored in clinical settings. Third, clinicians should be aware that impulsiveness is multi-faceted and encompasses thoughts (e.g., feeling agitated) and behaviours (e.g., acting on the spur of the moment), all of which should be explored.
In conclusion, this is the first study to examine interactions between positive and negative affect, impulsiveness, and suicidal ideation in a group of vulnerable individuals at high risk of suicide, using a novel methodology which facilitates the exploration of real-life experiences. Impulsiveness predicted suicidal thoughts, and low levels of positive affect were observed to amplify this relationship. In contrast, negative affect had no effect on the relationship between impulsiveness and suicidal ideation. These findings have important theoretical and clinical implications in working with suicidal individuals.
CHAPTER 9


9.1. Abstract

Self-harm prevalence rates amongst prisoners are substantially higher than rates in the general population. Impulsiveness is identified as an important correlate of self-harm, yet the mechanism by which it increases risk of self-harm is unclear. The present study aimed to examine the relationship between impulsiveness, affect, and thoughts of self-harm in a prisoner sample. Prisoners \( n = 42 \) identified as being at risk of self-harm were recruited from a high secure prison. Using an ecological momentary assessment based method, participants completed self-report diary measures of impulsiveness, positive and negative affect, and thoughts of self-harm up to six times per day for six successive days. Multilevel regression analyses showed impulsiveness, positive affect, and negative affect to be significant predictors of self-harm ideation. Furthermore, levels of positive and negative affect were found to moderate the relationship between impulsiveness and self-harm ideation. In a sample of prisoners at increased risk of self-harm, impulsiveness predicted self-harm ideation, whilst affect was found to moderate this relationship. The findings of this study indicate that self-harm interventions within prisoner populations should target the reduction of impulsiveness and the development of affect regulation strategies.
9.2. Introduction

Self-harm is a common clinical problem worldwide (Skegg, 2005) and a significant risk factor for suicide (Hawton, Bergen, Cooper, Turnbull, Waters, Ness & Kapur, 2015). For those who are imprisoned, the risk of self-harm is elevated, with rates of self-injury considerably higher than those of the general population (Hawton, Linsell, Adeniji, Sariaslan & Fazel, 2014). Amongst male inmates, the annual prevalence of self-harm is estimated at 5-6%, compared with rates of 0.6% in the general population (Bebbington et al., 2010; Hawton et al., 2014). Over the last decade, self-harm rates amongst men imprisoned throughout England and Wales have increased year on year (Ministry of Justice, 2014). Current rates of self-harm are at their highest recorded level to date, at 214 self-harm incidents per 1,000 prisoners (Ministry of Justice, 2014). Whilst self-harm behaviour presents a substantial clinical challenge to correctional institutions in and of itself, it is also known to markedly increase the risk of later within prisoner populations (Hawton et al., 2014). In a systematic review of risk factors for prison suicide, around half of those who died by suicide were found to have previously engaged in self-injurious behaviours (Fazel, Cartwright, Norman-Nott & Hawton, 2008). It has, therefore, been recommended that prison suicide prevention strategies should focus more on those prisoners who self-harm (Hawton et al., 2014).

It has been suggested that self-harm exists on a continuum from ideation to enactment, whereby self-injurious thoughts may precipitate self-injurious behaviours (Nock, Prinstein & Sterba, 2009), which may or may not include suicidal intent (Hargus, Hawton & Rodham, 2009). Whilst a number of studies have attempted to distinguish acts of self-harm according to the presence or absence of suicidal intentions, this may, to some extent, represent a false dichotomy. Studies examining the functions of self-harm amongst forensic populations highlight the range of motivations that may underlie this behaviour, including emotional regulation, suicidal intent, communication of distress, and attempts to
influence the external environment (Dixon-Gordon, Harrison & Roesch, 2012; Jeglic, Vanderhoff & Donovick, 2005; Sakelliadis, Papadodima, Sergentanis, Giotakos & Spiliopoulou, 2010). The lack of consistent terminology used to describe the overlap and distinction between self-harm and suicidal behaviour has been highlighted (Dixon-Gordon et al., 2012). Within the present study, the term self-harm ideation is used to describe thoughts of self-harm, with or without suicidal intent.

Several epidemiological risk factors for self-harm amongst those imprisoned have been identified, including being unmarried, of younger age, and of white ethnic origin (Carli et al., 2011; Hawton et al., 2014; Kaba et al., 2014). In addition, custodial factors, such as being unsentenced, previously imprisoned, held in a high secure establishment or in conditions of solitary confinement, have all been associated with an increased risk of self-harm (Carli et al., 2011; Hawton et al., 2014; Kaba et al., 2014). Adopting a risk factor based approach to the identification of self-harm risk is, however, problematic for two reasons. First, this approach typically identifies large groups of individuals, the majority of whom will not go on to engage in self-harm (Bolton, Gooding, Kapur, Barrowclough & Tarrier, 2007). This is of particular relevance for prisoner populations, whose multiple and complex needs mean that risk factor based approaches are often insufficient to identify those most at risk (Forrester & Slade, 2014; Martin, Dorken, Colman, McKenzie & Simpson, 2014). Instead, it is vital to consider how these factors interact with one another in order to understand the mechanisms that drive self-harming behaviour amongst prisoners (Martin et al., 2014; Slade, Edelmann, Worrall & Bray, 2014; Tarrier et al., 2014). A second limitation of the risk factor based approach is that the examination of epidemiological and static risk factors provides few avenues for intervention (Bolton et al., 2007; Tarrier et al., 2014). To reduce the incidence of self-harm amongst prisoners, the
role of psychosocial characteristics, which are amenable to change, must be examined (Hawton et al., 2014).

Prior research has highlighted impulsiveness as an important correlate of self-harming behaviour across a range of samples (Hawton, Rodham, Evans & Weatherall, 2002; Klonsky, Oltmanns & Turkheimer, 2003; Janis & Nock, 2009). Impulsiveness has been characterised as a predisposition towards unplanned reactions to either internal or external stimuli (Moeller, Barratt, Dougherty, Schmitz & Swann, 2001), reflecting a pattern of behaviour, rather than a single incident. The use of a broad definition encompassing behavioral, cognitive, and physiological features has been advocated (Barratt, 1993). In particular, three factors have been identified as central to the concept of impulsiveness. These are i) attentional impulsiveness (the lack of ability to maintain attention towards a stimulus), ii) motor impulsiveness (acting without thinking), and iii) non-planning impulsiveness (a tendency to focus on the present, rather than the future) (Patton, Stanford & Barratt, 1995). Whilst there is evidence of an association between impulsiveness and self-harm, the mechanism by which impulsiveness may drive self-harming behaviour is currently unclear.

Studies that have investigated the relationship between impulsiveness and self-harm amongst prisoners are sparse. In a recent large-scale study conducted by Carli et al. (2010), rates of self-harm amongst male inmates, grouped according to levels of impulsiveness (high vs. low), were compared. Results indicated that prisoners high in impulsiveness were more likely to have engaged in self-injurious behaviours, than prisoners low in impulsiveness (Carli et al., 2010). Similarly, in a case-control study of female prisoners, women who had recently engaged in an act of near-lethal self-harm (cases) showed higher levels of impulsiveness compared to control participants (Marzano, Hawton, Rivlin & Fazel, 2011). A correlation between impulsiveness and the frequency of self-harm
behaviours has also been observed in a sample of forensic inpatients (Dolan, Anderson & Deakin, 2001).

A limitation of a number of these studies concerns the use of retrospective assessment, such as, linking current measures of impulsiveness with past engagement in self-injurious behaviours. Whilst this approach can be used to highlight groups that have an increased propensity towards self-harming behaviour, such as those scoring high in impulsivity (Carli et al., 2010), it tells us little of the mechanisms by which impulsivity may increase the risk of self-harm in the here-and-now. Specifically, this approach cannot shed light on the processes by which an individual may come to i) think about harming themselves, and ii) make the transition from self-harm ideation to self-harm behaviour. Ecological Momentary Assessment (EMA; Shiffman, Stone & Huffard, 2008) offers an alternative assessment method in which thoughts and feelings are examined as they occur, within the context of everyday life. As a result, the potential for memory biases is reduced, and the data collected is high in ecological validity (Palmier-Claus et al., 2011).

In recent years, a number of studies have sought to examine thoughts of self-injury through the use of ecological momentary assessment methods (also known as Experience Sampling Methodology; Csikszentmihalyi & Larson, 1987) (Armey, Crowther & Miller, 2011; Nock et al., 2009; Humber, Emsley, Pratt & Tarrier, 2013; Palmier-Claus et al., 2013; Palmier-Claus et al., 2014). Research utilizing EMA methods have highlighted the potential role of affect in self-harm thoughts and behaviours. In an EMA study with bulimia nervosa patients, significant increases in negative affect, and decreases in positive affect, were observed prior to an act of self-harm (Muehlenkamp, Engel, Wadeson, Crosby, Wonderlich, Simonich & Mitchell, 2009). Similarly, Armey et al. (2011) found that acts of self-harm were precipitated by significant increases in negative affect, which then subsided in the hours following the self-injurious act. In a further EMA study, Nock et
al. (2009) sought to examine the contextual factors, including the affective states, surrounding thoughts of self-harm in a sample of young adults with recent self-injury. The results suggested that thoughts of self-harm frequently occurred within the context of low or anxious affective states (Nock et al., 2009). Taken together, these findings underscore the need to consider the role of affect in examining self-harm ideation and behaviour.

The current study had three overarching aims. The first was to examine the relationship between impulsiveness and self-harm ideation. The second was to examine the relationship between affect (positive and negative) and self-harm ideation. The third aim was to examine whether affect moderated the relationship between impulsiveness and self-harm ideation. The following predictions were made: i) higher impulsiveness would be predictive of more self-harm ideation, ii) greater negative affect and lesser positive affect would predict more self-harm ideation, and iii) greater negative affect would act to amplify the relationship between impulsiveness and self-harm ideation, whilst positive affect would buffer against the impact of impulsiveness, protecting against self-harm ideation.

9.3. Method

9.3.1. Sample

Participants were adult males recruited from a high security prison establishment in the North of England, UK. All participants had been identified by prison staff to be at risk of suicidal or self-harming behaviour within the past three months. Additional inclusion criteria were i) able to provide informed consent, ii) possessing sufficient levels of literacy to complete a written diary-based measure unaided, iii) aged between 21-65 years, and iv) considered by prison staff not to present a risk of violence to the researcher.
9.3.2. Design

An ecological momentary assessment based method which uses a within subject design was chosen. Participants completed in the moment ratings related to their thoughts and affect, up to six times per day over six days. The outcome variable was self-harm ideation. Predictor variables were impulsiveness, positive affect, and negative affect.

9.3.3. Materials

*EMA Diary*

EMA diary items were designed to assess outcome and predictor variables of self-harm ideation, impulsiveness, positive affect, and negative affect. Items were developed by the research team, in consultation with a Service User Reference Group, comprised of individuals with lived experience of imprisonment and suicidality. Items were designed to meet the goals of the current study, and to be acceptable and accessible for a prison sample. In particular, impulsiveness items were designed to assess a broad range of phenomena under the rubric of impulsiveness, in line with recommended definitions (Barrett, 1993; Patton et al., 1995). All items were presented to participants at all time points. Participants responded to each diary item using a ten point likert scale (1-10; 1=Not at all, 10=Extremely) indicating their thoughts and feelings at that time. Individual diary items can be seen in Table 14.

9.3.4. EMA assessment schedule and adaptations for the prison setting

Traditional EMA procedures were adapted to increase the accessibility and feasibility of using this method with prisoners. EMA items were completed using a paper and pen diary method, according to a time-based assessment schedule developed for the prison setting. A six-day assessment schedule was chosen, in keeping with other EMA research
(Palmier-Claus et al., 2011, Hartley, Haddock, Vasconcelos e Sa, Emsley & Barrowclough, 2014). This was considered to be the optimal duration in terms of managing participant burden, whilst ensuring a sampling range that encompassed both weekday and weekend experiences (Kimhy, Myin-Germeys, Palmier-Claus & Swedsen, 2012). This was important given the differences in prison regime that occur between weekdays and weekends. Diary entries were completed at the following times: i) ‘when you wake up’, ii) ‘breakfast time’, iii) ‘lunch time’, iv) ‘dinner time’, v) ‘in the evening’ and vi) ‘before you go to sleep’. This was in contrast to other EMA research where (pseudo) random sampling, prompted by a signalling device, has been the method of choice (Palmier-Claus et al., 2011). In the current study, pragmatic factors, such as the inability to provide participants with electronic signaling or recording devices due to security restrictions, meant that a fixed schedule was most appropriate (see also Humber et al., 2013).

9.3.5. Procedure

The researcher (KS) met with the participant to obtain informed consent. Demographic and custodial information was collected, alongside a number of questionnaire measures reported elsewhere. Participants were provided up to one hour’s training in the EMA protocol, including the completion of a practice diary entry. The importance of participants’ adherence to the EMA protocol was stressed and the rationale for this was provided. Participants were then given six individual diaries, one for each day of the EMA study period, and sampling began on the morning following the briefing session. Participants completed up to six diary entries per day over six successive days. Completed diaries were collected daily by the researcher. This served two functions. First, it allowed for any suicide or self-harm risk issues arising to be assessed and communicated.

17 For more information regarding the procedures used to train participants in the EMA protocol please contact the corresponding author.
promptly. Second, it enabled participants’ adherence to the protocol to be monitored, with previous research suggesting that daily collection may help to minimize the risk of back or forward filling of entries (Christensen, Barrett, Bliss-Moreau, Lebo & Kaschub, 2003). At the end of the assessment period, the participant met with the researcher for a debriefing session in which adherence to the EMA procedure was again checked.

9.3.6. Statistical analysis

Momentary assessment data are clustered both within participants and around time points. Multilevel Modelling (MLM) analyses are, therefore, appropriate for the analysis of EMA data as they are, i) able to take account of the hierarchical data structure, and ii) able to handle substantial amounts of missing data without entire case removal, as is often present in EMA research. In the current study, data were organized at three levels with momentary ratings of affect, impulsiveness, and self-harm ideation ratings (Level 1) nested within days (Level 2) which were nested within participants (Level 3). MLM analyses were conducted using the XTMIXED command in STATA (Version 12) with participant and day level random effects adjusted for throughout. Predictor variables were created by adding together ratings from a number of individual diary items (see Table 14 for details).

To be included in the analysis, participants had to meet a threshold of 10 completed diary entries over the assessment period, out of a possible 36 entries. This threshold for inclusion was set slightly lower than traditionally used in EMA studies, which suggest a cut off of one third of the total possible entries for inclusion in the analysis (Palmier-Claus et al., 2011). This was felt to be acceptable given the lack of previous EMA research conducted in forensic environments. This approach also served to maximize the sample size. The outcome variable, self-harm ideation, was not normally distributed. Regression analyses were therefore conducted with bootstrapping (1000 repetitions), a resampling
technique that has been identified as an acceptable alternative to parametric analysis when the assumptions of parametric data are not met (Mooney & Duval, 1993).

First, to assess whether impulsiveness and affect (positive and negative) were associated with concurrent self-harm ideation a series of separate univariate regression analyses were conducted. Separate analyses were run for positive and negative affect due to issues of multicollinearity (Field, 2005). Next, interaction analyses were conducted. Prior to the analysis of interaction effects, all predictor variables were centered (Aiken & West, 1991). To test the interaction, the independent variable (impulsiveness) was entered first, followed by the moderator variable (affect). The interaction term was entered last (impulsiveness* affect). Using algorithms provided by Dawson (2013), significant interaction effects were plotted using values from the regression model to illustrate the relationships at high and low levels of the predictor and moderator variables.

9.3.7. Ethical approval

This study was granted ethical approval by the National Health Service (NHS) Research Ethics Committee for Wales, UK (Ref: 11/WA/0002), which specializes in research with incarcerated samples. Approval was also gained from the relevant NHS Trust Research and Development office (ref 1035), and the Ministry of Justice National Offender Management Service’s National Research Committee (reference 16-11). The Governor of the host prison establishment provided local approval.

9.4. Results

9.4.1. Sample characteristics

Fifty-one participants were recruited to the study, of whom 42 provided sufficient data to be included in the final analysis (i.e., 10 or more completed entries). Means and standard
deviations of individual diary items are shown in Table 14. The mean age of participants was 36.5 years (SD=9.07, Range 21-60). The majority of participants described themselves as single (74%), followed by married/cohabiting (21%) and finally, divorced/separated (5%). Most participants identified themselves as White British (93%), followed by Mixed Caribbean (5%), and Black British (2%). Participants' prison status was predominantly convicted sentenced (71%), with a further 17% on remand, and 12% convicted but not sentenced. Violent or sexual offences were the most prevalent, accounting for 43% of the sample. This was followed by acquisitive offences (31%), breach of a restraining order (10%), and other offences

9.4.2. Impulsiveness and affect as univariate predictors of self-harm ideation

It was hypothesized that levels of impulsiveness would be predictive of self-harm ideation. As expected, impulsiveness was predictive of concurrent levels of self-harm ideation ($\beta=0.10$, $p<0.001$, 95% CI = 0.09—0.11). Next, it was predicted that greater negative affect and lower levels of positive affect would predict more self-harm ideation. In accord with hypotheses, negative affect predicted self-harm ideation ($\beta=0.16$, $p<0.001$, 95% CI = 0.13—0.18) and positive affect was found to inversely predict self-harm ideation ($\beta=-0.12$, $p<0.001$, 95% CI = -0.09—-0.14).

18 Other offences were arson (5%), fraud (2%), drug related (2%), motoring offence (2%), breach of community service order (2%), and breach of an anti-social behaviour order (2%).
Table 14: *Descriptive statistics for individual diary items*

<table>
<thead>
<tr>
<th>Diary Item</th>
<th>No. of observations*</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-harm Ideation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I want to hurt myself</td>
<td>1094</td>
<td>3.45</td>
<td>2.69</td>
</tr>
<tr>
<td><strong>Positive Affect – Right now I feel...</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relaxed</td>
<td>1119</td>
<td>4.04</td>
<td>2.53</td>
</tr>
<tr>
<td>Cheerful</td>
<td>1114</td>
<td>3.45</td>
<td>2.50</td>
</tr>
<tr>
<td>Happy</td>
<td>1121</td>
<td>3.85</td>
<td>2.64</td>
</tr>
<tr>
<td><strong>Negative Affect - Right now I feel...</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>1110</td>
<td>5.83</td>
<td>3.35</td>
</tr>
<tr>
<td>Anxious</td>
<td>1099</td>
<td>5.02</td>
<td>3.13</td>
</tr>
<tr>
<td>Worried</td>
<td>1121</td>
<td>5.52</td>
<td>3.18</td>
</tr>
<tr>
<td><strong>Impulsiveness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can control myself (R)</td>
<td>1106</td>
<td>4.58</td>
<td>2.77</td>
</tr>
<tr>
<td>I’m having trouble concentrating</td>
<td>1099</td>
<td>5.73</td>
<td>3.13</td>
</tr>
<tr>
<td>I may do something without thinking</td>
<td>1099</td>
<td>4.06</td>
<td>2.95</td>
</tr>
<tr>
<td>My thoughts are all over the place</td>
<td>1099</td>
<td>6.17</td>
<td>3.19</td>
</tr>
<tr>
<td>I feel like doing something on the spur of the moment</td>
<td>1097</td>
<td>3.34</td>
<td>2.79</td>
</tr>
<tr>
<td>Impulsive</td>
<td>1114</td>
<td>3.01</td>
<td>2.48</td>
</tr>
<tr>
<td>Fidgety</td>
<td>1103</td>
<td>4.53</td>
<td>2.90</td>
</tr>
<tr>
<td>Spontaneous</td>
<td>1084</td>
<td>2.80</td>
<td>2.35</td>
</tr>
<tr>
<td>Restless</td>
<td>1119</td>
<td>4.89</td>
<td>2.86</td>
</tr>
</tbody>
</table>

*Out of a possible 1512 observations; (R) = Reversed item.*
9.4.3. The interaction effect between impulsiveness and affect as predictors of self-harm ideation

A test of the interaction effect between impulsiveness and negative affect in predicting self-harm ideation revealed no significant main effects of either impulsiveness ($\beta=0.02$, $p=0.213$, 95% CI = -0.01—0.05) or negative affect ($\beta=-0.04$, $p=0.097$, 95% CI = -0.09—0.01). However, a significant interaction effect was found ($\beta=0.003$, $p<0.001$ 95% CI = 0.001—0.004) (see Figure 13).

Figure 13: The effect of impulsiveness scores on self-harm ideation split by low and high levels of negative affect.
Next, interactions between impulsiveness and positive affect were examined. There were significant main effects of both impulsiveness ($\beta=0.12$, $p<0.001$, CI = 0.09—0.14) and positive affect ($\beta=0.05$, $p<0.05$, CI = 0.01—0.09) on self-harm ideation. Furthermore, a significant interaction effect between impulsiveness and positive affect was found to predict self-harm ideation ($\beta=-0.003$, $p<0.001$, CI = -0.001—-0.004) (see Figure 14). Namely, high levels of impulsiveness were associated with the highest levels of self-harm ideation, irrespective of positive affect. However, at low levels of impulsiveness, greater positive affect predicted higher levels of self-harm ideation.

Figure 14: The effect of impulsiveness scores on self-harm ideation split by low and high levels of positive affect.
9.5. Discussion

The overarching aim of this study was to investigate the relationships between impulsiveness and affect in self-harm ideation, within a sample of prisoners at risk of self-harm. There were three main findings. The first hypothesis was that greater impulsiveness would be predictive of more severe self-harm ideation. Results were consistent with this hypothesis, such that increased impulsiveness predicted greater self-harm ideation. This is in line with the wider literature that has shown impulsiveness to be an important correlate of self-harm (Hawton et al., 2002; Klonsky et al., 2003; Janis & Nock, 2009). Furthermore, the finding that impulsiveness was predictive of concurrent self-harm ideation is in line with results from an adolescent sample which showed that those who think about self-harm display higher levels of impulsiveness than those who do not have such thoughts (O’Connor, Rasmussen & Hawton, 2012). Additionally, the current results concur with those of prison-based studies, in which individuals who have engaged in self-harming behaviours show increased levels of impulsiveness compared with those who have no history of self-harm (Marzano et al., 2011; Carli et al., 2010). Whilst the above studies have sought to examine the relationships between impulsiveness and self-harm ideation primarily through the use of retrospective assessment, i.e., relating measures of impulsivity with historical engagement in self-injurious thoughts and behaviour, it is interesting that two different methodologies, namely, retrospective assessment and EMA, have resulted in convergent findings, thus, lending confidence in conclusions.

Second, both positive and negative affect were found to be predictive of self-harm ideation, with greater negative affect and less positive affect being associated with increased self-injurious thoughts. These results are consistent with the findings that significant increases in negative affect, and decreases in positive affect, are experienced prior to an act of self-harm (Muehlenkamp et al., 2009; Armey et al., 2011). Furthermore,
the results are consistent with findings that thoughts of self-harm frequently occur within the context of low or anxious affective states (Nock et al., 2009).

The third prediction was that affect would moderate (or interact with) the impact of impulsiveness on self-harm ideation. Namely, it was predicted that greater negative affect would act to amplify the relationship between impulsiveness and self-harm ideation, whilst higher levels of positive affect would buffer against the effect of impulsiveness, protecting against self-harm ideation. Whilst significant interaction effects of impulsiveness with both positive and negative affect were found, the nature of these effects were not as anticipated. Specifically, at high levels of impulsiveness, levels of positive and negative affect had little effect on self-harm ideation. However, at low levels of impulsiveness, lower levels of negative affect and higher levels of positive affect predicted higher levels of self-harm ideation. The interaction between impulsiveness and affect as predictors of self-harm ideation has not been examined elsewhere. It is therefore necessary to consider further the potential mechanisms underlying these results.

In the present study, low negative affect had minimal impact on the effects of impulsiveness on self-harm ideation. In contrast, at low levels of impulsiveness, high negative affect appeared to protect against self-harm ideation. One possible, yet tentative, suggestion is that at times of low impulsiveness, individuals may be more aware of the need to monitor their mood. In doing this, high levels of negative affect may be identified and strategies employed to mitigate the subsequent impact upon self-injurious thoughts. Whilst this is speculative at present, and cannot be substantiated within the current study, it is suggested that future studies consider the role of emotional awareness and affect regulation on thoughts about self-harm.

A similar effect was observed with regards to positive affect, which was seen to have a moderating effect when impulsiveness was low. Low positive affect was related to less
self-harm ideation, again suggesting a protective effect. It may be proposed, as above, that at low levels of impulsiveness, participants were more able to recognise problematic mood states and alter the impact upon self-harm ideation through engagement in a cognitive or affect regulation strategy. Whilst further research is required to confirm these hypotheses, the results suggest that clinical interventions should aim to first reduce impulsiveness, before targeting emotional regulation skills.

To date, evidence from EMA studies is accumulating in support of an affect regulation function in self-injury (Muehlenkamp et al., 2009; Nock et al., 2009; Armey et al., 2011). However, there is a need to further understand how this function manifests prior to self-harm enactment, at the ideation stage. One of the few studies to consider this is that of Nock and colleagues (2009), who used EMA to examine the affective and contextual factors associated with self-injurious thoughts and behaviours in a sample of adolescents and young adults. Interestingly, whilst self-injurious thoughts were often found to occur within the context of anxiety and sadness, these specific affective states did not predict self-injurious behaviours. In fact, a negative relationship between feelings of sadness and the incidence of self-injurious behaviour was observed (Nock et al., 2009). In contrast, self-injurious behaviours were more likely to occur within the context of anger, rejection and self-hatred. The authors proposed that this might be understood through consideration of both the physiological arousal (Nock & Mendes, 2008) and the motivational underpinnings of these different affective states (Nock et al., 2009). Previous research has suggested that anxious/depressive affective states are associated with avoidance motivation, unlike states such as anger, which are associated with approach motivation (Carver & Harmon-Jones, 2009). As such, the results of the current study may be alternatively conceptualized within this framework. Namely, high levels of negative affect, characterized by increased anxious and low moods, may be reflective of greater
avoidance and lesser arousal, leading to its apparent protective effect at low levels of impulsiveness. It must be stressed, however, that this formulation is speculative at present. In the current study, the EMA measurement of negative affect did not include the angry or hostile forms of affect, which were found to predict self-harm by Nock et al. (2009). Indeed, Humber et al.’s (2013) EMA study with prison inmates also found that anger related affect was predictive of concurrent self-harm ideation. Future studies should seek to establish the impact of these anger related domains of affect upon the relationship between impulsiveness and self-injurious thoughts and behaviours.

A number of limitations of this study should be noted. First, criticisms have been raised regarding the use of paper and pen recording in EMA research. It has been suggested that paper based sampling methods may be more prone to back or forward filling of responses (Palmier-Claus et al., 2011). In contrast, with electronic recording methods, compliance with the sampling procedure cannot be verified, and thus, may have implications for response validity (Christensen et al., 2003). However, as the current research was conducted in a high secure prison, it was not possible to make use of any computerized or electronic recording devices due to security restrictions. To counter the possibility of back or forward filling, adherence to the assessment protocol was emphasized during participant briefing. The second limitation was that the current study focused on self-harm ideation. Therefore, the extent to which these findings apply to self-harm behaviour is currently unknown. Results from O’Connor et al. (2012) and Nock et al. (2009) suggest that participant characteristics and affective states should be considered in investigating potential differences between self-harm ideation and enactment. To date this has not been examined within prisoner populations, and consequently represents a potential avenue for future research.
The current findings have two main implications for clinical practice. First, the study underlines the potentially damaging impact of increased impulsiveness upon thoughts of self-harm. As increased self-harm ideation was found to be predicted by high levels of impulsiveness, and not influenced by affect, it is suggested that psychological interventions that aim to reduce feelings of impulsiveness could be beneficial. One such intervention is Dialectical Behaviour Therapy (DBT; Linehan, 1993), which has shown promise in reducing impulsiveness amongst women diagnosed with borderline personality disorder (Verheul et al., 2003; van den Bosch, Koeter, Stijnen, Verheul & van den Brink, 2005). The delivery of DBT has been shown to be feasible within prison and high secure inpatient settings (Low, Jones, Duggan, Power & MacLeod, 2001; Nee & Farman, 2005; Shelton, Sampl, Kesten, Zhang & Trestman, 2009), with preliminary evidence suggesting that DBT may be effective at reducing impulsiveness within prisoner groups (Low et al., 2001; Nee & Farman, 2005).

A second implication is that at a systemic level, an increased awareness of the mechanisms leading a prisoner to self-harm may aid in the identification and support of those at risk. The results of the current study highlight the potential role of impulsiveness and emotional dysregulation in the development of self-injurious thoughts. Further training in supporting prisoners to use emotional regulation strategies at times of distress, may enable staff to feel more confident in working with this high-risk group. This is important as research suggests that many prison staff feel ill-equipped to deal with self-harm (Short et al., 2009). It is, therefore, imperative that prison staff are provided with the appropriate training and knowledge of potential triggers to self-injurious thoughts and behaviours, in order to increase both efficacy and confidence in dealing with this. This is especially relevant given the importance of staff reactions to self-harm in managing a prisoner’s distress (Marzano, Ciclitira & Adler, 2012).
To conclude, the present study provides a novel and comprehensive examination of the relationships between self-injurious thoughts, impulsiveness, and affect, within a naturalistic setting. Amongst a sample of prisoners at heightened risk of self-injury, impulsiveness was found to predict self-harm ideation. Furthermore, affective experiences were seen to moderate this relationship. The present study has important implications for the development of scientific and clinical approaches to self-injury. Such approaches must account for the role of impulsiveness in the development of self-harm ideation whilst acknowledging the impact of momentary mood states upon this relationship. Psychological interventions that target the reduction of impulsiveness may help to reduce thoughts of self-harm in this high-risk prisoner group.
CHAPTER 10

10. General Discussion

10.1. Overview

The overarching aim of this thesis was to investigate the psychological mechanisms that underlie the development of suicidal thoughts and behaviours amongst incarcerated individuals. To meet this aim, this thesis i) examined evidence of the applicability of current theoretical approaches to suicide, as applied to prisoner samples, in a literature review, ii) conducted the first examination of theoretically driven factors for suicide amongst an at-risk for suicide prisoner sample, and iii) attained evidence that internal entrapment, hopelessness, and negative situational appraisals comprise key proximal predictors of suicidal ideation amongst this group. It was also observed that impulsiveness was predictive of both suicidal ideation and self-harm ideation, and that these relationships were differentially impacted by interactions with positive and negative affect.

The secondary aim of this thesis was to examine the psychological factors that may confer resilience to suicidal thoughts and behaviours in prison inmates. To achieve this aim, the current thesis i) conducted the first theoretically driven investigation of potential resilience factors, conceptualized as positive self-appraisals, within a prisoner sample, and ii) obtained evidence for the potentially protective effect of specific positive self-appraisals, namely those of personal problem-solving ability, in buffering against suicidal ideation in this sample.

Overall, the findings of this thesis serve to advance our understanding of the psychological processes underlying the emergence of, and resilience to, suicidality amongst prison inmates. This final chapter will provide a summary of the findings of this PhD thesis, and will discuss both the theoretical and clinical implications of this work. Finally, general limitations will be considered and directions for future research will be
outlined. Whilst each of these areas is addressed within the individual empirical chapters of the thesis, this final chapter will offer a more developed consideration of each of these areas, without the pressure of a target journal’s word count.

10.1.1. Chapter Summary

Following the review, the first empirical investigation of this thesis was presented in Chapter 4. The aim of this study was to examine the roles of defeat, entrapment, and hopelessness, as predictors of suicidal ideation in a prisoner sample. These three key concepts were selected due to their grounding in theoretical models of suicide (Johnson et al., 2008; Williams, 1997; O’Connor, 2011), and a review of the literature revealed a particular paucity of studies examining defeat and entrapment constructs in prisoner samples. Furthermore, this study sought to establish i) whether the separate constructs of internal and external entrapment would differentially impact upon suicidal thoughts in this population, and ii) whether the impact of the psychological variables would remain significant after controlling for the effects of psychiatric symptoms (i.e., depression, anxiety, general psychopathology). A cross-sectional questionnaire based design was chosen, and participants were male inmates at high risk for suicide (n=101). As anticipated, significant positive associations were observed between suicidal ideation and each of the key variables. Interestingly, the results of a multiple regression analysis showed that, of these key variables, only internal entrapment and hopelessness, alongside depressive symptoms, were uniquely predictive of suicidal ideation after controlling for the impact of psychiatric symptomatology. Contrary to predictions, perceptions of defeat and external entrapment did not predict suicidal ideation. Thus, the results of Chapter 4 provided partial support to the premises of the CoP and SAMS models. The study also provided the first evidence that perceptions of internal entrapment, but not external
entrapment, should be considered to be a proximal factor for suicidal ideation in prisoners. However, one issue that was identified with this study was the use of a cross-sectional questionnaire design assessing global perceptions of defeat, entrapment, hopelessness, and suicidal ideation at one time point. Consequently, there was a need to further investigate how specific situational appraisals, as experienced within the context of daily life, impacted upon suicidal ideation within this group.

Following the findings of Chapter 4, further research was undertaken in Chapter 5 to examine the roles of specific situational and self-appraisals in suicidal and self-harm ideation. An ecological momentary assessment method was chosen, allowing for the investigation of relationships between key variables as they occurred, in real time (Csikszentmihalyi & Larson, 1987). It was hypothesised that negative situational appraisals of the past, the present, and the future would predict the severity of both suicidal ideation and self-harm ideation. This prediction was based on the posited role of a negatively biased appraisal system, as specified by the SAMS (Johnson et al., 2008). In a corollary aim, the potential buffering effect of two types of positive self-appraisals was examined. Positive appraisals of social support and of social reciprocity were considered as potential resilience factors, which may buffer against suicidal ideation and self-harm ideation, in light of negative situational appraisals. To test predictions, a sample of 42 adult male prisoners identified by prison staff as at risk of suicide, were recruited and included in the final analyses. Negative situational appraisals of the present and future, but not the past, were found to predict increased suicidal ideation and self-harm ideation. Contrary to predictions, positive self-appraisals of social reciprocity and social support did not buffer against suicidal ideation or self-harm ideation. Interestingly, more negative perceptions of social support and reciprocity were actually observed to be protective against self-harm ideation, when participants' had less negative situational appraisals. The
results of this study highlighted the need to further investigate the factors which may confer resilience to suicidal ideation among prisoners.

Chapter 6 sought to extend the work of the previous empirical chapter (Chapter 5), by further investigating the role of resilience, characterized as positive self-appraisals, in suicidal ideation. Based on the SAMS framework, it was proposed that appraisals of personal problem-solving ability, emotion coping and the ability to gain social support would be especially pertinent (Johnson et al., 2008). Hence, the extent to which these three types of resilience factors could buffer the impact of defeat, internal entrapment, external entrapment, and hopelessness, on suicidal ideation was examined. Male prisoners \((n=59)\) identified as at risk of suicide were recruited from a high security prison, and completed questionnaire measures for all key variables. There were two main findings. First, internal entrapment and hopelessness, but not external entrapment nor defeat, predicted levels of suicidal ideation. Second, overall resilience, and specifically positive appraisals of personal problem-solving ability, buffered the impact of internal entrapment on suicidal ideation. None of the specified resilience factors were found to buffer the impact of hopelessness upon suicidal ideation. These findings provided the first empirical evidence for the role of positive self-appraisals as factors which confer resilience to suicidal thoughts amongst those incarcerated.

Whilst the empirical work conducted in Chapters 4 and 6 had explored the links between hopelessness, entrapment, defeat, and suicidality, these studies were limited by the use of cross-sectional designs. These two studies highlighted perceptions of internal entrapment and hopelessness, as proximal indicators of suicidal ideation in a high-risk prisoner sample. As such, a necessary second step was to determine the extent to which these core concepts would predict suicidality over a follow-up period. The use of a longitudinal design also helps to further elucidate the direction of causality between
variables (Menard, 2002). In view of these considerations, a short-term longitudinal investigation was undertaken, as described in Chapter 7. In this study, a sample of male prisoners at risk of suicide completed baseline measures of defeat, hopelessness, internal entrapment, external entrapment, and suicidal ideation. Participants then completed a further measure of suicidal ideation at follow-up, one month later \((n=47)\). The results of a multiple regression analysis found no significant effects of any of the psychological variables upon suicidal ideation at follow-up. Only baseline suicidal ideation predicted subsequent suicidality within this sample. These results suggested that whilst perceptions of internal entrapment and hopelessness may constitute proximal factors in the suicidal process, further work is required to identify those factors that prospectively predict suicidality in this high-risk group.

A final issue addressed by the current thesis related to the role of impulsiveness in suicidal thoughts and behaviours (Chapters 8 and 9). Two empirical investigations were conducted, focusing on the impact of impulsiveness on i) suicidal ideation (Chapter 8), and ii) self-harm ideation (Chapter 9). Psychological models of suicide such as the IPT (Joiner, 2005) and the IMV model (O’Connor, 2011a) highlight the potential role of impulsiveness as a factor which increases the likelihood that an individual will engage in suicidal behaviour. Within the IPT, impulsiveness is understood to have an indirect effect upon suicidal thoughts and behaviours. Specifically, impulsiveness is said to act to increase the individual’s potential exposure to painful or provocative stimuli, through which the capability to engage in suicidal behaviour is acquired (Joiner, 2005). In contrast, the IMV model (O’Connor, 2011a) implicates impulsiveness as a volitional moderator that increases the prospect of transition from suicidal thoughts to behaviour. Associations between impulsiveness and various indices of suicidality have been observed within prisoner samples (Carli, Jovanovic, Podlesek, Roy, Rihmer et al., 2010; Marzano, Hawton, Rivlin
& Fazel, 2011; Sarchiapone, Carli, Di Giannantonio & Roy, 2009). However, a number of inconsistencies in this relationship have been noted, and research has been limited by retrospective investigations of past suicidal behaviour (Carli et al., 2010; Sarchiapone et al., 2009). Chapter 8 used an experience sampling methodology to examine the role of ‘in the moment’ perceptions of impulsiveness in suicidal thoughts. This empirical chapter aimed to shed light on the mechanisms by which impulsiveness may increase suicide risk. Consequently, the effects of positive and negative affect on this relationship were also investigated through examination of interaction effects. Amongst a sample of prisoners at high risk for suicide (n=42), results showed impulsiveness, negative affect, and positive affect to be significant univariate predictors of suicidal ideation. Furthermore, a significant interaction effect was observed, whereby high levels of impulsiveness together with low levels of positive affect predicted the highest levels of suicidal ideation. These results underscore the impact of impulsiveness in suicidal ideation among prisoner samples, and further highlight the effect of low levels of positive affect in exacerbating the relationship between impulsiveness and suicidal thoughts.

In the final empirical study, presented in Chapter 9, an investigation of the impact of impulsiveness on self-harm ideation was undertaken. This study aimed to examine the relationships between momentary ratings of impulsiveness, affect, and thoughts of self-harm, using an experience sampling methodology with a high-risk prisoner sample (n=42). It was predicted that greater impulsiveness and negative affect would be predictive of increased self-harm ideation, whilst an inverse relationship with positive affect and self-harm ideation was anticipated. Moreover, it was predicted that greater negative affect would act to worsen the relationship between impulsiveness and self-harm ideation, whilst positive affect would be protective against self-harm ideation, in light of increased impulsiveness. Resultantly, interaction effects of impulsiveness and affect were examined.
Consistent with hypotheses, univariate analyses showed that greater impulsiveness, greater negative affect, and lesser positive affect, predicted greater self-harm ideation. In contrast, the results of the interaction analyses showed that at high levels of impulsiveness, levels of positive and negative affect had only minimal impact on self-harm ideation. However, at low levels of impulsiveness, lesser negative affect and greater positive affect predicted higher levels of self-harm ideation. The findings presented in both Chapters 8 and 9, highlight the potentially pernicious impact of impulsiveness upon both suicidal ideation and self-harm ideation amongst prisoners. Furthermore, the findings of the two studies underscore the need to consider further the interactions between impulsiveness and both positive and negative affective states.

10.1.2. Sample characteristics and comparison with general prisoner population

In the current thesis, participants across all empirical chapters completed clinical measures of suicidal ideation, depression, anxiety, hopelessness, and general psychopathology. As detailed within the individual empirical chapters, overall levels of clinical symptomatology were high and indicative of significant distress. However, the extent to which the observed levels of the current thesis reflect those reported in other prisoner samples was unclear. To examine this, the clinical characteristics of the current thesis sample are reviewed and compared with other prisoners samples, namely, an ‘at-risk’ sample, similar to that of the current study, and a general prisoner population sample.

First, the clinical characteristics of the current thesis sample were compared with data from a recent study, conducted by Humber et al. (2013). As in the current thesis, the study by Humber et al. (2013) also sampled male prisoners identified as ‘at risk’ of suicidal or self-harming behaviour, who had been managed under the ACCT system within the past three months. This study was selected for comparison due to the both the sample, i.e.,
prisoners managed under the ACCT system, and the significant overlap in the clinical measures utilized, thus allowing for comparisons between the samples to be made with ease. Means and standard deviations from each sample are presented in Table 15. In both studies, levels of depression were within the severe range (Beck et al., 1996), whilst mean levels of hopelessness, suicidal ideation, and general psychopathology (as measured by the BPRS-E) showed striking similarities with less than a one point difference in the mean for each measure. Only levels of anxiety were observed to differ considerably between the two samples, with mean levels of anxiety observed to be within the moderate range in the current thesis sample (Beck & Steer, 1990), compared with levels in the mild range in the study by Humber et al. (2013). Taken together, these findings suggest that the clinical features of the current sample appear largely consistent with those observed in another sample of prisoners at-risk of suicide or self-harm. That said, it should be noted that, at present, there is a relative paucity of research documenting the clinical features of prisoners identified as at risk of suicide or self-harm.
Table 15: Clinical characteristics of current sample and comparison with other ‘at risk’ sample

<table>
<thead>
<tr>
<th>Clinical Measure</th>
<th>Current thesis sample</th>
<th>Other ‘at-risk’ sample&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beck Scale for Suicidal Ideation</td>
<td>11.26 (9.28)</td>
<td>10.48 (9.43)</td>
</tr>
<tr>
<td>Beck Depression Inventory – II</td>
<td>33.26 (10.07)</td>
<td>29.48 (12.55)</td>
</tr>
<tr>
<td>Beck Hopelessness Scale</td>
<td>10.05 (6.19)</td>
<td>10.33 (6.19)</td>
</tr>
<tr>
<td>Beck Anxiety Inventory</td>
<td>24.82 (14.37)</td>
<td>14.38 (8.13)</td>
</tr>
<tr>
<td>Brief Psychiatric Rating Scale – Extended</td>
<td>33.50 (6.12)</td>
<td>34.14 (4.64)</td>
</tr>
</tbody>
</table>

<sup>a</sup>Data from Humber et al. (2013).

Next, the clinical features of the current thesis sample were compared with data from a sample of the general prisoner population, in a study by Senior and colleagues (2007). Within this study, measures of suicidality, hopelessness, and general psychopathology, as measured by the Brief Psychiatric Symptom Rating Scale, were administered to 258 general population prisoners. Levels of clinical symptomatology were then characterised in terms of the percentage of participants within the sample reaching clinical cutoffs, as detailed in Table 16. As the two studies did not utilize the same measures of depression and anxiety, no comparisons were made on these measures. Comparisons indicated that for suicidal ideation, 68% of participants in the current thesis sample reported levels of suicidal thinking requiring further clinical assessment, compared with 12% of the general population sample. Similarly, clinically significant levels of hopelessness (above a cut off of nine; Beck et al., 1985) were observed in over half (56%) of the current thesis sample,
compared with 17% of general population prisoners. In contrast, mean levels of general psychopathology were observed to be similar across the two samples, albeit slightly higher in the ‘at-risk’ group. In sum, the prevalence of clinically significant levels of hopelessness and suicidal ideation was much greater within the current thesis sample of prisoners at risk of suicide or self-harm, compared with a general prisoner population sample, though little difference was observed in overall levels of general psychopathology.

Table 16: Clinical characteristics of current sample and comparison with general UK prisoner population

<table>
<thead>
<tr>
<th>Clinical Measure</th>
<th>Current thesis sample</th>
<th>General prisoner population sample&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=101)</td>
<td>(n=258)</td>
</tr>
<tr>
<td>Beck Scale for Suicidal Ideation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Above cut off (level of suicidal ideation requiring further assessment)</td>
<td>69 68</td>
<td>31 12</td>
</tr>
<tr>
<td>Beck Hopelessness Scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Above cut off (≥ 9)</td>
<td>57 56</td>
<td>43 17</td>
</tr>
<tr>
<td>Brief Psychiatric Rating Scale – Revised</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td></td>
<td>33.50 (6.12)</td>
<td>29.82 (2.83)</td>
</tr>
</tbody>
</table>

<sup>b</sup> Data from Senior et al. (2007).
10.2. Theoretical Implications

The findings of this thesis have implications for theoretical approaches to suicidal thoughts and behaviours. Taken together, the pattern of results of this thesis underscores the need to empirically examine the applicability and transferability of psychological models within a range of populations. This is particularly germane for the prison population due to the unique context afforded by the prison environment, although, it is plausible that other secure contexts, such as secure psychiatric hospitals and inpatient units, may be impacted in similar ways. In extension of the empirical chapters of this thesis, the current section therefore presents a discussion of the thesis findings as they relate to theoretical approaches to suicide, namely the CoP (Williams, 1997) and the SAMS (Johnson et al., 2008).

10.2.1. Mechanisms underlying suicidal ideation in prisoners

10.2.1.1. The conceptualization of entrapment in prisoner samples: distinguishing internal entrapment and external entrapment

Empirical research concerning the role of perceived entrapment across a range of psychological difficulties, including suicidal thoughts and behaviours, has largely conceptualised entrapment as a unitary construct, which encompasses perceptions of internal entrapment, i.e., feeling trapped by inner thoughts and feelings, and external entrapment, i.e., perceptions of entrapment by external situations, events, or by other people. The Entrapment Scale (Gilbert & Allan, 1998) contains two subscales to assess these two types of entrapment perceptions. However, so far, there have been few attempts in the literature to examine internal and external entrapment as two distinguishable components, with potentially different effects.

Whilst desire to escape is often focused on escape from external situations or events, Baumeister (1990) noted that the desire to escape from aversive internal
experiences, i.e., thoughts and emotions, was particularly associated with suicide. As such, a handful of studies have sought to examine separately perceptions of internal entrapment and perceptions of external entrapment, with the results of these studies highlighting differences in the observed effects of these two types of entrapment perceptions. For example, in a study by Rasmussen and colleagues (2010), perceptions of internal entrapment, and overall entrapment, were found to mediate the relationship between defeat and suicidal ideation in a sample of individuals with recent self-harm. In contrast, no effects were observed for external entrapment (Rasmussen et al., 2010). Similarly, in a study by Gilbert et al. (2005), internal entrapment was observed to be a stronger predictor of depression than external entrapment (Gilbert et al. 2005). Furthermore, qualitative evidence stemming from research with depressed individuals, further highlights the need to distinguish between internal and external entrapment perceptions within the context of depression (Gilbert & Gilbert, 2003).

In the current thesis, the effects of internal entrapment and external entrapment were considered separately for two reasons. First, there is evidence, as outlined above, that internal and external entrapment may operate differently, principally within the context of depression and suicidality (Baumeister, 1990). Second, owing to the unique context of the secure prison environment, the current work sought to establish whether entrapment might be experienced differently for those who are incarcerated. Two studies in this thesis examined this by separately considering the effects of internal and external entrapment (Chapters 4 and 6). In both of these studies, whilst levels of overall entrapment were very high, and both internal entrapment and external entrapment showed strong correlations with suicidal ideation, within the multivariate models, only internal entrapment, and not external entrapment, exhibited a significant independent effect upon suicidal ideation. Accordingly, these findings have important implications for theoretical approaches to
suicidal thoughts and behaviours, which emphasize the roles of entrapment and defeat in the pathways to suicidality (Johnson et al., 2008; O’Connor, 2011a; Williams, 1997). As these models currently do not distinguish internal and external entrapment, it is suggested that to be applicable to prisoner populations, this distinction should be incorporated. However, it is recognized that the work presented herein represents the first attempts to make this distinction with respect to prisoner samples. Hence, it would be beneficial to replicate these findings in future work.

10.2.1.2. Internal entrapment and hopelessness as proximal psychological drivers of suicidal thoughts and behaviours in prisoners

The empirical evidence presented in this thesis lends support to the hypothesized role of (internal) entrapment and hopelessness as psychological mechanisms which underpin suicidal thoughts amongst incarcerated individuals. In this thesis, increased levels of internal entrapment and hopelessness were found to be predictive of heightened suicidal ideation across two empirical studies (Chapters 4 and 6). Previous research has demonstrated a robust correlation of hopelessness with suicidal thoughts and behaviours in a range of clinical samples (Hawton & van Heeringen, 2009). Furthermore, the association between suicidal ideation and hopelessness has proved to be a consistent finding with prisoner samples (Chapman, Specht & Cellucci, 2005; Ivanoff & Jang, 1991; Palmer & Connelly, 2005). However, a limitation of these studies is that they have failed to consider the role of hopelessness within the context of a theoretical framework. The findings of the current thesis lend support to theoretical models of suicide (Johnson et al., 2008; O’Connor, 2011a; Williams, 1997), which postulate that feelings of hopelessness constitute a core condition from which suicidal thoughts arise.
There has also been considerable empirical support for the associations of defeat and entrapment with suicidal thoughts and behaviours in a range of samples, including Korean adolescents (Park et al., 2010), self-harm populations (O’Connor, 2003; Rasmussen et al., 2010), students (Taylor et al., 2010b; Taylor et al., 2011), PTSD samples (Panagioti et al., 2012), and individuals diagnosed with psychosis (Taylor et al., 2010a). Despite this, only one empirical study had previously investigated the roles of defeat and entrapment in suicidal ideation amongst prisoner populations (Slade et al., 2014), prior to the work of this thesis. In the study by Slade and colleagues (2014), perceptions of defeat, but not entrapment, predicted levels of suicidal ideation in a sample of newly incarcerated prisoners. Conversely, within the current thesis evidence was obtained for the role of (internal) entrapment, but not defeat, as a predictor of suicidal ideation. Thus, whilst both studies provided partial support for the hypothesized components of the CoP (Williams, 1997) and SAMS (Johnson et al., 2008) models, there was a lack of convergence in terms of the specific components that were supported. A discussion of potential explanations for this divergence in findings can be found in Chapter 4.

Interestingly, and in contrast with hypotheses, perceptions of defeat did not predict levels of suicidal ideation in the chapters of the current thesis (Chapters 4, 6, and 7). Furthermore, correlations between defeat and suicidal ideation were seen to be small (Chapters 4 and 6), with a non-significant relationship observed in Chapter 7. As described above, these findings contrast with those of Slade et al. (2014) who found defeat to be a unique predictor of suicidal ideation amongst newly incarcerated prisoners. Previous work has discussed the potential conceptual overlap between defeat, entrapment, and depression (Panagioti et al., 2012). Indeed, research surrounding the concepts of defeat and entrapment originated in the depression literature, namely that of the social rank theory of depression (Gilbert & Allan, 1998). Consequently, there have been efforts to establish
whether the effects of defeat and entrapment on suicidal thoughts and behaviour are independent of the effects of depression (Panagioti et al., 2012). Hence, it is necessary to consider this point in relation to the observed lack of effects of defeat upon suicidal ideation within the current thesis. In the first of the empirical studies (Chapter 4), a small but significant correlation was observed between defeat and suicidal ideation. However, in the multivariate model, defeat did not predict suicidal ideation, alongside significant effects of depression, hopelessness, and internal entrapment. It could be argued that conceptual overlap, and thus shared variance, between defeat and another of these variables, may be responsible for these non-significant effects of defeat. That said, the results of a further study presented in Chapter 6, in which defeat did not predict suicidal ideation in a univariate regression analysis, suggest that this was unlikely to be the result of overlapping variance, as no effects were observed even when defeat was considered as the sole predictor variable. Accordingly, it remains unclear what is driving this lack of effect in the present thesis, and, in particular, the divergence in findings with the study by Slade et al. (2014). It is plausible that the mechanisms underlying suicidality in prisoners may vary according to different custodial factors, such as the time spent in prison. For example, perceptions of defeat may be most relevant within the earliest stages of imprisonment, whilst the effects of entrapment may be manifest later in the prison journey. However, it should be noted that this is purely speculative at present. It is clear that further work is required to clarify these relationships in order that theoretical models of suicide may be truly applicable within incarcerated populations.

10.2.2. Resilience factors to suicidal ideation in prisoners

Within the current thesis, the concept of resilience to suicidal thoughts and behaviours constitutes an important avenue of investigation. Until recently, the examination of
resilience factors to suicide had been limited to the identification of factors that are inversely related to suicidal thoughts and behaviours (Johnson et al., 2011). However, recent developments in suicide resilience research have advanced the way in which resilience may be conceptualized. Firstly, it is argued that resilience factors should be considered as those factors which alter the strength of relationship between risk and suicidal thoughts or behaviours, i.e., the buffering hypothesis (Heisel & Flett, 2008; Roy, Sarchiapone & Carli, 2007). Secondly, it is argued that risk and resilience are best conceptualised as existing on separate bipolar dimensions, which interact to predict the likelihood of suicidal thoughts and behaviours (Johnson et al., 2011). Within the context of the SAMS, resilience is defined in terms of positive self-appraisals, which are said to buffer the impact of risk factors upon suicidal thoughts and behaviours (Johnson et al., 2010a; 2010b). Of the theoretical models considered within this thesis, the SAMS is the only model to provide a framework from which resilience factors for suicide may be understood and investigated. In light of these developments, two studies in this thesis sought to investigate the role of resilience factors, as potential buffers to suicidal thoughts within prisoner samples (Chapters 5 and 6).

In the first of these investigations, an experience sampling methodology was used to examine the potential buffering effect of positive self-appraisals of social support and social reciprocity upon the relationship between negative situational appraisals and suicidal ideation. The results failed to support the predictions, based on the SAMS (Johnson et al., 2008), that positive self-appraisals of social support and social reciprocity would buffer the effect of negative situational appraisals upon suicidal thoughts. In a second investigation (Chapter 6), the potential buffering effect of social support appraisals were examined once more, this time using a cross-sectional questionnaire based method. Again, positive appraisals of social support did not buffer the effect of psychological risk variables, i.e.,
hopelessness and internal entrapment, upon suicidal ideation. The results of these two studies are in contrast with the posited buffering role of social support appraisals, as described by the SAMS. Evidence to support the SAMS based hypothesis comes from Panagioti et al. (2014) who found that appraisals of social support buffered the impact of PTSD symptoms on suicidal thoughts and behaviours, in individuals who had experienced trauma. This divergence in findings may be understood in terms of the diverse environments, in particular the social environments, in which the two studies were conducted. It is plausible that the constraints of the prison environment may impact upon social relationships (La Vigne et al., 2005), and the appraisals of these. In particular, whilst social relationships may be protective within certain community samples, it is feasible that this protective role may be diminished for those who are imprisoned. As such, theoretical approaches to suicidal thoughts and behaviours in prison must take in to account these potentially subtle differences. The results highlight the need to further develop models of suicide that account for prison specific factors and mechanisms.

A further finding, as described in Chapter 6, was that positive self-appraisals buffered the impact of internal entrapment upon suicidal ideation. In particular, positive appraisals of interpersonal problem solving were identified as a significant resilience factor within a sample of prisoners at risk of suicide. Within the context of the SAMS, Johnson et al. (2008) has suggested that three types of positive self-appraisals may confer resilience; these are, positive appraisals of problem solving, of social support, and of the ability to cope with emotions (Johnson et al., 2008; Johnson et al., 2010a). In the current thesis, only overall resilience, and problem-solving appraisals displayed the hypothesized buffering effect. Specifically, it was found that suicidal ideation was greatest when internal entrapment was high, but that this effect was reduced when resilience, and positive appraisals of problem-solving abilities, were also high. The results of this study provided
support for the postulated role of resilience as specified by the SAMS, and suggest that this framework has applicability for prisoner populations. Other theoretical models, such as the CoP (Williams, 1997) and IMV model (O'Connor, 2011a), incorporate the role of information-processes and cognitive biases, including of interpersonal problem-solving abilities, within their considerations of the pathways to suicide. Crucially, within the CoP and the IMV, there is a focus on the actual problem-solving abilities of the individual, and not on the appraisal of these abilities. The results presented in this thesis suggest that a consideration of both problem-solving abilities and problem-solving appraisals may be beneficial in considering the factors which both exacerbate and attenuate suicidal thoughts and behaviours.

A final point concerns the current lack of evidence regarding potential factors that confer resilience to suicidal thoughts and behaviours in prisoners. Within the current thesis, the first prison-based empirical studies to investigate resilience factors for suicidal thoughts in light of recent theoretical developments, i.e., the buffering hypothesis (Johnson et al., 2008; Johnson et al., 2011a), were presented (Chapters 5 and 6). Although previous research indicates an inverse relationship between suicidal thoughts/behaviours with levels of social support (Jenkins et al., 2005; Marzano, Hawton Rivlin & Fazel, 2011; Zhang, Liang, Zhou & Brame, 2010), and general resilience (Roy et al. 2011; Sarchiapone et al., 2009), the extent to which these factors actually buffered against the impact of risk had not been tested. Furthermore, a number of factors have been identified to lessen the impact of risk or stressors on suicidality amongst other clinical and non-clinical groups, such as personal agency and attributional style (Johnson et al., 2011a). The extent to which these factors may confer resilience to suicidality amongst prisoners has not yet been tested. In sum, suicide resilience work in prisoners is very much in its infancy, yet it is an area with
great theoretical and clinical potential. There is a need to further examine the factors and mechanisms of resilience amongst this high-risk group.

10.3. Clinical Implications

The clinical implications of the current thesis fall into three key categories, namely i) the prediction of suicide risk, ii) assessment and formulation in relation to suicidal ideation, and iii) psychological intervention which target suicidal thoughts. These are now discussed in turn.

10.3.1. Implications for the prediction of suicide risk

The prediction of future suicide presents a substantial challenge to both clinicians and researchers (Oquendo, Currier & Mann, 2006). It has been noted that the accurate identification of individuals at risk of suicide is notoriously difficult, and is further complicated by a dearth of information pertaining to the temporal, and fluctuating, nature of suicidal thoughts and behaviours (Bouch & Marshall, 2005; Glenn & Nock, 2014). Thus, predicting both who is at risk, and when this risk is highest, is particularly problematic. The reasons for this include the relative rarity of suicide deaths, even within populations with high levels of risk factors, in conjunction with the lack of specificity of established risk factors for suicide. It has been argued that adopting a theoretically driven approach to suicide, in order to understand the psychological mechanisms that drive suicidality, may prove fruitful in improving the identification and prediction of suicide risk (O’Connor & Nock, 2014; Van Orden et al., 2010).

The current thesis demonstrated that perceptions of internal entrapment and hopelessness, alongside depressive symptoms, accounted for a significant proportion of the variance in suicidal ideation among prisoners at heightened risk for suicide (Chapters 4 and
6). Importantly, although high levels of defeat, hopelessness, internal entrapment, and external entrapment were observed in those sampled, only internal entrapment and hopelessness remained predictive in the multivariate analyses, when psychiatric symptoms were also controlled for (Chapter 4). These findings suggest that perceptions of hopelessness and internal entrapment should be considered proximal factors in the emergence of suicidality in prisoners. As such, it is anticipated that the inclusion of measures of hopelessness and internal entrapment in to the routine suicide risk assessment procedures of prison establishments may aid in the accurate identification of individuals at increased risk for suicide. Based on the findings of this thesis, it is suggested that the completion of these measures upon the opening of an ACCT document (Ministry of Justice, 2013a), may aid the identification of those prisoners who may be particularly vulnerable to suicidal thoughts and behaviours, within this already high-risk group, and may therefore benefit from increased monitoring and support.

Furthermore, the findings of Chapter 6 suggest that specific resilience factors, conceptualized as positive self-appraisals, interact with psychological risk factors (e.g., internal entrapment) to attenuate the impact of risk factors on suicidality. Hence, the consideration of both risk and resilience factors in the assessment of suicidality could further enhance the quality and accuracy of such risk assessments. For example, the results of the current thesis suggest that positive appraisals of problem-solving abilities lessen the impact of internal entrapment on suicidal thoughts, thus decreasing risk (Chapter 6). However, it should be noted that empirical studies concerning resilience to suicidal thoughts and behaviours in prisoner populations remains sparse and further research is required in this area.
10.3.2. Implications for assessment and formulation

At a systemic level, providing frontline staff, i.e., prison officers and healthcare staff, with an awareness of the psychological underpinnings of suicidality may be beneficial in two ways. First, it is likely that the way in which suicide is understood may have significant implications for both the suicidal individual, and the staff involved in the delivery of care. Within the theory-driven framework proposed in this thesis, suicidality is conceptualized as an understandable endpoint of a pathway involving negative appraisals of the current situation, possibly triggered by stressors, which ultimately give rise to perceptions of defeat, entrapment, and hopelessness (Williams, 1997; Johnson et al., 2008).

By conceptualizing suicidality as an understandable human response, and not simply a byproduct of mental ill-health, staff may be helped to feel more confident in their ability to work with individuals in significant distress, where suicidality is present. Second, equipping all staff with a basic knowledge and understanding, i.e., a generic formulation of suicide risk that is based on theory, may have implications for the early detection of individuals evidencing suicidal thoughts and behaviours. Empirical support for the potentially positive impact of staff training upon the detection of suicidal thoughts and behaviours, is demonstrated by findings from general practice, in which GP attendance at a one-day suicide prevention workshop led to a 130% increase in the identification of suicidal individuals (Pfaff, Acres & McKelvey, 2001). In prison environments, suicide prevention training has been shown to be both feasible and to have a positive impact upon staff knowledge, attitudes, and confidence in working with prisoners experiencing suicidal thoughts and behaviours (Hayes, Shaw, Lever-Green, Parker & Gask, 2008).

Where an individual’s risk of suicide is identified as heightened or escalating, a theory informed, individual psychological formulation of risk should be completed, alongside, and ideally embedded within, current care-planning procedures. This would
enable the identification of precipitating and maintaining factors, and should incorporate information about a person’s psychological resilience. Ultimately, this should inform the most appropriate course of intervention, with two primary aims as highlighted by the findings of this thesis: i) to reduce suicidal thoughts, behaviours, and associated distress, and ii) to enhance resilience. In practice, a stepped approach to the use of psychological formulation in the management and intervention of prisoners evidencing suicidal thoughts and behaviours, may help to maximize resources and enhance the impact of suicide prevention procedures. This issue is of particular relevance given that the provision of psychological services across prison establishments is variable, and often limited (Brooker & Gojkovic, 2009). The British Psychological Society (2011) recommends the use of team formulations, in which the psychologist works indirectly with an individual’s care team. This approach aims to increase the team’s understanding of the person’s difficulties from a psychological perspective, including the impact of social, biological, and environment factors, and enable the team to adopt a joined up and consistent approach to intervention. Results from a trial of the use of team formulation on a long-stay rehabilitation unit, for individuals with complex mental health needs, were promising, with results suggesting that the approach led to improvements in staff-patient relationships (Berry et al., 2015). To date, the potential impact of this approach upon suicide risk is unknown, as is the feasibility of using team formulation in a prison setting. However, this approach may provide a viable option to implementing the use of formulation with prisoners at risk of suicide, where resource limitations are likely to preclude the ability to work directly with an individual within the context of individual psychological therapy.

Finally, the use of experience sampling methodologies within the current thesis (Chapters 5, 8, and 9) also highlights the potential utility of momentary assessment as a clinical assessment tool that is adaptable within the prison environment. Within the current
work, a sample of high-risk individuals with significant levels of distress was able to engage with the experience sampling procedure, and to provide in-depth information about their daily experiences. It is suggested that this method could be adapted to provide a thorough assessment of participants’ experiences, in addition to a standard clinical interview. The information gathered during this extended assessment period would be used to inform the formulation of a person’s difficulties, and subsequent avenues for intervention. Within the current ESM work, the inclusion of a qualitative component was observed to be both feasible and acceptable to participants. Indeed, it was observed by the researcher that the inclusion of this section appeared, in some cases, to facilitate participants’ engagement in the ESM procedure more broadly. Consequently, future ESM work with prisoner samples may benefit from the inclusion of a qualitative space in which participants’ may record their lived experience, in their own words. In addition, momentary assessment methods may be useful in equipping the individual with an increased awareness of their experiences or symptoms, and patterns therein, and provide an avenue for individualised therapeutic interventions (Oorschot, Lataster, Viviane, Wichers & Myin-Germeys, 2012). Moreover, the delivery of personalised intervention tools, triggered, in real-time, by responses to electronically recorded experience sampling assessments has been suggested (Kelly et al., 2012). However, the implementation of such methods within the prison setting is unlikely to be feasible at present, due to restrictions placed on the use of electronic devices to record client responses.

10.3.3. Implications for psychological intervention

The results of this thesis highlight a number of clinical implications, which may guide the development of psychological interventions for suicidal thoughts and behaviours amongst prisoners. These directions for intervention are grounded upon the central tenet
that suicidal thoughts and behaviours should be conceptualized as clinical targets for intervention, and not simply as the byproduct of a psychiatric disorder, such as depression. As suicidal thoughts and behaviours appear to lie on a continuum, at least to some extent, all points on this continuum are proposed to be legitimate clinical targets (Tarrier et al., 2013). As such, interventions should be designed to target suicidal thoughts and behaviour in their own right (Berk, Henriques, Warman, Brown & Beck, 2004; Tarrier et al., 2013).

From the conclusions drawn within this thesis, one implication for interventions is that psychological therapies which seek to reduce suicidality amongst those imprisoned, should aim to target the underlying psychological mechanisms driving suicidal thoughts and behaviours. Evidence to support this comes from the results of a meta-analysis of randomized-controlled trials, in which the effectiveness of Cognitive Behavioural Therapy (CBT) in reducing suicidality was examined (Tarrier, Taylor & Gooding, 2008). Results showed that CBT was effective in reducing suicidality, where it was the primary target for intervention. In contrast, CBT interventions where suicidality was not directly targeted, i.e., the intervention targeted other outcomes, such as distress or depression, did not have a significant effect on suicidality (Tarrier et al., 2008). In light of these findings, a CBT for suicide intervention was developed which specifically targeted the underlying mechanisms of suicide as postulated in the SAMS (CBSP; Tarrier et al., 2008). The CBSP intervention was initially developed within the context of psychosis, and has demonstrated effectiveness in reducing suicidal thoughts and behaviours among individuals diagnosed with schizophrenia spectrum disorders, living in the community (Tarrier et al., 2014). The intervention has since been adapted for use with prisoners at high-risk for suicide. The results of a pilot randomized controlled trial, examining the acceptability and feasibility of the intervention in a prison setting, revealed that this intervention can be delivered to suicidal male prisoners, with promising potential of a preventative effect against future...
suicidal behaviour (Pratt et al., 2015). At present, no specific psychological interventions to reduce suicidal thoughts and behaviours are available with the prison service of England and Wales, or elsewhere, to the author’s knowledge.

The findings of the current thesis further our understanding of the psychological architecture underlying suicidality in prisoners. From these findings, a number of particular psychotherapeutic strategies and techniques that could reduce suicidality, including thoughts of self-harm, are proposed within the respective empirical chapters. In brief, the following three targets for clinical intervention are suggested. First, interventions should aim to reduce an individual’s negative appraisals of the present and future, and perceptions of internal entrapment and hopelessness. Strategies that aim to broaden attention, increase self-esteem, and promote positive reappraisals of coping abilities, may prove beneficial in reducing the impact of these negative perceptions, and may subsequently impact upon suicidal thoughts and behaviours (Taylor et al., 2011; Tarrier et al., 2013). For example, the Broad Minded Affective Coping (BMAC) method (Tarrier, 2010) is one potential clinical strategy that aims to broaden attention, boost positive mood and reduce the experience of negative affective states through the recall of past positive memories (Tarrier, 2010). Preliminary findings from two studies suggest that participants who received the BMAC procedure demonstrated increases in self-reported positive emotions (e.g., hopefulness, happiness) and greater reductions in self-reported levels of negative emotions (e.g., sadness, defeat) following the BMAC technique, compared to those in a control condition (Johnson, Gooding, Wood, Fair & Tarrier, 2012; Panagioti, Gooding & Tarrier, 2012b). However, it should be noted these two studies were conducted with community based samples of participants diagnosed with psychosis spectrum disorders (Johnson et al., 2012) and posttraumatic stress (Panagioti et al., 2012b). As such, the potential utility of the BMAC procedure within prisoner samples has not yet been
established. Additionally, techniques that enable the individual to gain distance from their thoughts may be of particular benefit where perceptions of internal entrapment, i.e., feeling trapped by one’s own thoughts and feelings, are heightened. The use of cognitive distancing or decentring in cognitive therapies is well established (Hollon & Beck, 1979), whilst adapted versions have been developed within contemporary, third wave therapies, such as the use of ‘cognitive defusion’ in Acceptance and Commitment Therapy (ACT; Hayes, Strosahl & Wilson, 1999).

Second, interventions should aim to support the individual to develop more positive self-appraisals, with a particular emphasis on building more positive perceptions of interpersonal problem-solving ability. Whilst there is evidence to suggest that problem-solving training interventions may have a positive impact upon psychological distress within prisoner samples (Biggam & Power, 2002), further research is required to establish the extent to which these approaches may simultaneously target self-appraisals of problem-solving, in addition to actual ability.

The third, and final, intervention target, as highlighted within the current thesis, pertains to the targeted reduction of impulsiveness, which was seen to predict both suicidal and self-harm ideation (Chapters 8 and 9). Dialectical Behaviour Therapy (DBT) has been shown to be both effective in reducing impulsiveness, and is also feasible within prison settings (Low et al., 2001; Nee & Farman, 2005). Finally, the use of any of the above intervention strategies, for prisoners at risk of suicide, should be based on an individualised formulation of the prisoner’s difficulties, within the context of the prison setting (Harvey, 2011).

On a practical level, results presented within the current thesis provided further evidence for the prospective role of past suicidal ideation, as a predictor of future suicidal thoughts (Chapter 7). These findings are consistent with previous work that highlights
prisoners with suicidal ideation as a high-risk group for future suicidal behaviour (Lekka et al., 2006). These results underscore the need for the continued support and assessment of prisoners with suicidal ideation. At present, prisoners identified as at-risk of suicide in England and Wales, do not routinely receive any follow-up support once their suicide risk is deemed to have reduced. In an audit of care-planning procedures conducted by Senior and colleagues (2007), it was noted that following closure of the suicide risk management plan, ongoing support for the at-risk individual was formally planned in less than one third of cases (Senior et al., 2007). The findings of the current thesis further bolster the argument for improved, on-going monitoring and support of prisoners with a history of suicidal thoughts and/or behaviours.

10.4. General Limitations

The limitations of each of the empirical studies in this thesis have been outlined in the discussion sections of the corresponding chapters. However, there are a number of overarching limitations, which are relevant and which apply across several of the studies contained in this thesis. This section aims to present and discuss these key general limitations, which should be considered in the collective interpretation of the results.

10.4.1. Sample

The samples recruited in this research constituted a particular subset of the prison population, i.e., individuals identified as at-risk of suicidal or self-harming behaviours. All participants, across all studies, had been identified as at-risk within the past three months and had been managed under the ACCT system (Ministry of Justice, 2013a). This recruitment strategy was considered optimal to maximize the potential for participants to have recently experienced some degree of suicidal thoughts and/or behaviours.
Nonetheless, the extent to which the results of this thesis may be generalized to the wider prison population is unclear, as those sampled are likely to constitute a particularly high-risk subset of the general prison population (Humber et al., 2013). That said, this was an appropriate inclusion criteria, given that the focus of this thesis was on suicidal thoughts and behaviours in prisoners.

Within the current thesis, the samples recruited within each of the empirical chapters were comprised of both participants on open ACCT documents, and individuals whose ACCT documents were recently closed (within the past three months) (Ministry of Justice, 2013a). According to Prison Service Instruction (PSI 64/2011), an ACCT document must only be closed once all actions of an individual’s care plan have been addressed, and subsequently, the risk of suicide or self-harm is judged to have reduced (Ministry of Justice, 2013a). It is, therefore, noteworthy that within the current research, the risk of suicidal and/or self-injurious behaviour of those participants whose ACCT documents were closed, was deemed by prison staff to have been lowered at the time of participation. Whilst it would have been interesting to examine group differences pertaining to participants’ current ACCT status (open versus closed), this was not possible within the current research, due to unequal group sizes and issues of statistical power. However, future work would benefit from examining such group differences.

The samples recruited within the current thesis were often ethnically homogenous; with participants who identified themselves as white British making up a substantial proportion of the samples. Individuals from ethnic minority backgrounds appear to be underrepresented as compared with national prison population statistics (Ministry of Justice, 2013b) and those of the host prison establishment (Her Majesty’s Inspectorate of

---

19 Of the total number of participants recruited in the empirical chapters of this thesis, 73% were on an open ACCT at the time of participation, compared to 27% whose ACCT document had been closed within the previous three months.
Prisons, 2015), thus raising concerns about generalizability. Although the majority of suicide deaths in prison occur in individuals who identify themselves as white British, the results of a recent case-control study found that non-white ethnicity was an independent risk factor for suicide in prison (Humber et al., 2013). The current research also focused solely on adult male prisoners, as they account for the majority of suicide deaths within prisons (Ministry of Justice, 2015b). The extent to which the current findings extend to a female sample is, therefore, unknown. It is suggested that the present research be replicated with female prisoner samples, to establish the underlying mechanisms for suicidal thoughts and behaviours amongst prisoners, including the extraction of generalized and gender specific mechanisms. Certain aspects of the research designs presented herein may have impacted upon the particular characteristics of those sampled, thus introducing the potential for bias. For example, the use of ESM designs, which require substantial effort on the part of the participant, may have resulted in the inclusion of particularly motivated or altruistic individuals (Scollon, Kim-Prieto & Diener, 2003).

A further area of consideration concerns the potential impact of prison officer involvement during participant recruitment. Within the current research, the research ethics committee specified that, in the first instance, all potential participants must be approached by a prison officer, before contact with the researcher was made. The extent to which this may have impacted upon sampling and recruitment rates, through the introduction of bias, is unknown. Furthermore, the hierarchical structure of the prison environment and the associated power imbalance between prison staff and inmates may have impacted upon participation rates. As such, a thorough process of informed consent was undertaken with all potential participants, in order to minimize the potential for coercion.

Lastly, the relevance and representativeness of the non-clinical sample employed in the initial stage of ESM piloting is recognized as a limitation of the research. It is
suggested that the inclusion of an initial pilot sample with direct experience of imprisonment would have been advantageous in the development of the ESM diary measure. Specifically, a pilot sample involving members of the ex-offender service user reference group may have provided more meaningful insights regarding the accessibility and utility of the ESM diary, due to their increased awareness of the challenges that may be encountered in the prison setting. That said, the use of a second pilot phase, including current prisoners, may, to some extent, have mitigated against this potential limitation.

10.4.2. Cross-sectional designs

Cross-sectional research designs were used in all but one of the empirical papers of this thesis (Chapters 4, 5, 6, 8, and 9). This choice of design was deemed to be appropriate to address the aims of this thesis, which were to establish the effects of theoretically driven risk and resilience factors on suicidal ideation amongst prison inmates. This was important as research in this area is currently in its infancy. Nonetheless, the use of cross-sectional designs does preclude the ability to draw conclusions about causality (Howitt & Cramer, 2008). It also raises questions regarding the direction of effects. For example, in Chapter 4, perceptions of hopelessness and internal entrapment were seen to predict suicidal thoughts. This finding was consistent with theoretical approaches to the development of suicidality (Williams, 1997; Johnson, Gooding & Tarrier, 2008). However, it may be suggested that suicidal thoughts actually precede perceptions of hopelessness and internal entrapment.

To determine cause and effect, and the direction of an effect, requires the use of either i) experimental or ii) longitudinal designs. In experimental designs, procedures that induce or manipulate particular cognitive or affective states (IV) are used, and the effect on the dependent variable (DV) is assessed (Johnson, Gooding, Wood, Taylor & Tarrier, 2011b). Whilst this method is advantageous in its ability to elucidate cause and effect, there are
clear ethical issues associated with the manipulation or induction of negative mood states in individuals experiencing suicidality. As the participants sampled in the current thesis displayed high levels of suicidality and psychological distress\textsuperscript{20}, the use of an experimental design which induced negative mood states was deemed to be ethically inappropriate. That said, Randomized Controlled Trials (RCT) also offer an experimental approach from which casual information can be elucidated (Sibbald & Roland, 1998). In an RCT, the effects of a treatment or other intervention on a particular outcome are examined (Sibbald & Roland, 1998), meaning that this approach may be appropriate to investigate the efficacy of an intervention designed to reduce suicidal thoughts and behaviours (Pratt et al., 2015). However, due to the focus on intervention within RCT’s, this would not constitute an appropriate methodology from which the casual mechanisms underlying the development of suicidal thoughts and behaviours could be established. In contrast, the use of longitudinal, or prospective, research designs may present a feasible and acceptable method of establishing causality in the development of suicidal thoughts and behaviours amongst high suicide risk groups (Rogers, 2003). This method was used in Chapter 7, to address the limitations of the cross-sectional designs used in all other studies. However, this study employed a relatively small sample size. Further research using prospective designs with a substantial sample size is required to extend understanding of the psychological mechanisms underlying the development and maintenance of suicidal thoughts and behaviours amongst incarcerated individuals.

10.4.3. Choice of measures

The use of self-report measures throughout the empirical chapters (whether as

\textsuperscript{20} High levels of psychological distress amongst participants were indicated by overall heightened levels of depression, hopelessness, defeat, and entrapment (see Chapters 4 and 7 for full discussion).
questionnaires or ESM items) is associated with drawbacks. These include the potential effects of demand characteristics (Orne, 1962) and social desirability (Edwards, 1953) upon participants’ responses. Despite these potential limitations, self-report measures were deemed to be the most appropriate form of measurement due to the focus of this thesis on participants’ perceptions and appraisals of their experiences. Furthermore, where ESM methods were used (Chapters 5, 8 and 9), the potential impact of demand characteristics was reduced, since the researcher was not present during ESM diary completion.

A further issue relates to the specific indices of suicidality that were examined within the current thesis, namely suicidal ideation, rather than suicidal behaviours. A focus on suicidal thoughts, and where appropriate, thoughts of self-harm, was considered appropriate for two reasons. First, suicidal ideation is known to be indicative of substantial psychological distress, and constitutes a valid target for clinical intervention in itself (Tarrier, Taylor & Gooding, 2008; Tarrier et al., 2013). Second, suicidal ideation is associated with a heightened risk of future attempted suicide within prisoners (Lekka et al., 2006). Nonetheless, it is recognized that the extent to which the conclusions of this thesis may extend to suicidal behaviours (i.e., attempted suicide and suicide deaths) is unknown. Future research examining suicidal behaviour as an outcome variable may prove fruitful in helping to further understand the suicidal trajectory within prisoner populations. To achieve this, large-scale, longitudinal research methodologies are required, alongside sophisticated statistical techniques such as mediation analyses and structural equation modeling (Kline, 1998). The low-base rate of suicidal behaviours, particularly suicide deaths, means that a high degree of statistical power is required to detect significant effects. Consequently, very large sample sizes are required. Alternatively, the psychological autopsy method may be used when a person has died by suicide, to examine the factors precipitating the individual’s death (Aufderheide, 2000). This method typically
makes use of information gathered from family members about the deceased individual. However, given the focus on the subjective experience of the individual across theoretical accounts for suicidality, and the inherently private nature of the psychological phenomenon studied within this thesis, it would not be possible to gather the necessary information regarding these psychological processes by examining deaths by suicide using the psychological autopsy method.

10.4.4. Statistical power

A final issue worth further consideration is that of statistical power. Specifically, there is a need to evaluate whether the sample sizes, and thus the statistical analyses, were sufficiently powered to detect significant effects and address the aims of the thesis. For example, the sample sizes of two of the studies reported in this thesis (Chapter 6, n = 59; and Chapter 7, n = 47) may be considered low (Green, 1991), and, thus, susceptible to Type II error. Despite this, significant results were observed in all empirical studies and bootstrapping was used to counter the potentially limited sample size (Mooney & Duval, 1993). However, it is unclear whether some of the non-significant results seen would in fact be significant given a larger sample size. The findings of Chapter 7 that neither hopelessness, defeat, nor entrapment, prospectively predicted suicidal ideation were in contrast with predictions and the extant literature (Taylor et al., 2011; Panagioti et al., 2015). Given the small sample size of this study, it is possible that these non-significant results were the result of low statistical power. Nonetheless, it should be noted that this was the first study to examine the prospective effect of these theoretically driven factors on subsequent suicidal ideation, with hypotheses drawn from results with diverse clinical samples. It is similarly plausible that results reflect a genuine lack of a relationship (see
Chapter 7 for a full discussion). Future research with larger sample sizes would be valuable to confirm the results presented in this thesis.

A further potential limitation, related to the issue of statistical power, is that the effects of custodial factors upon the relationships between key predictor variables and suicidal ideation were not studied in the current thesis. Specifically, factors such as index offence type and sentence status, i.e., sentenced versus remand, were not examined. Previous research has indicated that certain criminological and custodial factors may be associated with either an increased or decreased likelihood of suicidal thoughts, behaviours, and associated psychological distress. For example, in a study by Reed (2011), prisoners who were on remand were observed to experience more hope than their convicted counterparts. Contrastingly, being of remand status has been identified as a specific risk factor for suicide deaths amongst those imprisoned (Fazel et al., 2008). Within the empirical studies of this thesis, a lack of statistical power resulting from the sample sizes used, precluded the ability to conduct subgroup analyses according to the custodial factors outlined above. That said, it is noteworthy that within the current thesis, the importance of key psychological mechanisms as drivers of suicidal thoughts and behaviours has been stressed, and limitations associated with an epidemiological approach have been outlined (see Chapter 3). Within the SAMS, the individual’s appraisals of the self and of situational factors are seen as central to the emergence of suicidal ideation and behaviour (Johnson et al., 2008). Consequently, it is the individual’s appraisals of relevant custodial factors, rather than the factors themselves, which are pertinent. Based upon the work of this thesis (Chapters 4 and 6), it is suggested that appraisals of custodial factors, which provoke a sense of hopelessness and internal entrapment, should be considered in the assessment of suicide risk.
10.5. Directions for future research

Recommendations for future research are presented in each of the individual empirical chapters. This section aims to build upon, and coalesce, the identified gaps in the literature and directions for future research. Four brief research proposals are presented that would extend the findings of this thesis, and further develop our understanding of the psychological mechanisms underlying suicidal thoughts and behaviours in prison populations, and in other populations where an individual’s movement is restricted, such as those involuntarily detained in psychiatric in-patient wards.

10.5.1. A prospective investigation of psychological risk and resilience factors for suicidal thoughts and behaviours amongst prison inmates

A limitation identified across a number of the studies of this thesis was the use of cross-sectional research designs. This limitation was partly addressed in Chapter 7, whereby a prospective investigation of the effects of hopelessness, entrapment, and defeat, upon suicidal ideation was undertaken. However, this study was limited by a small sample size, and short follow-up period (one-month). Further prospective research is required to establish whether psychological risk and resilience factors can lead to changes in suicidal thoughts and behaviours amongst those imprisoned. Moreover, such methods should allow for the examination of more complex causal relationships over time, including moderation and mediation effects. A prospective examination of the psychological processes that underlie the development and maintenance of suicidality among prisoners is proposed. Two primary aims are specified, i) to examine the prospective effects of negative appraisals, hopelessness, defeat, and entrapment on suicidal thoughts and behaviours, and, ii) to investigate the buffering effect of resilience, conceptualized as positive self-appraisals. A brief proposal to address these research aims will now be outlined.
A 12-month prospective research programme, comprising three time points, i.e. baseline, three months, and 12 months, is proposed. To address the first aim, the study would examine the extent to which participants’ experiences of imprisonment, including, for example, stressful events within the prison, social interactions i.e., with prison staff, other prisoners, and non-incarcerated family members, and negative self/situational appraisals, contribute to perceptions of hopelessness, entrapment, and defeat. In turn, the effects of perceived entrapment, defeat, and hopelessness, on suicidal cognitions and behaviours would be examined. Hence, the potential mediation effects of hopelessness, defeat, and entrapment, upon the relationship between a number of prison-based stressors and negative appraisals, and suicidality, could be tested.

A prospective design would also be particularly valuable for further elucidating information pertaining to the buffering role of positive self-appraisals on suicidality, amongst prisoner groups. Within the current thesis, results showed that overall positive self-appraisals, and specifically those reflecting personal problem-solving ability, buffered against the impact of internal entrapment upon suicidal ideation (Chapter 6). However, the use of a single assessment point precluded the ability to determine the direction of the relationship, and hence, to infer causality. Within the suggested proposal, measures of positive self-appraisals, and suicidal thoughts and behaviours would be gathered at baseline, whilst measures of risk and suicidality would be completed at three and 12 months. Moderation analyses would then be used to examine whether positive self-appraisals interact with risk at follow-up assessments to buffer against suicidality at follow-up, whilst controlling for baseline suicidality.

On a practical level, the proposed project would sample prisoners identified as at-risk for suicide, at the stage of reception into prison. By sampling participants at the point of entry, a prospective approach examining the role of psychological risk and resilience
factors would enable a greater understanding of the pathways to suicidality within this group. Specifically, this approach would aid in the identification of prisoners whose risk is likely to subside following initial adjustment to prison, and those whose risk is likely to be maintained or elevated during imprisonment. Hence, the use of two follow-up assessments is suggested. Furthermore, by targeting prisoners identified as at risk of suicide, as opposed to a general prison population sample, the likelihood of detecting an effect is increased, thus reducing the likelihood of Type II error, i.e., failing to detect an effect that is present. Finally, it is acknowledged that longitudinal research within prison establishments can be problematic. Previous research has highlighted difficulties with participant retention (Hales et al., 2015), often due to factors, such as, release, and prison transfers (as observed in Chapter 7). Despite the potentially resource and labour intensive approach presented here, it is anticipated that the proposed research would significantly enhance our understanding of the prospective pathways to suicidality among prisoners.

10.5.2. An experience sampling study of the social and contextual factors which underlie suicidality amongst prisoners

Within the current thesis, experience sampling methods provided an in-depth, ecologically valid means of assessing the momentary relationships between suicidal/self-injurious thoughts, and a range of cognitive and affective experiences (Chapters 5, 8 and 9). According to the SAMS, suicidality emerges from an appraisal system, in which an individual’s negative appraisals of the self, and their circumstances, give rise to feelings of defeat, entrapment, and hopelessness, which in turn lead to suicidal thoughts and behaviours (Johnson et al., 2008). Empirical findings presented in Chapter 5, provided partial support for this hypothesis, with results highlighting the pernicious effects of negative situational appraisals of the present and the future upon suicidal cognitions.
However, the extent to which these negative appraisals are impacted upon by social and contextual factors, specific to the prison environment, is unknown. As ESM approaches allow for the examination of the contextual factors surrounding individuals’ experiences (Myin-Germeys et al., 2009; Verdoux, Husky, Tourneir, Sorbara & Swendsen, 2003), they may provide a valuable tool for increasing understanding of the social and contextual factors that underlie suicidal thoughts and behaviours amongst prisoners.

An ESM study, utilizing two prisoner samples is proposed. In the first sample, prisoners at heightened risk for suicide, where the prevalence of negative appraisals is likely to be elevated, would be recruited. In the second sample, a comparison group of general population prisoners, with no previous experience of suicidal thoughts or behaviours, would be recruited. It is expected that this approach would allow for a greater understanding of the factors, or appraisals, that are specifically associated with the experience of suicidality in prison. Assessments would centre on i) participants daily experiences and social interactions within the prison environment, and ii) their appraisals of these experiences and interactions. As evidence is accruing for the roles of entrapment, hopelessness, and defeat perceptions in suicidality (Slade et al., 2014; Chapters 4 and 6 of this thesis), the extent to which participants’ daily experiences and interactions, and subsequent appraisals, give rise to perceptions of entrapment, hopelessness, and defeat, is of particular interest. Furthermore, a comparison of the two participant groups would shed light on the socially relevant factors, and interpretations of these, that may increase suicide risk.

Finally, the results of the ESM studies presented within this thesis highlighted subtle differences in the factors associated with suicidal versus self-harm ideation (Chapters 5, 8, and 9). In Chapter 5, positive self-appraisals of social reciprocity were found to be predictive of lesser suicidal ideation, whilst there were no effects of social reciprocity on
self-harm ideation. Additionally, and in contrast with predictions, lower levels of social support and social reciprocity were observed to protect against self-harm ideation, when participants reported less negative situational appraisals. However, this effect was not observed in relation to suicidal thoughts (Chapter 5). The findings of Chapters 8 and 9 underscored the role of impulsiveness as a proximal predictor of both suicidal ideation and self-harm ideation, although a different pattern of results emerged when interactions with affect were considered. For suicidal ideation, positive affect, but not negative affect, interacted with impulsiveness to produce significant effects (Chapter 8). In contrast, both positive affect and negative affect interacted with impulsiveness to predict self-harm ideation (Chapter 9). In light of these findings, the proposed ESM study would likely benefit from separating out these two experiences of suicidal ideation and self-harm ideation, in order to identify any differential effects.

10.5.3. A qualitative examination of resilience to, and recovery from, suicidality amongst prisoners

The incorporation of a framework within which resilience to suicide may be understood is a particular strength of the SAMS, which postulates that specific positive self-appraisals may confer resilience to suicide, by lessening the impact of psychological risk factors (Johnson et al., 2008; 2010a). Positive self-appraisals of social support, social reciprocity, emotion coping, and personal problem-solving abilities, have each been identified as potential resilience factors. However, across two chapters within the current thesis (Chapters 5 and 6), only appraisals of problem-solving abilities were observed to display the hypothesized buffering effect within a prisoner sample. Consequently, there is a need to look beyond the specified resilience factors to further understand those processes.
that may be protective. A qualitative approach, using a semi-structured interview method, is proposed.

To address the research aims, a sample of prisoners with recent experience of suicidal thoughts, with or without suicidal behaviours, would be recruited. An interview schedule would be developed, with questions designed to elicit participants’ perceptions of the internal and external factors that i) either prevented or encouraged the transition from suicidal ideation to behaviour, and ii) contributed to the individual’s recovery from suicidal thoughts and/or behaviours. Data would be analysed using thematic analysis, to identify key emergent themes across participants (Braun & Clarke, 2006). It is anticipated that this approach would provide an in-depth understanding of resilience to, and recovery from, suicidality amongst incarcerated individuals. Results may inform directions for future quantitative research examining resilience to suicidality, and may highlight potential avenues for intervention.

10.5.4. A qualitative investigation of perceived entrapment, and its relationship with suicidal thoughts and behaviours, amongst prison inmates

Within the current thesis, perceptions of entrapment, and their relationship with suicidal ideation, were investigated in a sample of prison inmates at heightened risk for suicidal thoughts and behaviours (Chapters 4, 6, and 7). According to three contemporary models of suicide, perceptions of entrapment, alongside defeat, are said to constitute key psychological states from which suicidal motivations may arise (Johnson et al., 2008; O’Connor, 2011a; Williams, 1997). The results from two cross-sectional studies of the current thesis (Chapters 4 and 6) found high levels of overall entrapment, internal entrapment, and external entrapment, amongst their respective samples, with levels of entrapment observed to be higher than in a number of studies with clinical, community
dwelling samples (Panagioti et al., 2012; Taylor et al., 2010a). That said, although levels of entrapment were elevated across all domains (overall, internal, and external), only perceptions of internal entrapment, i.e., feeling trapped by internal stressors, explained a significant and unique proportion of the variance in suicidal ideation. These results indicate that for prisoners at high risk of suicide, perceptions of internal entrapment constitute a proximal indicator of suicidal thoughts. Despite this, surprisingly little is known about the experiences and impact of perceptions of entrapment for those who are incarcerated. Therefore, a qualitative, interview-based study investigating prisoners’ experiences of entrapment, and its relationship with suicidal thoughts and behaviours, is proposed.

To achieve the study aims, a sample of prisoners with recent experience of suicidal thoughts and/or behaviours would be recruited to participate in an individual, semi-structured interview. Interview questions designed to elicit participants’ experiences of perceived entrapment whilst imprisoned would be developed and incorporated within an interview schedule. In particular, interview questions would aim to gather information about participants’ experiences and perceptions of i) internal entrapment, ii) external entrapment, and iii) the relationship between entrapment and suicidal thoughts and behaviours. Thematic analysis (Braun & Clarke, 2006) would then be used to identify patterns or themes within the data pertaining to the research aims. It is expected that this approach would extend the findings of the current thesis by providing qualitative information regarding both the phenomenological experience of incarceration and the mechanisms by which entrapment may increase suicidal thoughts and behaviours.
10.6. Conclusion

In conclusion, this thesis investigated the psychological mechanisms that underlie the occurrence of suicidal thoughts amongst prisoners. The role of potential resilience factors that buffer suicidal thoughts within this group was also examined.

Recent theoretical accounts have highlighted the roles of negative appraisals and perceptions of defeat, entrapment, and hopelessness, as key psychological drivers for suicidal thoughts and behaviours. Despite increasing empirical evidence for the importance of hopelessness, defeat, and entrapment in suicidal thoughts and behaviours (O’Connor et al., 2013; Panagioti et al., 2012; Tarrier et al., 2013; Taylor et al., 2010a), no studies have simultaneously investigated these processes among prisoner populations, prior to this thesis. Cross-sectional evidence was obtained that perceptions of internal entrapment and hopelessness were predictive of suicidal ideation amongst prisoners. However, these effects were not observed in a separate short-term follow-up investigation. In a further empirical study, support was provided for the role of momentary negative appraisals of the present and future as proximal predictors of the severity of suicidal thoughts. Two further studies using experience-sampling methodologies provided evidence for the deleterious effect of impulsiveness upon both suicidal ideation and self-harm ideation in prisoners.

An important contribution of the work presented in this thesis concerns the advancement of the literature pertaining to the role of protective, or resilience, factors for suicide amongst prisoners. Two separate investigations of resilience were conducted. The first investigation demonstrated that, contrary to predictions, positive self-appraisals of social support and social reciprocity did not buffer the impact of negative situational appraisals upon suicidal thoughts. The second investigation provided evidence for the role of positive self-appraisals, in particular, appraisals of interpersonal problem-solving abilities, in buffering the effects of internal entrapment on suicidality. The research
presented in this thesis was the first to explore resilience to suicide among prisoners, based on recent theoretical developments (Johnson et al., 2008; 2011a). These findings underscore the need to examine resilience factors within the prison environment and highlight potential avenues for the development of psychological interventions for suicide.
REFERENCES


Mandracchia, J.T., & Smith, P.N. (2015). The interpersonal theory of suicide applied to male prisoners. *Suicide and Life-Threatening Behavior, 45*, 293-301.


Rogers, J.R. (2003). Sexual abuse and suicide: why we may not know what we think we know. *Archives of Suicide Research, 7*, 83-91.


APPENDIX I: EXCERPT FROM ESM DIARY

(USED IN CHAPTERS 5, 8, AND 9)

Participant ID: .................

The day of the week is

_________________________

It is day .... of 6
Instructions for the Booklet

Thank you for agreeing to take part in this study. By taking part you will be helping us to try to improve things for future prisoners. The study lasts for 6 days and at the end of the 6 days I will come to chat to you about how you have found taking part.

Please read the following information to help you fill in the booklet:

Please try to write in your booklet each day for 6 days. Please try to complete all questions in the booklet.

• Please try to make 6 entries in your booklet each day, or more if you fill in the booklet during the night.

• Please try to remember to complete your first entry when you first wake up and then at each given time until you go to sleep. You can see these times on the next page.

• When it is time to complete an entry in the booklet please try to fill it out as soon as possible.
  o If you forget to fill in the booklet at any time, there is a space at the end of each entry for you to write down why you could not complete your entry.
  o Please do not try to fill in the booklet after the given time has passed.
Time Schedule for the Booklet

Please complete an entry in your booklet at each time given and write down the exact time you are filling the entry in at. The last entries "During the night" are optional and you can fill these in if you wake up in the night. At the end of each day, you should have completed 6 entries or more if you filled in the booklet during the night.

<table>
<thead>
<tr>
<th>Time</th>
<th>Booklet entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>When you first wake up</td>
<td>1</td>
</tr>
<tr>
<td>At breakfast time</td>
<td>2</td>
</tr>
<tr>
<td>At lunch time</td>
<td>3</td>
</tr>
<tr>
<td>At tea time</td>
<td>4</td>
</tr>
<tr>
<td>In the evening</td>
<td>5</td>
</tr>
<tr>
<td>Before you go to sleep</td>
<td>6</td>
</tr>
<tr>
<td>During the night (optional)</td>
<td>During the night you can fill in the booklet as many times as you want to</td>
</tr>
</tbody>
</table>
How to answer the questions

Many of the questions in the booklet will ask for you to circle a number between 1 and 10 to describe how you are feeling right now. An example would be:

<table>
<thead>
<tr>
<th>Right now I feel.....</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>happy</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

To answer this you would circle the number which best describes how you are feeling at the time.

So, if you were not feeling happy at all, you would circle the number 1 like this:

<table>
<thead>
<tr>
<th>Right now I feel.....</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>happy</td>
<td>1</td>
<td>2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>

If you were feeling extremely happy, you would circle the number 10 like this:

<table>
<thead>
<tr>
<th>Right now I feel.....</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>happy</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

If, for example, you were feeling quite happy, then you might circle the number 4 or 5.

⚠️ There is no right answer and you should choose whichever number you think best describes how you are feeling at that time.
What to do when you’ve completed a booklet

- Once you have completed a booklet please put this in the envelope given to you and seal it. Please then give this to an officer to put in your wing file for me to collect.
  - If you feel that for any reason you want to put your booklet in your wing file before you have completed it, please do so as soon as you want to.
  - I will come to collect the completed booklets from your wing file each day. If your booklet is not there I will come to collect it from you.
When you first wake up (what time is it now? ..........hrs......mins)

Right now I feel.... (Please circle a number from 1 to 10 for each question)

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Not at all</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>happy</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>irritable</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>restless</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>lonely</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>worried</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>impulsive</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>hopeless</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>relaxed</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>low</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>cheerful</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>wound up</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>frustrated</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>empty</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>helpless</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>worthless</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>tense</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>isolated</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>anxious</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>spontaneous</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>trapped</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>safe</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>moody</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>fidgety</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>intimidated</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Statement</td>
<td>Not at all</td>
<td>Extremely</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>I am optimistic about my future</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I’m doing okay right now</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I want to hurt myself</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I want to live</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I’ve never done very well</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I could hit someone/something</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I can control myself</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I could pick an argument with someone</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I have no-one to turn to</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I feel hopeless about my life</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Other people care about me</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I could lash out</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I am having trouble concentrating</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I could go for someone</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I may do something without thinking</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>My future seems dark</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I could argue with someone</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I am excluded by others</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I could shout at someone</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I will be able to help others</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>My thoughts are all over the place</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I am struggling right now</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I could snap</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>I feel like to doing something on the spur of the moment</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>
Now please tell us what's been going on for you since the last time you filled in your booklet? How have you been feeling? What have you been thinking about most since you last filled in your booklet?

Now please tell us how these things have made you feel using the words below (Please circle a number from 1 to 10 for each question):

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>low</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>annoyed</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>in control of myself</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

If you could not fill in the booklet this time, please tell me why.
APPENDIX II: ESM STUDY BRIEFING SESSION OVERVIEW AND Checklist

(USED IN CHAPTERS 5, 8, AND 9)

ESM study briefing session guidelines

❖ Who we are and what we are doing

“My name is Kate and I am a researcher from the University of Manchester. We are carrying out a study about the experiences of people who are on, or have recently been on, an ACCT document and have asked you if you would like to take part because of this.’

❖ What does the study involve?

‘The study involves filling in a booklet each day for six days which asks you questions about your thoughts, feelings and the things that have been going on for you. We want to find out what people think and feel in their daily lives and so when you’re filling in the booklet it is important to try to do the things you would normally do.’

❖ Explaining the booklet

a. The General Layout:

Go through the booklet. Explain that there are instructions at the front of the booklet about how to complete the booklet; participants should try to have a read through this the day before they begin filling in the booklet. Explain that there are six set times at which the participant should try to complete an entry: these are when they first wake up, at breakfast time, at lunch time, at tea time, in the evening and before they go to sleep; and that we would like them to complete as many of these as they can. Explain that if they do miss an entry, they should not try to fill this in later, but just fill in why they had missed it in the space provided.

General rules:

- Participants should respond with how they are feeling in the moment.
- If participants miss an entry, they should not fill this in later. They should leave it and make a note of why they missed it i.e. if they forgot.
Explain the type of questions used by going through an entry with the participant:

- **What time is it now?**
  Explain that at the beginning of each entry participants should write down the time they are completing the entry at in the space provided.

- **Likert Scale**
  Explain the 10-point Likert scales clearly. Explain that for the most part, participants will be asked to rate their answers on a 10-point scale. Explain the meaning of the points on the scale and not just numbers on the extreme ends. Make it clear that the scale refers to the word/phrase before that scale. Ask if everything is clear and then move on to the next part.

- **Social context question**
  Explain that participants should tick whether they are alone or not. If they are alone, they don’t fill out the other questions in the box. If they are not alone, they should write down who they are with and answer the two likert scales below.

- **Open Questions**
  Explain the open question that asks participants to give his/her own answer to the questions “What’s been going on for you since the last time you filled in your booklet? How have you been feeling? What have you been thinking about most since you last filled in your booklet?”. Participants should respond with whatever they wish to this question.
  Explain that below this question, participants should indicate the extent to which these thoughts, feelings or events have made them feel low, annoyed and in control of themselves using the 10-point scales as before.

‘Before You Go To Sleep’ Page:
Participants need to fill in this page before they go to bed. As well as the standard questions from all other entries, there are also some extra questions about the whole day. Show the participants these pages and explain the anger chart. Look at it with them and ask if it is clear to them.

‘During the night’ Pages:
Explain that there are extra sheets at the back of the booklet for participants to complete during the night, if they are awake and wish to do so. Explain that participants should not stay awake just to complete these, as they are optional. If they do complete these, the format is the same as all other entries.
Demonstrate

Demonstrate an entry for the participant, completing the time and answering some of the questions, indicating why you have chosen the responses. Ask the participant if they would like to have a practice.

If the participant wants to have a practice, here are some things to consider:

- Repeat the most important thing several times
- Explain a section at a time, let the participant fill in that section, check that everything is clear to the participant and then move on the next section
- Make explanations positive; tell them what you expect, not what you don’t want.
- Correct mistakes of the participant after they have filled in a whole section
- Ask participants to fill in the page out loud, it makes it easier for you to check if they have understood everything
- Check participant’s understanding in a positive way. For example, “your answer here is a 1, which means that the item “Right now I feel happy” is not true for you, is that correct?” Be especially aware of the items that are being asked in a negative way.
- Look together with the participant at the completed answers. Use the moment to repeat important things in a positive way.

The Booklet:

- The participant is not expected to take the booklet anywhere with them. They should complete the booklet in their cell.
- Each booklet will be collected the morning after the participant has completed it. Participants should put the completed booklet in the envelope provided with the researcher’s name on. They should hand this to an officer when unlocked in the morning and ask for it to be put in their wing file for collection. If participant is not happy with this procedure, see if alternative method can be used.

Concluding the ESM briefing session:

Tell the participants that they will start filling out the ESM diary the next day. Remind them that there is one booklet per day. Remind them to fill out one booklet per day for the following six days at the given times. Give all the booklets a number and write down the name of the day on it.
**Briefing Checklist:**

**Explain the purpose of the study**
- We are researchers from University of Manchester conducting research about the experiences of people who are, or have been, on an ACCT.
- We want to investigate what experiences people have, and how they feel and think during their daily life.

**Explain the structure of the diaries**
- Six set entries per day, from when participants wake up until before they go to sleep.
- Explain the questions and answering format
- Different sections that will ask questions about your thoughts, feelings, experiences, and context (e.g. what you’re doing, location, whom you are with) at the moment
- Instruct to fill out the questions in order and to avoid backfilling
- Question types: open questions, fixed choice questions and rating scales
- Explain mood section and rating scale
- Explain social context and rating scale
- Explain appraisal section and rating scale
- Explain points of the rating scale and that the scale refers to the question before the scale
- Explain the ‘Before you go to sleep’ page - related to the day
- Explain the ‘During the night’ pages

**Explain how the booklet works**
- Booklet to be completed in cell
- Completed booklets to be put in sealed envelope and given to officer to put in the wing file for collection.

**Concluding Briefing session:**
- Ask if they have any questions or concerns
- Explain they will start filling out the diary the next day
- Explain that they you will be collecting the booklets the day after each one is completed.
- Ask if they would like you to check back with them during the booklet completion period.
- Explain that you will be back to speak to them after the six days is up and all diaries have been collected, to talk about how they found taking part.
APPENDIX III: PARTICIPANT INFORMATION SHEET FOR RESEARCH

PHASE 1 (USED IN CHAPTERS 5, 8, AND 9).

Preventing Suicidal Behaviour in Prisons (Part 1a)

Participant Information Sheet

Introduction

My name is Kate Sheehy. I am a researcher working at the University of Manchester, School of Psychological Sciences. I would like to invite you to take part in some research that aims to help us understand and prevent suicidal behaviour in prisons. This study will look at the experiences of prisoners who are currently receiving care under the Assessment, Care in Custody and Teamwork (ACCT) system, or have done within the last 3 months, over a week in prison. Before you decide whether to take part, please read the following information carefully. You can discuss it with others if you want to.

What is the purpose of the study?

The purpose of this study is to look at the experience of being in prison of those people who are currently receiving care under the Assessment, Care in Custody and Teamwork (ACCT) system, or have done within the last 3 months, and to find out about their thoughts and feelings over a week in prison. We are interested in trying to improve services by asking people about their time in prison. With the results of this study, we hope to be able to plan better care for prisoners at risk of suicide.

Why have you been contacted?

You have been contacted because you are currently receiving care under the Assessment, Care in Custody and Teamwork (ACCT) system, or have done within the last 3 months.

What will I have to do if I take part?

You will be told about the study and shown a diary that you will use if you take part. You will then be given a list of times when you should fill in the diary each day. If you take part you will fill out a short diary entry, at least 6 times a day for 6 days. You will be asked what thoughts are going through your head and about your feelings during the day. Each evening before you go to bed, you will be asked some questions about how you felt overall that day.

At the end of the 6 days, you will be asked to talk with the researcher about how you found taking part in the study and how you are feeling whilst in prison. This should take around 1 hour.

What happens if I don’t want to take part?

Taking part in this study is voluntary. If you would prefer not to take part then you do not have to give a reason and no pressure will be put on you to try and change your mind. You can change your mind about taking part at any time. If you decide not to take part, or want
to stop at any point, your legal and parole rights and your access to care will not be affected.

**Will my taking part in this study be kept confidential?**

Yes. All the information you give us will be kept confidential within the research team, and only used for the purposes of this study. The information will be used in a way that will not allow you to be identified individually. *The only exception to this is if we feel your health or safety, or that of others is at immediate risk because of something you have told us or about how you are feeling. In that case, we will have to pass that information on to the prison staff, so that they can help you further.*

**What happens with my information?**

Your information will be kept in a locked filing cabinet for no longer than 5 years. Only the research team will have access to these. The research team hope to publish the results in professional publications as well as providing best practice booklets.

**What are the possible drawbacks to taking part?**

We want to hear about your experience. The study does not involve any treatment or counselling. You may find writing or talking about parts of your experience stressful or upsetting. If this happens, you can choose not to mention these parts of your experience or stop taking part in the study at any time without giving a reason. If you tell us, we can refer you to a person to help with this.

**What are the possible benefits to taking part?**

Your views and opinions will help us to develop suggestions to improve services for people at risk of suicide in prison. This may not benefit you personally, but may help other people in prison in the future.

**Who is organising the research?**

Staff employed by The University of Manchester and Manchester Mental Health and Social Care Trust are organising this research. Naomi Humber and Kate Sheehy are the main researchers on this study.

**Who is funding this research?**

This research is funded by the National Institute for Health Research – Research for Patient Benefit Programme.

**Who has reviewed the study?**

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given favourable opinion by the Research Ethics Committee for Wales.
What if there is a problem?

Complaints

If you have a concern about any part of this study, you should ask to speak to the researchers who will do their best to answer your questions. If they are unable to resolve your concern or you wish to make a complaint regarding the study, please contact a University Research Practice and Governance Co-ordinator on 0161 2757583 or 0161 2758093 or by email to research-governance@manchester.ac.uk.
What do I do now?

Think about the information on this sheet and ask Naomi or Kate about anything that you are not sure about. If you agree to take part, we will go ahead.

If I need to see someone about the research after I have taken part who can I contact?

If, after taking part in the research, you want more information or have any more questions about the study, tell your personal officer who will then contact the research team and they will come back to see you.

If after taking part, you become upset and need help immediately to deal with your feelings without hurting yourself, it is very important that you talk to someone straight away.

Any member of staff in the prison will be able to help you, all you need to do is speak to someone.

Please do this as soon as you start feeling upset, it will help.

THANK YOU FOR READING THIS

Further information and contact details
If you require any more information you can contact:

Daniel Pratt
Research Programme Coordinator / Clinical Psychologist
Email: daniel.pratt@manchester.ac.uk

Naomi Humber
Researcher / Trainee Clinical Psychologist
Email: naomi.humber@manchester.ac.uk

Kate Sheehy
Researcher / PhD Student
Email: kate.sheehy@postgrad.manchester.ac.uk

Tel: 0161 306 0400

Version 3, Part 1: Prisoners, 18th August 2011
APPENDIX IV: PARTICIPANT INFORMATION SHEET FOR RESEARCH

PHASE 2 (USED IN CHAPTERS 4, 6, AND 7).

Preventing Suicidal Behaviour in Prisons (Part 1b)

Participant Information Sheet

Introduction

My name is Kate Sheehy. I am a researcher working at the University of Manchester, School of Psychological Sciences. I would like to invite you to take part in some research that aims to help us understand and prevent suicidal behaviour in prisons. This study will look at the experiences of prisoners who are currently receiving care under the Assessment, Care in Custody and Teamwork (ACCT) system, or have done within the last 3 months. Before you decide whether to take part, please read the following information carefully. You can discuss it with others if you want to.

What is the purpose of the study?

The purpose of this study is to look at the experience of being in prison of those people who are currently receiving care under the Assessment, Care in Custody and Teamwork (ACCT) system, or have done within the last 3 months, and to find out about their thoughts and feelings. We are interested in trying to improve services by asking people about their time in prison. With the results of this study, we hope to be able to plan better care for prisoners at risk of suicide.

Why have you been contacted?

You have been contacted because you are currently receiving care under the Assessment, Care in Custody and Teamwork (ACCT) system, or have done within the last 3 months.

What will I have to do if I take part?

You will be told about the study and an appointment will be arranged for you to meet with the researcher. When you meet with the researcher, you will be asked questions about yourself, and about your thoughts and feelings. This will take 1-2 hours and you will be able to have breaks. You will then be asked to take part in a shorter interview around 4 weeks later if you are still in the prison. At this interview you will be asked questions about how you have been feeling over the past four weeks. This interview will take about 30-45 minutes and again you will be able to have breaks. If you have left the prison by this time, we will not follow you up, but we will keep the information that you provided to us at the first interview.

What happens if I don’t want to take part?

Taking part in this study is voluntary. If you would prefer not to take part then you do not have to give a reason and no pressure will be put on you to try and change your mind. You
can change your mind about taking part at any time. If you decide not to take part, or want to stop at any point, your legal and parole rights and your access to care will not be affected. If you do decide that you wish to stop at any point, the information collected from you so far will be kept unless you request that it is destroyed.

**Will my taking part in this study be kept confidential?**

Yes. All the information you give us will be kept confidential within the research team, and only used for the purposes of this study. The information will be used in a way that will not allow you to be identified individually. *The only exception to this is if we feel your health or safety, or that of others is at immediate risk because of something you have told us or about how you are feeling. In that case, we will have to pass that information on to the prison staff, so that they can help you further.*

**What happens with my information?**

Your information will be kept in a locked filing cabinet for no longer than 5 years. Only the research team will have access to these. The research team hope to publish the results in professional publications as well as providing best practice booklets.

**What are the possible drawbacks to taking part?**

We want to hear about your experience. The study does not involve any treatment or counselling. You may find talking about parts of your experience stressful or upsetting. If this happens, you can choose not to mention these parts of your experience or stop taking part in the study at any time without giving a reason. If you tell us, we can refer you to a person to help with this.

**What are the possible benefits to taking part?**

Your views and opinions will help us to develop suggestions to improve services for people at risk of suicide in prison. This may not benefit you personally, but may help other people in prison in the future.

**Who is organising and funding the research?**

Staff employed by The University of Manchester and Manchester Mental Health and Social Care Trust are organising this research. Kate is the main researcher on this study.

**Who has reviewed the study?**

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given favourable opinion by the Research Ethics Committee for Wales.
What if there is a problem?

Complaints

If you have a concern about any part of this study, you should ask to speak to the researchers who will do their best to answer your questions. If they are unable to resolve your concern or you wish to make a complaint regarding the study, please contact a University Research Practice and Governance Co-ordinator on 0161 2757583 or 0161 2758093 or by email to research-governance@manchester.ac.uk.
What do I do now?

Think about the information on this sheet and ask Kate about anything that you are not sure about. If you agree to take part, we will go ahead.

If I need to see someone about the research after I have taken part who can I contact?

If, after taking part in the research, you want more information or have any more questions about the study, tell your personal officer who will then contact the research team and they will come back to see you.

If after taking part, you become upset and need help immediately to deal with your feelings without hurting yourself, it is very important that you talk to someone straight away.

Any member of staff in the prison will be able to help you, all you need to do is speak to someone.

Please do this as soon as you start feeling upset, it will help.

THANK YOU FOR READING THIS

Further information and contact details
If you require any more information you can contact:

Kate Sheehy
Researcher / PhD Student
Email: kate.sheehy@postgrad.manchester.ac.uk

Daniel Pratt
Research Programme Coordinator / Clinical Psychologist
Email: daniel.pratt@manchester.ac.uk

Tel: 0161 306 0400

Version 1, Part 1b: Prisoners, 19th November 2012
APPENDIX V: BECK SCALE FOR SUICIDAL IDEATION

(USED IN CHAPTERS 4, 6, and 7)

Please carefully read each group of statements below. Circle the one statement in each group that best describes how you have been feeling for the past week, including today. Be sure to read all of the statements in each group before making a choice.

1. 0. I have a moderate to strong will to live
   1. I have a weak wish to live
   2. I have no wish to live

2. 0. I have no wish to die
   1. I have a weak wish to die.
   2. I have a moderate to strong wish to die.

3. 0. My reasons for living outweigh my reasons for dying.
   1. My reasons for living and dying are about equal
   2. My reasons for dying outweigh my reasons for living.

4. 0. I have no desire to kill myself
   1. I have a weak desire to kill myself.
   2. I have a moderate to strong desire to kill myself.

5. 0. I would try to save my life if I found myself in a life-threatening situation.
   1. I would take a chance on life or death if I found myself in a life-threatening situation.
   2. I would not take the steps necessary to avoid death if I found myself in a life-threatening situation.

If you have circled the 0 statements in both Groups 4 and 5 above, then skip down to Group 20. If you have circled 1 or 2 in either Group 4 or 5, then go to Group 6.

6. 0. I have brief periods of thinking about killing myself which pass quickly
   1. I have periods of thinking about killing myself which last for moderate amounts of time.
   2. I have long periods of thinking about killing myself

7. 0. I rarely or only occasionally think about killing myself.
   1. I have frequent thoughts about killing myself.
   2. I continuously think about killing myself.

8. 0. I do not accept the idea of killing myself
   1. I neither accept nor reject the idea of killing myself.
   2. I accept the idea of killing myself

9. 0. I can keep myself from committing suicide.
   1. I am unsure that I can keep myself from committing suicide.
   2. I cannot keep myself from committing suicide.

10. 0. I would not kill myself because of my family, friends, religion, possible injury from unsuccessful attempts etc.
    1. I am somewhat concerned about killing myself because of my family, friends, religion, possible injury from unsuccessful attempt etc.
    2. I am not or only a little concerned about killing myself because of my family, friends, religion, possible injury from unsuccessful attempts etc.
11. 0. My reasons for wanting to commit suicide are primarily aimed at influencing other people such as getting even with people, making people happier, making people pay attention to me, etc.
   1. My reasons for wanting to commit suicide are not only aimed at influencing other people, but also represent a way of solving my problem.
   2. My reasons for wanting to commit suicide are primarily based upon escaping from my problems.

12. 0. I have no specific plan about how to kill myself.
   1. I have considered ways of killing myself but have not worked out the details.
   2. I have a specific plan for killing myself.

13. 0. I do not have access to a method or an opportunity to kill myself.
   1. The method I would use for committing suicide takes time, and I really do not have an opportunity to use this method.
   2. I have access or anticipate having access to the method that I would choose for killing myself and also have or shall have the opportunity to use it.

14. 0. I do not have the courage or ability to commit suicide.
   1. I am unsure that I have the courage or ability to commit suicide.
   2. I have the courage and the ability to commit suicide.

15. 0. I do not expect to make a suicide attempt.
   1. I am unsure that I shall make a suicide attempt.
   2. I am sure that I shall make a suicide attempt.

16. 0. I have made no preparations for committing suicide.
   1. I have made some preparations for committing suicide.
   2. I have almost finished or completed my preparations for committing suicide.

17. 0. I have not written a suicide note.
   1. I thought about writing a suicide note or have started to write one, but not completed it.
   2. I have completed a suicide note.

18. 0. I have made no arrangements for what will happen after I have committed suicide.
   1. I have thought about making arrangements for what will happen after I have committed suicide.
   2. I have definite arrangements for what will happen after I have committed suicide.

19. 0. I have not hidden my desire to kill myself from people.
   1. I have held back telling people about wanting to kill myself.
   2. I have attempted to hide, conceal, or lie about wanting to commit suicide.

20. 0. I have never attempted suicide.
   1. I have attempted suicide once.
   2. I have attempted suicide two or more times.

If you have previously attempted suicide please continue with the next Group.

21. 0. My wish to die during the last suicide attempt was low.
   1. My wish to die during the last suicide attempt was moderate.
   2. My wish to die during the last suicide attempt was high.
APPENDIX VI: DEFEAT SCALE (USED IN CHAPTERS 4, 6, and 7)

Please read each of the following statements carefully and indicate how often you have felt like this in the previous seven days by circling a number on the scale.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Mostly</th>
<th>Always/ All the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel that I have not made it in life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I am a successful person</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel defeated by life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I am basically a winner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I have lost my standing in the world</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that life has treated me like a punchbag</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel powerless</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that my confidence has been knocked out of me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel able to deal with whatever life throws at me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel completely knocked out of action</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I am one of life's losers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that I have given up</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel down and out</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I have lost important battles in life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel that there is no fight left in me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX VII: ENTRAPMENT SCALE (USED IN CHAPTERS 4, 6, and 7)

Please read each of the following statements carefully and indicate how much you feel like this by circling a number on the scale.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all like me</th>
<th>A little like me</th>
<th>Moderately like me</th>
<th>Quite a bit like me</th>
<th>Extremely like me</th>
</tr>
</thead>
<tbody>
<tr>
<td>I want to get away from myself</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel powerless to change myself</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would like to escape from my thoughts and feelings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel trapped inside myself</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would like to get away from who I am and start again</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I'm in a deep hole I can't get out of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am in a situation I feel trapped in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have a strong desire to escape from things in my life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am in a relationship I can't get out of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I often have the feeling that I would just like to run away</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel powerless to change things</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel trapped by my obligations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can see no way out of my current situation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would like to get away from other more powerful people in my life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have a strong desire to get away and stay away from where I am now</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel trapped by other people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX VIII: BECK HOPELESSNESS SCALE

(USED IN CHAPTERS 4, 6, and 7)

This questionnaire consists of 20 statements. Please read the statements carefully one by one. If the statement described your attitude for the past week including today, mark the “T” indicating TRUE in the column next to the statement. If the statement does not describe your attitude, mark the “F” indicating FALSE in the column next to this

<table>
<thead>
<tr>
<th>Statement</th>
<th>T</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I look forward to the future with hope and enthusiasm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I might as well give up because there is nothing I can do about making things better for myself</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. When things are going badly, I am helped by knowing that they cannot stay that way forever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I can’t imagine what my life would be like in ten years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I have enough time to accomplish the things I want to do</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. In the future, I expect to succeed in what concerns me the most</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. My future seems dark to me</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I happen to be particularly lucky, and I expect to get more of the good things in life than the average person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I just can’t get the breaks, and there’s no reason I will in the future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. My past experiences have prepared me well for the future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. All I can see ahead of me is unpleasantness rather than pleasantness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I don’t expect to get what I really want</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. When I look ahead to the future, I expect that I will be happier than I am now</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Things just don’t work out the way I want them to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I have great faith in the future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. I never get what I want, so it’s foolish to want anything</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. It’s very unlikely that I will get any real satisfaction in the future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. The future seems vague and uncertain to me</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. I can look forward to more good times than bad times</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. There’s no use in really trying to get anything I want because I probably won’t get it</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**APPENDIX IX: KEYWORD SEARCH TERMS USED IN LITERATURE REVIEW**

*(USED IN CHAPTER 3)*

Keyword search terms used in combination with PRISON* or JAIL* to identify relevant research articles for the literature review, organised according to review section.

<table>
<thead>
<tr>
<th>Review Section</th>
<th>Keyword search terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4.1.1. Review of empirical studies of information processing biases and cognitive deficits in prison populations</td>
<td>problem-solv*, problem solv*, information processing bias*, cognitive bias*, cognitive deficit, over generalized memor*, memory bias*</td>
</tr>
<tr>
<td>3.4.2.1. Review of empirical studies of the presence of stressors in prison populations</td>
<td>life event, stressor*</td>
</tr>
<tr>
<td>3.4.3.1. Review of empirical studies of the role of appraisals in prison populations</td>
<td>appraisal</td>
</tr>
<tr>
<td>3.4.4.1. Review of empirical studies of hopelessness, defeat and entrapment in prison populations</td>
<td>hopeless*, defeat*, entrap*, trap*</td>
</tr>
<tr>
<td>3.4.5.1. Review of empirical studies of no rescue (social support) in prison populations</td>
<td>social-support, support</td>
</tr>
<tr>
<td>3.4.5.2. Review of empirical studies of perceived burdensomeness and thwarted belongingness in prison populations</td>
<td>burden*, belong*, thwarted belonging</td>
</tr>
<tr>
<td>3.4.6.1. Review of empirical studies of suicidal imitation models in prison populations</td>
<td>imitat*, copycat, contagio*, cluster,</td>
</tr>
<tr>
<td>3.4.6.2. Review of empirical studies of access to suicidal means in prison populations</td>
<td>suicide means, suicide method*, access*</td>
</tr>
<tr>
<td>3.4.7.1. Review of empirical studies of the acquired capability for suicide in prison populations</td>
<td>acquired capability, interpersonal psychological theory</td>
</tr>
</tbody>
</table>
APPENDIX X: BECK DEPRESSION INVENTORY II
(USED IN CHAPTERS 4 and 7)

Age ....... Sex ..... 

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including item 16 (changes in sleeping pattern) or item 18 (changes in appetite).

1. Sadness

0 I do not feel sad
1 I feel sad much of the time
2 I am sad all the time
3 I am so sad or unhappy that I can't stand it

2. Pessimism

0 I am not discouraged about my future
1 I feel more discouraged about my future than I used to be
2 I do not expect things to work out for me
3 I feel my future is hopeless and will only get worse

3. Past Failures

0 I do not feel like a failure
1 I have failed more than I should have
2 As I look back, I see a lot of failures
3 I feel I am a total failure as a person

4. Loss of Pleasure

0 I get as much pleasure as I ever did from the things I enjoy
1 I don't enjoy things as much as I used to
2 I get very little pleasure from the things I used to enjoy
3 I can't get any pleasure from the things I used to enjoy

5. Guilty Feelings

0 I don't feel particularly guilty
1 I feel guilty over many things I have done or should have done
2 I feel quite guilty most of the time
3 I feel guilty all of the time

6. Punishments Feelings

0 I don't feel I am being punished
1 I feel I may be punished
2 I expect to be punished
3 I feel I am being punished
7. Self-dislike

0  I feel the same about myself as ever
1  I have lost confidence in myself
2  I am disappointed in myself
3  I dislike myself

8. Self-criticalness

0  I don't criticize or blame myself more than usual
1  I am more critical of myself than I used to be
2  I criticize myself for all of my faults
3  I blame myself for everything bad that happens

9. Suicidal thoughts or wishes

0  I don't have any thoughts of killing myself
1  I have thoughts of killing myself, but I would not carry them out
2  I would like to kill myself
3  I would kill myself if I had the chance

10. Crying

0  I don't cry any more than I used to
1  I cry more than I used to
2  I cry over every little thing
3  I feel like crying, but I can't

11. Agitation

0  I am no more restless or wound up than usual
1  I feel more restless or wound up than usual
2  I am so restless or agitated that it's hard to stay still
3  I am so restless or agitated that I have to keep moving or doing something

12. Loss of interest

0  I have not lost interest in other people or activities
1  I am less interested in other people or things than before
2  I have lost most of my interests in other people or things
3  It's hard to get interested in anything

13. Indecisiveness

0  I make decisions about as well as ever
1  I find it more difficult to make decisions than usual
2  I have much greater difficulty in making decisions than I used to
3  I have trouble making any decisions

14. Worthlessness

0  I do not feel I am worthless
1  I don't consider myself as worthwhile and useful as I used to
2  I feel more worthless as compared to other people
3  I feel utterly worthless
15. Loss of energy
0 I have as much energy as ever
1 I have less energy that I used to have
2 I don't have enough energy to do very much
3 I don't have enough energy to do anything

16. Changes in sleeping pattern
0 I have not experienced any change in my sleeping pattern
1a I sleep somewhat more than usual
1b I sleep somewhat less than usual
2a I sleep a lot more than usual
2b I sleep a lot less than usual
3a I sleep most of the day
3b I wake up 1-2 hours early and can't get back to sleep

17. Irritability
0 I am no more irritable than usual
1 I am more irritable than usual
2 I am much more irritable than usual
3 I am irritable all the time

18. Changes in appetite
0 I have not experienced any change in my appetite
1a My appetite is somewhat less than usual
1b My appetite is somewhat greater than usual
2a My appetite is much less than before
2b My appetite is much greater than usual
3a I have no appetite at all
3b I crave food all the time

19. Concentration difficulty
0 I can concentrate as well as ever
1 I can't concentrate as well as usual
2 It's hard to keep my mind on anything for very long
3 I find I can't concentrate on anything

20. Tiredness or fatigue
0 I am no more tired or fatigued than usual
1 I get more tired or fatigued more easily than usual
2 I am too tired or fatigued to do a lot of the things I used to
3 I am too tired or fatigued to do most of the things I used to

21. Loss of interest in sex
0 I have not noticed any recent change in my interest in sex
1 I am less interested in sex than I used to
2 I am much less interested in sex now
3 I have lost interest in sex completely
Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom, during the PAST WEEK, INCLUDING TODAY, by placing an X in the corresponding space in the column next to each symptom.

<table>
<thead>
<tr>
<th></th>
<th>NOT AT ALL</th>
<th>MILDLY</th>
<th>MODERATELY</th>
<th>SEVERELY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Numbness or tingling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Feeling hot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Wobbliness in legs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Unable to relax</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fear of worst happening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Dizzy or lightheaded</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Heart pounding/racing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Unsteady</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Terrified or afraid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Nervous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Feeling of choking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Hands trembling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Shaky</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Fear of losing control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Difficulty in breathing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Fear of dying</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Scared</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Indigestion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Faint/lightheaded</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Face flushed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Hot/cold sweats</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX XII: BRIEF PSYCHIATRIC RATING SCALE - EXPANDED

(USED IN CHAPTER 4)

Introduction

This section reproduces an interview schedule, symptom definitions, and specific anchor points for rating symptoms on the BPRS. Clinicians intending to use the BPRS should also consult the detailed guidelines for administration contained in the reference below.

Scale Items and Anchor Points

Rate items 1-14 on the basis of individual's self-report. Note items 7, 12 and 13 are also rated on the basis of observed behaviour. Items 15-24 are rated on the basis of observed behaviour and speech.

1. Somatic Concern

Degree of concern over present bodily health. Rate the degree to which physical health is perceived as a problem by the individual, whether complaints have realistic bases or not. Somatic delusions should be rated in the severe range with or without somatic concern. Note: be sure to assess the degree of impairment due to somatic concerns only and not other symptoms, e.g., depression. In addition, if the individual rates 6 or 7 due to somatic delusions, then you must rate Unusual Thought Content at least 4 or above.

2 Very mild Occasional somatic concerns that tend to be kept to self.

3 Mild Occasional somatic concerns that tend to be voiced to others (e.g., family, doctor).

4 Moderate Frequent expressions of somatic concern or exaggerations of existing ills OR some preoccupation, but no impairment in functioning. Not delusional.

5 Moderately severe Frequent expressions of somatic concern or exaggerations of existing ills OR some preoccupation and moderate impairment of functioning. Not delusional.

6 Severe Preoccupation with somatic complaints with much impairment in functioning OR somatic delusions without acting on them or disclosing to others.

7 Extremely severe Preoccupation with somatic complaints with severe impairment in functioning OR somatic delusions that tend to be acted on or disclosed to others.

"Have you been concerned about your physical health?" "Have you had any physical illness or seen a medical doctor lately? (What does your doctor say is wrong? How serious is it?)"
"Has anything changed regarding your appearance?"

"Has it interfered with your ability to perform your usual activities and/or work?"

"Did you ever feel that parts of your body had changed or stopped working?"

[If individual reports any somatic concerns/delusions, ask the following]:

"How often are you concerned about [use individual's description]?"

"Have you expressed any of these concerns to others?"

2. Anxiety

Reported apprehension, tension, fear, panic or worry. Rate only the individual's statements - not observed anxiety which is rated under Tension.

2 Very mild Reports some discomfort due to worry OR infrequent worries that occur more than usual for most normal individuals.

3 Mild Worried frequently but can readily turn attention to other things.

4 Moderate Worried most of the time and cannot turn attention to other things easily but no impairment in functioning OR occasional anxiety with autonomic accompaniment but no impairment in functioning.

5 Moderately Severe Frequent, but not daily, periods of anxiety with autonomic accompaniment OR some areas of functioning are disrupted by anxiety or worry.

6 Severe Anxiety with autonomic accompaniment daily but not persisting throughout the day OR many areas of functioning are disrupted by anxiety or constant worry.

7 Extremely Severe Anxiety with autonomic accompaniment persisting throughout the day OR most areas of functioning are disrupted by anxiety or constant worry.

"Have you been worried a lot during [mention time frame]? Have you been nervous or apprehensive? (What do you worry about?)"

"Are you concerned about anything? How about finances or the future?"

"When you are feeling nervous, do your palms sweat or does your heart beat fast (or shortness of breath, trembling, choking)?"

[If individual reports anxiety or autonomic accompaniment, ask the following]:

"How much of the time have you been [use individual's description]?"

"Has it interfered with your ability to perform your usual activities/work?"
3. Depression

Include sadness, unhappiness, anhedonia and preoccupation with depressing topics (can't attend to TV or conversations due to depression), hopeless, loss of self-esteem (dissatisfied or disgusted with self or feelings of worthlessness). Do not include vegetative symptoms, e.g., motor retardation, early waking or the amotivation that accompanies the deficit syndrome.

2 Very Mild Occasionally feels sad, unhappy or depressed.

3 Mild Frequently feels sad or unhappy but can readily turn attention to other things.

4 Moderate Frequent periods of feeling very sad, unhappy, moderately depressed, but able to function with extra effort.

5 Moderately Severe Frequent, but not daily, periods of deep depression OR some areas of functioning are disrupted by depression.

6 Severe Deeply depressed daily but not persisting throughout the day OR many areas of functioning are disrupted by depression.

7 Extremely Severe Deeply depressed daily OR most areas of functioning are disrupted by depression.

"How has your mood been recently? Have you felt depressed (sad, down, unhappy, as if you didn't care)?"

"Are you able to switch your attention to more pleasant topics when you want to?"

"Do you find that you have lost interest in or get less pleasure from things you used to enjoy, like family, friends, hobbies, watching TV, eating?"

[If individual reports feelings of depression, ask the following]:

"How long do these feelings last?" "Has it interfered with your ability to perform your usual activities?"

4. Suicidality

Expressed desire, intent, or actions to harm or kill self.

2 Very Mild Occasional feelings of being tired of living. No overt suicidal thoughts.

3 Mild Occasional suicidal thoughts without intent or specific plan OR he/she feels they would be better off dead.

4 Moderate Suicidal thoughts frequent without intent or plan.

5 Moderately Severe Many fantasies of suicide by various methods. May seriously consider making an attempt with specific time and plan OR impulsive suicide
attempt using non-lethal method or in full view of potential saviours.

6 Severe Clearly wants to kill self. Searches for appropriate means and time, OR potentially serious suicide attempt with individual knowledge of possible rescue.

7 Extremely Severe Specific suicidal plan and intent (e.g., "as soon as ______ I will do it by doing X"), OR suicide attempt characterised by plan individual thought was lethal or attempt in secluded environment.

"Have you felt that life wasn't worth living? Have you thought about harming or killing yourself? Have you felt tired of living or as though you would be better off dead? Have you ever felt like ending it all?"

[If individual reports suicidal ideation, ask the following]:

"How often have you thought about [use individual's description]?"

"Did you (Do you) have a specific plan?"

5. Guilt

Overconcern or remorse for past behaviour. Rate only individual’s statements, do not infer guilt feelings from depression, anxiety, or neurotic defences. Note: if the individual rates 6 or 7 due to delusions of guilt, then you must rate Unusual Thought Content at least 4 or above, depending on level of preoccupation and impairment.

2 Very mild Concerned about having failed someone, or at something, but not preoccupied. Can shift thoughts to other matters easily.

3 Mild Concerned about having failed someone, or at something, with some preoccupation. Tends to voice guilt to others.

4 Moderate Disproportionate preoccupation with guilt, having done wrong, injured others by doing or failing to do something, but can readily turn attention to other things.

5 Moderately Severe Preoccupation with guilt, having failed someone or at something, can turn attention to other things, but only with great effort. Not delusional.

6 Severe Delusional guilt OR unreasonable self-reproach very out of proportion to circumstances. Moderate preoccupation present.

7 Extremely Severe Delusional guilt OR unreasonable self-reproach grossly out of proportion to circumstances. Individual is very preoccupied with guilt and is likely to disclose to others or act on delusions.

"Is there anything you feel guilty about? Have you been thinking about past problems?"
"Do you tend to blame yourself for things that have happened?"

"Have you done anything you're still ashamed of?"

[If individual reports guilt/remorse/delusions, ask the following]:

"How often have you been thinking about [use individual's description]?"

"Have you disclosed your feelings of guilt to others?"

6. Hostility

Animosity, contempt, belligerence, threats, arguments, tantrums, property destruction, fights, and any other expression of hostile attitudes or actions. Do not infer hostility from neurotic defences, anxiety or somatic complaints. Do not include incidents of appropriate anger or obvious self-defence.

2 Very mild Irritable or grumpy, but not overtly expressed.

3 Mild Argumentative or sarcastic.

4 Moderate Overtly angry on several occasions OR yelled at others excessively.

5 Moderately Severe Has threatened, slammed about or thrown things.

6 Severe Has assaulted others but with no harm likely, e.g., slapped or pushed, OR destroyed property, e.g., knocked over furniture, broken windows.

7 Extremely Severe Has attacked others with definite possibility of harming them or with actual harm, e.g., assault with hammer or weapon.

"How have you been getting along with people (family, co-workers, etc.)?"

"Have you been irritable or grumpy lately? (How do you show it? Do you keep it to yourself?)"

"Were you ever so irritable that you would shout at people or start fights or arguments? (Have you found yourself yelling at people you didn't know?)"

"Have you hit anyone recently?"

7. Elevated Mood

A pervasive, sustained and exaggerated feeling of well-being, cheerfulness, euphoria (implying a pathological mood), optimism that is out of proportion to the circumstances. Do not infer elation from increased activity or from grandiose statements alone.

2 Very mild Seems to be very happy, cheerful without much reason.
3 Mild  Some unaccountable feelings of well-being that persist.

4 Moderate  Reports excessive or unrealistic feelings of well-being, cheerfulness, confidence or optimism inappropriate to circumstances, some of the time. May frequently joke, smile, be giddy, or overly enthusiastic OR few instances of marked elevated mood with euphoria.

5 Moderately Severe Reports excessive or unrealistic feelings of well-being, confidence or optimism inappropriate to circumstances, much of the time. May describe feeling ‘on top of the world’, ‘like everything is falling into place’, or ‘better than ever before’, OR several instances of marked elevated mood with euphoria.

6 Severe  Reports many instances of marked elevated mood with euphoria OR mood definitely elevated almost constantly throughout interview and inappropriate to content.

7 Extremely Severe Individual reports being elated or appears almost intoxicated, laughing, joking, giggling, constantly euphoric, feeling invulnerable, all inappropriate to immediate circumstances.

"Have you felt so good or high that other people thought that you were not your normal self?" "Have you been feeling cheerful and ‘on top of the world’ without any reason?"

[If individual reports elevated mood/euphoria, ask the following]:

"Did it seem like more than just feeling good?"

"How long did that last?"

8. Grandiosity

Exaggerated self-opinion, self-enhancing conviction of special abilities or powers or identity as someone rich or famous. Rate only individual's statements about himself, not his/her demeanour. Note: if the individual rates 6 or 7 due to grandiose delusions, you must rate Unusual Thought Content at least 4 or above.

2 Very mild  Feels great and denies obvious problems, but not unrealistic.

3 Mild  Exaggerated self-opinion beyond abilities and training.

4 Moderate Inappropriate boastfulness, e.g., claims to be brilliant, insightful or gifted beyond realistic proportions, but rarely self-discloses or acts on these inflated selfconcepts. Does not claim that grandiose accomplishments have actually occurred.

5 Moderately Severe Same as 4 but often self-discloses and acts on these grandiose ideas. May have doubts about the reality of the grandiose ideas. Not delusional.

6 Severe Delusional - claims to have special powers like ESP, to have millions of
dollars, invented new machines, worked at jobs when it is known that he/she was never employed in these capacities, be Jesus Christ, or the Prime Minister. Individual may not be very preoccupied.

7 Extremely Severe Delusional - same as 6 but individual seems very preoccupied and tends to disclose or act on grandiose delusions.

"Is there anything special about you? Do you have any special abilities or powers? Have you thought that you might be somebody rich or famous?"

[If the individual reports any grandiose ideas/delusions, ask the following]:

"How often have you been thinking about [use individuals description]? Have you told anyone about what you have been thinking? Have you acted on any of these ideas?"

9. Suspiciousness

Expressed or apparent belief that other persons have acted maliciously or with discriminatory intent. Include persecution by supernatural or other non-human agencies (e.g., the devil). Note: ratings of 3 or above should also be rated under Unusual Thought Content.

2 Very mild Seems on guard. Reluctant to respond to some `personal' questions. Reports being overly self-conscious in public.

3 Mild Describes incidents in which others have harmed or wanted to harm him/her that sound plausible. Individual feels as if others are watching, laughing or criticising him/her in public, but this occurs only occasionally or rarely. Little or no preoccupation.

4 Moderate Says other persons are talking about him/her maliciously, have negative intentions or may harm him/her. Beyond the likelihood of plausibility, but not delusional. Incidents of suspected persecution occur occasionally (less than once per week) with some preoccupation.

5 Moderately Severe Same as 4, but incidents occur frequently, such as more than once per week. Individual is moderately preoccupied with ideas of persecution or individual reports persecutory delusions expressed with much doubt (e.g., partial delusion).

6 Severe Delusional - speaks of Mafia plots, the FBI or others poisoning his/her food, persecution by supernatural forces.

7 Extremely Severe Same as 6, but the beliefs are bizarre or more preoccupying. Individual tends to disclose or act on persecutory delusions.

"Do you ever feel uncomfortable in public? Does it seem as though others are watching you? Are you concerned about anyone's intentions toward you? Is anyone going out of their way to give you a hard time, or trying to hurt you? Do you feel in any danger?"
[If individual reports any persecutory ideas/delusions, ask the following]:

"How often have you been concerned that [use individual's description]? Have you told anyone about these experiences?"

10. Hallucinations

Reports of perceptual experiences in the absence of relevant external stimuli. When rating degree to which functioning is disrupted by hallucinations, include preoccupation with the content and experience of the hallucinations, as well as functioning disrupted by acting out on the hallucinatory content (e.g., engaging in deviant behaviour due to command hallucinations). Include thoughts aloud (‘gedenkenlautwerden’) or pseudohallucinations (e.g., hears a voice inside head) if a voice quality is present.

2 Very mild While resting or going to sleep, sees visions, smells odours or hears voices, sounds, or whispers in the absence of external stimulation, but no impairment in functioning.

3 Mild While in a clear state of consciousness, hears a voice calling the individual's name, experiences non-verbal auditory hallucinations (e.g., sounds or whispers), formless visual hallucinations or has sensory experiences in the presence of a modality-relevant stimulus (e.g., visual illusions) infrequently (e.g., 1-2 times per week) and with no functional impairment.

4 Moderate Occasional verbal, visual, gustatory, olfactory or tactile hallucinations with no functional impairment OR non-verbal auditory hallucinations/visual illusions more than infrequently or with impairment.

5 Moderately Severe Experiences daily hallucinations OR some areas of functioning are disrupted by hallucinations.

6 Severe Experiences verbal or visual hallucinations several times a day OR many areas of functioning are disrupted by these hallucinations.

7 Extremely Severe Persistent verbal or visual hallucinations throughout the day OR most areas of functioning are disrupted by these hallucinations.

"Do you ever seem to hear your name being called?"

"Have you heard any sounds or people talking to you or about you when there has been nobody around?"

[If hears voices]:

"What does the voice/voices say? Did it have a voice quality?"

"Do you ever have visions or see things that others do not see? What about smell odours that others do not smell?"

[If the individual reports hallucinations, ask the following]:
"Have these experiences interfered with your ability to perform your usual activities/work? How do you explain them? How often do they occur?"

11. Unusual thought content

Unusual, odd, strange, or bizarre thought content. Rate the degree of unusualness, not the degree of disorganisation of speech. Delusions are patently absurd, clearly false or bizarre ideas that are expressed with full conviction. Consider the individual to have full conviction if he/she has acted as though the delusional belief was true. Ideas of reference/persecution can be differentiated from delusions in that ideas are expressed with much doubt and contain more elements of reality. Include thought insertion, withdrawal and broadcast. Include grandiose, somatic and persecutory delusions even if rated elsewhere. Note: if Somatic Concern, Guilt, Suspiciousness or Grandiosity are rated 6 or 7 due to delusions, then Unusual Thought Content must be rated 4 or above.

2 Very mild Ideas of reference (people may stare or may laugh at him), ideas of persecution (people may mistreat him). Unusual beliefs in psychic powers, spirits, UFOs, or unrealistic beliefs in one's own abilities. Not strongly held. Some doubt.

3 Mild Same as 2, but degree of reality distortion is more severe as indicated by highly unusual ideas or greater conviction. Content may be typical of delusions (even bizarre), but without full conviction. The delusion does not seem to have fully formed, but is considered as one possible explanation for an unusual experience.

4 Moderate Delusion present but no preoccupation or functional impairment. May be an encapsulated delusion or a firmly endorsed absurd belief about past delusional circumstances.

5 Moderately Severe Full delusion(s) present with some preoccupation OR some areas of functioning disrupted by delusional thinking.

6 Severe Full delusion(s) present with much preoccupation OR many areas of functioning are disrupted by delusional thinking.

7 Extremely Severe Full delusion(s) present with almost total preoccupation OR most areas of functioning disrupted by delusional thinking.

"Have you been receiving any special messages from people or from the way things are arranged around you? Have you seen any references to yourself on TV or in the newspapers?"

"Can anyone read your mind?"

"Do you have a special relationship with God?"

"Is anything like electricity, X-rays, or radio waves affecting you?"

"Are thoughts put into your head that are not your own?"

"Have you felt that you were under the control of another person or force?"
[If individual reports any odd ideas/delusions, ask the following]:

"How often do you think about [use individual's description]?"

"Have you told anyone about these experiences? How do you explain the things that have been happening [specify]?"

*Rate items 12-13 on the basis of individual's self-report and observed behaviour.*

### 12. Bizarre behaviour

Reports of behaviours which are odd, unusual, or psychotically criminal. Not limited to interview period. Include inappropriate sexual behaviour and inappropriate affect.

- **2 Very mild** Slightly odd or eccentric public behaviour, e.g., occasionally giggles to self, fails to make appropriate eye contact, that does not seem to attract the attention of others OR unusual behaviour conducted in private, e.g., innocuous rituals, that would not attract the attention of others.

- **3 Mild** Noticeably peculiar public behaviour, e.g., inappropriately loud talking, makes inappropriate eye contact, OR private behaviour that occasionally, but not always, attracts the attention of others, e.g., hoards food, conducts unusual rituals, wears gloves indoors.

- **4 Moderate** Clearly bizarre behaviour that attracts or would attract (if done privately) the attention of others or the authorities, e.g., fixated staring into space for several minutes, talks back to voices once, inappropriate giggling/laughter on 1-2 occasions, talking loudly to self.

- **5 Moderately Severe** Clearly bizarre behaviour that attracts or would attract (if done privately) the attention of others or the authorities, e.g., fixated staring in a socially disruptive way, frequent inappropriate giggling/laughter, occasionally responds to voices, or eats non-foods.

- **6 Severe** Bizarre behaviour that attracts attention of others and intervention by authorities, e.g., directing traffic, public nudity, staring into space for long periods, carrying on a conversation with hallucinations, frequent inappropriate giggling/laughter.

- **7 Extremely Severe** Serious crimes committed in a bizarre way that attract the attention of others and the control of authorities, e.g., sets fires and stares at flames OR almost constant bizarre behaviour, e.g., inappropriate giggling/laughter, responds only to hallucinations and cannot be engaged in interaction.

"Have you done anything that has attracted the attention of others?"

"Have you done anything that could have gotten you into trouble with the police?"

"Have you done anything that seemed unusual or disturbing to others?"
13. Self-neglect

Hygiene, appearance, or eating behaviour below usual expectations, below socially acceptable standards or life threatening.

2 Very mild Hygiene/appearance slightly below usual community standards, e.g., shirt out of pants, buttons unbuttoned, shoe laces untied, but no social or medical consequences.

3 Mild Hygiene/appearance occasionally below usual community standards, e.g., irregular bathing, clothing is stained, hair uncombed, occasionally skips an important meal. No social or medical consequences.

4 Moderate Hygiene/appearance is noticeably below usual community standards, e.g., fails to bathe or change clothes, clothing very soiled, hair unkempt, needs prompting, noticeable by others OR irregular eating and drinking with minimal medical concerns and consequences.

5 Moderately Severe Several areas of hygiene/appearance are below usual community standards OR poor grooming draws criticism by others and requires regular prompting. Eating or hydration are irregular and poor, causing some medical problems.

6 Severe Many areas of hygiene/appearance are below usual community standards, does not always bathe or change clothes even if prompted. Poor grooming has caused social ostracism at school/residence/work, or required intervention. Eating erratic and poor, may require medical intervention.

7 Extremely Severe Most areas of hygiene/appearance/nutrition are extremely poor and easily noticed as below usual community standards OR hygiene/appearance/nutrition require urgent and immediate medical intervention.

"How has your grooming been lately? How often do you change your clothes? How often do you take showers? Has anyone (parents/staff) complained about your grooming or dress? Do you eat regular meals?"

14. Disorientation

Does not comprehend situations or communications, such as questions asked during the entire BPRS interview. Confusion regarding person, place, or time. Do not rate if incorrect responses are due to delusions.

2 Very mild Seems muddled or mildly confused 1-2 times during interview. Oriented to person, place and time.

3 Mild Occasionally muddled or mildly confused 3-4 times during interview. Minor inaccuracies in person, place, or time, e.g., date off by more than 2 days, or gives wrong division of hospital or community centre.

4 Moderate Frequently confused during interview. Minor inaccuracies in person, place, or time are noted, as in 3 above. In addition, may have difficulty
remembering general information, e.g., name of Prime Minister.

5 Moderately Severe Markedly confused during interview, or to person, place, or time. Significant inaccuracies are noted, e.g., date off by more than one week, or cannot give correct name of hospital. Has difficulty remembering personal information, e.g., where he/she was born or recognising familiar people.

6 Severe Disoriented as to person, place, or time, e.g., cannot give correct month and year. Disoriented in 2 out of 3 spheres.

7 Extremely Severe Grossly disoriented as to person, place, or time, e.g., cannot give name or age. Disoriented in all three spheres.

"May I ask you some standard questions we ask everybody?"

"How old are you? What is the date [allow 2 days]"

"What is this place called? What year were you born? Who is the Prime Minister?"

Rate items 15-24 on the basis of observed behaviour and speech.

15 Conceptual disorganisation

Degree to which speech is confused, disconnected, vague or disorganised. Rate tangentiality, circumstantiality, sudden topic shifts, incoherence, derailment, blocking, neologisms, and other speech disorders. Do not rate content of speech.

2 Very mild Peculiar use of words or rambling but speech is comprehensible.

3 Mild Speech a bit hard to understand or make sense of due to tangentiality, circumstantiality, or sudden topic shifts.

4 Moderate Speech difficult to understand due to tangentiality, circumstantiality, idiosyncratic speech, or topic shifts on many occasions OR 1-2 instances of incoherent phrases.

5 Moderately Severe Speech difficult to understand due to circumstantiality, tangentiality, neologisms, blocking or topic shifts most of the time, OR 3-5 instances of incoherent phrases.

6 Severe Speech is incomprehensible due to severe impairment most of the time. Many BPRS items cannot be rated by self-report alone.

7 Extremely Severe Speech is incomprehensible throughout interview.

16. Blunted affect

Restricted range in emotional expressiveness of face, voice, and gestures. Marked indifference or flatness even when discussing distressing topics. In the case of euphoric or dysphoric individuals, rate Blunted Affect if a flat quality is also clearly
present.

**2 Very mild** Emotional range is slightly subdued or reserved but displays appropriate facial expressions and tone of voice that are within normal limits.

**3 Mild** Emotional range overall is diminished, subdued or reserved, without many spontaneous and appropriate emotional responses. Voice tone is slightly monotonous.

**4 Moderate** Emotional range is noticeably diminished, individual doesn't show emotion, smile or react to distressing topics except infrequently. Voice tone is monotonous or there is noticeable decrease in spontaneous movements. Displays of emotion or gestures are usually followed by a return to flattened affect.

**5 Moderately Severe** Emotional range very diminished, individual doesn't show emotion, smile, or react to distressing topics except minimally, few gestures, facial expression does not change very often. Voice tone is monotonous much of the time.

**6 Severe** Very little emotional range or expression. Mechanical in speech and gestures most of the time. Unchanging facial expression. Voice tone is monotonous most of the time.

**7 Extremely Severe** Virtually no emotional range or expressiveness, stiff movements. Voice tone is monotonous all of the time.

Use the following probes at end of interview to assess emotional responsivity:

"Have you heard any good jokes lately? Would you like to hear a joke?"

**17. Emotional withdrawal**

Deficiency in individual's ability to relate emotionally during interview situation. Use your own feeling as to the presence of an `invisible barrier' between individual and interviewer. Include withdrawal apparently due to psychotic processes.

**2 Very mild** Lack of emotional involvement shown by occasional failure to make reciprocal comments, appearing preoccupied, or smiling in a stilted manner, but spontaneously engages the interviewer most of the time.

**3 Mild** Lack of emotional involvement shown by noticeable failure to make reciprocal comments, appearing preoccupied, or lacking in warmth, but responds to interviewer when approached.

**4 Moderate** Emotional contact not present much of the interview because individual does not elaborate responses, fails to make eye contact, doesn't seem to care if interviewer is listening, or may be preoccupied with psychotic material.

**5 Moderately Severe** Same as 4 but emotional contact not present most of the interview.
6 Severe Actively avoids emotional participation. Frequently unresponsive or responds with yes/no answers (not solely due to persecutory delusions). Responds with only minimal affect.

7 Extremely Severe Consistently avoids emotional participation. Unresponsive or responds with yes/no answers (not solely due to persecutory delusions). May leave during interview or just not respond at all.

18. Motor retardation

Reduction in energy level evidenced by slowed movements and speech, reduced body tone, decreased number of spontaneous body movements. Rate on the basis of observed behaviour of the individual only. Do not rate on the basis of individual's subjective impression of his own energy level. Rate regardless of medication effects.

2 Very mild Slightly slowed or reduced movements or speech compared to most people.

3 Mild Noticeably slowed or reduced movements or speech compared to most people.

4 Moderate Large reduction or slowness in movements or speech.

5 Moderately Severe Seldom moves or speaks spontaneously OR very mechanical or stiff movements.

6 Severe Does not move or speak unless prodded or urged.

7 Extremely Severe Frozen, catatonic.

19. Tension

Observable physical and motor manifestations of tension, `nervousness' and agitation. Self-reported experiences of tension should be rated under the item on anxiety. Do not rate if restlessness is solely akathisia, but do rate if akathisia is exacerbated by tension.

2 Very mild More fidgety than most but within normal range. A few transient signs of tension, e.g., picking at fingernails, foot wagging, scratching scalp several times or finger tapping.

3 Mild Same as 2, but with more frequent or exaggerated signs of tension.

4 Moderate Many and frequent signs of motor tension with one or more signs sometimes occurring simultaneously, e.g., wagging one's foot while wringing hands together. There are times when no signs of tension are present.

5 Moderately Severe Many and frequent signs of motor tension with one or more signs often occurring simultaneously. There are still rare times when no signs of
tension are present.

6 Severe Same as 5, but signs of tension are continuous.

7 Extremely Severe Multiple motor manifestations of tension are continuously present, e.g., continuous pacing and hand wringing.

20. Unco-operativeness

Resistance and lack of willingness to co-operate with the interview. The uncooperativeness might result from suspiciousness. Rate only unco-operativeness in relation to the interview, not behaviours involving peers and relatives.

2 Very mild Shows non-verbal signs of reluctance, but does not complain or argue.

3 Mild Gripes or tries to avoid complying, but goes ahead without argument.

4 Moderate Verbally resists but eventually complies after questions are rephrased or repeated.

5 Moderately Severe Same as 4, but some information necessary for accurate ratings is withheld.

6 Severe Refuses to co-operate with interview, but remains in interview situation.

7 Extremely Severe Same as 6, with active efforts to escape the interview

21. Excitement

Heightened emotional tone or increased emotional reactivity to interviewer or topics being discussed, as evidenced by increased intensity of facial expressions, voice tone, expressive gestures or increase in speech quantity and speed.

2 Very mild Subtle and fleeting or questionable increase in emotional intensity. For example, at times seems keyed-up or overly alert.

3 Mild Subtle but persistent increase in emotional intensity. For example, lively use of gestures and variation in voice tone.

4 Moderate Definite but occasional increase in emotional intensity. For example, reacts to interviewer or topics that are discussed with noticeable emotional intensity. Some pressured speech.

5 Moderately Severe Definite and persistent increase in emotional intensity. For example, reacts to many stimuli, whether relevant or not, with considerable emotional intensity. Frequent pressured speech.

6 Severe Marked increase in emotional intensity. For example, reacts to most stimuli with inappropriate emotional intensity. Has difficulty settling down or staying on task. Often restless, impulsive, or speech is often pressured.
7 Extremely Severe Marked and persistent increase in emotional intensity. Reacts to all stimuli with inappropriate intensity, impulsiveness. Cannot settle down or stay on task. Very restless and impulsive most of the time. Constant pressured speech.

22. Distractibility

Degree to which observed sequences of speech and actions are interrupted by stimuli unrelated to the interview. Distractibility is rated when the individual shows a change in the focus of attention as characterised by a pause in speech or a marked shift in gaze. Individual's attention may be drawn to noise in adjoining room, books on a shelf, interviewer's clothing, etc. Do not rate circumstantiality, tangentiality or flight of ideas. Also, do not rate rumination with delusional material. Rate even if the distracting stimulus cannot be identified.

2 Very mild Generally can focus on interviewer's questions with only 1 distraction or inappropriate shift of attention of brief duration.

3 Mild Individual shifts focus of attention to matters unrelated to the interview 2-3 times.

4 Moderate Often responsive to irrelevant stimuli in the room, e.g., averts gaze from the interviewer.

5 Moderately Severe Same as above, but now distractibility clearly interferes with the flow of the interview.

6 Severe Extremely difficult to conduct interview or pursue a topic due to preoccupation with irrelevant stimuli.

7 Extremely Severe Impossible to conduct interview due to preoccupation with irrelevant stimuli.

23. Motor hyperactivity

Increase in energy level evidenced in more frequent movement and/or rapid speech. Do not rate if restlessness is due to akathisia.

2 Very mild Some restlessness, difficulty sitting still, lively facial expressions, or somewhat talkative

3 Mild Occasionally very restless, definite increase in motor activity, lively gestures, 1-3 brief instances of pressured speech.

4 Moderate Very restless, fidgety, excessive facial expressions, or non-productive and repetitious motor movements. Much pressured speech, up to one-third of the interview.

5 Moderately Severe Frequently restless, fidgety. Many instances of excessive nonproductive and repetitious motor movements. On the move most of the time. Frequent pressured speech, difficult to interrupt. Rises on 1-2 occasions to pace.
6 Severe Excessive motor activity, restlessness, fidgety, loud tapping, noisy, etc., throughout most of the interview. Speech can only be interrupted with much effort. Rises on 3-4 occasions to pace.

7 Extremely Severe Constant excessive motor activity throughout entire interview, e.g., constant pacing, constant pressured speech with no pauses, individual can only be interrupted briefly and only small amounts of relevant information can be obtained.

24. Mannerisms and posturing

Unusual and bizarre behaviour, stylised movements or acts, or any postures which are clearly uncomfortable or inappropriate. Exclude obvious manifestations of medication side effects. Do not include nervous mannerisms that are not odd or unusual.

2 Very mild Eccentric or odd mannerisms or activity that ordinary persons would have difficulty explaining, e.g., grimacing, picking. Observed once for a brief period.

3 Mild Same as 2, but occurring on two occasions of brief duration.

4 Moderate Mannerisms or posturing, e.g., stylised movements or acts, rocking, nodding, rubbing, or grimacing, observed on several occasions for brief periods or infrequently but very odd. For example, uncomfortable posture maintained for 5 seconds more than twice.

5 Moderately Severe Same as 4, but occurring often, or several examples of very odd mannerisms or posturing that are idiosyncratic to the individual.

6 Severe Frequent stereotyped behaviour, assumes and maintains uncomfortable or inappropriate postures, intense rocking, smearing, strange rituals or foetal posturing. Individual can interact with people and the environment for brief periods despite these behaviours.

7 Extremely Severe Same as 6, but individual cannot interact with people or the environment due to these behaviours.
**APPENDIX XIII: RESILIENCE APPRAISALS SCALE (USED IN CHAPTER 6)**

Please read each item and consider the extent to which you agree with it. Please circle on the scale next to it which best reflects your response.

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If I were to have problems, I have people I could turn to</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>2. My family or friends are very supportive of me</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>3. In difficult situations, I can manage my emotions</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>4. I can put up with my negative emotions</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>5. When faced with a problem I can usually find a solution</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>6. If I were in trouble, I know of others who would be able to help me</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>7. I can generally solve problems that occur</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>8. I can control my emotions</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>9. I can usually find a way of overcoming problems</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>10. I could find family or friends who would listen to me if I needed them to</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>11. If faced with a set-back, I could probably find a way round the problem</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>12. I can handle my emotions</td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>