A Psychological Exploration of
Night Eating Syndrome

A thesis submitted to the University of Manchester for the degree of Doctor of Clinical Psychology (ClinPsyD) in the Faculty of Biology, Medicine and Health of the University of Manchester

2016

JAMES ANDREW SHILLITO

Division of Psychology and Mental Health
School of Health Sciences
# Table of Contents

List of Tables .......................................................................................................................... 6

List of Figures .......................................................................................................................... 6

Thesis abstract ......................................................................................................................... 7

Declaration ............................................................................................................................... 8

Copyright statement ............................................................................................................... 9

**PAPER 1. The Systematic Review**

Abstract .................................................................................................................................. 11

Introduction ............................................................................................................................. 12

Methods .................................................................................................................................. 15

Search strategy ......................................................................................................................... 15

Selection criteria ....................................................................................................................... 16

Definition of psychological mechanism .................................................................................. 16

Quality assessment .................................................................................................................. 16

Synthesis .................................................................................................................................. 17

Results .................................................................................................................................... 19

Overview of selected studies ................................................................................................. 19

Measurement of identified psychological mechanisms ......................................................... 19

Psychological mechanisms ..................................................................................................... 33

1. Cognitions .......................................................................................................................... 33

2. Attention ........................................................................................................................... 37

3. Restrictive eating ............................................................................................................... 37

4. Eating in response to internal states ............................................................................... 39

5. Low self-esteem ............................................................................................................... 43

Discussion ............................................................................................................................... 44

Conclusions ............................................................................................................................. 50

References ............................................................................................................................... 51
APPENDICES

Appendix 1: Contributor guidelines for Appetite .......................................................... 106
Appendix 2: PRISMA checklist .......................................................................................... 119
Appendix 3: The Mixed Methods Appraisal Tool (MMAT) ................................................. 121
Appendix 4: Quality assessment table .............................................................................. 127
Appendix 5: Inter-rater reliability rating ........................................................................... 130
Appendix 6: Summary of narrative synthesis guidance (Popay et al, 2006) ...................... 131
Appendix 8: National Regional Ethics Service Approval Letter ...................................... 133
Appendix 9: Night Eating Diagnostic Questionnaire (NEDQ) ......................................... 137
Appendix 10: Depression, Anxiety and Stress Scale (DASS-21) ...................................... 140
Appendix 11: Invitation to participate sheet ..................................................................... 142
Appendix 12: Participant information sheet ...................................................................... 143
Appendix 13: Questionnaire consent form ........................................................................ 147
Appendix 14: Contact consent form ................................................................................ 148
Appendix 15: Interview consent form ............................................................................. 149
Appendix 16: Initial interview schedule .......................................................................... 150
Appendix 17: Final interview schedule ............................................................................ 153
Appendix 18: Risk and Distress protocol ........................................................................ 157
Appendix 19: Transcript example (displaying line by line coding and memos) ............ 159
Appendix 20: Focused coding examples ......................................................................... 161
Appendix 21: Verification check example ......................................................................... 183
Appendix 22: Respondent verification sheet .................................................................... 184

Word count: 19,710
(excluding contents, abstracts, tables, figures and references)
List of Tables

*Paper 1*

Table 1: Description of included studies ................................................................. 20

Table 2: Description of specific NES measures utilised within the reviewed studies ........... 28

Table 3: Description of specific measures used for each identified psychological mechanism ...... 29

List of Figures

*Paper 1*

Figure 1: PRISMA flow diagram ................................................................................. 18

*Paper 2*

Figure 2: A conceptual model of the relationship between NES and the experience of emotion .... 84
Thesis abstract

A Psychological Exploration of Night Eating Syndrome

James Andrew Shillito

Doctorate in Clinical Psychology (ClinPsyD) The University of Manchester

July 2016

This thesis has been prepared in a paper based format and comprises of three stand-alone papers. Paper 1, a systematic review; Paper 2, an empirical study; and Paper 3, a critical appraisal and reflection of the work.

Paper 1 has been prepared for submission to Appetite. The paper presents a systematic literature review of studies measuring or reporting potential psychological mechanisms within Night Eating Syndrome (NES). Databases were systematically searched and 20 studies were included in the review. The quality of evidence was mixed and NES was identified and diagnosed in a variety of ways. Studies utilised a variety of different instruments to identify thirteen psychological mechanisms. Syntheses of the studies suggest that there are distinct overlapping features within these mechanisms and five overarching themes were identified to accommodate these overlapping features. Suggestions are made relating to the potential function of the identified psychological mechanisms within NES.

Paper 2 has been prepared for submission to Appetite. The paper is a qualitative study exploring the relationship between NES and the experience of emotion specifically from the perspective of patients identified as obese. Ten participants were interviewed and a constructivist grounded theory approach was used to analyse transcripts. A key category to emerge from the analysis was termed ‘Emotional Hunger’; reflecting an urge or need to satiate a set of underlying unmet emotional needs. ‘Emotional hunger’ was underpinned by the following six interrelated themes: (1) The development of a relationship with food; (2) Loss; (3) The significance of night time; (4) A separation of the body and mind; (5) Why I eat, not what I eat; and (6) Consequences of night eating. The clinical implications of the findings are discussed with reference to existing literature.

Paper 3 is not intended for publication. The paper provides a critical review of the research process, in which the strengths and weaknesses of the systematic review and empirical study are discussed. Personal and professional reflections on the experience of conducting a systematic review and an empirical study are explored. The clinical implications of the research are also discussed.
Declaration

No portion of the work referred to in the 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 any copyright in it (the “Copyright”) and s/he has given The University of Manchester the right to use such Copyright for any administrative, promotional, educational and/or teaching purposes.

II. Copies of this thesis, either in full or in extracts, may be made only in accordance with the regulations of the John Rylands University Library of Manchester. Details of these regulations may be obtained from the Librarian. This page must form part of any such copies made.

III. The ownership of any patents, designs, trademarks and any and all other intellectual property rights except for the Copyright (the “Intellectual Property Rights”) and any reproductions of copyright works, 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 Rights 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 Rights and/or Reproductions.

IV. Further information on the conditions under which disclosure, publication and commercialisation of this thesis, the Copyright and any Intellectual Property University IP Policy (see http://documents.manchester.ac.uk/display.aspx?DocID=24420), in any relevant Thesis restriction declarations deposited in the University Library, The University Library’s regulations (see http://www.library.manchester.ac.uk/about/regulations/) and in The University’s policy on Presentation of Theses
A Systematic Review of the Psychological Mechanisms within Night Eating Syndrome.

Paper 1 has been prepared for submission to Appetite in accordance with the journal guidelines for contributors (Appendix 1)

Word count (excluding abstract, tables, figures, and references): 8,637

Abstract word count: 214
Abstract

Night Eating Syndrome (NES) is a unique combination of an eating disorder, a sleep disorder and a mood disorder with patients with NES consistently shown to be more likely to meet lifetime criteria for major depression and anxiety disorders. Treatment studies of NES, including CBT, are still in their early stages and it is recognised that a greater understanding of NES is needed to develop effective treatments. One notable area has been the need to increase our knowledge and understanding of the psychological mechanisms within NES. The aim of this review is therefore to increase our understanding of the psychological mechanisms within NES. A systematic literature search of databases and citation searching identified 20 studies measuring or reporting potential psychological mechanism within NES. The quality of evidence was mixed and NES was identified and diagnosed in a variety of ways. Reviewed studies utilised a variety of different instruments to identify thirteen psychological mechanisms. Syntheses of the studies suggest that there are distinct overlapping features within these mechanisms and five overarching themes were identified to accommodate these overlapping features. Within this review, tentative suggestions are made relating to the potential function of the identified psychological mechanisms within NES. The limitations of the current evidence base are outlined and priorities for future research are discussed.

Keywords

Night Eating Syndrome; Mechanisms; Psychology; Systematic review; Eating disorders
Introduction

Night Eating Syndrome (NES) was first recognised by Stunkard, Grace and Wolff (1955) and was described as a unique combination of an eating disorder, a sleep disorder and a mood disorder, characterised by morning anorexia, evening hyperphagia and insomnia. Subsequently, diagnostic criterion for NES has varied and evolved (de Zwaan, Marchollek, & Allison, 2015) leading to lack of a standardised definition and a potential lack of recognition amongst medical professionals (Kucukgoncu, Midura, & Tek, 2015). However, considerable progress was made in 2010 following the development of the first consensus driven diagnostic criteria for NES (Allison et al, 2010) consisting of: evening hyperphagia (consumption of at least 25% of daily caloric intake after the evening meal and/or two evening awakenings per week); an awareness and recall of evening and nocturnal eating episodes and an association with significant distress or impairment in functioning. Furthermore, it is stipulated that the pattern of eating is present for at least three months and the disorder is not better explained by Binge Eating Disorder (BED), substance abuse or dependence, medical disorder, medications, or another psychiatric disorder. These diagnostic criteria for NES have now been published within the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) under Feeding or Eating Disorders Not Elsewhere Classified (OSFED) (American Psychiatric Association, 2013).

NES has been found to affect both men and women (Streigel-Moore, Franko, Thompson, Affentio & Kraemer, 2006) and occurs approximately in 1% to 2% of the general population (Rand, Macgregor, & Stunkard, 1997). The age onset of NES has been identified to occur typically in early adulthood (from late teenage years to late twenties), with NES rarely identified and reported within childhood (Lundgren et al, 2012). NES has been identified as occurring more frequently in overweight or obese populations, with the prevalence described to be between 6% and 16%, with higher estimates among weight loss treatment seeking populations (de Zwaan et al, 2015). Within other populations, NES has been found to occur in 3.8% to 12.4% in a diabetes mellitus population (Allison et al, 2008; Schwandt, de Zwaan, & Jager, 2012) and 12% to 22% in an outpatient psychiatric population (Lundgren et al, 2006; Kucukgoncu, Tek, Bestepe, Musket, & Guloksuz, 2014; Saracli et al, 2015).
Within eating disorders, the prevalence of NES has been found to range from 15% to 44% of patients with Binge Eating Disorder (BED) and in 9% to 47% of patients with Bulimia Nervosa (BN). It has been noted that NES and BED may share the common feature of evening hyperphagia, just as BED and BN share the feature of objective binge eating episodes, however, sharing a behaviour does not necessarily mean that two disorders share a common aetiology (Allison et al, 2010). Progress has been made in recognising NES as a distinct entity in its own right and a number of studies have clearly differentiated NES from BED on a number of behaviours including, the limited energy intake of nocturnal ingestions in NES and the characteristic circadian delay in food intake identified in NES and not BED (Stunkard, Allison, Lundgren, & O’Reardon, 2009). However, further understanding of the similarities and differences between NES and eating disorders is needed (Kucukgoncu et al, 2015).

NES has also been linked with psychiatric comorbidity in several studies (Stunkard et al, 2009) with patients with NES consistently shown to be more likely to meet lifetime criteria for major depression and anxiety disorders (Faulconbridge & Bechtel, 2014). In light of these associations and based on their clinical experiences, Allison, Stunkard & Thier (2004) developed a three stage cognitive behavioural self-help book for NES based in part on Cognitive Behavioural Therapy (CBT) for BED (Fairburn & Wilson, 1993). The focus of this intervention is mainly based around the monitoring of sleeping, eating, mood and the identification and challenging of automatic thoughts associated with these events and self-worth. Furthermore, behavioural interventions are also emphasised, with the aim of decreasing the occurrence of evening and night-time ingestions. Allison et al (2010) conducted the first and only, to date, clinician-delivered uncontrolled trial of CBT, consisting of ten sessions. Due to high attrition rates, just fourteen patients from an initial 67 attended eight of the ten sessions. Results suggested some favourable improvements, with a reduction in nocturnal ingestions. However, the lack of a control group and low sample size mean further studies are required. Furthermore, there is the recognition that the psychological mechanisms underlying NES targeted by approaches such as CBT require further exploration (Vander Wal, 2012).

With reference to the CBT literature, most disorder specific CBT interventions are based upon models that specify the mechanisms and maintenance processes specifically related to the disorder and clearly identify the therapeutic targets such as specific cognitions or behaviours that are to be modified (Harvey et al, 2004; Mansell, Harvey, Watkins, & Shafran, 2009). With reference
to NES, the specific mechanisms and maintenance processes inherent within the disorder appear to be unclear at the present time (Vander Wal, 2012). As an alternative to a disorder specific CBT model, a number of researchers have proposed a transdiagnostic approach, hypothesising that there are a number of psychological mechanisms shared across psychological disorders (Mansell et al, 2009). The term psychological mechanism has been defined by Harvey et al (2004) as cognitive processes in the domains of attention, memory/imagery, thinking and reasoning and behavioural processes (overt or covert) that may contribute to the maintenance of a disorder. With specific reference to eating disorders, Fairburn, Cooper and Shafran (2003) proposed a transdiagnostic cognitive model of eating disorders which suggests that a network of inter-relating mechanisms account for the persistence of AN, BN and atypical eating disorders, and central to these disorders lies a cognitive disturbance characterised by the over evaluation of eating, shape and weight. Four additional maintaining mechanisms are also proposed: perfectionism, core low self-esteem, mood intolerance and interpersonal difficulties. Although there is evidence to suggest the presence of these aforementioned mechanisms contributing to the persistence of AN, BN and atypical eating disorders (Fairburn et al, 2003), evidence to suggest that these processes are applicable to NES is uncertain.

A greater understanding of NES is needed to develop effective psychological treatments (Vander Wal, 2012). The lack of knowledge and understanding of the underlying psychological mechanisms within NES may therefore have important clinical implications. To increase our understanding of the underlying psychological mechanisms within NES and in order to potentially highlight fruitful areas for further research, this paper will systematically review studies that have investigated or provided data related to potential underlying psychological mechanisms within NES. To meet this aim, a primary research question accompanied by a secondary research question was developed:

Primary question:

- What are the underlying psychological mechanisms within NES?

Secondary question:

- How are the potential psychological mechanisms measured?
Methods

Search strategy

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement guidelines (Moher, Liberati, Tetzlaff & Altman, 2009: Appendix 2) guided the systematic search strategy. A search of electronic databases (psychINFO, EMBASE, Medline, AMED, CINAHL and Web of Science), citation lists and specific ‘hand searching’ of reference lists was conducted in February 2016. Given the paucity of research exploring NES, a broad systematic literature search was completed. Search terms were entered using the Boolean operator “OR”. The following search terms were used:

- “night eating*” or “nocturnal eating” or “late night eating” or “evening eating” or “NE behavio*r” or “NES” in the title, keywords, or abstract.

A number of exclusion search terms were also entered into the search. These included:

- “neurological evaluation scale” or “nonepileptic*” or “nuclear export*” or “non excitory electrical signal”.

No publication date limit was set due to the lack of research exploring NES. Verification of the retrieval process was conducted by two secondary authors who checked 10% of all references against the inclusion criteria. Studies were identified as ‘Include’ or ‘Exclude’. ‘Include’ referred to the inclusion of the paper for full text access. Following verification checks, consensus agreement between the three authors was 97%. The study selection process is illustrated in figure 1 using the PRISMA flow diagram (Moher et al, 2009) with reasons for exclusion. The PRISMA checklist was used to ensure the appropriateness and transparency of reporting in this review. The search produced 1498 articles for possible inclusion. A review of the titles and abstracts of these articles was undertaken. In total, 1433 articles were excluded from the review as they did not meet inclusion criteria. The majority were excluded as they were not related to NES. The full texts of 65 articles were obtained and reviewed and a further 45 were excluded. A final sample of 20 articles met the inclusion criteria.
Selection criteria

- Inclusion
  - Adults (aged 18+). An adult population was selected due to the typical age of NES onset occurring in early adulthood years (Vander Wal, 2012).
  - A diagnosis of NES. (All methods of diagnosis of NES were included as no one method or tool is used to diagnose NES due to differing criteria since 1955).
  - Studies measuring or reporting a potential psychological mechanism. This included an objective measurement or subjective outcomes/views.
  - Quantitative, qualitative and mixed methods design.

- Exclusion
  - Studies in languages other than English.
  - Book chapters and dissertations

Definition of psychological mechanism
The term psychological mechanism refers to any cognitive process in the domains of attention, memory/imagery, thinking and reasoning. In addition, a psychological mechanism will also refer to behavioural processes that may contribute to the maintenance of a disorder (Harvey et al, 2004).

Quality assessment
The Mixed Methods Appraisal Tool (MMAT, Pluye et al, 2011) was used to describe and appraise all included studies for methodological quality (Appendix 3). The MMAT was designed for the appraisal stage of complex systematic literature reviews that include qualitative, quantitative and mixed methods studies. The validity and reliability of the MMAT has been verified, with inter-rater reliability scores ranging from moderately reproducible to perfect agreement (Pace et al, 2012).

There are two screening questions and four criteria for appraising quantitative and qualitative studies. For a mixed methods study, both the appropriate sections for the quantitative component and the qualitative component are used. Scores vary from 0% (no criteria met) to 100% (all criteria met). Based on their quality, studies were identified according to a percentage score. These included: 0% (no criteria met) 25% (one criteria met), 50% (two criteria met) 75% (three criteria met) and 100% (four criteria met; Appendix 4). The MMAT ratings were used during data synthesis to evaluate the strength of the evidence presented. To verify the reliability of the ratings, a sample
of studies were re-rated by a post-graduate level researcher. An inter-rater reliability analysis using the Kappa statistic was performed. The interrater reliability between the two coders was found to be Kappa = 0.840 ($p<0.0001$), 95% CI (0.708, 0.971). This represented an almost perfect agreement between the two coders (Appendix 5). All studies, regardless of quality rating, were retained for review.

**Synthesis**

A narrative data synthesis approach was adopted which adapted the framework discussed in Popay et al (2006: Appendix 6). Data was extracted into tables in order to provide an insight into what is known on the topic, to highlight gaps in the current literature and to provide a commentary on the quality of existing studies.
Records identified through database searching \((N = 1497)\)

Additional records identified through reference lists \((N = 1)\)

Records screened from titles and abstracts \((N = 1498)\)

Records excluded \((N = 1433)\)
- Non English language
- Non NES
- Non Psychological Mechanism
- Non adult population

Full-text articles assessed for eligibility \((N = 65)\)

Full-text articles excluded \((N = 45)\)
- Non Psychological Mechanism \((N=36)\)
- Reviews \((N=4)\)
- No diagnosis of NES \((N=5)\)

Studies included \((N = 20)\)

*Figure 1: PRISMA flow diagram*
Results

Overview of selected studies

A summary of the 20 studies included in the current review is presented in alphabetical order in Table 1. Studies were conducted across a number of different countries: the USA (N = 9), Italy (N = 4), Turkey (N = 2), Australia (N = 1), Canada (N = 1), Germany (N = 1), Switzerland (N = 1) and the UK (N = 1). Sample sizes ranged from N = 41 to N = 1636. Eighteen studies reported sex ratios. Female participants accounted for 69.3% of the sample. Only six studies provided information pertaining to participants’ ethnicity. Caucasian participants accounted for 70.2% of the sample. Studies included seven different sample populations with the majority conducted in an obese population (obese N = 9; psychiatric N = 2; diabetic N = 1; eating disorder N = 1; student N = 3; community N = 2; sleeping disorder N = 2). All but one study reviewed in this paper utilised a cross-sectional design (N = 19). One study used a mixed methods design.

NES was identified and diagnosed in a variety of ways (Table 1). These included the Night Eating Questionnaire (NEQ; N = 7) and the Night Eating Syndrome History and Inventory (NESHI; N = 1). Six studies used a combination of diagnostic methods including the NEQ in combination with NESHI (N = 4) and the Night Eating Diagnostic Questionnaire (NEDQ) in combination with the NESHI (N = 3). A description of NES measures utilised within the reviewed studies is located in Table 2. In addition, two studies used self-report surveys based on Stunkard et al (1996) criteria and four conducted clinical interviews based upon Allison et al (2010) criteria. The evolution of NES diagnostic criteria can be found in Appendix 7.

Measurement of identified psychological mechanisms

A broad range of outcome measures were used to measure factors identified as a psychological mechanisms within this review. The specific measures used for each psychological mechanism are located in Table 3. In total, twelve measures were identified.
Table 1. Description of included studies

<table>
<thead>
<tr>
<th>Study and location</th>
<th>Design</th>
<th>Measure of NES</th>
<th>Sample</th>
<th>Psychological mechanisms (&amp; measures)</th>
<th>Key findings regarding NES &amp; psychological mechanism(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allison et al (2005)</td>
<td>Quantitative Cross-sectional</td>
<td>1.Self report and sleep diaries - 1/4 &gt; calorie intake after evening meal or 3 or more awakenings to eat in a week</td>
<td>Obese population Total N = 290 Nes N = 68 (male = 21); mean age = 42.7, SD = 11.4; mean BMI(m/kg²) = 33.8, SD = 7.5; Ethnicity: White = 42, Black = 25, Latino/Hispanic = 1, Other = 0</td>
<td>1.Shape and weight concern (EDE) 2.Dietary restraint (EDE) 3. Eating concern (EDE) 4. Disinhibition (TFEQ) 5. Cognitive restraint(TFEQ)</td>
<td>NES participants reported more eating pathology (Shape &amp; Weight concern: <em>p</em> &lt; .001; Dietary restraint: <em>p</em> &lt; .01; Eating concern: <em>p</em> &lt; .001; Disinhibition: <em>p</em> &lt; .001) than matched comparison participants. Out of the three groups, BED participants reported the highest eating pathology. No significant differences reported in levels of cognitive restraint</td>
</tr>
<tr>
<td>Allison et al (2007)</td>
<td>Quantitative Cross-sectional</td>
<td>1.NEQ 2.NESHI</td>
<td>Diabetic population Total N = 845; Ethnicity: White = 569, Black = 207, Hispanic = 40, other = 29</td>
<td>Nes group N = 29 (male = NR); mean age = 56.3, SD = 6.2; mean BMI(m/kg²) = 38.6, SD = 7.6; Ethnicity = NR</td>
<td>1.Shape and weight concern (EDE-Q) 2.Dietary restraint (EDE-Q) 3. Eating concern (EDE-Q)</td>
</tr>
</tbody>
</table>

(Continued)
<table>
<thead>
<tr>
<th>Study and location</th>
<th>Design</th>
<th>Measure of NES</th>
<th>Sample</th>
<th>Psychological mechanisms (&amp; measures)</th>
<th>Key findings regarding NES &amp; psychological mechanism(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleator et al (2013) (UK)</td>
<td>Mixed methodology</td>
<td>1. NESH</td>
<td>Obese population</td>
<td>Full &amp; partial NES N = 31 (male = 14); mean age = 42.6, SD = 14.1; mean BMI(m/kg^2) = 52.5, SD = 11.7; Ethnicity = NR</td>
<td>1. Dietary restraint (No measure; NM) 2. Belief (NM) 3. Emotional eating (NM) 4. Conflictual relationships (NM)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. NEQ</td>
<td></td>
<td>Non-NES N = 50 (male = 21); mean age = 46.0, SD = 9.7; mean BMI(m/kg^2) = 48.4, SD = 9.8; Ethnicity = not reported</td>
<td></td>
</tr>
<tr>
<td>Colles et al (2007) (Australia)</td>
<td>Quantitative Cross-sectional</td>
<td>1. Self-report survey based on Stunkard et al (1996) criteria</td>
<td>Obese population</td>
<td>NES only group N = 29 (male = 11); mean age = 47.4, SD = 10.7; mean BMI(m/kg^2) = 40.2, SD = 10.4</td>
<td>1. Disinhibition (TFEQ) 2. Cognitive restraint (TFEQ)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Binge eating only group N = 33 (male = 5); mean age = 42.2, SD = 8.6; mean BMI(m/kg^2) = 43.7, SD = 8.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Binge eating + NES group N = 19 (male = 3); mean age = 42.1, SD = 7.8; mean BMI(m/kg^2) = 43.1, SD = 7.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Control group N = 29 (male = 11); mean age = 47.0, SD = 11.3; mean BMI(m/kg^2) = 39.2, SD = 9.0</td>
<td></td>
</tr>
<tr>
<td>Dalle Grave et al (2013) (Italy)</td>
<td>Quantitative Cross-sectional</td>
<td>1. NEQ</td>
<td>Obese population</td>
<td>NES group N = 18 (male = 0); mean age = 50.5, SD = 9.6; mean BMI(m/kg^2) = 39, SD = 7.3; Ethnicity = not reported</td>
<td>1. Harm avoidance (TCI)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Non-NES group N = 568 (male = 0); mean age = 47.5, SD = 9.8; mean BMI(m/kg^2) = 38.2, SD = 6.8; Ethnicity = NR</td>
<td></td>
</tr>
</tbody>
</table>

(Continued)
<table>
<thead>
<tr>
<th>Study and location</th>
<th>Design</th>
<th>Measure of NES</th>
<th>Sample</th>
<th>Psychological mechanisms (&amp; measures)</th>
<th>Key findings regarding NES &amp; psychological mechanism(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fischer et al (2014)</td>
<td>Quantitative</td>
<td>1. NEQ</td>
<td>Eating disorder population</td>
<td>1. Shape and Weight concern (EDE-Q)</td>
<td>NES participants reported more shape and weight concern than healthy controls (<em>p</em> &lt; .001). When compared with obese individuals no statistical differences were found. Trend for higher dietary restraint in NES group compared to healthy controls, although this did not reach significance.</td>
</tr>
<tr>
<td>(Switzerland)</td>
<td>Cross-sectional</td>
<td></td>
<td>Total N = 1514</td>
<td>2. Dietary restraint (EDE-Q)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NES N = 15 (male = 3); mean age = 22.0, SD = 2.4; mean BMI(m/kg^2^) = 23.98, SD = 9.68; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Healthy control N = 1392 (male = 369); mean age = 21.7, 2.3; mean BMI(m/kg^2^) = 21.68, SD = 2.65; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BED N = 41 (male = 4); mean age = 21.2, SD = 2.1; mean BMI(m/kg^2^) = 23.55, SD = 4.88; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Obese N = 34 (male = 4) mean age = 21.9, SD = 2.3; mean BMI(m/kg^2^) = 35.11, SD = 4.88; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gluck et al (2001)</td>
<td>Quantitative</td>
<td>1. NEQ</td>
<td>Obese population</td>
<td>1. Self-esteem (RSE)</td>
<td>NES group had significantly lower reports of self-esteem than the non-NES group (<em>p</em> = 0.003)</td>
</tr>
<tr>
<td>(USA)</td>
<td>Cross-sectional</td>
<td></td>
<td>Total N = 76</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NES group N = 11 (male = 3); mean age = 40.2, SD = 8.1; mean BMI(m/kg^2^) = 38.1, SD = 3.8; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Non NES obese control N = 65 (male = 20; mean age = 44.0, SD = 9.6; mean BMI(m/kg^2^) = 36.5, SD = 7.0; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kucukgoncu et al (2014)</td>
<td>Quantitative</td>
<td>1. Clinical interview based upon Allison et al (2010) criteria</td>
<td>Psychiatric population</td>
<td>1. Rumination (MOCI)</td>
<td>The NES group had significantly higher levels of rumination scores than the non-NES group (<em>p</em>&lt;0.05).</td>
</tr>
<tr>
<td>(Turkey)</td>
<td>Cross-sectional</td>
<td>2. NEQ</td>
<td>Total N = 155</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NES group N = 33 (male = 3); mean age = 35.33, SD = 9.18; mean BMI(m/kg^2^) = 28.89, SD = 6.50; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Non- NES group N = 122 (male = 27); mean age = 35.93, SD = 8.72; mean BMI(m/kg^2^) = 26.20, SD = 5.31; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Continued)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study and location</td>
<td>Design</td>
<td>Measure of NES</td>
<td>Sample</td>
<td>Psychological mechanisms (&amp; measures)</td>
<td>Key findings regarding NES &amp; psychological mechanism(s)</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------</td>
<td>---------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lundgren et al (2008) (USA)</td>
<td>Quantitative Cross-sectional</td>
<td>1. NEQ</td>
<td>Total N = 41</td>
<td>1. Shape and weight concern (EDE) 2. Dietary restraint (EDE) 3. Eating Concern (EDE) 4. Disinhibition (TFEQ) 5. Cognitive restraint (TFEQ)</td>
<td>NES group reported significantly higher eating pathology when compared to controls (Shape &amp; Weight concern: $p&lt;.001$; Dietary restraint: $p&lt;.001$; Eating concern: $p&lt;.001$; Disinhibition: $p&lt;.001$). No significant differences reported in levels of cognitive restraint.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. NESHI</td>
<td>NES group N = 19 (male = 3); mean age = 42.0, SD = 15.5; mean BMI(m/kg$^2$) = 22.5, SD = 1.7; Ethnicity: Caucasian = 18, Black = 0, Asian/Pacific Islander = 0, Latino/Hispanic = 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Food &amp; sleep records</td>
<td>Non-NES Matched control group N = 22 (male = 3); mean age = 36.5, SD = 12.1 mean BMI(m/kg$^2$) = 21.7, SD = 1.9; Ethnicity: Caucasian = 18, Black = 1, Asian/Pacific Islander = 3, Latino/Hispanic = 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meule et al (2014) (Germany)</td>
<td>Quantitative Cross-sectional</td>
<td>1.NEQ</td>
<td>Student population Total N = 729 (male = 168); mean age = 23.55, SD = 3.89; mean BMI(m/kg$^2$) = 22.59, SD = NR (underweight BMI(m/kg$^2$) &lt;18.50 N = 59; normal weight BMI(m/kg$^2$) = 18.50-24.99 N = 527; overweight BMI(m/kg$^2$) = 25.00-29.99 N = 37; obese BMI(m/kg$^2$) &gt;30.00 N = 37; Ethnicity = NR</td>
<td>1. Emotional eating (MES)</td>
<td>Regression analyses showed that night eating severity was related to more frequent binge episodes and higher BMI at high levels of emotional eating ($p&lt;.001$).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NES group N = 68 (male = 26); mean age = unknown; mean BMI(m/kg$^2$) = NR; Ethnicity: Caucasian = 52; other = unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Non-NES group N = 645 (male = 288); mean age = unknown; mean BMI(m/kg$^2$) = NR; Ethnicity: Caucasian = 357; other = NR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Study and location

<table>
<thead>
<tr>
<th>Study and location</th>
<th>Design</th>
<th>Measure of NES</th>
<th>Sample</th>
<th>Psychological mechanisms (&amp; measures)</th>
<th>Key findings regarding NES &amp; psychological mechanism(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Napolitano et al (2001) (USA)</td>
<td>Quantitative Cross-sectional</td>
<td>1. Interview based on Stunkard et al (1955, 1996) criteria</td>
<td>Obese population - total N = 83; Ethnicity = NR NES group N = 23 (male = 10); mean age = 40.54, SD = 16.41; mean BMI(m/kg(^2)) = 41.55, SD = 10.33 Binge eaters N = 13 (male = 2); mean age = 45.61, SD = 17.95; mean BMI(m/kg(^2)) = 41.06, SD = 8.02 Overlappers (BED + NES) N = 13 (male 7); mean age = 43.46, SD = 14.15; mean BMI(m/kg(^2)) = 44.12, SD = 14.87 No diagnosis group N = 34 (male =21); mean age = 54.2, 12.54; mean BMI(m/kg(^2)) = 40.11, SD = 10.24</td>
<td>1. Disinhibition (TFEQ) 2. Cognitive restraint (TFEQ) 3. Self-esteem (RSE)</td>
<td>NES group scored significantly higher than the non-NES group on scores of disinhibition (p&lt;.10). The binge eater group and BED + NES group scored significantly higher than the NES group. No differences were found in relation to scores of cognitive restraint and self-esteem.</td>
</tr>
<tr>
<td>Nolan &amp; Geliebter (2012) (USA)</td>
<td>Quantitative Cross-sectional</td>
<td>1. NEDQ 2. NESHI</td>
<td>Student population Total N = 246 (male = 61); mean age = 18.84, SD = 1.43; mean BMI(m/kg(^2)) = 23.33, SD = 4.06 (underweight BMI(m/kg(^2)) &lt;18.50 N = 9 ; normal weight BMI(m/kg(^2)) = 18.50-24.99 N = 177; overweight BMI(m/kg(^2)) = 25.00-29.99 N = 46; obese BMI(m/kg(^2)) &gt;30.00 N = 14; Ethnicity: White = 205, Black = 9, mixed race = 7 Asian = 3, Latino = 9, not replied = 16</td>
<td>1. Emotional eating (DEBQ) 2. External eating (DEBQ)</td>
<td>Participants identified in the full syndrome category had significantly higher emotional eating scores than those in the moderate (p=.027), mild (p=.025) and normal (p=.002) categories. Similar results were obtained in external eating scores (moderate: p=.008; mild: p&lt;.001; normal&lt;.001).</td>
</tr>
<tr>
<td>Roer et al (2014) (USA)</td>
<td>Quantitative Cross-sectional</td>
<td>1. NEDQ</td>
<td>Obese population Total N = 76 (male = 15); mean age = 45.6, SD = 11.0; mean BMI(m/kg(^2)) = 38.0, SD = 8.5; Ethnicity = NR NES only group N = 9 Binge eating only N = 20 Binge &amp; Night eaters N = 12 Overweight controls N = 35</td>
<td>1. Emotional eating (EMAQ)</td>
<td>Those in the NES only group reported lowest eating in response to negative emotions. The Binge eating only group had significantly higher scores. (Continued)</td>
</tr>
<tr>
<td>Study and location</td>
<td>Design</td>
<td>Measure of NES</td>
<td>Sample</td>
<td>Psychological mechanisms (&amp; measures)</td>
<td>Key findings regarding NES &amp; psychological mechanism(s)</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------</td>
<td>----------------</td>
<td>--------</td>
<td>--------------------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Royal et al (2015) (Canada)</td>
<td>Quantitative Cross-sectional</td>
<td>1. NEQ</td>
<td>Obese population Total N = 226 (male = unreported); mean age = unreported; mean BMI(m/kg^2) = unreported; Ethnicity = NR</td>
<td>1. Loss of Control (EDE-Q)</td>
<td>Participants with loss of control over eating had significantly higher level of night eating (p&lt;.001).</td>
</tr>
<tr>
<td>Runfola et al (2014) (USA)</td>
<td>Quantitative Cross-sectional</td>
<td>1. NEQ</td>
<td>Student population Total N = 1636 NES group N = 67 (male = 25); mean age = 20.9, SD = 1.4; mean BMI(m/kg^2) = 23.3, SD = 4.1; Ethnicity: Caucasian = 52, Black = 4, Latino/Hispanic = 4, Asian = 5; multiracial = 2 Non-NES group N = 1569 (male = 661); mean age = 20.9, SD = 1.7; mean BMI(m/kg^2) = 23.3, SD = 3.4; Ethnicity: Caucasian = 1123, Black = 74, Latino/Hispanic = 87, Asian = 156; multiracial = 50; American Indian/Alaskan Native = 4; Native Hawaiian/Other Pacific Islander = 2; other = 16</td>
<td>1. Shape and weight concern (EDE-Q) 2. Dietary restraint (EDE-Q) 3. Eating concern (EDE-Q)</td>
<td>NES group reported significantly more eating pathology than the Non-NES group (Shape &amp; Weight concern: p&lt;.001; Dietary restraint: p&lt;.001; Eating concern: p&lt;.001).</td>
</tr>
<tr>
<td>Saraçlı et al (2015) (Turkey)</td>
<td>Quantitative Cross-sectional</td>
<td>1. Self-report based on 2010 criteria 2. NEQ</td>
<td>Psychiatric population Total N = 433 NES group N = 97 (male = 32); mean age = 37.34, SD = 11.2; mean BMI(m/kg^2) = 28.1, SD = 15.8; Ethnicity = NR Non-NES group N = 336 (male = 95); mean age = 37.87, SD = 12.3; mean BMI(m/kg^2) = 27.3, SD = 5.3</td>
<td>1. Body image (BSQ)</td>
<td>Patients with NES reported significantly higher levels of body dissatisfaction than the Non-NES group (p&lt;.001).</td>
</tr>
</tbody>
</table>

(Continued)
<table>
<thead>
<tr>
<th>Study and location</th>
<th>Design</th>
<th>Measure of NES</th>
<th>Sample</th>
<th>Psychological mechanisms (&amp; measures)</th>
<th>Key findings regarding NES &amp; psychological mechanism(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vinai et al (2014)</strong> (Italy)</td>
<td>Quantitative Cross-sectional</td>
<td>1. Clinical interview based on Allison et al (2010) criteria</td>
<td>Obese population Total N = 98</td>
<td></td>
<td>The NES group and BED + NES group reported significantly higher in the belief that nocturnal food intake was necessary in order to fall back asleep after a night time awakening ($p&lt;.001$).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NES group N = 8 (male = 3); mean age = 48.12, SD = 10.7; mean BMI(m/kg$^2$) = 41.94, SD = 7.23; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BED group N = 33 (male = 5); mean age = 44.37, SD = 11.72; mean BMI(m/kg$^2$) = 36.45, SD = 6.34; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BED + NES group N = 13 (male = 1); mean age = 47.46, SD = 8.02; mean BMI(m/kg$^2$) = 42.96, SD = 11.88; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Obese control group N = 44 (male = 10); mean age = 51.79, SD = 11.55; mean BMI(m/kg$^2$) = 40.42, SD = 7.5; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vinai et al (2015a)</strong> (Italy)</td>
<td>Quantitative Cross-sectional</td>
<td>1. Required to satisfy Allison et al (2010) criteria \ 2. Polysomnographic recording</td>
<td>Sleep disorder population Total N = 54</td>
<td></td>
<td>The NES group scored significantly higher than controls in the areas of harm avoidance ($p&lt;.003$), drive for thinness ($p&lt;.014$) and interceptive awareness ($p&lt;.013$).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>NES group N = 24 (male = unknown); mean age = 44.3, SD = 10.90; mean BMI(m/kg$^2$) = 26.3, SD = 3.88; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Control group N = 30 (male = unknown); mean age = 45.8, SD = 11.27; mean BMI(m/kg$^2$) = 23.1, SD = 3.63; Ethnicity = NR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Continued)
### Study and location
Vinai et al (2015b) (Italy)

### Design
Quantitative Cross-sectional

### Measure of NES
1. NEQ

### Sample
Sleep disorder population
Total N = 153

NES group N = 34 (male = 12); mean age = 55.0, SD = 15.4; mean BMI (m/kg^2) = 29.4, SD = 4.9; Ethnicity = NR

Insomniac group N = 47 (male = 16); mean age = 57.2, SD = 10.0; mean BMI (m/kg^2) = 27.1, SD = 4.2; Ethnicity = NR

Control group N = 72 (male = 23); mean age = 50.5, SD = 17.7; mean BMI (m/kg^2) = 24.4, SD = 3.3; Ethnicity = NR

### Psychological mechanisms (& measures)
1. Alexithymia (TAS-20)

### Key findings regarding NES & psychological mechanism(s)
All groups scored in the normal range of the TAS, suggesting no relationship between alexithymia and severity of NES.

---

**Note:** NEDQ = Night Eating Diagnostic Questionnaire; NEQ = Night Eating Questionnaire; NESHI = Night Eating Syndrome History & Inventory

BSQ = Body Shape Questionnaire; EDE = Eating Disorder Examination; EDI-2 = Eating Disorder Inventory; EMAQ = Emotional Appetite Questionnaire; MES = Mood Eating Scale; MOCI = Maudsley Obsessive Compulsive Inventory; RSE = Rosenberg Self-esteem Scale; TAS-20 = Toronto Alexithymia Scale 20; TCI = Temperament and Character Inventory; TFEQ = Three Factor Eating Questionnaire.

ED = Eating disorder; NR = Not reported
Table 2. Description of specific NES measures utilised within the reviewed studies

<table>
<thead>
<tr>
<th>Measure</th>
<th>Author</th>
<th>Description</th>
<th>Summary of validity/reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEQ</td>
<td>Allison et al (2008)</td>
<td>The NEQ is a brief 14-item self-report measure assessing the behavioural and psychological symptoms of NES. The NEQ is not designed to diagnose NES but intended to help screen for NES so that more comprehensive assessments can confirm diagnosis.</td>
<td>Convergent validity of the NEQ has been demonstrated with additional measures of night eating, disordered eating, sleep, mood and stress. In addition, the NEQ has been reported to demonstrate appropriate discriminant validity (Allison et al, 2008)</td>
</tr>
<tr>
<td>NEDQ</td>
<td>Gluck et al (2001)</td>
<td>The NEDQ is a 21 item self-report measure, which identifies four severity levels (non-, mild, moderate, and full-syndrome NES). The NEDQ has been revised to include questions that would diagnose NES based on the most recent NES criteria (Allison et al, 2010).</td>
<td>Convergent validity has been demonstrated between the NEQ and NEDQ (Mullin, Ungredden, Weltch, Latzer &amp; Geliebter, 2010). It has been reported that a further validation study of the NEDQ is currently being conducted (Lundgren et al, 2012).</td>
</tr>
<tr>
<td>NESHI</td>
<td>Unpublished</td>
<td>The NESHI is an unpublished 14-item semi-structured clinical interview for the assessment and diagnosis of NES during the previous 28 days. The NESHI has been updated to reflect the most recent NES criteria (Allison et al, 2010).</td>
<td>No evidence reported</td>
</tr>
</tbody>
</table>

*Note: NEDQ = Night Eating Diagnostic Questionnaire; NEQ = Night Eating Questionnaire; NESHI = Night Eating Syndrome History & Inventory*
Table 3. Description of specific measures used for each identified psychological mechanism

<table>
<thead>
<tr>
<th>Measure</th>
<th>Author</th>
<th>Description</th>
<th>Type of scale</th>
<th>Summary of validity/reliability</th>
<th>No of reviewed studies utilising measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSQ</td>
<td>Cooper et al (1986)</td>
<td>The BSQ is a 34-item self-report measure designed to assess negative feelings about one’s body size and shape. Higher scores reflect greater body dissatisfaction.</td>
<td>Scored on a 1-6 Likert type scale.</td>
<td>The BSQ has been shown to have good reliability and validity (Rosen et al, 1996).</td>
<td>2</td>
</tr>
<tr>
<td>DEBQ</td>
<td>van Strien et al (1986)</td>
<td>The DEBQ is a 33 item self-report questionnaire assessing external, emotional and restrained eating.</td>
<td></td>
<td>The DEBQ has been demonstrated to have good internal consistency and demonstrates good convergent and discriminant validity (Allison et al 1992).</td>
<td>1</td>
</tr>
<tr>
<td>EDE</td>
<td>Fairburn &amp; Cooper, (1993)</td>
<td>The EDE is a semi-structured interview designed to assess the psychopathology associated with AN and BN and includes four subscales (restraint, eating concern, shape concern and weight concern). The EDE is an investigator-based interview in which the interviewer rates the severity of symptoms (Fairburn &amp; Beglin, 1994).</td>
<td>Scored on a 7 point Likert type scale (0-6).</td>
<td>Inter-rater reliability for individual items and the subscales has been rated as good (Grilo et al, 2004), as is test-retest reliability (Rizvi et al, 2000) and internal consistency (Grilo et al, 2010).</td>
<td>2</td>
</tr>
<tr>
<td>Measure</td>
<td>Author</td>
<td>Description</td>
<td>Type of scale</td>
<td>Summary of validity/reliability</td>
<td>No of reviewed studies utilising measure</td>
</tr>
<tr>
<td>---------</td>
<td>--------</td>
<td>-------------</td>
<td>---------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>EDE-Q</td>
<td>Fairburn &amp; Beglin, (1994)</td>
<td>The EDE-Q is a 28-item self-report measure based upon the EDE interview including the four sub-scales reported within the EDE and global scores. Higher scores indicate greater severity or frequency of eating disorder pathology.</td>
<td>Scored on a 7 point Likert type scale (0-6).</td>
<td>Research has indicated that the EDE-Q demonstrates acceptable internal consistency (Byrne et al, 2010). The EDE-Q has been shown to be comparable with the EDE (Pook et al, 2008) with good convergent validity demonstrated (Fairburn &amp; Beglin, 2008).</td>
<td>4</td>
</tr>
<tr>
<td>EDI-2</td>
<td>Garner (1991)</td>
<td>The EDI-2 is a 91-item self-report measure that assesses symptom domains associated with AN and BN and consists of twelve subscales.</td>
<td>Scored on a 6-point Likert type scale (ranging from ‘Always’ to ‘Never’).</td>
<td>Demonstrates good internal consistency and acceptable convergent and discriminant validity (Cumella, 2006).</td>
<td>1</td>
</tr>
<tr>
<td>EMAQ</td>
<td>Geliebter &amp; Aversa (2003)</td>
<td>The EMAQ contains 22 questions relating to the tendency to eat in response to positive and negative emotion and situations. The negative and positive emotions include 14 items. The negative and positive situations include 8 items.</td>
<td>Scored on a 9-item Likert type scale</td>
<td>The EMAQ has been shown to demonstrate construct and discriminant validity (Nolan, et al, 2010). Furthermore, the EMAQ has demonstrated high retest-reliability and internally consistency (Geliebter &amp; Aversa, 2003).</td>
<td>1</td>
</tr>
<tr>
<td>MOCI</td>
<td>Hodgeson &amp; Rachman (1977)</td>
<td>The MOCI is a 30 item self-report questionnaire designed to assess obsessive compulsive behaviour. The MOCI consists of five sub-scales (checking compulsions, washing/cleaning, slowness, doubting and rumination)</td>
<td>Dichotomous (True/False)</td>
<td>Internal consistency has been identified as adequate with moderate test-retest reliability (Clark, 2004). Use of the MOCI within eating disorders populations, in terms of discriminant validity between eating and OCD participants, has produced equivocal results (Fahy, 1991; Emmelkamp et al, 1999).</td>
<td>1</td>
</tr>
</tbody>
</table>

(Continued)
<table>
<thead>
<tr>
<th>Measure</th>
<th>Author</th>
<th>Description</th>
<th>Type of scale</th>
<th>Summary of validity/reliability</th>
<th>No of reviewed studies utilising measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>MES</td>
<td>Jackson &amp; Hawkins (1980)</td>
<td>The MES is a 20-item self-report assessment of eating in response to different emotions and mood states.</td>
<td>Scored on a five point scale ranging from 0 (strongly agree) to 4 (strongly disagree)</td>
<td>The measure has demonstrated good internal consistency (Jackson &amp; Hawkins, 1980). Evidence of the validity of the MES has shown by positive relationships with restrained eating, binge eating and body dissatisfaction (Jackson &amp; Hawkins, 1980).</td>
<td>1</td>
</tr>
<tr>
<td>RSE</td>
<td>Rosenberg (1965)</td>
<td>The RSE is a ten item self-report questionnaire designed to provide a global measure of self-esteem. The RSE uses five positive statements and five negative statements.</td>
<td>Scored on a four point scale (ranging from strongly agree to strongly disagree)</td>
<td>The RSE has demonstrated good concurrent, predictive and constructive validity (Rosenberg, 1979). Furthermore, the RSE has been shown to correlate significantly with other self-esteem measures, including the Coopersmith Self-Esteem Inventory (Fischer &amp; Corcoran, 1994).</td>
<td>2</td>
</tr>
<tr>
<td>TCI</td>
<td>Cloninger et al (1994)</td>
<td>The TCI is a 240-item self-administered questionnaire measuring four temperament dimensions (novelty seeking, harm avoidance, reward dependence, and persistence) and three character dimensions (self-directedness, cooperativeness and self-transcendence).</td>
<td>Dichotomous (True/False)</td>
<td>Internal consistency has been reported as ranging from moderate to high (Cloninger et al, 1994). Reported a good validation of novelty seeking and harm avoidance temperament dimensions (Cloninger et al, 1991). Found to lack evaluation in the English version (Allison &amp; Baskin, 2009).</td>
<td>2</td>
</tr>
</tbody>
</table>

(Continued)
<table>
<thead>
<tr>
<th>Measure</th>
<th>Author</th>
<th>Description</th>
<th>Type of scale</th>
<th>Summary of validity/reliability</th>
<th>No of reviewed studies utilising measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>TFEQ</td>
<td>Stunkard &amp; Messick (1985)</td>
<td>The TFEQ is a 51-item self-report questionnaire that consists of three subscales measuring cognitive restraint, disinhibition and hunger.</td>
<td>Dichotomous (0/1)</td>
<td>The TFEQ has been shown to demonstrate adequate internal consistency and good convergent and discriminant validity (Allison et al, 1992).</td>
<td>3</td>
</tr>
<tr>
<td>TAS-20</td>
<td>Bagby et al (1994)</td>
<td>The TAS-20 is a 20 item self-report measure comprising of three scales (difficultly identifying feelings, difficulty describing feelings and externally orientated thinking).</td>
<td>Scored on a 5 point Likert type scale</td>
<td>The reliability of the TAS-20 total score has been repeatedly demonstrated (Leising et al, 2009). However, mixed results have been reported with regards to the validity of the TAS-20 (Kooiman et al, 2002).</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: BSQ = Body Shape Questionnaire; EDE = Eating Disorder Examination; EDI-2 = Eating Disorder Inventory; EMAQ = Emotional Appetite Questionnaire; MES = Mood Eating Scale; MOCI = Maudsley Obsessive Compulsive Inventory; RSE = Rosenberg Self-esteem Scale; TAS = Toronto Alexithymia Scale; TCI = Temperament and Character Inventory; TFEQ = Three Factor Eating Questionnaire
Psychological mechanisms

Overall, thirteen psychological mechanisms were identified following a review of the studies. Due to the number of psychological mechanisms identified within this review across multiple heterogeneous studies, a thematic approach was implemented in line with Popay et al (2006: Appendix 6) to provide a means of sorting, structuring and organising the mechanisms into a coherent, logical and accessible format. Each psychological mechanism, as defined by the method of measurement utilised by the authors of each study, was first identified and then compared with one another; noting any differences, similarities and overlapping features. The most salient features of each psychological mechanism were then grouped and consolidated into descriptive themes. For the current review, the identified thirteen mechanisms are described under five specific themes.

1. Cognitions (Shape and weight concerns; Eating concerns; Belief: the need to eat in order to sleep; Harm avoidance; Rumination)

2. Attention (External eating)

3. Restrictive eating (Dietary restraint)

4. Eating in response to internal states (Emotional eating; Disinhibited eating; Interceptive awareness; Alexithymia; Conflictual relationships)

5. Low self-esteem

1. Cognitions

- Shape and weight concerns

Cognitions related to weight or shape has been described in various ways; including a drive for thinness, fear of fatness, shape and weight dissatisfaction and body size misperception (Fairburn, 2008).

Seven studies of mixed quality identified cognitions related to shape and weight concerns. Of these studies, a broad range of outcome measures were used. Two studies (Allison et al, 2005; Lundgren et al, 2008) using the EDE and three studies (Allison et al, 2007; Fischer et al, 2014; Runfola et al 2014) using the EDE-Q provided information relating directly to shape and weight concerns. One study (Saraçli et al, 2015) presented information related to body image using the BSQ and another
study (Vinai et al, 2015a) provided information relating to a drive for thinness using the EDI-2. In all studies, comparisons were made between clinical (obese N = 3, eating disorder N = 1, psychiatric outpatient N = 1) and non-clinical (community N = 1, student N = 1) populations. Furthermore, a range of NES diagnostic criteria was utilised within the seven studies. This paper describes studies in accordance with the method of measurement used.

**Eating Disorder Examination (EDE; Fairburn & Cooper, 1993) and Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994)**

The shape and weight subscales on the EDE comprise of items assessing a range of cognitions related to fear of weight gain, preoccupation with shape or weight, dissatisfaction with shape and weight and a discomfort in seeing one’s body (Cash & Smolak, 2011). Example questions include: ‘Over the past four weeks have you spent much time thinking about your shape and weight?’, ‘Over the past four weeks have you been afraid that you might gain weight?’. In an obese population, two studies (Allison et al, 2005; Allison et al, 2007) reported significantly higher levels of shape and weight concerns in a NES group when compared to a weight matched control group. In a non-clinical population, two studies (Lundgren et al, 2008; Runfola et al, 2014) obtained similar results when comparing NES to healthy controls, with NES groups reporting significantly more shape and weight concerns than non-NES groups. Fischer et al (2012) compared a non-obese NES group with healthy controls in young adults (18-26) and reported more shape and weight concerns in people with NES. However, when compared to obese individuals with no diagnosis, no statistical differences were identified. A particular limitation in this study was the small sample sizes in both the NES and obese groups which was reflected in the small effect sizes reported. Although shape and weight concerns were identified as two distinct constructs within the EDE, there is some evidence (Peterson et al, 2007; White et al, 2014) that they load onto only one factor.

**Body Shape Questionnaire (BSQ: Cooper, Taylor, Cooper, & Fairburn 1986)**

The BSQ measures concerns about body weight and shape related to body dissatisfaction, the fear of becoming fat, self-devaluation due to physical appearance and the desire to lose weight (Cooper, Taylor, Cooper & Fairburn 1986). Example questions include: ‘Has feeling bored made you brood about your shape?’, ‘Have you become afraid that you might become fat (or fatter)?’

Good concurrent validity has been found on the BSQ and the EDE Shape and Weight concern
subscales (Grilo, Henderson, Bell, & Crosby, 2014); providing some validity when comparing results obtained using these measures. In a psychiatric outpatient sample, Saraçli et al (2015) reported significantly higher body image concerns in a NES group when compared to a non-NES group. Furthermore, a positive correlation was identified between scores on the NEQ and the BSQ, suggesting an association between NES severity and body image concerns.

**Eating Disorder Inventory (EDI-2: Garner, 1991)**

The drive for thinness sub-scale on the EDI-2 is identified as measuring excessive concerns with dieting, preoccupation with weight and fear of gaining weight (Garner, 1991). Example statements include: ‘I am terrified of gaining weight’; ‘I am preoccupied with the desire to be thinner’. Vinal and colleagues (2015a) in a sleep disorder population compared a NES group and Non-NES group in terms of a drive for thinness. The NES group reported a significantly higher drive for thinness which the authors suggested could indicate that patients with NES share similar characteristics with patients with BED.

- **Eating concerns**

Eating concern was reported in two studies of mixed quality based on the subscale ‘Eating Concern’ using the EDE (Allison et al, 2005; Lundgren et al, 2008) and three further studies of mixed quality using the EDE-Q (Allison et al 2007; Fischer et al, 2012; Runfola et al, 2014). The ‘Eating Concern’ subscale on the EDE and EDE-Q has been identified to measure a preoccupation with food, eating or calories (Fairburn & Cooper, 1993; Fairburn & Beglin, 1994). An example question includes: ‘Over the past four weeks have you spent much time between meals thinking about food, eating or calories?’ Comparisons were conducted in clinical (obese $N = 2$, eating disorder $N = 1$) and non-clinical (community $N = 1$) populations. Various NES diagnostic criteria were utilised across the five studies, providing some variability in how NES was diagnosed. Findings were consistent in that all studies reported significantly higher levels of eating concern in NES individuals when compared to non-NES matched control groups, suggesting an association between NES and cognitions associated with preoccupation with a food and eating.
- **Belief: the need to eat in order to sleep**

The belief that one must eat in order to initiate or return to sleep has been identified as a diagnostic descriptor for NES (Allison et al, 2010). Two studies (Vinai et al, 2014; Cleator et al, 2013) provide supporting data for a specific NES related belief. Vinai and colleagues (2014), in a sample of obese individuals suffering from insomnia and night eating, evaluated the presence of the belief that one must eat in order to sleep with the question: ‘Do you need to eat in order to get back to sleep when you wake up at night?’ Responses were based on a Likert type scale ranging from ‘Not at all’ to ‘Extremely so’. Results indicated that the conviction that one must eat in order to fall back to sleep was significantly stronger when compared to a matched comparison group not engaging in night eating. The authors suggested that following nocturnal ingestions, NES patients are able to fall back to sleep which reinforces the belief that sleep is related to food, inducing a conditioned reflex; thus potentially contributing to the maintenance of the syndrome. Adding further support, following a thematic analysis of interviews with NES patients in an obese population, Cleator and colleagues (2013) reported that 70% of participants identified as engaging in night eating behaviour felt compelled to eat in order to return to sleep.

- **Rumination**

One study (Kucukgoncu et al, 2014) used the Maudsley Obsessive Compulsive Inventory (MOCI; Hodgeson & Rachman, 1977) to measure rumination as a process in NES. The rumination subscale on the MOCI consists of only two statements: I) I frequently get nasty thoughts and I have difficulty getting rid of them; II) I find that almost every day I am upset by unpleasant thoughts that come into my mind against my will. Within a psychiatric outpatient population of depressed patients, people with NES were compared to those without NES and demonstrated more rumination and depression. The authors suggested this indicates a relationship between a depressive ruminative thinking style and NES. It should be noted that the MOCI has been identified to provide an inadequate assessment of obsessional rumination (Taylor, 1995); suggesting a cautious approach should be adopted when interpreting these results.

- **Harm avoidance**

The harm avoidance subscale on the Temperament and Character Inventory (TCI; Cloninger, Przybeck, Svrakic & Wetzel, 1994) measures excessive worrying, pessimism, shyness, fearfulness
and doubtfulness (Cloninger, 1994). The relationship between NES and harm avoidance was considered in two studies of mixed quality, using the TCI harm avoidance subscale (Dalle-Grave et al, 2013; Vinai et al, 2015a). Consistent findings were reported across both studies. In an obese population, Dalle Grave and colleagues (2013) identified an association between high harm avoidance and high NEQ scores. However, it is difficult to interpret these findings as no control for binge eating was implemented. In a sample of people with sleep disorders, including normal weight and overweight participants, Vinai and colleagues (2015a) identified higher reports of harm avoidance when comparing an NES group to weight matched controls. The authors argue that the psychological characteristics in their NES sample are typical for people affected by other eating disorders, including BED.

2. Attention
   - External eating

Only one study (Nolan & Geliebter, 2012) was identified as exploring the relationship between NES and external eating within a student population. External eating was measured using the external eating subscale on the Dutch Eating Behaviour Questionnaire (DEBQ; van Strien, Frijters, Bergers, & Defares, 1986) which measures the sensitivity to external food cues and the act of eating in response to cues, regardless of internal state of hunger and satiety. Example questions include: ‘If you see others eating, do you have the desire to eat?’; ‘When preparing a meal are you inclined to eat something?’ van Strien and colleagues (1986) grouped participants by severity of NES features (normal, mild night eater, moderate night eater and full night eater syndrome), and a comparison of these groups identified an association between NES severity and higher external eating scores. The authors suggested that NES individuals may show an attentional bias towards snack foods and external cues in the environment which may prompt eating regardless of physiological hunger. Furthermore, it was suggested that the presence of food related cues when awake late in the evening and during nocturnal awakenings may contribute to night eating.

3. Restrictive eating
   - Dietary restraint

Dietary restraint as a psychological mechanism within NES has been reported in two studies using the EDE (Allison et al, 2005; Allison et al, 2007), and three studies employing the EDE-Q (Fischer,
measured restrained eating using the DEBQ and three other studies (Allison et al, 2005) measured cognitive restraint using the TFEQ. Furthermore, Cleator et al, (2013), using mixed methodology, reported a theme relating to strict dietary rules resulting in cycles of dietary restraint. Studies were conducted in clinical (obese N = 3) and non-clinical (community N = 1; student N = 2) populations. Various NES diagnostic criteria were utilised within the six studies, again providing some variability in how NES was diagnosed. Studies have been grouped according to the specific measure of eating behaviour.

**Eating Disorder Examination (EDE; Fairburn & Cooper, 1993) and Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994)**

The dietary restraint subscale on the EDE is used to measure restraint over eating, avoidance of eating, food avoidance and dietary rules (Fairburn & Cooper, 1993). An example question includes: ‘Over the past four weeks have you tried to follow certain definite rules regarding your eating; for example a calorie limit, pre-set quantities of food, or rules about what you should- or should not – eat, or when you should eat?’. Allison et al, (2005) reported higher levels of dietary restraint for an obese NES population compared to a control group of obese patients without NES. In student populations, Lundgren et al (2008) found significantly higher scores for dietary restraint for NES groups compared to non-NES groups. Similarly, this finding was repeated by Runfola et al (2014) using the EDE-Q. Fischer et al (2012), examined clinical features of NES in a community sample of young adults, aged 18-26 years, and identified a trend for NES individuals to report higher levels of dietary restraint; although this failed to reach statistical significance. The authors’ acknowledged that sample sizes were small and that larger group sizes may have affected these trend-level findings.

**Dutch Eating Behavior Questionnaire (DEBQ; van Strien, Frijters, Bergers & Defares ,1986)**

The restrained eating subscale on the DEBQ assesses both intention to restrict food intake and actual behavioural restraint (van Strien et al, 1986). An example question includes: ‘Do you deliberately eat less in order not to become heavier?’. Nolan and Geliebter (2012) grouped a student sample according to NES severity (normal, mild night eater, moderate night eater and full night eater syndrome), and found no significant differences between groups for restrained eating.
Three Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985)

The cognitive restraint sub-scale on the TFEQ is a measure of conscious restriction of food intake as a means for controlling body weight or to promote weight loss (Stunkard & Messick, 1985). An example question includes: ‘How likely are you to consciously eat less than you want?’ In an obese population, Allison and colleagues (2005), found no significant differences for self-reported cognitive restraint between the NES group and a weight matched comparison group. Napolitano et al (2001) and Colles et al (2007) replicated these findings, reporting no significant differences between NES groups and weight-matched controls. Conversely, in a student population, Lundgren et al (2008) reported higher levels of cognitive restraint for an NES group compared to controls. In light of this result, Lundgren et al (2008) suggested that night eaters must be restricting food intake during the day. Furthermore, the authors noted that, while this may be due to lack of hunger upon awakening in the morning, many did not eat until the afternoon or up until the evening meal.

Other

Using qualitative methods, Cleator and colleagues (2013) interviewed participants with severe obesity about their perceptions concerning the development of, and living with, NES. Thematic analysis of interviews demonstrated 77% of participants spoke about having dietary rules reflecting an ‘all or nothing’ approach, characterised by cycles of dietary restraint and subsequent periods of over eating.

In summary, a number of studies have reported higher restraint scores as measured by the EDE and EDE-Q, but generally not with the TFEQ and DEBQ. Nolan and Geliebter (2012) have identified differences between the measures; stating that the TFEQ and DEBQ may focus on the intent to restrict food consumption, whereas the EDE and EDE-Q may specifically focus on the act of dieting to lose weight (Safer, Agras, Lowe & Bryson, 2004).

4. Eating in response to internal states

- Emotional eating

Five studies of mixed quality (Meule, Allison & Platte, 2014; Morse, Katon. Ciechanowski & Hirsch (2006); Nolan & Geliebter, 2012; Roer et al, 2014) have examined the role of emotional eating in NES. Three different outcome measures for emotional eating were employed: the TFEQ (Nolan
and Geliebter, 2012); MES (Meule et al, 2014); and EMAQ (Roer et al, 2014). Morse and colleagues (2006) did not report the measure used in their study. A fifth study (Cleator et al, 2013) reported a theme relating to emotional eating using thematic analysis. Across these five studies, various NES diagnostic criteria were used, providing some variability in how NES was diagnosed as noted in Table 1. Comparisons were conducted in clinical (obese N = 2; sleep disorder N = 1) and non-clinical (student N = 2) populations. Studies have been grouped according to the specific measure of emotional eating.

**Dutch Eating Behavior Questionnaire (DEBQ; van Strien, Frijters, Bergers & Defares, 1986)**
The emotional eating sub-scale on the DEBQ identifies individuals who eat in response to negative emotions, as opposed to internal signals of feelings related to hunger and satiety. Example questions include: ‘Do you have a desire to eat when you are depressed or discouraged?’ and ‘Do you have a desire to eat when you are frightened?’ Nolan and Geliebter (2012) grouped a student sample on the basis of NES severity (normal, mild night eater, moderate night eater and full night eater syndrome) and identified those in the full syndrome category as having significantly higher scores for emotional eating on the DEBQ compared to other groups. This was understood to reflect a pattern of higher mean emotional eating scores as night eating severity increased. Nolan and Geliebter (2012) suggested that stress and anxiety might increase the likelihood of emotional eating and NES in students. Furthermore, those with a propensity to emotional eating may be more likely to eat in order to reduce feelings of negative affect.

**Mood Eating Scale (MES; Jackson & Hawkins, 1980)**
The MES assesses eating in response to different emotions and mood states. Example statements include: ‘When I feel inferior to someone, it makes me want to eat’ and ‘When I am under pressure, I find myself eating more often’. In a student population, Meule and colleagues (2014) explored interactive effects between NES, depressed mood and Body Mass Index (BMI). Results indicated that emotional eating moderated the relationship between NES and weight. The authors proposed a potential pathway related to the development and/or maintenance of night eating behaviour.
Unknown measure:

In a sample of 714 patients with diabetes, Morse et al (2006) compared people with night eating symptoms to a group reporting no night eating symptoms. Those with night eating symptoms reported more eating in response to negative emotions. However, this study used broad criteria for night eating classification based upon a single question from O’Reardon et al, (2004). Furthermore, no measure of emotional eating was reported. Also, in the absence of data relating to participants’ BMI scores, it is not possible to determine if BMI was a confounding variable. Morse et al (2006) argue that NES may reflect a pattern of dietary intake characterised by emotionally triggered eating at night.

**Emotional Appetite Questionnaire (EMAQ; Geliebter & Aversa, 2003)**

In an obese population Roer and colleagues (2014) assessed and compared participants’ tendency to eat in response to positive and negative emotions and situations across four groups (NES only, NES and binge eating behaviour, binge eating only and overweight controls without an identified eating disorder). Results showed that people with NES only (no other identified eating disorder) reported the lowest scores on the emotional eating measure relative to the other three groups. The small sample of people with NES (N= 9) could indicate a lack of sufficient power in identifying any differences between these groups, although no effect sizes were provided within the study. Despite this, the authors reported a distinctive pattern of behaviour associated with NES suggesting a potential for night eating behaviour to occur as method of avoiding distressing emotions and situations.

**Other**

Using thematic analysis, Cleator and colleagues (2013) found that participants reported eating in response to negative affect, such as feeling unhappy or emotionally empty.

- **Disinhibited eating**

Four studies of mixed quality (Allison et al, 2005; Colles et al, 2007; Lundgren et al, 2008; Napolitano et al, 2001) provided data related to disinhibited eating and NES, using the TFEQ. One study (Royal et al, 2015) reported the loss of control over eating as measured by a subscale on the EDE-Q. Comparisons were conducted in clinical (obese $N = 4$) and non-clinical (community $N = 1$)
populations. Across the studies, a variety of diagnostic criteria and methods were utilised to determine NES. Studies have been grouped according to the specific measure of disinhibited eating.

**Three Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985)**

The disinhibition sub-scale on the TFEQ has been identified to measure the degree to which conscious control over eating is interfered with by social, emotional and other influences (Stunkard & Messick, 1985). Three of four studies (Allison et al, 2005; Lundgren et al, 2008; Napolitano et al, 2001) identified higher levels of disinhibited eating in individuals with NES when compared with controls. Allison et al (2005) reported that although some NES participants reported experiencing a loss of control during night eating episodes, participants self-reported that the food consumed was not objectively large and as a result was not considered to be a ‘night binge’ by the authors. Conversely, Colles et al (2007) demonstrated no differences in an obese population between a NES group and weight matched controls, raising some uncertainty regarding the association and potential relationship between NES and LOC.

**Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994)**

Royal et al, (2015) examined loss of control over eating (LOC), defined as the presence of any episode of a loss of control over eating within the previous 28 days as reported using the EDE-Q. Both objective bulimic episodes (defined as eating unusually large amounts of food whilst experiencing a subjective loss of control) and subjective bulimic episodes (defined as experiencing a loss of control when eating small or normal amounts of food) were classified as LOC. The relationship between LOC and NES in an obese population was explored. Results demonstrated that individuals with LOC not only had more night eating symptoms but a greater proportion of people met the cut-off for NES (a score of 30 or above on the NEQ) in comparison to patients without LOC. The authors suggested that this finding indicates that individuals with NES, at times, perceive themselves unable to control what, or how much, they eat.

- **Interceptive awareness**

One study (Vinai et al., 2015a) explored the relationship between NES and interceptive awareness using the EDI-2 in a sleep disorder population. The interceptive awareness sub-scale on the EDI-2
is conceptualised as a lack of confidence and confusion in the identification of sensations of hunger and satiety as well as affective and bodily functions (Garner, 1984). Findings identified significantly higher scores on the interceptive awareness subscale in the NES group when compared to controls. The authors understood this finding to represent a potential commonality with BED, although failed to discuss the potential significance of these results further.

- **Alexithymia**

One study (Vinai et al 2015b) in a sleep disorder population examined levels of alexithymia using the Toronto Alexithymia Scale 20 (TAS-20; Bagby, Parker & Taylor, 1994). The TAS-20 is comprised of three subscales measuring: I) difficulty in identifying emotions and in distinguishing them from bodily sensations; II) difficulty in describing emotions to other people; III) the tendency to focus attention externally or a preoccupation with the details of external events. Patients with NES were compared to patients with insomnia and two control groups of people with normal weight and overweight participants. No relationship was found between levels of alexithymia and NES. The authors suggested that this provides evidence that NES subjects may be better able than BED patients to manage their emotions. It should be noted, however, that this study did not provide information on participant levels of depression and anxiety. Given the comorbidity between insomnia and depression/anxiety (Staner, 2010), the authors suggested that depression and anxiety could account for higher levels of alexithymia reported in the insomniac group when compared with the NES group.

- **Confictual relationships**

Cleator et al., (2013) explored patients’ perceptions of night eating behaviour in an obese sample and identified a theme pertaining to conflictual relationships. Individuals exhibiting night eating behaviour reported that low mood and obesity related shame influenced their eating behaviours. In relation to this, feelings of stress in response to work, social and family conflict were particularly apparent.

5. **Low self-esteem**

Two studies of mixed quality explored the association between NES and self-esteem (Gluck, Geliebter, & Satov, 2001; Napolitano et al, 2001). Both utilised the Rosenberg Self Esteem Scale
(RSE; Rosenberg, 1965) as a measure of self-esteem. The RSE conceptualises self-esteem as a global construct measuring personal worth, self-confidence, self-satisfaction, self-respect and self-deprecation (Rosenberg, 1965). Both studies were conducted with participants in an obese population enrolled on weight loss programs. Mixed results regarding the association between NES and self-esteem were identified. Gluck and colleagues (2001) reported significantly lower scores of self-esteem in night eaters in contrast with non-night eaters. They interpreted this as NES being an eating disorder with associated psychopathological features. Conversely, when comparing people with NES and people without a diagnosis of an eating disorder, Napolitano et al (2001) identified a trend of lower scores of self-esteem in the NES group. However, this failed to reach statistical significance. The authors did acknowledge that the study was underpowered and that some of the trends reported may have reached statistical significance with a larger sample size.

Discussion

Overview

There is general recognition that the psychological mechanisms underlying NES, which are targeted within approaches such as CBT, require further exploration (Vander Wal, 2012). This relative paucity of knowledge and understanding may, therefore, have important clinical implications. Studies reviewed in this paper have highlighted the existence of a number of potential underlying psychological mechanisms and provided some insight into their possible function within NES. Furthermore, a number of areas have been highlighted for future exploration.

Studies reviewed in this paper utilised a variety of different instruments to identify thirteen psychological mechanisms. However, syntheses of the studies suggest that there are distinct overlapping features within these mechanisms. Five overarching themes (Cognition; Attention; Restrictive eating; Eating in response to internal events and Low self-esteem) were identified to accommodate these overlapping features.

A number of studies within this review measured constructs pertaining to some aspect of cognition (Shape and weight concerns; Eating concerns; Belief: the need to eat in order to sleep; Harm avoidance; and Ruminations). With reference to Fairburn, Cooper and Shafran’s (2003) transdiagnostic cognitive model of eating disorders, a cognitive disturbance characterised by concerns related to shape, weight and eating has been identified as a ‘core pathology’ of eating
disorders, with most other features of eating disorders understood to be secondary to these disturbances and their effects. As a result, shape, weight and eating concerns have been understood to play a role in the development and maintenance of eating disorders (Fairburn, 2003). The evidence obtained in the current review suggests the presence of a preoccupation with shape, weight and eating within NES. It is therefore possible that a preoccupation with shape, weight and eating may play both a causal, and maintenance role, for some individuals with NES.

This review has also identified a specific cognition within NES related to a conviction that eating and sleeping are connected. The belief that one must eat in order to initiate or return to sleep has been identified as a specific descriptor for NES (Allison et al, 2010). Two studies provided evidence for the existence of this belief in NES. Vinai and colleagues (2014) suggested that the presence of this belief may play a contributory role in the maintenance of NES via a developed conditioned reflex for individuals to eat in response to an inability to fall asleep.

In a small number of studies, ruminative thinking and harm avoidance were identified as psychological mechanisms. Both mechanisms appear to relate to thinking characterised by an individuals’ proneness to worry or ruminate (Cloninger et al, 1994; Hodgeson & Rachman 1977). For other mental health problems, there is considerable evidence to suggest that a ruminative thinking style is causally related to the development and/or maintenance of cognitive and emotional problems such as depression and anxiety (Ehring, Frank & Ehlers, 2008; Harvey et al, 2004). Furthermore, there is growing evidence to suggest that rumination is an important cognitive process contributing to the maintenance of eating pathology (Rawal, Park & Williams, 2010). Results from studies included in this review, cautiously point towards an association between a ruminative thinking style and NES. However, the lack of research within this area, along with the varied quality of studies and measures, ultimately restricts the generalisability of these findings and suggests a greater understanding of this potential relationship within NES is required.

One trait characteristic identified as a vulnerability factor for overeating is external eating. External eating has been referred to as an increased tendency to selectively attend, and eat in response to, external cues such as the sight and smell of food (Hou et al, 2011). Evidence of external eating in NES was obtained from one study. In response to these findings and with reference to the
literature exploring external eating within eating disorders (van Strien, Schippers & Cox, 1995), it is cautiously suggested that the presence of food related cues when individuals are awake late in the evening and during nocturnal awakenings, may contribute to individuals with NES engaging in night eating behaviour, regardless of physiological hunger (Nolan & Geliebter, 2012).

The term restraint (including dietary restraint, restrained eating, or cognitive restraint) has been a central concept, subject to much debate, in the study of human eating behaviour since development of the restraint theory of obesity (Herman & Polivy, 1984). Restraint theory postulates that the act of dieting results in over eating and weight gain. Subsequently, for restrained eaters, their eating behaviour is characterised by periods of restriction, which are often undermined by lapses and periods of overeating (Gorman & Allison, 1995). Studies included in the current review have reported higher restraint scores as measured by the EDE and EDE-Q, but not the TFEQ and DEBQ, reflecting potential differences within the measures (Nolan & Geliebter, 2012). Results obtained may therefore suggest that some individuals with NES are engaging in restrictive dietary routines, characterised by 'all or nothing' thinking, to lose weight or prevent weight gain. Restrictive eating patterns have long been assumed to be a specific trigger for binge eating behaviour in that any minor dietary slip is interpreted as evidence of a lack of self-control, which results in the abandonment of efforts to further restrict eating (Fairburn et al, 2003). Translating this understanding to NES is, however, difficult due to the observed differences in eating patterns within NES and BED; most notably the limited energy intake of ingestions experienced within NES in contrast to BED (de Zwaan, Marschollek & Allison, 2015).

Emotional states have been noted to have major effects on eating behaviour (Geliebter & Aversa, 2003). Associations between NES and depression and anxiety have been identified in a number of studies (de Zwaan, 2006; Lundgren et al, 2008, Thompson & Debate, 2010). Furthermore, it has been suggested that individuals with NES may have a general vulnerability to stress with individuals ingesting food as a learned aspect of mood modulation (Vander Wal, 2012). A number of studies within this review presented a number of overlapping constructs pertaining to some aspect of eating in response to internal events; most notably eating response to the experience of negative emotions. Results from studies included in this review provide support for the statement regarding the potential relationship between food and mood modulation (Vander Wal, 2012) with a number of studies suggesting that the distinctive pattern of behaviour associated within NES may
occur as method of avoiding or dealing with distressing emotions and situations. In line with this suggestion, the negative emotional consequences experienced in response to conflictual relationships were also identified as a triggering factor for night eating behaviour. As a result, it is postulated that NES individuals with propensity to emotional eating may be more likely to eat in order to reduce feelings of negative affect, which in effect may contribute to the development and/or maintenance of night eating behaviour (Nolan & Geliebter, 2012).

A small number of studies within this review explored the association between NES and self-esteem. Within the eating disorder literature, it is postulated that global self-esteem represents an overarching concept that can obstruct change in general (Fairburn et al, 2003). Mixed results were identified within the reviewed studies, providing little insight into the potential association between low self-esteem and NES. On reflection of the literature, particularly around self-esteem in mood disorders, a lack of consistent differences has been identified between groups when comparing average scores of self-esteem. Measuring the fluctuations of self-esteem over time, however, has been found to be a more reliable measure (Kernis, Cornell, Sun, Berry & Harlow, 1993; Knowles, Tai, Jones, Highfield, Morriss & Bentall, 2007). This may have important implications for future studies exploring the association between NES and self-esteem.

**Methodological consideration of studies**

This review has identified a number of methodological weaknesses in the current evidence base which limits the quality and validity of findings. Firstly, the majority of studies included in the review employed a cross-sectional design; thus causality in reported associations cannot be inferred. A range of sample sizes were utilised. Two studies had small samples of 41 (Lundgren et al, 2008) and 54 participants (Vinaí, 2015b). As a result, findings from these studies may be limited in terms of statistical power and generalisability. Sample size was not justified in any paper. A large proportion of studies failed to minimise selection bias; recruiting from a narrow range of services or clinics and/or using recruitment methods that enabled only a certain proportion of the target population to take part. It was unclear in a number of studies whether an acceptable response rate (60% or above) was achieved as no data pertaining to this issue was presented. The generalisability of results is also likely to be affected by the selection of participants, with disproportionate numbers of females included in the majority of studies. Sample limitations also
extend to ethnicity. Only six studies presented data related to the ethnicity of included participants. From this sample of studies, the majority of participants were identified as Caucasian. Nine of the 20 studies were conducted in the USA, limiting generalisability to other countries and cultures. Studies included within this review mainly used validated measures. However, as noted above, a number of different measures related to similar psychological mechanisms were utilised, thus limiting comparisons. In addition, this review also revealed variation in the how NES was diagnosed which again, further limits the findings from this review.

**Clinical implications**

Due to the identified study limitations and the lack of experimental studies exploring the psychological mechanisms within NES, no adequate causal model can be presented within this review. However, studies reviewed in this paper have highlighted the existence of a number of underlying psychological mechanisms and provided some insight into their potential function within NES. As a result, it is hoped that this can be clinically useful in raising our awareness of these psychological mechanisms when working clinically with individuals exhibiting night eating behaviour; particularly when conducting psychological interventions. To be more specific, the current review has suggested the potential importance of focusing attention on the affective component of NES and utilising interventions that specifically attempt to reduce affective pathology. To date, only one empirical investigation of CBT for NES has been published and although results suggested some favourable improvements, future randomised control trials of CBT should be implemented. Furthermore, findings point to the potential importance of assessing cognitions related to shape and weight, an individual’s motivation for eating at night and the perception of control over night eating behaviour. In addition, it is also hoped that this review of the literature has identified some important areas for further exploration which, in effect, will further contribute to the development of more effective psychological treatments for NES.

**Considerations for future studies**

The adoption of a greater consensus in how NES is diagnosed and choice of measures would lead to greater consistency in the literature and allow for more rigorous comparisons. Furthermore, on reflection of the literature exploring self-esteem within mood disorders, a lack of consistent differences between groups when comparing average scores of self-esteem have been identified.
Future studies exploring the association between NES and self-esteem should be aware that measuring the fluctuations of self-esteem over time, rather than average scores has been found to be a more reliable measure (Kernis, Cornell, Sun, Berry & Harlow, 1993; Knowles, Tai, Jones, Highfield, Morriess & Bentall, 2007).

In light of the growing evidence suggesting that rumination is an important cognitive process contributing to the maintenance of eating pathology (Rawal, Park & Williams, 2010), the lack of research exploring the association between a ruminative thinking style and NES, suggests a greater understanding of this potential relationship required. More specifically, as a ruminative thinking style is correlated with negative inferential or attribution styles, a sense of hopelessness, pessimism and self-criticism (Nolen-Hoeksema, Wisco & Lyubomirsky, 2008), exploring the potential relationship between a ruminative thinking style and an individual’s propensity to engage in emotional eating within NES, may be an interesting area of future exploration.

As the majority of studies within this review used quantitative methodology, findings can be considered to reflect currently available measures and areas of study considered important from the perspective of researchers, not patients. Consequently, a number of psychological mechanisms may have been overlooked. Conducting more qualitative research may provide added insight and a greater understating of the psychological mechanisms associated with NES that are grounded in the experiences of people living with this eating disorder.

**Review limitations**

The combination of different construct measures, varying diagnostic criteria and methods used, limit the robustness of conclusions drawn from this review. We decided not exclude studies on the basis of their methodological quality, but it is acknowledged that the variance in quality can place undue value on conclusions from studies that are not that robust. Most studies relied mainly on self-report measures which can present response biases and could lead to participants reporting socially desirable outcomes (Pervin, 1999). Lastly, although a validated quality assessment framework was utilised, the quality assessment of studies is a subjective process (Booth, Sutton & Papaioannou, 2016). However, it should be noted that an independent assessment of a subset of studies yielded adequate inter-rater reliability.
Conclusion

This current review has identified a number of psychological mechanisms within NES. Although some tentative conclusions have been made, it is likely that these psychological mechanisms exist as a complex operation of inter-related processes which, to understand further, require a more enhanced exploration using qualitative methods and a greater utilisation of more robust research methods. It is hoped that this systematic review has illuminated a number of areas for further research which, if we are to increase our overall understanding of NES and develop more effective evidence-based treatments, should be explored.
References


Paper 2 has been prepared for submission to Appetite in accordance with the journal guidelines for contributors (Appendix 1)

Word count (excluding abstract, tables, figures, and references): 6,741
Abstract word count: 245
Abstract

Current literature on Night Eating Syndrome (NES) as a diagnosis presents a picture of a combination of an eating disorder, a sleep disorder and a mood disorder. However, research focusing on psychological factors associated with NES remains relatively underdeveloped. Patients identified as having both NES and obesity demonstrate poorer outcomes in terms of weight loss compared to those with NES only. The current study aimed to explore the relationship between NES and the experience of emotion specifically from the perspective of patients identified as obese. Ten adults accessing weight management services who met diagnostic criteria for moderate NES, or full NES, and also obesity were interviewed. Data were analysed using principles from grounded theory. A key category to emerge from the analysis was termed ‘Emotional Hunger’; reflecting an urge or need to satiate a set of underlying unmet emotional needs. ‘Emotional Hunger’ was underpinned by the following six interrelated themes: (1) The development of a relationship with food; (2) Loss; (3) The significance of night time; (4) A separation of the body and mind; (5) Why I eat, not what I eat; and (6) Consequences of night eating. This study provides an in-depth understanding of the relationship between NES and the experience of emotion from the perspective of users. Results have potential to inform future service development, particularly around the adoption of a more holistic approach to night eating behaviours. This paper also highlights potential future research within a relatively underdeveloped area of study.

Keywords

Night Eating Syndrome; Emotion; Obesity; Psychology; Interviews; Grounded theory
Introduction

Night eating syndrome (NES) was first described by Stunkard, Grace and Wolff (1955) in obese outpatients and was characterised by morning anorexia, evening hyperphagia, and insomnia. Absence of a standardised definition of NES appears to have impeded recognition of the syndrome and subsequently it has been difficult to compare NES studies (Vander Wal, 2012). The first Night Eating Symposium, held in 2008, resulted in the development of a comprehensive set of research diagnostic criteria (Allison et al, 2010). NES has been included in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), described under Feeding or Eating Disorders Not Elsewhere Classified (American Psychiatric Association, 2013). Currently, it is defined as: the consumption of at least 25% of daily caloric intake after the evening meal and/or evening awakenings with ingestions at least twice per week. In addition, persons must be aware of their nocturnal ingestions and experience associated distress or impairment in functioning, with signs and symptoms experienced for at least three months (Allison et al, 2010).

Due to a history of differing criteria prevalence estimates vary (Lundgren, Allison & Stunkard, 2012). It is suggested, however, that NES occurs in less than 1.5% of the general population (de Zwaan, Muller, Allison, Brahleer, & Hilbert, 2014; Striegel-Moore et al, 2005), 9% to 14% of people attending obesity clinics (Gluck, Geliebter, & Satov, 2001), 9% to 42% of candidates for bariatric surgery (Allison et al, 2006) and 12% to 22% in outpatient psychiatric populations (Lundgren et al, 2006; Kucukgoncu, Tek, Bestepe, Musket, & Guloksuz, 2014; Saraçli et al, 2015).

Worldwide, rates of obesity are increasing, with more patients undergoing weight loss surgery (Colles, Dixon, & O’Brien, 2007). Individuals identified as obese with NES or night eating behaviour have demonstrated poorer weight losses during supervised diets and more complications during weight loss attempts compared to weight matched controls (Gallant, Lundgren, & Drapeau, 2012). NES is also associated with increased food intake, which may cause unwanted weight gain and obesity (Gluck, Venti, Salbe, Votruba, & Krakoff, 2011); hence, this condition may be a pathway to obesity (Marshall, Allison, O’Reardon, Birketvedt, & Stunkard, 2004).

NES has been described as a unique combination of an eating disorder, a sleep disorder and a mood disorder (Lundgren et al, 2006; Lundgren, Allison, O’Reardon, & Stunkard, 2008). Stunkard
and colleagues (1955) reported a relationship between NES and low mood, but otherwise, associations between NES and psychological distress within the literature remain relatively underdeveloped (Allison et al, 2010; Vinai et al, 2015). Current research indicates that individuals with NES are significantly more likely than controls to meet diagnostic criteria for depression and anxiety disorder (Calugi, Dalle Grave, & Marchesini, 2009; Lundgren et al, 2008). In contrast to diagnostic features of chronic depression, people engaging in night eating report more depression in the evenings compared to mornings (Birketvedt et al, 1999; Stunkard et al, 1955). Furthermore, patients have reported the onset of NES during periods of life event stress (Stunkard et al, 1955; Allison, Stunkard, & Thier, 2004), so NES may be an important indicator of psychological distress (Calugi et al, 2009). Vander Wal (2012) proposed, in line with the affect regulation model of binge eating (Polivy & Herman, 1993), that mood disturbances because of perceived stress or stressful life events potentially trigger overeating episodes in NES as a coping response. There is evidence that emotional eating moderates the relationship between NES, BED and BMI (Meule, Platte, & Allison, 2014), suggesting the existence of a potential pathway relating to the development and/or maintenance of night eating (de Zwaan, Marschollek, & Allison, 2015).

Very few studies have explored the subjective experiences of patients with NES (Lundgren, Allison & Stunkard, 2012). Research that did, involving a severely obese population, identified several important factors related to their night eating behaviour; namely perceived control over night-time eating, conflictual social relationships and low mood (Cleator et al, 2013). However, the study did not explore the underlying relationships between these factors which future research may need to do. As much remains unknown with regards to individuals’ attributions for their NES and given the high prevalence of NES in severely obese populations and potential challenges this presents for weight control, further research dedicated to exploring the complex interplay between obesity, night eating and psychological difficulties is required (Cleator et al, 2013; Gallant et al, 2012).

The objective of the current study was to supplement and build upon the relatively limited research investigating the relationship between NES and emotions. This study aimed to explore the relationship between NES and the experience of emotion specifically from the perspective of patients identified as obese using weight management services.
Methods

Ethics

Regional National Research Ethics Service (Appendix 8) approval was obtained for the study and research governance was provided by the research and development committee (R&D) of the NHS Trust where participants were recruited.

Qualitative perspective

The current study employed grounded theory (Charmaz, 2014) to explore and understand, from the perspective of participants, the relationship between NES and the experience of emotion. In light of the paucity of research within this area, a grounded theory design was deemed appropriate to inform future research and clinical practice. An epistemological stance of constructivism was adopted (Charmaz, 2014), emphasising the subjective interrelationship between the researcher and participant and the co-construction of meaning (Hayes & Oppenheim, 1997; Pidgeon & Henwood, 1997).

Sample

Participants were recruited from a UK NHS outpatient specialist weight management service which had the following referral criteria: aged at least 18 years, Body Mass Index (BMI)>40 kg.m$^2$ with or without obesity related comorbidities or a BMI>35 kg.m$^2$ with at least one obesity related comorbidity. Inclusion criteria for the study were: (i) identified as a moderate night eater or full syndrome night eater as defined by the Night Eating Diagnostic Questionnaire (NEDQ, Gluck, Geliebter, & Satov, 2001); (ii) aged 18 and over; (iii) English speaker. Participants were excluded from the study if they met the following criteria: (i) previous bariatric surgery; (ii) a diagnosis of Obstructive Sleep Apnea; (iii) employed in shift work.

A purposive sampling approach was used to recruit individuals. Variation was aimed for in terms of gender and age of interviewees to provide some diversity within the sample. Dey’s (1999) concept of theoretical sufficiency was utilised as a benchmark to determine the final sample size relating to the achievement of concept saturation, rather than content saturation.
Measures
- Night Eating Diagnostic Questionnaire (NEDQ)

The NEDQ, (Gluck et al, 2001: Appendix 9) is a 21-item self-report measure of NES, which has been updated to reflect the most recent diagnostic criteria for NES (Allison et al., 2010). It has two scoring options; standard scoring (full syndrome or non-NES) or experimental scoring. Experimental scoring was used in this study and included the categories: non-NES, mild NES, moderate NES and full NES.

- Depression, Anxiety and Stress Scale (DASS-21)

The DASS-21 (Lovibond & Lovibond, 1996: Appendix 10) consists of three subscales measuring anxiety, depression and stress. Participants were asked to consider their mood over the last seven days and rate their response on a four-point scale. The DASS-21 was used to situate the sample in terms of level of psychological distress.

Procedures

Employees at the recruitment site used weight-management clinic lists to identify potential participants using the inclusion criteria listed above. In total, 323 patient care records were screened and 82 patients identified as potential participants. These individuals were sent an invitation to participate sheet (Appendix 11) and a participant information sheet (Appendix 12) by the lead author two weeks prior to their routine clinic appointment. In total, 29 of the 82 potential participants were approached by the researcher on attending their routine clinic appointment and consented to take part in the study. A failing to approach all 82 potential participants was due to routine appointment cancellations, potential participants not attending scheduled appointments and the lead author’s availability to attend routine clinic appointments.

On attending their routine appointment, written consent was obtained by the lead author for participants to complete the NEDQ and DASS-21 (appendix 13) and for participants to be contacted at a later date by the researcher to discuss being interviewed (Appendix 14). A face-to-face interview was then arranged with interested participants that met inclusion criteria (identified as a moderate night eater or full syndrome night eater as defined by the NEDQ; aged 18 and over.
and English speaker). Consent was obtained at this stage to collect other demographic and clinical data from hospital records including: age, gender, BMI and comorbidity (Appendix 15).

**Interviews**

A topic guide to facilitate semi-structured interviews was developed (Appendix 16). Based upon the aims of the study, a provisional search of the relevant literature and discussions between members of the research team, a number of open-ended questions and prompts were constructed to elicit participants’ experiences and views. In line with grounded theory principles (Charmaz, 2014), the interview schedule was regularly reviewed and updated as the theoretical direction and emerging concepts developed (Appendix 17). Particular questions designed to elicit information around participants’ emotional experience of night eating, prior to eating, during eating and after eating were added.

All interviews were conducted in a dedicated research facility located on the same site as the weight management clinic. Each person was interviewed for approximately 60 minutes. Interviews were audio-recorded using a digital voice recorder. The principal researcher ensured participants were fully debriefed following their interview and adhered to a risk and distress protocol (Appendix 17).

**Data analysis**

Data collection and analysis were carried out in tandem with a successive process of interview conduction and analysis performed before conducting further interviews. This process was carried out in the majority of interviews over a six-month period (October 2015 – March 2016). Interview data were analysed using a grounded theory framework described by Charmaz (2014). It is noted that researchers should become theoretically sensitive by immersing themselves in the data as a method of understanding what participants see as being significant and important (Corbin & Strauss, 2008). Seven of ten interview recordings were transcribed verbatim by the first author. Three recordings were transcribed by a professional typist. The researcher then listened to the audio recordings several times whilst reading the transcripts before proceeding with coding. Transcripts were initially analysed using open coding. This process required the researcher to go through each line of the transcripts to capture meanings and compare data instances for similarities
and differences. Phrases that exemplified a phenomenon were recorded as in vivo codes. This first step enabled the researcher to separate data into codes and to direct further areas of exploration. Using line-by-line coding ensured that the analysis was grounded in what participants said with higher-level categories, and later theoretical formulations, emerging from the data rather than being imposed on it (Willig, 2008). Throughout, the writing of successive memos was conducted. These enabled the researcher to understand their data in relation to emerging concepts and to consider links to existing theories (Glaser, 1978). Both line-by-line codes and initial memos were recorded within transcript margins (Appendix 18).

Following initial coding, a second stage of focused coding commenced. This entailed grouping together instances (events, processes, occurrences) that shared central features with one another (Appendix 19). For example, the initial codes ‘Doing not thinking’ and ‘Separation of body and mind’ were developed in response to participants talking about their experiences of eating. During the focused coding stage, these were grouped together and understood to represent a more focused category related to a habitual process of eating. Throughout, constant comparison was conducted. This was achieved by implementing a process of manually ‘handling’ the data; spreading out multiple pages of data, memos, codes and categories and moving back and forth between these looking for similarities and differences. Categories were then built into a conceptual model in order to identify and build relationships. Throughout, the research team met regularly to discuss the ongoing coding and emergent analysis.

**Credibility checks**

Guidelines for qualitative research (Elliot, Fischer & Rennie, 1999) were followed to enhance the study’s methodological rigour. As a method of verifying the trustworthiness and completeness of the findings (Goldblatt, Karnieli-Miller & Neumann, 2011), member checking was performed. Each participant was sent a summary of prominent codes and categories (Appendix 20) and asked to complete and return a verification sheet (Appendix 21) by post. Three out of ten distributed verification sheets were returned. Feedback provided by participants gave some indication regarding the credibility of the data analysis. One participant stated: ‘On all of the points we discussed, I feel you have understood most of what’s been happening’. In a further attempt to increase the credibility of findings, a process of triangulation took place; whereby the research
team discussed the themes and constructs with a practising Clinical Psychologist with expertise of eating disorders. This added further clarification and modulation of themes. To increase transparency, direct quotes are presented to support the findings. Pseudonyms have been used to maintain anonymity.

**Reflexivity**

Theories developed within constructivist grounded theory are dependent on the researcher’s view and as result, the researcher must take a reflexive stance towards theory evolution (Charmaz, 2014). The lead author is a 30 year old, unmarried White British male with an active interest in physical health. Whilst carrying out this research, he was in the final year of a doctorate in clinical psychology. He has no personal experience of an eating disorder and has limited clinical experience of working with people experiencing eating disorders. In addition, the lead author has a clinical interest in Cognitive Behavioural Therapy; Schema Focused Therapy, including the construction of clinical formulations. It is acknowledged that the lead author’s interests, experiences and clinical knowledge informed and influenced the process of data collection, interpretation and development of emergent concepts. To be more specific, it is suggested that these clinical interests and experiences influenced particular areas of exploration during the research process and upon the choice of language used to interpret and report upon these findings. In addition, it is acknowledged that gender is one source of social difference that has the potential to influence researcher-participant interactions (Gentles et al, 2014). As the majority of participants included in this study were female and given that this was a highly emotional, sensitive and personal topic, it is stipulated that this may have influenced the dynamics of the interview; thus impacting on the direction and content of interviews. As endorsed by Charmaz (2014), a study diary was utilised to examine the extent to which the researcher’s role, interests, assumptions and opinions influenced decisions, interpretations and reporting of the data.

**Results**

**Participants**

Ten participants (three male, seven female) were interviewed. All were White British and ranged in age from 20 - 71. Seven participants met criteria for moderate night eating and three met full criteria for NES as defined by the NEDQ. Responses on the DASS-21 indicated that all participants
scored above the cut-off of ‘normal’ range (defined by authors as scores above the 78th percentile) for depression and anxiety. Seven scored above the normal range for stress. Participants’ BMI (m/kg^2) ranged from 37 to 60 and the majority had one or more obesity-related co-morbidities.

Data
A core category to emerge from the data was described as ‘Emotional Hunger’. This reflected an urge or need to satiate a set of underlying unmet emotional needs and was underpinned by six interrelated categories illustrating the development, onset and maintenance of night eating (see Figure 1). These categories were: (1) The development of a relationship with food; (2) Loss; (3) The significance of night-time; (4) A separation of the body and mind; (5) Why I eat, not what I eat; and (6) Consequences of night eating. Before describing these categories, it is important to note that participants’ night eating behaviours generally fell into two distinct categories: ‘Evening Eating’ and ‘Night-Wake Eating’.

- Evening Eating
Eight interviewees identified themselves as evening eaters rather than night eaters, characterised by eating a significant amount of food (25%> of daily food intake) following an evening meal, up until going to bed:

‘Well I’d probably say evening eating. I don’t eat after I’ve gone to bed. Yeah, evening eating.’ (Margaret)

‘I’m always thinking about food during the evening. I think about what I’ve got in the fridge. This is what goes around in my mind.’ (Keith)

- Night-Wake Eating
‘Night-Wake Eating’ was characterised by participants waking up in the night and eating food. This process of waking and eating could occur more than once in a single night:

‘…if I’m in bed at ten o’clock, I can be up two, three times a night eating.’ (Katherine)
The significance of these two forms of eating behaviours is interwoven within the discussion of the six categories that underpin the core concept of ‘Emotional Hunger’.

1. **The development of a relationship with food**

*Food beliefs*

The current study aimed to understand participants’ relationship with food. Six interviewees referred to generational family attitudes and early feeding styles as significant influences upon their relationship with food. There were consistent references to an early parental pressure to eat which subsequently shaped current eating habits and attitudes towards food. A number of participants stated that their cue to finish eating was not based solely upon a feeling of physiological satiety:

‘I was told that I always had to eat everything that was on the plate. I wasn’t allowed to leave the table … Now I have to finish everything that’s on the plate’ (Amanda)

For Katherine, there was a sense that food had historical significance in relation to generational factors concerning the scarcity and value of food. This had a lingering but, now, counter-productive influence, resulting in a battle between the past and present:

‘I’m from a generation where you’d get a crack across the back of the head. It’s there, you eat … So now you’ve got to fight your upbringing… it’s fifty years of being conditioned to ‘you eat your dinner’. (Katherine)

Interviewees referred to food being more than a source of physiological nourishment; it had special qualities which, for some, seemed to be related to a sense of calmness. Melanie spoke about food playing an historical role in bringing the family together, providing a sense of togetherness, intimacy and security:

‘Food’s always been there… when we were at home there were six of us kids. Three teenagers and three younger ones and the house was always full… I like a busy house.’ (Melanie)
2. **Loss**

For all interviewees, the onset of night eating appeared to be precipitated by a number of significant stressful events. Their response to these difficulties reflected the use of food as a method to cope with emotional problems and their beliefs pertaining to the special qualities of food. Many interviewees described engaging in night eating due to actual or perceived loss; of someone close, a relationship, or physical health:

“It wasn’t until (.) when it first started I was actually pregnant with my son and there was a possibility that there might be something wrong. I started off by not eating anything and then shortly afterwards…I was starting to eat after my evening meal.’

(Amanda)

For Robert, night eating coincided with retirement, symbolising a loss of role and, in many respects, a sense of identity:

‘with the best will in the world I couldn’t do it, otherwise I’d still be at work…I’d rather be at work. …I am depressed with this weight; I was depressed with finishing work.’ (Robert)

3. **The significance of night-time**

*A lonely night*

All participants reported that their mood was lowest at the end of the day. This time represented a period of heightened emotional vulnerability; a time of feeling disconnected from others, alone with a sense of emotional emptiness which enflamed difficult reminders of the past and present. Interviewees seemed more highly attuned and attentive to potential triggers, feelings and negative thoughts at night and ruminated upon their emotional experiences or situation:

‘Sometimes something may cross my mind… Maybe something on the television will trigger something off.’ (Keith)

‘I eat at night when I’ve got nothing to do and that’s when I start to think and worry about things…my dad’s not well (.) very unwell and he’s not going to get better.’ (Sally)
Conversely, daytime was described as a distraction or place of safety. Participants found a degree of comfort or strength to cope with their underlying emotional difficulties during the day by engaging in activities or by connecting with others and drawing on social support:

‘Yeah I don’t tend to snack during the daytime at all…I am so busy there isn’t a time to think about anything other than what you are doing.’ (Amanda)

‘During the day I can handle it… my daughter comes in to see me each day… And then after that of course, the snacking starts.’ (Keith)

The night also appeared significant in relation to providing the right social conditions for eating to occur produced by a feeling of privacy and a sense of eating in the shadows hidden from any witnesses or negative social consequences:

‘I get up, avoiding the creaky floorboards… and go downstairs, well the kitchen’s the first place you go isn’t it?’ (Margaret)

**Method of eating**

The nature of participants’ eating reflected the two distinct eating categories mentioned above. Interviewees engaging in ‘Evening Eating’ described an eating pattern of ‘grazing’ or ‘picking at food’, accompanied by a feeling of distress that gradually intensified. For Keith, the positioning and proximity of his evening snacks seemed to represent a sense of companionship:

‘I always bring a packet of biscuits in with me and put them on a table next to me’. (Keith)

In terms of ‘Night-Wake Eating’, this reflected individuals’ immediate need to cope with ‘Emotional Hunger’. Katherine described the nature of her eating in response to waking and the resultant experience of ‘dark thoughts’:
‘I’m hungry, I’m awake …I’ll go and find cake or biscuits. I wouldn’t think twice about eating it. It’s anything instant really.’ (Katherine)

For the majority of participants, eating was characterised by consuming ‘quick’ and ‘easily available’ carbohydrate based foods which were associated with certain emotional changes.

‘I like cake, sweets and chocolate… I feel calm when I’m eating them.’ (Melanie)

The selection of foods seemed automatic in nature, reflecting a ‘want’ or ‘need’ for calmness. Night eating suggested a desire to feel nourished emotionally, not necessarily physically, which relates to the core concept of ‘Emotional Hunger’.

4. A separation of the body and mind

_Habitual eating_

For all participants, the process of night eating was depicted as habitual or automatic, producing an almost involuntary, conditioned response of ‘zoning out’ or ‘switching off’ expressed by Joe as ‘doing not thinking’. The notion of habitual eating appeared to be characterised by a separation of the body and mind:

‘Your body can do something totally different to what your thoughts are doing …my mind is still wherever it is and you could have eaten whatever you’ve eaten.’ (Katherine)

Others described a lack of awareness during the actual act of eating:

‘…it’s not something that I’m sort of consciously aware of. Quite often I’d be eating and not realise that I’m actually doing it.’ (Amanda)

During several interviews, participants appeared to find it uncomfortable delving into and exploring their feelings and thoughts, again reflecting a sense of emotional fragility. This was reflected in a switch during conversations to more practical, unemotional focused content:
‘Since I’ve been on my own it’s been worse… Yeah, I’m now on my own. And erm (.) of course everything’s accessible and I choose what foods I eat which unfortunately tend to be sweet things.’ (Sally)

5. **Why I eat, not what I eat**

*Emotional Hunger: Why I eat*

When talking about their experiences prior to engaging in night eating behaviour, many interviewees drew upon comparisons between ‘typical’ hunger and night eating hunger. For participants, there was a clear contrast between a ‘typical’ hunger and what has been termed ‘Emotional Hunger’:

‘You know like, when you sort of like I’m a bit hungry and I could munch on something. But if I’m hungry, it’s like get out my way; I’ll fight you…You get a rumble or a grumble.’

(Katherine)

Katherine’s use of language seemed symbolic in making a distinction between ‘typical’ hunger and ‘Emotional Hunger’. Her description of hunger as a ‘rumble’ or a ‘grumble’ conveyed a difference between the experiences of a normal physical sensation (rumble) in comparison to a more intense emotionally charged feeling (grumble). In line with the understanding of an emotional element to night eating hunger, participants discussed the location of hunger as an important distinguishing factor. For example, Robert described ‘Emotional Hunger’ as occurring in the head, suggesting an experience of psychological discomfort:

‘Maybe it’s in my head, I don’t know, when you’re hungry you know you’re hungry. If I want something to eat, quite often my belly starts rumbling…. it’s probably in here (pointed to head) rather than my belly.’ (Robert)

For all participants, there was a sense of feeling overwhelmed at times, not by hunger, but by the uncontrollable nature and intensity of their emotions. Resisting the emotional urge to eat appeared to be a hopeless battle with an inevitable result:
‘...eating always wins you know. I did try on occasions… but I was holding my stomach. It was hurtful. My stomach was screaming for food.’ (Keith)

Feelings of dissatisfaction, loneliness and emotional emptiness ran throughout participants’ discourse. For all interviewees, there was the engagement in what appeared to be a search for an effective method of emotional regulation. Based upon their beliefs and past experiences, food was used to serve this function:

‘I just feel like I want something...I'm looking for something to make me feel better… so I'll go and get the stuff that does.’ (Margaret)

Participants’ descriptions reflected variations in intensity of emotions, coinciding with their identification as either engaging in ‘Evening Eating’ or ‘Night-Wake Eating’. For the latter, these ‘urges’ highlighted an immediate ‘need’ to cope or deal with emotional distress. There was the impression of intolerability in their narratives:

‘The need is to get up and eat. ‘Cos if you turn over, you’re wide awake by that time because you haven’t got up and got something to eat.’ (Katherine)

For those engaging in ‘Evening Eating’, the feeling of ‘Emotional Hunger’ seemed to indicate a more prolonged, protracted emotional distress, understood to be driven by desire, rather than desperation:

‘It’s probably a bit of erm (.) habit… I just want to have something to eat. I just feel like something to eat, that kind of thing.’ (Joe)

Negative emotions were identified as a precursor to night eating for all participants. The process of ‘zoning out’ or ‘switching off’ was rewarding for interviewees, providing a sense of relief, enabling them to deal with feelings of ‘Emotional Hunger’ and negative thoughts. Some participants seemed to turn to food in the evening as they would to a person for support or care during the day:
"I turn to the fridge...to stop my brain from wandering and thinking about things. It feels good while I'm eating." (Sally)

In understanding the functional effects of night eating, a number of interviewees likened the process to alcohol and smoking as it represented an automatic action serving an emotional regulatory function:

"Colleagues that I work with, a lot of them would go home and open a bottle of whiskey... I've never smoked but I've obviously turned to food". (Amanda)

The physiological reaction of eating and fullness provided a calming, almost anaesthetic return, removing feelings of distress:

"If I'm hungry, if I eat, I just start to calm down and the pain calms down. Because you're tense aren't you, you go really tense when you're angry". (Katherine)

However, the feeling of comfort and relief provided by food soon dissipated and it was acknowledged by all participants that night eating served only as a short-lived solution:

"It's just a temporary feeling...I don't know if satisfied is the right word. That kind of a bit of satisfaction and a bit of enjoyment". (Joe)

"It goes as soon as I've finished what I'm eating and then that feeling changes." (Sally)

For many, this relief from distress was soon replaced by feelings of guilt, shame, anger and self-condemnation.

*Feeling misunderstood: What I eat*

Feeling misunderstood was raised as an important factor maintaining participants' feelings of 'Emotional Hunger'. Feeling misunderstood by both professionals and at times, family, was raised
as a significant factor. There was a sense that their inner feelings were being dismissed and as though the focus was entirely on the external manifestation of their night eating, i.e. weight gain, with clinical interactions defined by questions and conversations pertaining to diet and exercise. Hence, interviewees believed that their care revolved around what, not why:

‘I’d like to them to understand generally that it’s not just about knowing about the calories in, calories out and it’s not that easy. There’s more to it… I do know I need to exercise more and eat less but for some reason I can’t.’ (Amanda)

Interviewees wanted answers to questions such as “Why can I not eat less?” and “Why do I choose food?” However, most believed their identity was defined by their weight, which in turn defined their care:

‘They’re only still looking at this one little box.(.) I can’t understand why they haven’t got me as a whole. But you try to tell them and it’s no, they’re just fat busting.’ (Katherine)

For participants, weight was understood not as purely physical, but an expression of an underlying, hidden need. Yet, it was apparent that some experienced incongruence between this underlying need and their experience of care. Frustration was notable in certain participants’ words:

‘this is a symptom of something else… stop putting a plaster on it and start to find out why.’

(Amanda)

6. The consequences of night eating

As mentioned above, relief or distraction from ‘Emotional Hunger’ was quickly supplanted by more negative feelings and thoughts and unintended social and physical ramifications after eating. The impact of night eating was understood as a set of inter-related consequences, reflecting what participants described as a ‘vicious cycle’.
Making a trade-off

Prior to engaging in night eating behaviour, interviewees recalled encountering inner conflict. At times, they faced a difficult trade-off between gaining emotional relief and the inevitability of having to deal with the emotional, social and physical short and long-term after effects of night eating. This was a difficult choice:

‘...you might as well just do it, rather than fight with your conscience, ‘cos that’s what it is. You fight with it, you wrestle with it and you know, someone always comes off worse.’

(Katherine)

After effects

In response to night eating, all participants acknowledged strong emotional consequences; they experienced ‘sadness’, ‘anger’, ‘guilt’ and ‘shame’, which often were precipitated by negative self-evaluations:

‘...it’s ‘you stupid cow you’re supposed to be losing weight’. And it comes back at me like that... I get angry that I’m doing it.’ (Katherine)

For others, night eating often resulted in impaired interpersonal relationships, particularly with family members. Consequently, some participants felt a burden to others, resulting in a sense of guilt:

‘Afterwards, you know, I’d remember that I’d made a promise to my mum and then when she found out, that’s when the arguments would start...: It was mostly because she was helping me, trying to help me lose weight.’ (Joe)

There appeared to be a significant relationship between participants’ health status and family relationships and also the symbolic nature of making and breaking promises. Certain interviewees worried that despite their many promises, their continuation to night eat, further weight gain and health deterioration would be perceived as a sign of not caring. For some, this was linked to failure:
‘I feel as though I have let them down… I think they’re concerned that I’m the healthy one at home and if anything happens to me…I have made promises to both of them’. (Amanda)

For many participants, the process of night eating was understood as a ‘downward spiral’ and they described feeling trapped in their current situation. Katherine talked about night eating as a series of vicious cycles of inter-related consequences reflecting the interplay between negative emotions, weight and physical health:

‘I’m trying not to get up [and eat] because I’m trying to lose weight. That’s what I mean, it’s a circle because once you jump on it, it goes round and round and it’s all different things. It’s not just the same circle.’ (Katherine)

Efforts to reduce consequences of night eating

In an attempt to minimise post night eating emotions, some participants tried to downplay the significance of their eating episode. Joe described trying to minimise night eating by reframing it as a ‘blip’:

‘I’d always try and tell myself like it’s alright you know, it’s just one sort of blip.. But I always knew in the back of my mind that it wasn’t. I was sort of lying to myself.’ (Joe)

Others discussed hiding evidence as a strategy to prevent further negative emotional and social consequences should family members find out:

‘If I had chocolate, I will hide the wrappers… I am ashamed; I don’t want her to know that I have let her down again.’ (Amanda)

As a result, for many there was a sense of feeling forced to be underhand or over vigilant to avoid being ‘caught’ or exposed.
Discussion

The current study aimed to address a gap in the literature by exploring the relationship between NES and the experience of emotion; specifically from the perspective of patients identified as obese. Grounded theory was used to explore this relationship from the perspective of service users. The present study adds to the literature in novel ways. Specifically, we identified a core concept of ‘Emotional Hunger’. It reflects a set of underlying, unmet emotional needs, characterised by themes of psychological discomfort, dissatisfaction, loneliness and emotional emptiness. Underpinning this core concept and illustrating the development, onset and maintenance of night eating were the six main categories outlined above. The model we present illustrates the interrelated nature of these categories and their relationship to the central concept of ‘Emotional Hunger’ (see Figure 1).

Participants offered insights into their relationship with food, demonstrating a learned belief pertaining to its unique, intimate, calming, functional qualities. Food was much more than a source of physiological nourishment; for participants, it provided an automatic method of emotional regulation, echoing previous proposals and findings (de Zwaan et al, 2015; Meule et al, 2014; Vander Wal, 2012). For participants, food was an attempt to satiate emotional distress. This is concordant with the affect regulation model of binge eating (Polivy & Herman, 1993), which asserts that maladaptive binge eating behaviour functions to decrease negative emotions. With further reference to binge eating behaviour, the affect regulation model proposes that increases in negative emotions trigger binge eating episodes, with the eating behaviour functioning to alleviate emotional distress through distraction or comfort (Telch & Agras, 1996; Gluck, 2006). Findings presented in this study suggest that the automatic nature of night eating fulfils a similar emotional regulatory function; the reduction in emotional distress establishes a conditioned habitual pattern of night eating behaviour.

Our findings are consistent with previous research on NES (Allison et al, 2004; Stunkard et al, 1955) with participants reporting the onset of NES in response to stressful life events, generally based around a theme of loss. For many interviewees, commencement of night eating seemed to reflect an interaction between their perceived inability to deal with emotional difficulties and their beliefs regarding the functional qualities of food. In addition and in line with previous research
(Calugi et al, 2009; de Zwaan, Roerig, Crosby, Karaz & Mitchell, 2006; Gluck et al, 2001; Lundgren et al, 2008), all participants scored above the normal range for depression and anxiety. The finding that participants’ mood tended to become lower in the evening, in contrast to classic depression, again reflects previous research (Birketvedt et al, 1999; Stunkard et al, 1955) and was identified in this study as a key factor precipitating night eating. Our analysis is novel in highlighting the significance of night-time; with the end of the day representing a time of increased emotional vulnerability and loneliness for participants and heightened attentiveness to emotional triggers. As a result, findings suggest a direct link exists between night-time, emotion and eating behaviour. The significance of night-time appeared to manifest itself as two distinct categories of night eating behaviour (‘Evening Eating’ and ‘Night-Wake Eating’), reflecting the intensity of experienced emotions.

The majority of participants in this study talked about an experience of inner conflict and having to make a difficult trade-off between emotional relief and the inevitability of dealing with a vicious cycle of emotional, social and physical consequences experienced after night eating. These consequences often resulted in feelings of guilt, shame, anger and self-condemnation, further reinforcing participants’ feelings of ‘Emotional Hunger’. The acknowledgement of impaired interpersonal relationships, particularly with family members, mirrors the work of Cleator et al (2013). In an often, unsuccessful, attempt to minimise negative post night eating emotions, some participants appeared to engage in a process of cognitive reframing, whilst many others, to avoid difficult social relations, talked about the hiding of physical evidence.

A further finding relating to the maintenance of night eating, pertained to participants’ feelings of being universally misunderstood both by professionals and family. This was illustrated by a major focus upon their physical weight. Switching the focus from ‘what’ to ‘why’ was seen as a major step forward in the process of dealing with their night eating difficulties.

**Limitations**

There are a number of potential limitations that need to be highlighted. As individuals were recruited from one site based within a regional service, this may have led to a bias in the type of data collected. We believe, however, that our findings and model have theoretical significance in
understanding the relationship between NES and the experience of emotion within individuals identified as obese.

It is acknowledged that theoretical sampling should be implemented, following engagement with initial data in grounded theory, as it allows for the development of an awareness and understanding of issues requiring further clarification or confirmation (Birks & Mills, 2015). In this study, procedures associated with grounded theory outlined by Charmaz (2014) were followed. However, theoretical sampling was not strictly adhered to for pragmatic reasons of time constraints associated with completing the research. Nevertheless, Dey’s (1999) concept of theoretical sufficiency was utilised, focusing on establishing categories sufficient to generate a testable grounded theory as opposed to achieving data saturation. Furthermore, steps were taken to include a varied sample in terms of age and gender, although it is acknowledged that a homogenous sample took part in terms of ethnicity; with all participants identified as White British.

**Implications for practice**

Findings from this study, in particular the concept of ‘Emotional Hunger’, illuminates the potential importance of adopting a holistic approach, which includes developing a psychological understanding when working with individuals who are obese and exhibiting night eating behaviour. It is evident in this sample that dealing with emotions through food leads to long-term emotional, social and physical consequences. As a result, this study points to the potential importance of adopting a screening procedure to identify individuals engaging in night eating behaviour. Importantly, it highlights the need to gain a psychological understanding of an individual’s eating behaviour when treating individuals in the NHS who exhibit night eating behaviour, especially if meaningful change and sustained weight loss are desired to improve quality of life.

**Recommendations for future research**

With regards to future research, an exploration of the two distinct night eating categories (‘Evening Eating’ and ‘Night-Wake Eating’) is recommended in order to further understand their significance and relationship within NES. Furthermore, conducting a similar exploration within a different centre or preferably in a variety of services with other minority ethnic groups would be beneficial.
Conclusion

The present study adds to the literature in novel ways by developing a greater understanding of the relationship between NES and the experience of emotion in individuals identified as obese. Using a grounded theory design has allowed for an in-depth understanding of how the core concept of ‘Emotional Hunger’ relates to six inter-related categories and how these interact and contribute to the development, onset and maintenance of NES. Furthermore, the present study has also highlighted that dealing with emotions through food can lead to long-term emotional, social and physical consequences. This suggests the need for a holistic intervention, which involves developing a psychological understanding when working with individuals who are obese and exhibiting night eating behaviour.
Figure 2: A conceptual model of the relationship between NES and the experience of emotion.
References


Paper 3

A Critical and Reflective Review of Papers 1 and 2.

Word count (excluding references): 4,332
Introduction

In this paper I provide a critical review and reflective account of my experiences conducting the two distinct but related studies and the research process as a whole. I have reviewed number of specific areas and methodological decisions that were made within each study. I also consider the strengths and weaknesses of the studies and consider the clinical implications for practice and research.

General reflections of the early research process

Following the successive departure of three supervisors with a background in psychology during the research development process, there was a lot of early uncertainty regarding the feasibility of the project. I was, however, passionate about continuing with the project and as result chose to continue with the original study idea. It was planned that a supervisor with a background in psychology and with knowledge of qualitative methodology would be brought in to help supervise the project. This did, however, prove to be difficult and supervisory input during the early stages of the research came mainly from a medical background. I was particularly aware of the dominant medical perspective present within bariatric and weight loss service settings and I recognised the significance of maintaining a balance between both a medical and psychological perspective during the shaping and conducting of this research. During this process, I kept a reflective diary which enabled me to maintain an awareness of these early developmental processes and reflect upon the potential impact this had upon the development of the project. Prior to conducting interviews, a supervisor was brought into the project with a background in psychology. I feel that maintaining a balance between both a psychological and medical perspective was highly significant to this research, particularly as it mirrors a significant theme emanating from the empirical study findings; suggesting the importance of adopting a holistic approach, which includes both a medical and psychological understanding when working with individuals with Night Eating Syndrome (NES). Although, overall, this was a difficult process, I feel I have learnt a lot about the various issues and difficulties that can arise during the development and conduction of a research project.
**Systematic review: Specific reflections**

*Choice of research question*

During the preparation phase for my empirical study, I read a number of papers which had conducted comparative studies into the eating patterns of Binge Eating Disorder (BED) and Night Eating Syndrome (NES) (Stunkard et al, 1996; Adami & Meneghelli, 1999; Allison, Grilo, Masheb & Stunkard, 2005; Harb et al, 2012). As part of my preparatory work, I also read Polivy and Herman’s (1993) chapter, “Etiology of Binge Eating: Psychological Mechanisms”. As a result, I became particularly curious and motivated to explore and compare the psychological mechanisms inherent within both BED and NES. I took the idea of conducting a comparative systematic review of the psychological mechanisms within both BED and NES to a number of supervisory meetings. Following a number of discussions and initial preparatory scoping searches, it was decided, as a research team, that the nature of conducting a comparative systematic review involving the synthesis of data from two individual disorders may prove to be too arduous given the time available to complete the work. As a result, it was decided that a more achievable aim would be to explore the potential psychological mechanisms within NES. No systematic review exploring this area was identified and, as a result, the research team and I considered that there was a strong rationale to complete a systematic review to address this topic. The review aimed to identify a number of underlying psychological mechanisms within NES and to comment on how the psychological mechanisms were measured.

**Systematic search**

In conducting the systematic literature search, I adhered to the principles of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses: Appendix 2) Statement (Moher, Liberati, Tetzlaff, & Altman, 2009). These principles provided a useful framework that ensured the search; screening process, selection of articles, quality appraisal, data synthesis and reporting were systematic and transparent. An initial task was to draw up an effective search strategy to capture articles as possibly relevant to the aim of the study. To ensure that my search terms accurately captured the phenomena I was interested in, I familiarised myself with the literature on psychological processes and mechanisms. Subsequently, utilising a number of search databases, I entered a large number of terms related to the definition of a psychological mechanism identified by Harvey, Watkins, Mansell & Shafran, (2004) as: an aspect of cognition (e.g. attention, memory,
thought, reasoning) or behaviour (e.g. overt or subtle avoidance) that may contribute to the maintenance of a psychological disorder (p. 14). Initial searches, however, returned an extremely limited number of records and, as result, conducting a search using these terms was effectively deemed to be too narrow. In order to capture as many articles as possible, a broad search strategy was implemented using a variation of search terms pertaining to NES. During the process of conducting the review, it became clear that there were processes related to emotion that were relevant and important to discuss. From a psychological perspective, I felt that these were highly important to include within the review.

**Screening**

Due to the implementation of a very broad systematic search, it effectively resulted in the screening of both the titles and abstracts of the majority of published studies conducted within NES. Although this proved an arduous task and a little overwhelming, it increased my confidence that I had not missed relevant articles. Throughout the screening of papers, I continually referred back to the definition of a psychological mechanism as described by Harvey et al (2004). The reliability of the retrieval process was checked by two of the authors who checked 10% of all references against the inclusion criteria. I was surprised during the screening of papers to find a distinct lack of qualitative research exploring the experiences of individuals living with NES. This provided further confirmation of the importance and potential significance of conducting the study described in paper 2.

**Quality assessment**

An assessment or evaluation of the methodological quality of a study has been identified as an important component of a comprehensive systematic review (Sanderson, Tatt & Higgins, 2007). Numerous evaluation tools are available. The selection of a suitable quality assessment tool to assist in the evaluation of the included studies was a process that I found difficult. In a review of the measures available to assess the quality of non-randomised studies, it was concluded that there is a lack of an obvious single tool to use for the assessment of observational epidemiological studies (Sanderson, Tatt & Higgins, 2007). Following discussions within supervision and with other trainees, I opted to select the MMAT (Pluye et al, 2011: Appendix 3) as it afforded a range of study designs including qualitative, quantitative and mixed methods studies. It should be noted that at
the time when the MMAT was selected, I had anticipated that the retrieval of studies would provide a greater variety of study designs.

**Synthesis**

In line with the review question, a narrative data synthesis approach was adopted; adapting the framework discussed in Popay et al (2006), to provide a textual description of the findings from the included studies (Appendix 6). From the guidance three main elements were followed:

1) Developing a preliminary synthesis; data was extracted into tables to organise findings from included studies and to describe patterns across the studies.

2) Exploring relationships in the data; it was noted that conceptual overlaps existed between the studies. A thematic approach was utilised to provide a means of exploring the similarities and differences between the studies and concepts.

3) Assessing the robustness of the synthesis product; an assessment of the strength of evidence for drawing conclusion from the included studies was implemented.

On reflection of the synthesis process, I found this aspect particularly challenging. The process of presenting a wide range of findings and concepts in an easily accessible and also meaningful way was particularly difficult and confusing at times. However, I feel the experience of coding, conceptualising and categorising data, which I gained from conducting the study within paper 2, meant that this process was fairly familiar, which eased some of my concerns.

**Systematic review: Overall reflections**

Conducting and learning about the processes involved in completing a systematic review has provided a rich learning experience. I feel as though I have developed a more critical and evaluative approach to reading papers. During this process, it has felt difficult at times to provide opinions and conclusions in what was an unfamiliar area of research. However, I felt my confidence grow throughout the review process as I became more familiar with the topic area. Although the process of synthesis could be criticised for lack of robustness, I have endeavoured to maintain transparency and clarity throughout.
Empirical study: specific reflections

The development of theory

In line with Sternberg and Grigorenko (2006), an important starting point in the research process was to ask myself the question: *Are my planned methods well suited to the type of research question that I am asking?*. With this in mind, I considered a grounded theory framework to be appropriate. To briefly explain; grounded theory is often discussed as an appropriate approach when conducting an investigation of relatively unchartered waters, or to gain a fresh perspective in a familiar situation (Stern, 1980). As opposed to a number of qualitative approaches, which engage in a process of deductive theorising, I was aware that grounded theory is based upon a set of methods that enable the systematic development of an inductive theory (Glaser, 1992; Crooks, 2001; Charmaz, 2014). In light of the paucity of research within NES and, more specifically, the relationship between NES and the experience of emotion, there was no real basis within the NES literature to adopt a deductive approach by testing an existing theory. A grounded theoretical approach, therefore, provided an appropriate framework in which a number of theoretical categories could be systematically constructed through an iterative process and then linked together to generate a theoretical explanation of the relationship between NES and the experience of emotion.

Some reflections of using a grounded theory approach

The identification of grounded theory as the methodology of choice led to supervisory discussions pertaining to which specific version of grounded theory to employ. Since Glaser and Strauss’ seminal texts in 1967 and 1978, grounded theory has evolved considerably, with many different versions being developed (Braun & Clarke, 2013). Although I had some previous, but limited, experience using grounded theory, these early discussions were a novel, and at times, daunting experience. It has been noted that amateur grounded theorists have been criticised for selecting incompatible elements of different versions (Cutcliffe, 2000) and although these early experiences in learning and gaining some understanding of the different versions of grounded theory were at times confusing, I believe it allowed me to reflect somewhat upon my own research philosophy. I, therefore, chose to conduct my research within a constructivist interpretation of grounded theory (Charmaz, 2014). Due to the academic rigour of the doctoral programme it was necessary to conduct a brief literature search prior to data collection and analysis. This is more in line with a
constructivist approach to grounded theory which asserts that the process begins with the development of questions related to a substantive area (Hernandez & Andrews, 2012). The constructivist approach also adopts a reflexive stance towards the research process; embracing relativism with the assertion that the construction of meaning and theory is a shared reality involving both the participant and the researcher. The epistemology of constructivism resonated across a number of core issues underpinning this research. For example, a core issue to emanate from this research was the need for interviewees to develop a collaborative approach to their care in order for a shared understanding of their difficulties to be developed by clinicians. Furthermore, the reflexive stance, suggested by a constructivist grounded theory approach, mirrored my own experiences of working within a therapeutic setting, in which I value and recognise the importance of understanding my own influential impact upon the nature of an interaction.

*Conducting the interview*

- The interview location

Interviews are understood as social processes in themselves and are understood to construct individual subjectivity (Gubrium, Holstein, Marvasti & McKinney, 2012). Amongst the most neglected components is the choice of interview location, with many studies referring to the location of the interview as a minor detail with no reference to its potential significance to the research findings (Herzog, 2012). However, from my own experience within this research, I felt the location of the interview played a role in constructing reality and, as a result, I feel it should be examined and understood as an influential factor within the social context of the study. To briefly discuss; all interviews were conducted in a dedicated research facility located on the same site as the weight management clinic. The research facility is mainly used for medical research and all rooms in which the interviews were conducted were orientated for this purpose. As a result, the interview location was a clinical, and somewhat sterile, environment, containing beds and medical equipment. There is the possibility that the location of the research interview mimicked the potential feel of a typical routine clinic appointment, which may have indirectly constructed a medical feel or dynamic to the interview process; thus creating a potential demand characteristic based upon participants’ previous experiences of talking about their eating habits. An important observation that was noted throughout the interviews was the consistent deviation away from emotional aspects of their night eating to a more ‘what’ focused, practical content. During the analysis of interviews, this was understood to reflect a sense of emotional fragility and an uncomfortableness.
to discuss their feelings and thoughts. Although this position is still very much maintained, I feel it is important to explore and raise other, potentially influential, factors that may contribute to the construction of meaning within this study. It should also be noted that the research facility did, however, provide a space for participants to talk about their difficulties away from their family, whereas a home environment can be associated with greater levels of disruption and distraction (Adler & Adler, 2002). Although it is clear that there is no perfect location for an interview to take place, the location of the interview should be acknowledged as analytically important to the research process (Herzog, 2012).

- The interview

Conducting an interview as part of a qualitative study relies on conducting a more or less directed conversation (Loftland & Loftland, 1995). As described by Charmaz (2014), interviews can be a complex situation, in which the aim is to create an open interactional space in which the participant can relate their experiences. For some, it evidently felt strange to enter an in-depth, intimate social encounter with someone they did not know and a number of interviewees were at times, cautious about opening up and talking about their experiences. As a result, it was important for me to use my prior clinical experience and skills to create a trusting, safe and non-judgemental space for participants to explore and talk about their experiences. In line with Borbasi, Jackson & Wilkes (2005), it was evident at times, particularly during the interview itself, that I was occupying dual roles. Prior to the conduction of interviews, I attended a small number of qualitative seminars which provided me with the opportunity to take part in a number of interview role-plays. I believe these initial preparatory experiences enabled me to anticipate potential difficulties that could arise within a research interview. Due to the area of exploration within this research, it was common to touch upon areas frequently explored within my clinical role. As a result, it was important for me to resist the therapeutic reflex to provide psychological care to interviewees. It was important during these occasions to maintain a high level of self-awareness and mindfully notice these urges to slip into therapy mode. Throughout the interview process, reflections were noted in a reflective journal as a method of maintaining reflexivity.


**Analysis**

- **Transcription**

A number of qualitative researchers believe that transcribing one’s own data is highly desirable (Park & Zeanah, 2005; Wengraf, 2001). I transcribed the majority of interviews and, although this was a highly time consuming process, I also subscribe to the aforementioned statement. I became highly aware that the process brought me closer to the data and transcribing my own data provided me with a unique opportunity to critique and improve upon the interview process. For example, on some occasions I noticed that I was at times a little eager to understand and query aspects of participants’ rhetoric. I found, through the process of transcription, that I was able to re-evaluate my interview technique and ultimately adopt a much more conversational style which is more in fitting with Charmaz (2014). I feel this provided a more relaxed tone to the interview process which provided participants with a space to explain and express their experiences and difficulties more naturally. Furthermore, the transcription process also gave me an opportunity to be focused on the data without being distracted by the process of data collection. As a result, listening to the recordings multiple times enabled me to identify elements and themes within participants’ responses that I may not have detected had I not become as familiar and close to the data.

- **Grounding the data**

In line with the principles of grounded theory (Charmaz, 2014), a number of procedures were conducted to ensure that the development of categories and emerging theory were grounded in the data (Elliot, Fischer & Rennie, 1999). One procedure utilised was member checking. Each participant was sent a summary of prominent codes and categories (‘Emotional Hunger’; ‘Misunderstanding’ etc: Appendix 20) and asked to complete and return a verification sheet (Appendix 21). A number of statements returned by participants reflected the familiar and habitual way of talking with professionals about food and hunger in terms of ‘what’ content. From an ethical standpoint, the utilisation of member checking is also acknowledged to be a method of reducing the researcher-participant power imbalance (Karnielli-Miller, Strier & Pessach, 2015). As a result, the utilisation of member checking within this study was also a way for me to express my respect for participants as active partners within the research process. A process of triangulation also took place; whereby the research team discussed the themes and constructs together and also with a practising Clinical Psychologist with expertise of eating disorders. I feel this not only
added further clarification of themes, but also ensured that the data was not interpreted using just a single lens.

Memo-writing has been suggested by Charmaz (2014) to be a pivotal step in grounded theory between data collection and writing drafts of papers. I found that the writing of memos enabled me to stop and analyse my thoughts, feelings and reactions during data collection, which was crucial; prompting me to explore my data and develop my codes into categories early on in the research process and to keep the development of themes and emerging theory grounded in the data. I also feel as though the development of a rich set of memos early on in the research process enabled me to develop a broader set of theoretical questions to explore during the data collection and analysis phase. There were times during the early stages of the coding process that were particularly challenging and slightly overwhelming due to the sheer number of identified codes. The writing of successive memos enabled me to take a step out of my data and visually look at the emerging themes and categories in a less intimating form. I found that this reduced my experience of feeling overwhelmed and provided me the desired breathing space to structure my ideas and understandings.

**Limitations**

Difficulties early on in the research development process, which included the departure of three supervisors, led to a number of setbacks which impacted upon the timescale of the research. The original research plan was to begin the interviewing in July 2015; however, interviewing did not actually begin until October 2015 which ultimately meant that project recruitment and interviews took place across a shorter time period. In order to manage my time effectively, interviews were scheduled in advance and at manageable intervals. Ideally, recruitment would have involved selecting participants who were likely to develop the properties of the emerging categories.

A further potential limitation of this study was the sample size. Although it was considered that the analysis had met a point of theoretical sufficiency (Dey, 1999), the recruitment of larger numbers, given more time, may have yielded further interesting discoveries and enhanced the credibility of the study. However, I am comforted by the notion that new, or more data, does not necessarily add anything to the overall story, model, theory or framework (Strauss and Corbin, 1998) and I feel that
the interviews I have conducted with the ten individuals have provided valuable insight and contributed to a theory that is grounded in the data.

The model that has emerged from this research is not assumed to be an exhaustive representation of the data collected, but a theory that provides insight into the relationship between NES and the experience of emotion in an obese population. All participants within the study described themselves as White British, which may have represented the area in which recruitment was conducted. Exploring the developed theory within other populations may strengthen the relevance of the theory.

**Clinical implications of papers 1 and 2**

In paper 1, findings emanating from the systematic review have highlighted the existence of a number of underlying psychological mechanisms within NES and provided some insight into their potential function. It is hoped that this can be clinically useful in raising our awareness of these psychological mechanisms when working clinically with individuals exhibiting night eating behaviour; particularly when working psychologically with individuals with NES. Although, to understand these mechanisms further, it was noted that more enhanced explorations using qualitative methods and a greater utilisation of more robust research methods were needed.

Paper 2 could be considered as a continuation from paper 1, in that it builds upon the relatively limited research investigating the relationship between NES and emotions, as identified in paper 1, using qualitative methodology. The main finding in paper 2 was the identification of a core concept of ‘Emotional Hunger’, which reflected a set of underlying, unmet emotional needs, characterised by themes of psychological discomfort, dissatisfaction, loneliness and emotional emptiness. It appeared evident from both studies that dealing with emotions through food can potentially lead to long-term emotional, social and physical consequences. In addition, a further significant finding from the empirical study was participants’ experiences of feeling universally misunderstood both by professionals and family, with too much emphasis on what they were eating and not why they were eating. Translating these findings into clinical implications suggests the need to adopt a holistic approach when working individuals with NES, an approach which includes developing a
psychological understanding, and also the importance of adopting a screening procedure to identify individuals engaging in night eating behaviour.

**Implications for my practice**

Conducting research with services users in what was an unfamiliar area has provided me with what I feel was an excellent opportunity to increase my skills and knowledge base. I believe this project has provided me with unique insights into a number of issues which I can take forward into my clinical work. Being able to stop and really reflect on issues such as the functional significance of food as much more than a basic source of physiological nourishment but as an automatic method of emotional regulation has raised my awareness with regards to the importance and potential significance of exploring these areas within my clinical work. Furthermore, the importance of working holistically with other professionals has also been clearly demonstrated within this study. This has further proven to me the importance within my clinical work of adopting a holistic biopsychosocial approach to formulation. As this has been my first experience of working with individuals within a physical health setting, I am able to recognise the importance of incorporating medical, organic and developmental factors, alongside an exploration of the personal meaning of the condition; including the individual’s wider social interpersonal and environmental context.

**Theoretical understanding**

In conducting this work, I feel it is also important to briefly reflect and discuss the results of the empirical study in relation to current theory. Within the empirical study it was identified that night eating behaviour for many participants was an attempt to satiate emotional distress, which in effect appeared to establish a conditioned pattern of habitual eating. This is concordant with affect regulation models of psychopathology and Binge Eating Disorder (BED, Polivy & Herman, 1993) which asserts that maladaptive behaviours function to decrease negative emotions. Within this study, underlying night eating behaviour was the identification of what was understood to be a set of core unmet emotional needs or feelings of emotional emptiness which appeared to contribute to recurrent experiences of emotional discomfort. What is particularly significant within this study is that participants appeared to be able cope with their underlying emotional difficulties during the day by utilising effective coping strategies, whereas the evening or night time consistently represented a period of increased emotional fragility, which seemingly reflected a reduced ability and availability
of adaptive emotion-focused coping strategies. Developed beliefs, regarding the functional qualities of food, suggested that eating was seen as an affect regulatory strategy to cope with the experience of emotional discomfort in the evenings and night time. A key finding within this study, therefore, is the identification that a direct link exists between night-time, eating behaviour and affect regulation.

Concluding comments

My aim for this research was to contribute to the evidence base by developing a greater psychological understanding of NES. I am satisfied that I have been able to achieve this and feel that the process as a whole has been a challenging, yet rich, learning experience.
References


APPETITE

TABLE OF CONTENTS

- Description p.1
- Audience p.1
- Impact Factor p.1
- Abstracting and Indexing p.2
- Editorial Board p.2
- Guide for Authors p.4

DESCRIPTION

Appetite is an international research journal specializing in cultural, social, psychological, sensory and physiological influences on the selection and intake of foods and drinks. It covers normal and disordered eating and drinking and welcomes studies of both human and non-human animal behaviour toward food. Appetite publishes research reports, reviews and commentaries. Thematic special issues appear regularly. From time to time the journal carries abstracts from professional meetings.

Research areas covered include:

- Psychological, social, sensory and cultural influences on appetite
- Cognitive and behavioural neuroscience of appetite
- Clinical and pre-clinical studies of disordered appetite
- Nutritional influences on appetite
- Food attitudes and consumer behaviour
- Psychology and ethnography of dietary habits
- History of food cultures

Benefits to authors

We also provide many author benefits, such as free PDFs, a liberal copyright policy, special discounts on Elsevier publications and much more. Please click here for more information on our author services.

Please see our Guide for Authors for information on article submission. If you require any further information or help, please visit our support pages: http://support.elsevier.com

AUDIENCE

Psychology, Social Research, Neuroscience, Physiology, Nutrition, Sensory Food Science

IMPACT FACTOR

2014: 2.691 © Thomson Reuters Journal Citation Reports 2015
ABSTRACTING AND INDEXING

Scopus

EDITORIAL BOARD

**Executive Editors**
- P. Atkins, Durham University, Durham, UK
- N.W. Bond, Western Sydney University, Penrith, New South Wales, Australia
- C. Collins, The University of Newcastle, Callaghan, New South Wales, Australia
- C. Davis, York University, Toronto, Ontario, Canada
- J.D. Fisher, Temple University, Philadelphia, Pennsylvania, USA
- N. Geary
- M. Getherton, University of Leeds, Leeds, UK
- S. Higgs, University of Birmingham, Birmingham, UK

**Editor**
- D. Hoffman, Rutgers University, New Brunswick, New Jersey, USA
- L. Holm, University of Copenhagen, Copenhagen, Denmark
- K. Keller, Pennsylvania State University, University Park, Pennsylvania, USA
- L. Lähteennäki, Aarhus University, Aarhus V, Denmark
- C. Nederkoorn, Maastricht University, Maastricht, Netherlands
- S. Nicklaus, Institut National de la Recherche Agronomique, Dijon, France
- H. Reynor, University of Tennessee, Knoxville, Tennessee, USA
- P. Scholliers, Vrije Universiteit Brussel (VUB), Brussels, Belgium
- M. Siegrist, Eidgenössische Technische Hochschule (ETH) Zürich, Zürich, Switzerland
- D.M. Small, The John B Pierce Laboratory, New Haven, Connecticut, USA

**Advisory Editors**
- W.S. Agraw, Stanford University School of Medicine, Stanford, California, USA
- S. Anton, University of Florida, Gainesville, Gainesville, Florida, USA
- B. Appelhans, Rush University Medical Center, Chicago, Illinois, USA
- T. Baranowski, Baylor College of Medicine, Houston, Texas, USA
- G.K. Beauchamp, Morrell Chemical Sensors Center, Philadelphia, Pennsylvania, USA
- J. Biscott, University of Birmingham, Birmingham, England, UK
- M. Bruegel, Institut National de la Recherche Agronomique, IBRY-sur-SEINE, France
- J. Brunstrom, University of Bristol, Bristol, UK
- M. Caraher, City University London, London, England, UK
- S. Carnell, John Hopkins University, Baltimore, Maryland, USA
- A. Fischer, Wageningen University, Wageningen, Netherlands
- C. Fontaine, Centre National de la Recherche Scientifique (CNRS), Paris, France
- K.G. Grunert, Aarhus University, Aarhus C, Denmark
- C.P. Herman, University of Toronto, Toronto, Canada
- A. Jansen, University of Maastricht, Maastricht, Netherlands
- S. Kirkpatrick, University of Waterloo, Waterloo, Ontario, Canada
- H. Kissel, Columbia University Medical Center, New York, New York, USA
- T. Kral, University of Pennsylvania, Pennsylvania, USA
- S. La Fleur, Academic Medical Center of the University of Amsterdam, Amsterdam, Netherlands
- L. Lenard, University of Pécs (Pécsi Tudományegyetem), Pécs, Hungary
- M. Lowe, Drexel University, Philadelphia, Pennsylvania, USA
- J. Lumeng, University of Michigan, Ann Arbor, Michigan, USA
- H. Meiselman, Herb Meiselman Training and Consulting, Rockport, Massachusetts, USA
- S. Nicolaidis, Institut European SOCA, Bourg-la-Reine, France
- E.K. Pappas, University of Glasgow, Glasgow, UK
- Y. Pepino, Washington University School of Medicine, St Louis, Missouri, USA
- S. Patatigow, Curtin University, Perth, Western Australia, Australia
- P. Plunk, University of Toronto, Toronto, Canada
- B. Popkin, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA
- F.D. Provenza, Utah State University, Logan, Utah, USA
- M.M. Raice, University of Minnesota, Minneapolis-St. Paul, Minnesota, USA
- A. Reefs, University of Maastricht, Maastricht, Netherlands
- B.J. Rolla, Pennsylvania State University, University Park, Pennsylvania, USA
- N.C. Rowland, University of Florida, Gainesville, Florida, USA
- A. Scalfani, City University of New York (CUNY), Brooklyn, New York, USA
- G.P. Smith
- R. Stevenson, Macquarie University, Sydney, New South Wales, Australia
L.R. Vartanian, University of New South Wales, Sydney, New South Wales, Australia
Y. Wada, National Food Research Institute, Tsukuba, Japan
M. Yeomans, University of Sussex, Brighton, UK
D.A. Zellner, Montclair State University, Montclair, New Jersey, USA

Founding Editor
D.A. Booth, University of Sussex, East Sussex, England, UK
GUIDE FOR AUTHORS

Your Paper Your Way

We now differentiate between the requirements for new and revised submissions. You may choose to
submit your manuscript as a single Word or PDF file to be used in the refereeing process. Only when
your paper is at the revision stage, will you be requested to put your paper into a 'correct format' for
acceptance and provide the items required for the publication of your article.

To find out more, please visit the Preparation section below.

INTRODUCTION

Types of article

Full length papers

Full length papers including empirical reports and theoretical reviews are published. Reviews may be
of any length consistent with succinct presentation, subdivided as appropriate to the subject matter.

Special Sections or Issues

Proposals for a themed collection, symposium or commentary should be sent to the Contact Editor
and appetite@elsevier.com, listing provisional authors, titles and lengths of papers and suggesting
Executive, Advisory or Guest Editors with a timetable for recorded peer-reviewing, revision and
transmittal in the format required for publication. The reviews or reports in a special section or issue
will be subject to the normal process of peer-review.

Commentary sections

Commentary sections may include a keynote paper, brief comments and reply.

Conference Abstracts

Conference Abstracts in guest-edited sets from international multidisciplinary conferences are
sometimes published. All the abstracts in a set must be limited to a total word count of no more
than 300 (4 per page) and formatted as a single paragraph with no subheadings. The abstract starts
with the title (mostly in lower case), name(s) of author(s) (upper case) and one postal address,
complete with postcode and country, followed on the same line by one stand-alone e-mail address.
Any acknowledgements or references are included within the paragraph; between the cited author(s)
and year can be placed the abbreviated title of the journal, volume and page. Tables, figures and
footnotes are not allowed. A published abstract should not promise findings or discussion, nor refer
to presentation at the meeting. The title of the meeting as the main title, the location and dates as
a sub-title must be provided to form the heading of the set of abstracts. Any session titles, special
lectures or other material must fit into the format and word count for the abstracts in that set.

Please note that questionnaires and interview protocols (in Figure form) are not published.

Contact details for submission

Authors should submit their articles electronically at: http://ees.elsevier.com/appetite/

BEFORE YOU BEGIN

Ethics in publishing

Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

Human and animal rights

If the work involves the use of human subjects, the author should ensure that the work described has
been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration
of Helsinki) for experiments involving humans; Uniform Requirements for manuscripts submitted to
Biomedical journals. Authors should include a statement in the manuscript that informed consent
was obtained for experimentation with human subjects. The privacy rights of human subjects must
always be observed.

All animal experiments should comply with the ARRIVE guidelines and should be carried out in
accordance with the U.K. Animals (Scientific Procedures) Act, 1986 and associated guidelines, EU
Directive 2010/63/EU for animal experiments, or the National Institutes of Health guide for the care
and use of Laboratory animals (NIH Publications No. 85-23, revised 1978) and the authors should
clearly indicate in the manuscript that such guidelines have been followed.
Declaration of interest

All authors are requested to disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations within three years of beginning the submitted work that could inappropriately influence, or be perceived to influence, their work. More information.

Submission declaration

Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis, or as an electronic preprint, see 'Multiple, redundant or concurrent publication' section of our ethics policy for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere including electronically in the same form, in English or in any other language, without the written consent of the copyright-holder.

Authors are requested to declare if their work has been peer-reviewed previously, and if so they are encouraged to supply along with their manuscript files their responses to previous review comments.

Changes to authorship

Authors are expected to consider carefully the list and order of authors before submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only before the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the corresponding author: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed.

Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of author names after the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum.

Copyright

Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see more information on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases.

For open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (more information). Permitted third party reuse of open access articles is determined by the author’s choice of user license.

Author rights

As an author you (or your employer or institution) have certain rights to reuse your work. More information.

Elsevier supports responsible sharing

Find out how you can share your research published in Elsevier journals.

Role of the funding source

You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s). If any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

AUTHOR INFORMATION PACK 3 Jun 2016 www.elsevier.com/locate/appet 5
Funding body agreements and policies
Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder’s open access policies. Some funding bodies will reimburse the author for the Open Access Publication Fee. Details of existing agreements are available online.

Open access
This journal offers authors a choice in publishing their research:

Open access
• Articles are freely available to both subscribers and the wider public with permitted reuse.
• An open access publication fee is payable by authors or on their behalf, e.g. by their research funder or institution.

Subscription
• Articles are made available to subscribers as well as developing countries and patient groups through our universal access programs.
• No open access publication fee payable by authors.

Regardless of how you choose to publish your article, the journal will apply the same peer review criteria and acceptance standards.

For open access articles, permitted third party (re)use is defined by the following Creative Commons user licenses:

Creative Commons Attribution (CC BY)
Lets others distribute and copy the article, create extracts, abstracts, and other revised versions, adaptations or derivative works of or from an article (such as a translation), include in a collective work (such as an anthology), text or data mine the article, even for commercial purposes, as long as they credit the author(s), do not represent the author as endorsing their adaptation of the article, and do not modify the article in such a way as to damage the author’s honor or reputation.

Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)
For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

The open access publication fee for this journal is USD 2600, excluding taxes. Learn more about Elsevier’s pricing policy: https://www.elsevier.com/openaccesspricing.

Green open access
Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our green open access page for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution’s repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo periods for subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form.

This journal has an embargo period of 24 months.

Elsevier Publishing Campus
The Elsevier Publishing Campus (www.publishingcampus.com) is an online platform offering free lectures, interactive training and professional advice to support you in publishing your research. The College of Skills training offers modules on how to prepare, write and structure your article and explains how editors will look at your paper when it is submitted for publication. Use these resources, and more, to ensure that your submission will be the best that you can make.

Language (usage and editing services)
Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier’s WebShop.
Sex and Sexuality

Appetite publishes research across the spectrum of biological to cultural influences on eating. Both sorts of influences interact with sexuality. Appetite encourages attention to these interactions. To this end, authors are asked to use "sex" rather than "gender" to describe indicators of biological sex, including sex chromosomes, gonads, internal reproductive organs, and external genitalia, and to consider using, in addition to "male" and "female," "intersex" or "other" for combinations of these indicators that do not fit male and female, and to use appropriate terms, such as gay, lesbian, bisexual, transgender, etc., to describe subjects' sexuality if the research addresses this.

Submission

Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

Submit your article

Please submit your article via http://ees.elsevier.com/appet/

References

Please submit, with the manuscript, the names, addresses and e-mail addresses of three potential referees along with your reasons for suggesting them. Note that the editor retains the sole right to decide whether or not the suggested reviewers are used.

PREPARATION

NEW SUBMISSIONS

Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts your articles to a single PDF file, which is used in the peer-review process.

As part of the Your Paper Your Way service, you may choose to submit your manuscript as a single file to be used in the refereeing process. This can be a PDF file or a Word document, in any format or layout that can be used by referees to evaluate your manuscript. It should contain high enough quality figures for refereeing. If you prefer to do so, you may still provide all or some of the source files at the initial submission. Please note that individual figure files larger than 10 MB must be uploaded separately.

Appetite has published an editorial with guidelines on design and statistics, which authors are encouraged to consult.

References

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter, and the pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct.

Formatting requirements

There are no strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, for example Abstract, Keywords, Introduction, Materials and Methods, Results, Conclusions, Artwork and Tables with Captions.

If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes.

Divide the article into clearly defined sections.

Please ensure your paper has consecutive line numbering, this is an essential peer review requirement.

Figures and tables embedded in text

Please ensure the figures and the tables included in the single file are placed next to the relevant text in the manuscript, rather than at the bottom or the top of the file.

REVISED SUBMISSIONS

Number all the pages of the manuscript consecutively and make sure line numbers are included too.
Use of word processing software
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). See also the section on Electronic artwork.
To avoid unnecessary errors you are strongly advised to use the ‘spell-check’ and ‘grammar-check’ functions of your word processor.

Article structure
Subdivision - unnumbered sections
Divide your article into clearly defined sections. Each subsection is given a brief heading. Each heading should appear on its own separate line. Subsections should be used as much as possible when cross-referencing text: refer to the subsection by heading as opposed to simply ‘the text’.

Introduction
State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

Material and methods
Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described.

Results
Results should be clear and concise.

Discussion
This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

Conclusions
The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.

Appendices
Appendices are not encouraged. Critical details of Method should be described in that section of the manuscript.

Essential title page information
• Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.

• Author names and affiliations. Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. Present the authors’ affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author’s name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

• Corresponding author. Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.

• Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a ‘Present address’ (or ‘Present affiliation’) may be indicated as a footnote to that author’s name. The address at which the author actually did the work must be retained as the main affiliation address. Superscript Arabic numerals are used for such footnotes.

Abstract
A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone. For this reason, References should be avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself. As per the journal style, the abstract text should not be more than 200 words (1500 characters including spaces).
Graphical abstract

Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1220 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site.

Authors can make use of Elsevier’s Illustration and Enhancement Service to ensure the best presentation of their images and in accordance with all technical requirements; Illustration Service.

Keywords

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, “and” and “of”). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Abbreviations

Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

Acknowledgements

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Formatting of funding sources

List funding sources in this standard way to facilitate compliance to funder’s requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number zzzz].

It is not necessary to include detailed descriptions of the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, please include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Units

Follow internationally accepted rules and conventions: use the international system of units (SI). If other units are mentioned, please give their equivalent in SI. The one exception to this rule is that energy may be expressed in kilocalories (kcal) or joules.

Math formulae

Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

Footnotes

Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors build footnotes into the text, and this feature may be used. Should this not be the case, indicate the position of footnotes in the text and present the footnotes themselves separately at the end of the article.

Artwork
Electronic artwork

General points
• Make sure you use uniform lettering and sizing of your original artwork.
• Preferred fonts: Arial (or Helvetica), Times New Roman (or Times), Symbol, Courier.
• Number the illustrations according to their sequence in the text.
• Use a logical naming convention for your artwork files.
• Indicate per figure if it is a single, 1.5 or 2-column fitting image.
• For Word submissions only, you may still provide figures and their captions, and tables within a single file at the revision stage.
• Please note that individual figure files larger than 10 MB must be provided in separate source files. A detailed guide on electronic artwork is available.

You are urged to visit this site; some excerpts from the detailed information are given here.

Formats
Regardless of the application used, when your electronic artwork is finalized, please ‘save as’ or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):
• EPS (or PDF): Vector drawings. Embed the font or save the text as ‘graphics’.
• TIFF (or JPEG): Color or grayscale photographs (halftones): always use a minimum of 300 dpi.
• TIF (or JPEG): Bitmapmed line drawings: use a minimum of 1000 dpi.
• TIF (or JPEG): Combinations bitmapped line/halftone (color or grayscale): a minimum of 500 dpi is required.

Please do not:
• Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); the resolution is too low.
• Supply files that are too low in resolution.
• Submit graphics that are disproportionately large for the content.

Color artwork
Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF), or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in color in the printed version. For color reproduction in print, you will receive information regarding the costs from Elsevier after receipt of your accepted article. Please indicate your preference for color: in print or online only. Further information on the preparation of electronic artwork.

Illustration services
Elsevier’s WebShop offers Illustration Services to authors preparing to submit a manuscript but concerned about the quality of the images accompanying their article. Elsevier’s expert illustrators can produce scientific, technical and medical-style images, as well as a full range of charts, tables and graphs. Image ‘polishing’ is also available, where our illustrators take your image(s) and improve them to a professional standard. Please visit the website to find out more.

Figure captions
Ensure that each illustration has a caption. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations to themselves to a minimum but explain all symbols and abbreviations used.

Tables
Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules.

References
Citation in text
Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the
journal and should include a substitution of the publication date with either ‘Unpublished results’ or ‘Personal communication’. Citation of a reference as ‘in press’ implies that the item has been accepted for publication.

Web references
As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

References in a special issue
Please ensure that the words ‘this issue’ are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

Reference management software
Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley and Zotero, as well as EndNote. Using the word processor plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal’s style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide.

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link:
http://open.mendeley.com/use-citation-style/appetite
When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

Reference formatting
There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

Reference style
Text: Citations in the text should follow the referencing style used by the American Psychological Association. You are referred to the Publication Manual of the American Psychological Association, Sixth Edition, 166f 978-1-4338-0561-5, copies of which may be ordered online or APA Order Dept., P.O.B. 1710, Hyattsville, MD 20784, USA or APA, 3 Henrietta Stree, London, WC3 E 8U. UK.
List: references should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.
Examples:
Reference to a journal publication:
Reference to a book:
Reference to a chapter in an edited book:
Reference to a website:
Journal abbreviations source
Journal names should be abbreviated according to the List of Title Word Abbreviations.
Video data
Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file’s content. In order to ensure that your video or animation material is directly usable, please provide the files in one of our recommended file formats with a preferred maximum size of 150 MB. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply ‘still’ with your files; you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

Supplementary material
Supplementary material can support and enhance your scientific research. Supplementary files offer the author additional possibilities to publish supporting applications, high-resolution images, background datasets, sound clips and more. Please note that such items are published online exactly as they are submitted; there is no typesetting involved (supplementary data supplied as an Excel file or as a PowerPoint slide will appear as such online). Please submit the material together with the article and supply a concise and descriptive caption for each file. If you wish to make any changes to supplementary data during any stage of the process, then please make sure to provide an updated file, and do not annotate any corrections on a previous version. Please also make sure to switch off the ‘Track Changes’ option in any Microsoft Office files as these will appear in the published supplementary file(s). For more detailed instructions please visit our artwork instruction pages.

RESEARCH DATA
Database linking
Elsevier encourages authors to connect articles with external databases, giving readers access to relevant databases that help to build a better understanding of the described research. Please refer to relevant database identifiers using the following format in your article: Database xxxxxx (e.g., TAIR: AT1001020; CCDC: 734033; PDB: 1XPN). More information and a full list of supported databases.

AudioSlides
The journal encourages authors to create an AudioSlides presentation with their published article. AudioSlides are brief, webinar-style presentations that are shown next to the online article on ScienceDirect. This gives authors the opportunity to summarize their research in their own words and to help readers understand what the paper is about. More information and examples are available. Authors of this journal will automatically receive an invitation e-mail to create an AudioSlides presentation after acceptance of their paper.

Interactive plots
This journal enables you to show an Interactive Plot with your article by simply submitting a data file. Full instructions.

Submission checklist
The following list will be useful during the final checking of an article prior to sending it to the journal for review. Please consult this Guide for Authors for further details of any item.

Ensure that the following items are present:
One author has been designated as the corresponding author with contact details:
• E-mail address
• Full postal address
All necessary files have been uploaded, and contain:
• Keywords
• All figure captions
• All tables (including title, description, footnotes)
Further considerations
• Manuscript has been ‘spell-checked’ and ‘grammar-checked’
• All references mentioned in the Reference list are cited in the text, and vice versa
• Permission has been obtained for use of copyrighted material from other sources (including the Internet).
• Printed version of figures (if applicable) in color or black-and-white.
• Indicate clearly whether or not color or black-and-white in print is required.

AFTER ACCEPTANCE

Online proof correction
Corresponding authors will receive an e-mail with a link to our online proofing system, allowing
annotation and correction of proofs online. The environment is similar to MS Word; in addition to
editing text, you can also comment on figures/tables and answer questions from the Copy Editor.
Web-based proofing provides a faster and less error-prone process by allowing you to directly type
your corrections, eliminating the potential introduction of errors.
If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions
for proofing will be given in the e-mail we send to authors, including alternative methods to the online
version and PDF.
We will do everything possible to get your article published quickly and accurately. Please use this
proof only for checking the typesetting, editing, completeness and correctness of the text, tables and
figures. Significant changes to the article accepted for publication will only be considered at this
stage with permission from the Editor. It is important to ensure that all corrections are sent back
to us in one communication. Please check carefully before replying, as inclusion of any subsequent
corrections cannot be guaranteed. Proofreading is solely your responsibility.

Offprints
The corresponding author will, at no cost, receive a customized Share Link providing 50 days free
access to the final published version of the article on ScienceDirect. The Share Link can be used
for sharing the article via any communication channel, including email and social media. For an
extra charge, paper offprints can be ordered via the offprint order form which is sent once the
article is accepted for publication. Both corresponding and co-authors may order offprints at any
time via Elsevier’s Webshop. Corresponding authors who have published their article open access do
not receive a Share Link as their final published version of the article is available open access on
ScienceDirect and can be shared through the article DOI link.

AUTHOR INQUIRIES
Track your submitted article
Track your accepted article
You are also welcome to contact the Elsevier Contact Center.

© Copyright 2014 Elsevier | http://www.elsevier.com
Appendix 2: PRISMA checklist

<table>
<thead>
<tr>
<th>Section/topic</th>
<th>Checklist Item</th>
<th>Reported on page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
<td>Identify the report as a systematic review, meta-analysis, or both.</td>
<td></td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>Provide a structured summary including, as applicable: background, objectives, data sources, study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.</td>
<td></td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>Rationale 3 Describe the rationale for the review in the context of what is already known.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Objectives 4 Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).</td>
<td></td>
</tr>
<tr>
<td>METHODS</td>
<td>Protocol and registration 5 Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eligibility criteria 6 Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information sources 7 Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Search 8 Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study selection 9 State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Data collection process 10 Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Data items 11 List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risk of bias in individual studies 12 Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Summary measures 13 State the principal summary measures (e.g., risk ratio, difference in means).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesis of results 14 Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I2 for each meta-analysis).</td>
<td></td>
</tr>
</tbody>
</table>
# PRISMA 2009 Checklist

<table>
<thead>
<tr>
<th>Section/topic</th>
<th>#</th>
<th>Checklist Item</th>
<th>Reported on page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of bias across studies</td>
<td>15</td>
<td>Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).</td>
<td></td>
</tr>
<tr>
<td>Additional analyses</td>
<td>16</td>
<td>Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.</td>
<td></td>
</tr>
<tr>
<td><strong>RESULTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study selection</td>
<td>17</td>
<td>Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.</td>
<td></td>
</tr>
<tr>
<td>Study characteristics</td>
<td>18</td>
<td>For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.</td>
<td></td>
</tr>
<tr>
<td>Risk of bias within studies</td>
<td>19</td>
<td>Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).</td>
<td></td>
</tr>
<tr>
<td>Results of individual studies</td>
<td>20</td>
<td>For all outcomes considered (benefits or harms), present, for each study (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.</td>
<td></td>
</tr>
<tr>
<td>Synthesis of results</td>
<td>21</td>
<td>Present results of each meta-analysis done, including confidence intervals and measures of consistency.</td>
<td></td>
</tr>
<tr>
<td>Risk of bias across studies</td>
<td>22</td>
<td>Present results of any assessment of risk of bias across studies (see item 10).</td>
<td></td>
</tr>
<tr>
<td>Additional analysis</td>
<td>23</td>
<td>Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see item 16]).</td>
<td></td>
</tr>
<tr>
<td><strong>DISCUSSION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary of evidence</td>
<td>24</td>
<td>Summarize the main findings including the strength of evidence for each main outcome, consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).</td>
<td></td>
</tr>
<tr>
<td>Limitations</td>
<td>25</td>
<td>Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias)</td>
<td></td>
</tr>
<tr>
<td>Conclusions</td>
<td>26</td>
<td>Provide a general interpretation of the results in the context of other evidence, and implications for future research.</td>
<td></td>
</tr>
<tr>
<td><strong>FUNDING</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funding</td>
<td>27</td>
<td>Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.</td>
<td></td>
</tr>
</tbody>
</table>


For more information, visit: [www.prisma-statement.org](http://www.prisma-statement.org).
The MMAT is comprised of two parts (see below): criteria (Part I) and tutorial (Part II). While the content validity and the reliability of the pilot version of the MMAT have been examined, this critical appraisal tool is still in development. Thus, the MMAT must be used with caution, and users’ feedback is appreciated. Cite the present version as follows.


Purpose: The MMAT has been designed for the appraisal stage of complex systematic literature reviews that include qualitative, quantitative and mixed methods studies (mixed studies reviews). The MMAT permits the concomitant appraisal and describes the methodological quality for three methodological domains: qualitative, quantitative and mixed methods (subdivided into sub-domains: randomized controlled, non-randomized, and descriptive). Therefore, using the MMAT requires experience or training in these domains. E.g., MMAT users may be helped by a colleague with specific expertise when needed. The MMAT allows the appraisal of most common types of study methodology and design. For appraising a qualitative study, see section 1 of the MMAT. For a quantitative study, see section 2 or 3 of 4; for randomized controlled, non-randomized, and descriptive studies, respectively. For a mixed methods study, see section 1 for appraising the qualitative component, the appropriate section for the quantitative component (2 or 3 or 4), and section 5 for the mixed methods component. For each relevant study selected for a systematic mixed studies review, the methodological quality can then be described using the corresponding criteria. This may conclude with studies included with lowest quality from the synthesis, or to consider the quality of studies for contrasting their results (e.g., low quality vs. high).

Scoring metrics: For each examined study, the qualitative score may not be informative (in comparison to a descriptive summary using MMAT criteria), but might be calculated using the MMAT. Since there are only a few criteria for each domain, the score can be presented using descriptors such as *, **, ***, ****. For qualitative and quantitative studies, this score can be the number of criteria met divided by four (scores varying from 25% (*) to 100% (***) all criteria met). For mixed methods research studies, the premise is that the overall quality of a combination cannot exceed the quality of its weakest component. Thus, the overall quality score is the lowest score of the study components. The score is 25% (*) when QUAL=1 or QUANT=1 or MIX=0, it is 50% (**) when QUAL=2 or QUANT=2 or MIX=1, it is 75% (***) when QUAL=3 or QUANT=3 or MIX=2, and it is 100% (****) when QUAL=4 and QUANT=4 and MIX=3 (QUAL being the score of the qualitative component; QUANT the score of the quantitative component; and MIX the score of the mixed methods component).

Rationale: There are general criteria for planning, designing and reporting mixed methods research (Creswell & Plano Clark, 2010), but there is no consensus on key specific criteria for appraising the methodological quality of mixed methods studies (O’Cathain, Murphy & Nicholl, 2008). Based on a critical examination of 17 health-related systematic mixed studies reviews, an initial 15-criteria version of MMAT was proposed (Plyue, Gagnon, Griffiths and Johnson Laflamme, 2009). This was pilot tested in 2009. Two external second 20 studies using the pilot MMAT criteria and tutorial (Fosse, Playle, Bartlett, Macaulay et al., 2010). Based on this pilot exercise, it is anticipated that applying MMAT may take on average 15 minutes per study (hence efficient), and that the Intra-Class Correlation might be around 0.8 (hence reliable). The present 2011 revision is based on feedback from four workshops, and a comprehensive framework for assessing the quality of mixed methods research (O’Cathain, 2010).

Conclusion: The MMAT has been designed to appraise the methodological quality of the studies retained for a systematic mixed studies review, not the quality of these reporting (writing). This distinction is important, as good research may not be ‘well’ reported. If reviewers want to genuinely assess the former, companion papers and research reports should be collected when some criteria are not met, and authors of the corresponding publications should be contacted for additional information. Collecting additional data is usually necessary to appraise methodological research and mixed methods studies, as there are no formal standards for reporting study characteristics in these domains (www.equator-network.org), in contrast, e.g., to the CONSORT statement for reporting randomized controlled trials (www.consort-statement.org).

Authors and contributors: Pierre Plyue1, Marie-Pierre Gagnon2, Frances Griffiths3 and Janice Johnson Laflamme4 proposed an initial version of MMAT criteria (Plyue et al., 2009). Dominique Pacé and Pierre Plyue led the pilot test. Gillian Bartlett1, Belinda Niccol1, Robyn Selles5, Justin Eagles5, Jon Sadler5 and Ann Macaulay4 contributed to the pilot work (Pace et al., 2010). Pierre Plyue, Emile Robert1, Margaret Cargo1, Alicia O’Cathain1, Frances Griffiths1, Felicity Boardman1, Marie-Pierre Gagnon2, Gillian Bartlett1, and Marie-Claude Rousseau1 contributed to the present 2011 version.

Affiliations: 1. Department of Family Medicine, McGill University, Canada; 2. Faculté des sciences infirmières, Université Laval, Canada; 3. Warwick Medical School, University of Warwick, UK; 4. Faculty of Dentistry, McGill University, Canada; 5. Centre de recherche du CHUM, Université de Montréal, Canada; 6. School of Health Sciences, University of South Australia, Australia; 7. Medical Care Research Unit, SCHARR, University of Sheffield, UK; 8. INSERM-Institut Armand Frappier, Laval, Canada.
<table>
<thead>
<tr>
<th>Types of mixed methods study components or primary studies</th>
<th>Methodological quality criteria (see tutorial for definitions and examples)</th>
<th>Responses</th>
<th>Yes</th>
<th>No</th>
<th>Can't tell</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening questions (for all types)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Qualitative</td>
<td>1.1. Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.2. Is the process for analyzing qualitative data relevant to address the research question (objective)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.3. Is appropriate consideration given to how findings relate to the context, e.g., the setting, in which the data were collected?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.4. Is appropriate consideration given to how findings relate to researchers' influence, e.g., through their interactions with participants?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Quantitative randomized controlled (trials)</td>
<td>2.1. Is there a clear description of the randomization (or an appropriate sequence generation)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.2. Is there a clear description of the allocation concealment (or blinding when applicable)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.3. Are there complete outcome data (50% or above)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.4. Is there low withdrawal/drop-out (below 20%)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Quantitative non-randomized</td>
<td>3.1. Are participants (organization) recruited in a way that minimizes selection bias?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.2. Are measurements appropriate (clear origin, or validity known, or standard instrument; and absence of contamination between groups when appropriate) regarding the exposure/intervention and outcomes?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.3. In the groups being compared (exposed vs. non-exposed, with intervention vs. without, cases vs. controls), are the participants comparable, or do researchers take into account (control for) the difference between these groups?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.4. Are there complete outcome data (50% or above), and, when applicable, an acceptable response rate (50% or above), or an acceptable follow-up rate for cohort studies (depending on the duration of follow-up)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Quantitative descriptive</td>
<td>4.1. Is the sampling strategy relevant to address the quantitative research question (quantitative aspect of the mixed methods question)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.2. Is the sample representative of the population under study?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.3. Are measurements appropriate (clear origin, or validity known, or standard instrument)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.4. Is there an acceptable response rate (50% or above)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Mixed methods</td>
<td>5.1. Is the mixed methods research design relevant to address the qualitative and quantitative research questions (or objectives), or the qualitative and quantitative aspects of the mixed methods question (or objective)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.2. Is the integration of qualitative and quantitative data (or results*) relevant to address the research question (objective)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.3. Is appropriate consideration given to the limitations associated with this integration, e.g., the divergence of qualitative and quantitative data (or results*) in triangulation design?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*These two items are not considered as double-barreled items since in mixed methods research, (1) there may be research questions (quantitative research) or research objectives (qualitative research), and (2) data may be integrated, and/or qualitative findings and quantitative results can be integrated.
### Types of mixed methods study components or primary studies

<table>
<thead>
<tr>
<th>Methodological quality criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1. Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?</td>
</tr>
<tr>
<td>E.g., consider whether (a) the selection of the participants is clear, and appropriate to collect relevant and rich data; and (b) reasons why certain potential participants chose not to participate are explained.</td>
</tr>
<tr>
<td>1.2. Is the process for analyzing qualitative data relevant to address the research question (objective)?</td>
</tr>
<tr>
<td>E.g., consider whether (a) the method of data collection is clear (in depth interviews and/or group interviews, and/or observations and/or documentary sources); (b) the form of the data is clear (tape recording, video material, and/or field notes for instance); (c) changes are explained when methods are altered during the study; and (d) the qualitative data analysis addresses the question.</td>
</tr>
<tr>
<td>1.3. Is appropriate consideration given to how findings relate to the context, e.g., the setting in which the data were collected?</td>
</tr>
<tr>
<td>E.g., consider whether the study context and how findings relate to the context or characteristics of the context are explained (how findings are influenced by or influence the context). &quot;For example, a researcher wishing to observe care in an acute hospital around the clock may not be able to study more than one hospital. (...) Here, it is essential to take care to describe the context and particularities of the case [the hospital] and to flag up for the reader the similarities and differences between the case and other settings of the same type&quot; (Mays &amp; Pope, 1995).</td>
</tr>
<tr>
<td>The notion of context may be conceived in different ways depending on the approach (methodology) tradition.</td>
</tr>
<tr>
<td>1.4. Is appropriate consideration given to how findings relate to researchers' influence, e.g., through their interactions with participants?</td>
</tr>
<tr>
<td>E.g., consider whether (a) researchers critically explain how findings relate to their perspective, role, and interactions with participants (how the research process is influenced by or influences the researcher); (b) researcher's role is influential at all stages (formulation of a research question, data collection, data analysis and interpretation of findings); and (c) researchers explain their reaction to critical events that occurred during the study.</td>
</tr>
<tr>
<td>The notion of reflexivity may be conceived in different ways depending on the approach (methodology) tradition. E.g., &quot;at a minimum, researchers employing a generic approach [qualitative description] must explicitly identify their disciplinary affiliation, what brought them to the question, and the assumptions they make about the topic of interest&quot; (Coletti, Ray &amp; Mill, 2003, p. 5).</td>
</tr>
</tbody>
</table>

*See suggestion on the MMAT wiki homepage (under '2011 version'): Independent reviewers can establish a common understanding of these two items prior to beginning the critical appraisal.*
<table>
<thead>
<tr>
<th>Types of mixed methods study components</th>
<th>Methodological quality criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Quantitative non-randomized</td>
<td>3.1. Are participants (organizations) recruited in a way that minimizes selection bias?</td>
</tr>
<tr>
<td>or primary studies</td>
<td>At recruitment stage:</td>
</tr>
<tr>
<td></td>
<td>For cohort studies, e.g., consider whether the exposed (or with intervention) and non-exposed (or without intervention) groups are recruited from the same population.</td>
</tr>
<tr>
<td></td>
<td>For case-control studies, e.g., consider whether same inclusion and exclusion criteria were applied to cases and controls, and whether recruitment was done independently of the intervention or exposure status.</td>
</tr>
<tr>
<td></td>
<td>For cross-sectional analytic studies, e.g., consider whether the sample is representative of the population.</td>
</tr>
<tr>
<td>A. Non-randomized controlled trials</td>
<td>3.2. Are measurements appropriate (clear origin, or validity known, or standard instrument; and absence of contamination between groups when appropriate) regarding the exposure/intervention and outcomes?</td>
</tr>
<tr>
<td></td>
<td>At data collection stage:</td>
</tr>
<tr>
<td></td>
<td>E.g., consider whether (a) the variables are clearly defined and accurately measured, (b) the measurements are justified and appropriate for answering the research question; and (c) the measurements reflect what they are supposed to measure.</td>
</tr>
<tr>
<td></td>
<td>For non-randomized controlled trials, the intervention is assigned by researchers, and so consider whether there was absence/presence of a contamination, e.g., the control group may be indirectly exposed to the intervention through family or community relationships.</td>
</tr>
<tr>
<td>B. Cohort study</td>
<td>3.3. In the groups being compared (exposed vs. non-exposed; with intervention vs. without; cases vs. controls), are the participants comparable, or do researchers take into account (control for) the difference between these groups?</td>
</tr>
<tr>
<td></td>
<td>At data analysis stage:</td>
</tr>
<tr>
<td></td>
<td>For cohort, case-control and cross-sectional, e.g., consider whether (a) the most important factors are taken into account in the analysis; (b) a table lists key demographic information comparing both groups, and there are no obvious dissimilarities between groups that may account for any differences in outcomes, or dissimilarities are taken into account in the analysis.</td>
</tr>
<tr>
<td>C. Case-control study</td>
<td>3.4. Are there complete outcome data (80% or above), and, when applicable, an acceptable response rate (60% or above), or an acceptable follow-up rate for cohort studies (depending on the duration of follow-up)?</td>
</tr>
<tr>
<td></td>
<td>Key references for observational analytic studies: Higgins &amp; Green, 2008; Wells, Shea, O’Connell, Peteron, et al., 2009.</td>
</tr>
<tr>
<td>Types of mixed methods study components or primary studies</td>
<td>Methodological quality criteria</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>4. Quantitative descriptive studies</td>
<td>4.1. Is the sampling strategy relevant to address the quantitative research question (quantitative aspect of the mixed methods question)?</td>
</tr>
<tr>
<td></td>
<td>E.g., consider whether (a) the source of sample is relevant to the population under study, (b) when appropriate, there is a standard procedure for sampling, and the sample size is justified (using power calculation for instance).</td>
</tr>
<tr>
<td></td>
<td>4.2. Is the sample representative of the population under study?</td>
</tr>
<tr>
<td></td>
<td>E.g., consider whether (a) inclusion and exclusion criteria are explained, and (b) reasons why certain eligible individuals chose not to participate are explained.</td>
</tr>
<tr>
<td></td>
<td>4.3. Are measurements appropriate (clear origin, or validity known, or standard instrument)?</td>
</tr>
<tr>
<td></td>
<td>E.g., consider whether (a) the variables are clearly defined and accurately measured, (b) measurements are justified and appropriate for answering the research question, and (c) the measurements reflect what they are supposed to measure.</td>
</tr>
<tr>
<td></td>
<td>4.4. Is there an acceptable response rate (60% or above)?</td>
</tr>
<tr>
<td></td>
<td>The response rate is not pertinent for case series and case report. E.g., there is no expectation that a case series would include all patients in a similar situation.</td>
</tr>
</tbody>
</table>

Common types of design include single-group studies:

A. Incidence or prevalence study without comparison group
   In a defined population at one particular time, what is happening in a population, e.g., frequencies of factors (importance of problems), is described (portrayed).

B. Case series
   A collection of individuals with similar characteristics are used to describe an outcome.

C. Case report
   An individual or a group with a unique/unusual outcome is described in detail.

Key references: Critical Appraisal Skills Programme, 2009; Draugalis, Coons & Plaza, 2008.
<table>
<thead>
<tr>
<th>Types of mixed methods study components</th>
<th>Methodological quality criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5. Mixed methods</strong></td>
<td>5.1. Is the mixed methods research design relevant to address the qualitative and quantitative research questions (or objectives), or the qualitative and quantitative aspects of the mixed methods question (or objectives)?</td>
</tr>
<tr>
<td>Common types of design include:</td>
<td>E.g., the rationale for integrating qualitative and quantitative methods to answer the research question is explained.</td>
</tr>
<tr>
<td>A. Sequential explanatory design</td>
<td>5.2. Is the integration of qualitative and quantitative data (or results) relevant to address the research question (objective)?</td>
</tr>
<tr>
<td>The qualitative component is followed by the quantitative. The purpose is to explain quantitative results using qualitative findings. E.g., the quantitative results guide the selection of qualitative data sources and data collection, and the qualitative findings contribute to the interpretation of quantitative results.</td>
<td>E.g., there is evidence that data gathered by both research methods was brought together to form a complete picture, and answer the research question, authors explain when integration occurred (during the data collection-analysis or/and during the interpretation of qualitative and quantitative results), they explain how integration occurred and who participated in this integration.</td>
</tr>
<tr>
<td>B. Sequential exploratory design</td>
<td>5.3. Is appropriate consideration given to the limitations associated with this integration, e.g., the divergence of qualitative and quantitative data (or results)?</td>
</tr>
<tr>
<td>The qualitative component is followed by the quantitative. The purpose is to explore, develop and test an instrument (or taxonomy), or a conceptual framework (or theoretical model). E.g., the qualitative findings inform the quantitative data collection, and the qualitative results allow a generalization of the qualitative findings.</td>
<td></td>
</tr>
<tr>
<td>C. Triangulation design</td>
<td></td>
</tr>
<tr>
<td>The qualitative and quantitative components are concurrent. The purpose is to examine the same phenomenon by interpreting qualitative and quantitative results (brining data analysis together at the interpretation stage), or by integrating qualitative and quantitative datasets (e.g., data on some cases), or by transforming data (e.g., quantization of qualitative data).</td>
<td></td>
</tr>
<tr>
<td>D. Embedded design</td>
<td></td>
</tr>
<tr>
<td>The qualitative and quantitative components are concurrent. The purpose is to support a qualitative study with a quantitative sub-study (measures), or to better understand a specific issue of a quantitative study using a qualitative sub-study, e.g., the efficacy of the implementation of an intervention based on the views of participants.</td>
<td></td>
</tr>
</tbody>
</table>

Key references: Creswell & Plano Clark, 2007; O’Cathain, 2010.
<table>
<thead>
<tr>
<th>Type of study</th>
<th>Study</th>
<th>Screening questions</th>
<th>Methodological quality criteria</th>
<th>Quality rating % (Summary rating)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quantitative non-randomised</td>
<td>Allison et al (2005)</td>
<td>Yes</td>
<td>3.1 Are participants recruited in a way that minimises selection bias?</td>
<td>50% (Medium)</td>
</tr>
<tr>
<td></td>
<td>Allison et al (2007)</td>
<td>Yes</td>
<td>3.2 Are measurements appropriate (clear origin, or validity known, or standard instrument, and absence of contamination between groups when appropriate)?</td>
<td>Unclear</td>
</tr>
<tr>
<td></td>
<td>Colles et al (2007)</td>
<td>Yes</td>
<td>3.3 Are the participants comparable, or do researchers take into account (control for) the difference between these groups?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Dalle Grave et al (2013)</td>
<td>Yes</td>
<td>3.4 Are there complete outcome data (60% or above), and, when applicable, an acceptable response rate (60% or above), or an acceptable follow-up rate for cohort studies (depending on the duration of follow-up)?</td>
<td>100% criteria met = High</td>
</tr>
<tr>
<td></td>
<td>Fischer et al (2014)</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gluck et al (2001)</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kucukoncu et al (2014)</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lundgren et al (2008)</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meule et al (2013)</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Morse et al (2006)</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Napolitano et al (2001)</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nolan &amp; Gelletter (2012)</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of study</td>
<td>Study</td>
<td>Screening questions</td>
<td>Methodological quality criteria</td>
<td>Quality rating % (Summary rating)</td>
</tr>
<tr>
<td>--------------</td>
<td>-------</td>
<td>---------------------</td>
<td>-------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>1. Quantitative non-randomised</td>
<td>Are there clear qualitative and quantitative research questions (or objectives*), or a clear mixed methods question (or objective*)?</td>
<td>Do the collected data address the research question (objective)?</td>
<td>3.1 Are participants (organizations) recruited in a way that minimizes selection bias?</td>
<td>3.2 Are measurements appropriate (clear origin, or validity known, or standard instrument; and absence of contamination between groups when appropriate)?</td>
</tr>
<tr>
<td></td>
<td>Roer et al (2014)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Royal et al (2015)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Runfole et al (2014)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Saraci et al (2015)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Vinal et al (2014)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Vinal et al (2015a)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Vinal et al (2015b)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

(Continued)
<table>
<thead>
<tr>
<th>Type of study</th>
<th>Study</th>
<th>Screening questions</th>
<th>Methodological quality criteria</th>
<th>Quality rating % (Summary rating)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed methods</td>
<td>Are there clear qualitative and quantitative research questions (or objectives*), or a clear mixed methods question (or objective*)?</td>
<td>Do the collected data address the research question (objective)?</td>
<td>3.1 Are participants (organizations) recruited in a way that minimizes selection bias?</td>
<td>3.2 Are measurements appropriate (clear origin, or validity known, or standard instrument and absence of contamination between groups when appropriate)?</td>
</tr>
<tr>
<td>Gestor et al (2013)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>1.1 Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?</td>
<td>1.2 Is the process for analysing qualitative data relevant to address the research question (objective)?</td>
<td>1.3 Is appropriate consideration given to how findings relate to the context, e.g., the setting, in which the data were collected?</td>
<td>1.4 Is appropriate consideration given to how findings relate to researchers’ influence, e.g., through their interactions with participants?</td>
</tr>
</tbody>
</table>
### Appendix 5: Inter-rater reliability rating

#### Crosstabs

**Case Processing Summary**

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percent</td>
<td>N</td>
<td>Percent</td>
</tr>
<tr>
<td>Rater A * Rater B</td>
<td>64</td>
<td>94.1%</td>
<td>4</td>
<td>5.9%</td>
</tr>
<tr>
<td></td>
<td>68</td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Rater A * Rater B Crosstabulation**

<table>
<thead>
<tr>
<th></th>
<th>Rater B</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td>Unclear</td>
<td>Total</td>
</tr>
<tr>
<td>Rater A No</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>41</td>
<td>2</td>
<td>46</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>41</td>
<td>7</td>
<td>64</td>
</tr>
</tbody>
</table>

**Symmetric Measures**

<table>
<thead>
<tr>
<th>Measure of Agreement</th>
<th>Value</th>
<th>Asymp. Std. Error</th>
<th>Approx. T</th>
<th>Approx. Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kappa</td>
<td>0.843</td>
<td>0.067</td>
<td>8.691</td>
<td>0.000</td>
</tr>
</tbody>
</table>

| N of Valid Cases     | 64    |                   |           |             |

*a. Not assuming the null hypothesis.*

*b. Using the asymptotic standard error assuming the null hypothesis.*
Appendix 6: Summary of narrative synthesis guidance (Popey et al, 2006)

Guidance on the Conduct of Narrative Synthesis in Systematic Reviews: A Product from the ESRC Methods Programme
Jennie Popay, Helen Roberts, Amanda Sowden, Mark Petticrew, Lisa Arai, Mark Rodgers, Nicky Britten With Katrina Roen and Steven Duffy

Do domestic smoke alarms save lives? Can young offenders be 'scared straight' through tough penal measures? What factors should be considered when designing and implementing a multi-sectoral injury prevention programme in a local area? Making sense of large bodies of evidence drawn from research using a range of methods is a challenge. Ensuring that the product of this synthesis process can be trusted is important for policy makers, for practitioners and for the people research is intended to benefit.

There are a number of ways in which research evidence can be brought together to give an overall picture of current knowledge that can be used to inform policy and practice decisions. However, the trustworthiness of some of these methods remains problematic. This guidance, produced with a grant from the UK Economic and Social Research Council's Methods Programme funding, focuses on a particular approach - narrative synthesis. Variants of this approach are widely used in work on evidence synthesis, including Cochrane reviews, but there is currently no consensus on the constituent elements of narrative synthesis and the conditions for establishing trustworthiness – notably a systematic and transparent approach to the synthesis process with safeguards in place to avoid bias resulting from the undue emphasis on one study relative to another – are frequently absent. This guidance therefore aims to contribute to improving the quality of narrative approaches to evidence synthesis.

**Narrative synthesis (NS)** as used in the guidance, refers to an approach to the systematic review and synthesis of findings from multiple studies that relies primarily on the use of words and text to summarise and explain the findings of the synthesis. Whilst it can involve the manipulation of statistical data, the defining characteristic is that it adopts a textual approach to the process of synthesis to ‘tell the story’ of the findings from the included studies. NS can be used to synthesise evidence focusing on a wide range of questions, not only those relating to the effectiveness of a particular intervention. It is part of a larger review process that includes a systematic approach to searching for and quality appraising research based evidence as well as the synthesis of this evidence but the guidance does not provide advice on these other elements of a systematic review.

The guidance provides an over-arching framework to guide the conduct of a narrative synthesis and describes specific tools and techniques that can be used in this process. For practical reasons, the guidance is focused on the conduct of the two types of systematic review which have particular salience for those who want their work to inform policy and practice: reviews addressing questions concerned with the **effects** of interventions and those concerned with the **implementation** of interventions shown to be effective in experimental settings. Two demonstration syntheses are also included to illustrate how the guidance can be used to inform decisions about which specific tools and techniques to use in the context of a particular review. the guidance also includes an extensive methodological bibliography.

The guidance is intended to be accessible to a range of people involved in systematic reviewing. However, whilst users of the guidance will not need to be systematic review experts, they will need a reasonable level of research literacy and users without experience of systematic review work should collaborate with more experienced colleagues.

For more information and to obtain the full guidance document go to:
http://www.lancs.ac.uk/shmn/research/nssr/researchdissemination/publications.php
### Appendix 7: The evolution of diagnostic criteria for NES (1955–2010)

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>NES criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stunkard et al (1955)</td>
<td>Morning anorexia, nocturnal hyperphagia until midnight on 50% of nights, sleep onset insomnia</td>
</tr>
<tr>
<td>Kulda et al (1986)</td>
<td>Morning anorexia, eating later in day, on and off evening eating without enjoyment, sleep onset insomnia, evening tension</td>
</tr>
<tr>
<td>Rand et al (1993)</td>
<td>Morning anorexia, excessive evening eating, evening tension and/or feeling upset, insomnia</td>
</tr>
<tr>
<td>Birketvedt et al (1999)</td>
<td>Morning anorexia evening overeating (including at least 50% of food intake after 1800 hours) insomnia</td>
</tr>
<tr>
<td>Powers et al (1999)</td>
<td>More than 25% of total energy intake after evening meal, trouble sleeping, appetite in morning</td>
</tr>
<tr>
<td>Ceru-Bjork (2001)</td>
<td>As per Stunkard7 and waking up at night and getting out of bed to eat and/or after having gone to bed, getting out of bed to eat or eating in bed</td>
</tr>
<tr>
<td>Napolitano et al (2001)</td>
<td>Morning anorexia, evening hyperphagia, emotional distress, sleep difficulties</td>
</tr>
<tr>
<td>Adami et al (2002)</td>
<td>Morning anorexia, more than 25% of total energy intake after evening meal, trouble falling and/or staying asleep most nights</td>
</tr>
<tr>
<td>Stunkard et al (2003)</td>
<td>Morning anorexia, even if subject eats breakfast, evening hyperphagia. At least 50% of the daily caloric intake is consumed in snacks after the last evening meal, awakenings at least once a night, at least 3 nights a week, consumption of high-calorie snacks during the awakenings on frequent occasions, the pattern occurs for a period of at least 3 months, absence of other eating disorders</td>
</tr>
</tbody>
</table>
| Allison et al (2010) | A. The daily pattern of eating demonstrates a significantly increased intake in the evening and/or night time, as manifested by one or both of the following:  
1. At least 25% of food intake is consumed after the evening meal  
2. At least two episodes of nocturnal eating per week.  
B. Awareness and recall of evening and nocturnal eating episodes are present.  
C. The clinical picture is characterised by at least three of the following features:  
1. Lack of desire to eat in the morning and/or breakfast is omitted on four or more mornings per week.  
2. Presence of a strong urge to eat between dinner and sleep onset and/or during the night.  
3. Sleep onset and/or sleep maintenance insomnia are present four or more nights per week.  
4. Presence of the belief that one must eat in order to initiate or return to sleep.  
5. Mood is frequently depressed and/or mood worsens in the evening.  
D. The disorder is associated with significant distress and/or impairment in functioning.  
E. The disordered pattern of eating has been maintained for at least 3 months.  
F. The disorder is not secondary to substance abuse or dependence, medical disorder, medication, or psychiatric disorder. |
13 August 2015

Mr James Shillito
University of Manchester
2nd Floor Zochonis Building
Brunswick Street
M13 9PL

Dear Mr Shillito,

<table>
<thead>
<tr>
<th>Study title:</th>
<th>A qualitative study examining existing relationships between Night Eating Syndrome, obesity and mood.</th>
</tr>
</thead>
<tbody>
<tr>
<td>REC reference:</td>
<td>15/WM/0274</td>
</tr>
<tr>
<td>IRAS project ID:</td>
<td>169139</td>
</tr>
</tbody>
</table>

Thank you for your letter of 12th August 2015, responding to the Proportionate Review Sub-Committee’s request for changes to the documentation for the above study.

The revised documentation has been reviewed and approved by the sub-committee.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information, please contact the REC Manager Ms Rachel Nelson, NRESCommittee.WestMidlands-CoventryandWarwick@nhs.net. Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.
Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the integrated Research Application System or at http://www.rdforum.nhs.uk.

Where a NHS organisation’s role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations.

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publicly accessible database. This should be before the first participant is recruited but no later than 6 weeks after recruitment of the first participant.

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from NRES. Guidance on where to register is provided on the HRA website.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" above).

Approved documents

The documents reviewed and approved by the Committee are:
Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.
Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance

We are pleased to welcome researchers and R & D staff at our NRES committee members’ training days – see details at http://www.hra.nhs.uk/rda-training/

15/WM/0274 Please quote this number on all correspondence

With the Committee’s best wishes for the success of this project.

Yours sincerely,

Dr Helen Brittain (Chair)
Chair

Email: NRESCommittee.West Midlands-CoventryandWarwick@nhs.net
Enclosures: “After ethical review – guidance for researchers”
Copy to: Dr Jacqueline Cleator
Ms Michelle Mossa
Appendix 9: Night Eating Diagnostic Questionnaire (NEDQ)

NIGHT EATING DIAGNOSTIC QUESTIONNAIRE (NEDQ)

Directions: Please answer the following questions carefully and be sure to answer each question. Thank you for your participation.

1. What time do you usually go to bed in the evening (turn out the lights in order to go to sleep)? ______ P.M.
2. What time do you usually get out of bed in the morning? ______ A.M.
3. On most days, do you experience a loss of appetite in the morning? Yes / No
4. How often do you typically eat breakfast (after you final morning awakening)? ______ times/week
5. What time do you usually have the first meal of the day? ______ A.M./P.M. (please circle)
6. How much food do you generally eat after 7:00 P.M. as a percentage (%) from 0 to 100? (please be specific, for example, 15%) ______
7. What time do you usually have your evening meal? ______ P.M.
8. How much food do you generally eat after your evening meal as a percentage (%) from 0 to 100? (please be specific, for example, 15%) ______
   a. For how long have you been consuming at least this much after your evening meal? ______ Years
      ______ Months
9. On most days, do you have a strong urge to eat between dinner and sleep onset and/or during the night? Yes / No
10. Do you have trouble falling asleep at night? Yes / No
    a. If YES, how many times each week? ______ times/week
11. Do you have trouble staying asleep at night? Yes / No
    a. If YES, how many times each week? ______ times/week
    b. If YES, how many times each week do you get out of bed during these awakenings? ______ times/week
12. How many times each week do you awake from sleep during the night to use the bathroom? ______ times
13. Do you awake from sleep during the night and eat food? Yes / No
   IF NO, SKIP TO QUESTION 14.
a. If YES, how many times per week? _____ times/week

b. For how long have you been getting up at this frequency to eat?
   _____ Years
   _____ Months

c. Do you believe you need to eat in order to fall back to sleep when you wake up at night? Yes / No

d. How aware are you of your eating during the night?
   _____ Not at all
   _____ Somewhat
   _____ Extremely

e. How often do you recall your eating during the night the next day?
   _____ Never
   _____ Sometimes
   _____ Always

14. Would you consider yourself a night eater? Yes / No

IF NO, SKIP TO QUESTION 15.

IF YES, (please answer the following questions):

a. If YES, how upset are you about your night eating?
   _____ Not at all
   _____ Somewhat
   _____ Extremely

b. If YES, how much has your eating at night impaired your functioning and/or interfered with your daily life?
   Not at all
   _____ Somewhat
   _____ Extremely

c. For how long have you been experiencing this night eating behaviour?
   _____ Less than 3 months
   _____ 3-6 months
   _____ 6-12 months
   _____ More than 1 year

15. Do you have sleep apnea? Yes / No

16. Do you work an evening or night shift? Yes / No

a. If YES, is it:
   _____ Evening
   _____ Night
   _____ Rotating
b. If YES, for how long have you been working this shift?
   _____ Years
   _____ Months

17. Have you been feeling depressed or down nearly every day? Yes / No

18. In general, when you are feeling depressed or down, is your mood lower in the:
   _____ Morning
   _____ Afternoon
   _____ Evening/night-time
   _____ Not applicable

19. Are you currently dieting to lose weight? Yes / No
   a. If YES, how much weight have you lost in the past three months? _____ lbs

20. What is your current height and weight (without clothing or shoes)?
   _____ Height (in.)
   _____ Weight (lb.)

21. Please take a moment to review your responses. Have you answered each question completely? Yes / No

Appendix 10: Depression, Anxiety and Stress Scale (DASS-21)

**DASS 21**

NAME ______________________ DATE ________

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all - NEVER
- 1 Applied to me to some degree, or some of the time - SOMETIMES
- 2 Applied to me to a considerable degree, or a good part of time - OFTEN
- 3 Applied to me very much, or most of the time - ALMOST ALWAYS

<table>
<thead>
<tr>
<th>Statement</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I found it hard to wind down</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I was aware of dryness of my mouth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I couldn’t seem to experience any positive feeling at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I found it difficult to work up the initiative to do things</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I tended to over-react to situations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I experienced trembling (e.g., in the hands)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I felt that I was using a lot of nervous energy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I was worried about situations in which I might panic and make a fool of myself</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I felt that I had nothing to look forward to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I found myself getting agitated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I found it difficult to relax</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I felt down-hearted and blue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I was intolerant of anything that kept me from getting on with what I was doing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I felt I was close to panic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. I was unable to become enthusiastic about anything</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. I felt I wasn’t worth much as a person</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. I felt that I was rather touchy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. I felt scared without any good reason</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. I felt that life was meaningless</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This document may be freely downloaded and distributed on condition no change is made to the content. The information in this document is not intended as a substitute for professional medical advice, diagnosis or treatment. Not to be used for commercial purposes and not to be hosted technically outside of the Black Dog Institute website. www.blackdoginstitute.org.au
DASS Severity Ratings

The DASS is a quantitative measure of distress along the 3 axes of depression, anxiety and stress. It is not a categorical measure of clinical diagnoses.

Emotional syndromes like depression and anxiety are intrinsically dimensional - they vary along a continuum of severity (independent of the specific diagnosis). Hence the selection of a single cut-off score to represent clinical severity is necessarily arbitrary. A scale such as the DASS can lead to a useful assessment of disturbance, for example individuals who may fall short of a clinical cut-off for a specific diagnosis can be correctly recognised as experiencing considerable symptoms and as being at high risk of further problems.

However for clinical purposes it can be helpful to have ‘labels’ to characterise degree of severity relative to the population. Thus the following cut-off scores have been developed for defining mild/moderate/severe/extremely severe scores for each DASS scale.

Note: the severity labels are used to describe the full range of scores in the population, so ‘mild’ for example means that the person is above the population mean but probably still way below the typical severity of someone seeking help (ie it does not mean a mild level of disorder).

The individual DASS scores do not define appropriate interventions. They should be used in conjunction with all clinical information available to you in determining appropriate treatment for any individual.

1 Symptoms of psychological arousal
2 The more cognitive, subjective symptoms of anxiety

DASS 21 SCORE

<table>
<thead>
<tr>
<th>DEPRESSION SCORE</th>
<th>ANXIETY SCORE</th>
<th>STRESS SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Normal | 0 - 4 | 0 - 3 | 0 - 7 |
| Mild   | 5 - 6 | 4 - 5 | 8 - 9 |
| Moderate | 7 - 10 | 6 - 7 | 10 - 12 |
| Severe | 11 - 15 | 8 - 9 | 13 - 16 |
| Extremely Severe | 14+ | 10+ | 17+ |

N.B. Please note that there are differences in scoring between this measure and the DASS 21 as published on the DASS website [http://www2.psych.unsw.edu.au/groups/dass/](http://www2.psych.unsw.edu.au/groups/dass/)
A qualitative study examining the relationships between Night Eating Syndrome obesity, and mood.

Dear Patient

The Weight Management Service, University Hospital Aintree, Liverpool is working with researchers from the University of Manchester on a research study. The study aims to gain a better understanding of the relationships that exist between night eating behaviour, body weight and mood.

We would be grateful if you would consider taking part in the study. This would involve you firstly completing two short questionnaires whilst attending your next clinic appointment.

A researcher may then contact you via telephone or email and provide you with more detailed information about the study. If you are happy to take part, the researcher will invite you to attend the clinic and ask you a number of questions about your eating habits and mood. The interview will take place at a time convenient for you. The interview will take approximately 60 minutes.

Thank you for taking the time to read this information.

James Shillito
Trainee Clinical Psychologist
Section for Clinical and Health Psychology
University of Manchester
Appendix 12: Participant information sheet

Participant Information Sheet

1. Study Title
A qualitative study examining the relationships between Night Eating Syndrome, obesity and mood.

2. Who is organising and funding the research?
This study is being undertaken by researchers at the University of Manchester and Aintree Specialist Weight Management Service.

The person organising and conducting the research is James Shillito. He is a Trainee Clinical Psychologist from the University of Manchester. He is completing this study for his dissertation as part of his Clinical Psychology Doctorate.

3. Invitation
You are being invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others such as your family, carers or your GP about the study if you wish. Please also ask us if there is anything that you do not understand, or if you would like more information. Take time to decide whether or not you wish to take part. This study has been approved by the NHS ethical committee.

4. What is the purpose of the study and why have I been chosen?
The purpose of the research study is to gain a better understanding of the relationships that exist between night eating behaviour, body weight and how you feel (your mood).

You have been chosen because you attend the Specialist Weight Management Service clinic.

5. Do I have to take part?
No. It is up to you to decide whether or not to take part. If you do, you will be asked by a staff member to sign a consent form during your next clinic appointment. If you take part, you are free to withdraw from the study at any time, without giving a reason and if you ask us to, we will destroy any information you have given us. If you decide not to take part, or to withdraw in the future, the standard of care you receive will not be affected.
6. What are the alternatives?

The study is taking place in the Weight Management Service, University Hospital Aintree, Liverpool. You have been given a leaflet in clinic inviting you to speak to a researcher about the study. If you decline to do so, nothing further will happen.

7. What will happen to me if I take part?

If you decide to take part, a staff member will ask you firstly to complete two consent forms. One states that you are happy to complete two questionnaires and one states that you are happy to be contacted by a researcher at a later date. Once this has been completed, a staff member will then provide you with two questionnaires for you to complete whilst you are waiting to attend your clinic appointment. Once completed, please place the questionnaires inside the provided envelope. The staff member will then collect the questionnaire from you.

If you are interested in taking part in the research, the staff member will then notify the study researcher. Following this, you may be contacted by the study researcher to discuss the research further at a later date. If you are interested in taking part following this discussion, the researcher will invite you to attend the clinic for an interview at a convenient time for you. On attendance, you will be asked to sign a further consent form stating that you agree to be interviewed. Interviews will last approximately 60 minutes.

8. What do I have to do?

Once you have signed the consent forms, the researcher will provide you with two short questionnaires to complete. Following this, if you agree you may be invited to speak in more detail to a researcher about eating at night and how that makes you feel. We expect this will take approximately 60 minutes. It is very likely that you will only be asked to attend for interview on one occasion. However, there is a rare possibility that you may be asked to attend for a further interview on a different occasion to clarify some details and further explore some issues.

Further information about your age, gender, medical conditions and body weight will be collected by the researcher from your medical notes once you have given consent for this.

At any time in the future you can withdraw your consent for the study by contacting the study researchers and the information you have provided will be destroyed. This will not affect your future care in any way.
9. Will my taking part in this study be kept confidential?

If you take part in the study you will be given an individual study number to ensure that none of your details will be known outside of the research team. All information which is collected about you during the course of the research will be kept strictly confidential. If you consent to take part in the research the people conducting the study will abide by the Data Protection Act 1998, and the rights you have under this Act.

Information obtained during the study may be looked at by individuals from the University of Manchester, from regulatory authorities or from the NHS Trust, for monitoring and auditing purposes and this may include access to personal information.

Your G.P. will be notified of your participation in the study.

10. Expenses and payments

There is no payment for taking part in this study. However, we will pay people's travel expenses if they come to clinic to be interviewed.

11. What are the other possible disadvantages and risks of taking part?

You may find it distressing or embarrassing to answer questions about your eating habits, mood and quality of life. The research team has a lot of experience discussing these matters with patients and will offer support in a sensitive and constructive manner.

If your answers to the mood questionnaire suggest your mood may be very low we will let you know this and the researcher will discuss your score with the clinic doctor.

12. What happens if there is a problem?

We would not expect you to suffer any harm or injury whilst you take part in this study. If you are harmed by taking part in this study, there are no special compensation arrangements. If you are harmed due to someone's negligence, then you may have grounds for legal action but you may have to pay your legal costs.

Regardless of this, if you have a concern about any aspect of this study, you should ask to speak to the researcher, James Shiellito, in the first instance. If the researcher is unable to resolve your concerns, 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 email to research.complaints@manchester.ac.uk
13. What are the side effects of any treatment received when taking part?

You will not receive any treatment related to this study. It will involve completing a questionnaire and then later possibly talking to a researcher in more detail about your night eating behaviours.

14. What are the possible benefits of taking part?

There are no direct benefits to you if you take part in this study. We hope to obtain a better understanding of the relationships that exist between night eating behaviour, body weight and how people feel.

15. What happens when the research study stops?

If you would like to know the results of the study, a written report can be forwarded to you once the study is completed.

16. What if there is a problem and contact details for further information:

If you wish to discuss any aspect of this study further, you can contact James Shiliito at the University of Manchester.

Tel: 07955 118871
Email: james.shiliito@postgrad.manchester.ac.uk

If you have any concerns and would like to speak to someone independent of this research study, you can contact the Patient advice and Liaison Service (PALS).

Tel: 0151 529 3287
Email: customerservice@aintree.nhs.uk

Many thanks for reading this information.
Appendix 13: Questionnaire consent form

Consent form 1: Questionnaire consent

Study Title: A qualitative study examining the relationships between obesity, night eating behaviour and mood.

Name of researcher: James Shillito, Trainee Clinical Psychologist, University of Manchester

Please initial box to indicate agreement

| 1. | I confirm that I have read and understood the Participant Information Sheet (v4 20 6.15) for this study and have been provided with the opportunity to ask questions. |
| 2. | I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason. I understand that this will not affect my medical care or legal rights. |
| 3. | I understand that all data collected will be anonymised and will not be shared with persons outside the research team. |
| 4. | I understand that my medical notes and relevant sections of data collected during the study may be looked at by responsible individuals from the University of Manchester, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in the research. I give permission for these individuals to have access to this data. |
| 5. | I understand that if I disclose any information during the completion of the two questionnaires that raises concerns regarding my safety or safety of others, relevant services may need to be informed, including my GP. |
| 6. | I agree to complete the two questionnaires (NEOG and DASS-21). |
| 7. | I agree that my GP will be informed of my participation in the study. |

<table>
<thead>
<tr>
<th>Name of Participant</th>
<th>Date</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name of Person taking consent (if different from researcher)</th>
<th>Date</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 14: Contact consent form

Consent form 2: Contact consent

Chief Investigator: James Shillito (Teline Clinical Psychologist)

If you are interested in taking part in this study and would like the researchers to contact you please give your details below. If you are not happy to be contacted, please do not complete this form.

You should only provide the information if you are happy to be contacted in that way. For example, if you do not want to be contacted by phone then do not provide a phone number.

Please note the following points in relation to the processing of your data:
- Data will be held securely by the research team on behalf of the University of Manchester according to the University’s data protection and information security policies.
- Access to the data will be restricted to the research team for the sole purpose of contacting you about this study.
- Your data will not be shared with any third party without your written permission.
- The details collected will only be stored for as long as required to find out if you wish to take part in the study. Once no longer needed, that data will be destroyed securely.
- If you decide to change your mind about being contacted about the study or would like your details to be destroyed you can contact James Shillito on: 07955 118871.

Once you have completed your details, please ensure that you have added your signature and please place inside the provided envelope along with the two questionnaires and return to a study researcher.

I am happy to provide my personal details so that I can be contacted about this study.

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
<td></td>
</tr>
<tr>
<td>Today’s date</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact by phone</th>
<th>Preferred contact number</th>
<th>When would you prefer to be contacted? (please circle)</th>
<th>Morning/ Afternoon/ Evening/ Don’t Mind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact by email</td>
<td>Email address</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 15: Interview consent form

**Study Title:** A qualitative study examining the relationships between obesity, night eating behaviour and mood.

**Name of researcher:** James Shillito, Trainee Clinical Psychologist, University of Manchester

**Consent form 3: Interview consent**

Please initial box to indicate agreement

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I confirm that I have read and understood the Participant Information Sheet (v4 29.6.15) for this study and have been provided with the opportunity to ask questions.</td>
</tr>
<tr>
<td>2.</td>
<td>I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason. I understand that this will not affect my medical care or legal rights.</td>
</tr>
<tr>
<td>3.</td>
<td>I understand that all data collected will be anonymised and will not be shared with persons outside the research team.</td>
</tr>
<tr>
<td>4.</td>
<td>I understand that my medical notes and relevant sections of data collected during the study may be looked at by responsible individuals from the University of Manchester, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in the research. I give permission for these individuals to have access to this data.</td>
</tr>
<tr>
<td>5.</td>
<td>I understand that the interviews will be audio recorded and will be transcribed by members of the research team.</td>
</tr>
<tr>
<td>6.</td>
<td>I understand that the results of the study will be published in a peer reviewed journal and that anonymised quotes may be reported. I understand that all identifiable personal data will be anonymised.</td>
</tr>
<tr>
<td>7.</td>
<td>I agree for demographic data (including gender, age, weight, medical conditions) to be collected by the research team from my medical notes.</td>
</tr>
<tr>
<td>8.</td>
<td>I agree that if I disclose any information during the interview which raises concerns regarding my safety or the safety of others, that relevant services may need to be informed, including my GP.</td>
</tr>
<tr>
<td>9.</td>
<td>I agree to take part in the above study.</td>
</tr>
<tr>
<td>10.</td>
<td>I would like to receive a written summary of the study results once the study is completed and consent to my address being kept by the researcher for this purpose. I understand this information will be destroyed once the report is sent.</td>
</tr>
</tbody>
</table>

---

**Name of Participant**

<table>
<thead>
<tr>
<th>Date</th>
<th>Signature</th>
</tr>
</thead>
</table>

**Name of Person taking consent**

<table>
<thead>
<tr>
<th>Date</th>
<th>Signature</th>
</tr>
</thead>
</table>
Appendix 16: Initial Interview schedule

Basic interview schedule

N.B.: Interviews will be conducted using broad topics to guide discussion between the researcher and the participant. Examples of questions relating to each topic are provided along with examples of prompts. However, it is anticipated that the interviews will follow a conversational style and will be guided by the participant’s responses, so topics will not always be covered in a particular order nor will questions be asked using the exact wording outlined below. In addition, as the study progresses, questions may vary depending on the developing theory to emerge via data collection and analysis.

Introduction [Introduce self]

‘Thank you very much for coming here today. We are really interested in hearing about your own personal experiences around night eating (explain if necessary). Anything and everything that you want to tell me will be helpful so that we can get a better understanding. Through your feedback and that of other people, we will hopefully be able to develop a greater overall understanding of night eating. What is important is that we learn through your experience and that of others. There are no right or wrong answers; I am just interested in learning about your experiences.

Technicalities

‘I will be using a digital recorder to record the interview. This is just so I don’t have to sit here scribbling away and can concentrate on what you are saying. If you want to have a closer look at it or try it out for yourself that’s absolutely fine. Are you OK with me recording the interview? I may also write down the odd word or phrase while we are speaking. This is just to help me remember points that I may want to revisit later. If you’d like to check what I’m writing just ask.

Confidentiality

‘The recording is confidential. No one other than particular members of the research team will ever hear the recording. Once recorded, this will be transferred directly onto a secured password protected data stick and removed from the digital recorder. I will then transcribe (copy) what has been recorded. This will again be stored on a secured data stick. I will remove any details that identify you or anyone else you mention from the transcript to ensure it anonymised and that your identity is protected. Do you have any questions?’
Night Eating Interview
V.3 28.5.15

Risk

'I should say that if you tell me that you or another person is in any sort of danger, then I may have to break our confidentiality. I wouldn't do this without your knowledge, and I would discuss this with you first.'

Interview questions

'The interview questions will cover things related to your experience of night eating; an example question would be 'could you describe a typical night eating experience?'.

'Have you any questions before we start?'

Initial interview questions

- Could you tell me a bit about why you chose to take part in the study?
  
  Prompt: How did you feel about seeing someone to talk about your experiences?

- Would you be able to describe how night eating impacts on you
  
  Prompt: Has night eating caused you any problems? How do you feel after night eating?

  Explore: physical health, mental health e.g. self-esteem, mood etc., relationships etc., social life, family life

- When did you first experience (or notice) night eating behaviour?

- Could you describe the events that led up to NED?
  
  Prompt: What was going on in your life around the time you started night eating?

  Explore: stressful events, mental health

- What were your eating habits like growing up?

- Could you describe a typical night eating experience?
  
  Explore: routine? length of time, foods, thoughts, feelings, how often
• What would you want doctors and nurses to learn and understand about night-time eating?

End

• Is there anything else that you might not have thought about before that occurred to you during the interview?
• Is there anything else you’d like to talk about?
• Is there anything you would like to ask me?
• Is there anything you’ve found confusing or distressing today?
• How have you found our meeting today?

*I would really like to thank you for spending your time talking to me today. The things we have discussed will be very helpful.*

[End recording]
Appendix 17: Final interview schedule

Basic interview schedule

N.B: Interviews will be conducted using broad topics to guide discussion between the researcher and the participant. Examples of questions relating to each topic are provided along with examples of prompts. However, it is anticipated that the interviews will follow a conversational style and will be guided by the participant’s responses, so topics will not always be covered in a particular order nor will questions be asked using the exact wording outlined below. In addition, as the study progresses, questions may vary depending on the developing theory to emerge via data collection and analysis.

Introduction [Introduce self]

‘Thank you very much for coming here today. We are really interested in hearing about your own personal experiences around night eating (explain if necessary). Anything and everything that you want to tell me will be helpful so that we can get a better understanding. Through your feedback and that of other people, we will hopefully be able to develop a greater overall understanding of night eating. What is important is that we learn through your experience and that of others. There are no right or wrong answers; I am just interested in learning about your experiences.

Technicalities

‘I will be using a digital recorder to record the interview. This is just so I don’t have to sit here scribbling away and can concentrate on what you are saying. If you want to have a closer look at it or try it out for yourself that’s absolutely fine. Are you OK with me recording the interview? I may also write down the odd word or phrase while we are speaking. This is just to help me remember points that I may want to revisit later. I’d like to check what I’m writing just ask’.

Confidentiality

‘The recording is confidential. No one other than particular members of the research team will ever hear the recording. Once recorded, this will be transferred directly onto a secured password protected data stick and removed from the electric recorder. I will then transcribe (copy) what has been recorded. This will again be stored on a secured data stick. I will remove any details that identify you or anyone else you mention from the transcript to ensure it anonymised and that your identity is protected. Do you have any questions?’
‘I should say that if you tell me that you or another person is in any sort of danger, then I may have to break our confidentiality. I wouldn’t do this without your knowledge, and I would discuss this with you first.’

**Interview questions**

‘The interview questions will cover things related to your experience of night eating; an example question would be ‘could you describe a typical night eating experience?’.

‘Have you any questions before we start?’

**Initial interview questions**

- Could you tell me a bit about why you chose to take part in the study?  
  *Prompt: How did you feel about seeing someone to talk about your experiences?*

- Would you be able to describe how night eating impacts on you  
  *Prompt: Has night eating caused you any problems? How do you feel after night eating?  
  Explore: physical health, mental health e.g. self-esteem, mood etc., relationships etc. social life, family life.*

- How would you generally describe your mood?  
- Do you ever find yourself worrying or ruminating?  
- Any worries about this worrying?  
- How do you cope or what helps when feeling like this? How does it help?  
- Does food ever help with managing feelings/distress? How?

- When did you first experience (or notice) night eating behaviour?

- Could you describe the events that led up to NEB? Any specific trigger?'
Promt: What was going on in your life around the time you started night eating?
Explore: stressful events, mental health

- What were your eating habits like growing up?

- Could you describe a typical night eating experience?
  Explore: routine? length of time, foods, thoughts, feelings, how often

- Are you able to identify any thoughts that go through your mind?

- Do you feel like you have control? Could you describe that?

- Do you ever worry about what could happen if you do not eat before you go to bed?

- How do you feel after night eating?
  Explore: guilt, shame, specific thoughts

- Do you feel hungry prior to night eating? Is this a different feeling to a typical hunger feeling?

- Has NE ever impacted upon any of your relationships or caused any problems?

- Does night eating ever occur in response to positive feelings?

- What would you want doctors and nurses to learn and understand about night time eating?

End

- Is there anything else that you might not have thought about before that occurred to you during the interview?

- Is there anything else you’d like to talk about?

- Is there anything you would like to ask me?
• Is there anything you’ve found confusing or distressing today?
• How have you found our meeting today?

"I would really like to thank you for spending your time talking to me today. The things we have discussed will be very helpful."

[End recording]
Appendix 18: Risk and Distress protocol

RISK AND DISTRESS PROTOCOL

A qualitative study examining the relationships between Night Eating Syndrome obesity, and mood.
Protocol for Risk and Emotional Distress

1. Proactive strategy
Confidentiality will be explained on participant information sheets and consent forms. Exceptions to confidentiality will be explicitly discussed with participants. This includes the identification of risk issues (defined as possible harm to self or others). To minimise emotional distress, interview questions will be sensitively worded. All participants will be advised that they can choose whether or not to answer questions and can withdraw from the study at any time (without having to provide an explanation).

2. Reactive strategy
In cases of emotional distress the researcher will acknowledge the distress and will ask the participant whether they would like a break or to end the session. The researcher will assess the level of distress and if deemed appropriate, the participant will be encouraged to contact their GP, or emergency GP number out of hours. The participant will be offered assistance with this if necessary.

As the research does not include an intervention component, the researcher would not provide any direct psychological intervention for any participant who becomes distressed as a result of the research. However, the researcher as a Trainee Clinical Psychologist has experience in managing individuals who become emotionally distressed and is supervised by a Clinical Psychologist.

In cases of emotional distress the researcher will offer to remain with the participant and provide support until distress has reduced or contact has been made with the GP or other services. For all interviews the researcher will be able to contact the supervisor to seek supervision and will adhere to advice. The decision to access/accept support will remain with the research participant. In cases of disclosed or identified risk to self, the researcher will assess the level of risk (in conjunction with supervision) and confidentiality may be broken in order to notify relevant services of risk information (e.g. GP).

Assessing Risk to self: If the participant discloses risk to self, the researcher will ask about their mood and any suicidal ideation. If suicidal ideation is endorsed, the frequency and severity will be briefly ascertained, together with intent and protective factors. Social support will be briefly assessed. If the participant demonstrates a level of emotional distress deemed by the researcher (in conjunction with supervision) to put the participant at risk of harm, appropriate contact will be made firstly by the researcher with the Weight Management Service staff. If required, the participant’s GP will be contacted. The participant will be kept informed of all actions undertaken where possible. If suicidal intent is expressed and the risk is deemed imminent, the researcher will offer to accompany the participant to access mental health services through A&E or their out of hours GP. Alternatively, the participant will be encouraged to remain on the premises whilst the researcher seeks supervision and notifies relevant services.

Risk to others: If any risks were identified, the researcher will liaise with the relevant services.

Short-term or long-term distress: Participants will be encouraged to access support services and signposted to these (e.g. GP). In all cases of risk to self or others, immediate supervision will be sought with supervisors. Where possible, the participant will be kept informed of all actions taken and sent copies of correspondence.
Appendix 19: Transcript example (displaying line by line coding and memos)

1. I: How does that feel?

2. P: Awful (Laugh). I get, I feel terribly guilty, ashamed and I also get to the point where I think sod it, what’s the point and then just carry on eating.

3. I: Before you go and eat can you identify any thoughts that you have?

4. P: ((Pause)) No. Sometimes I don’t actually realise I’m doing it. It’s only when I’ve caught myself doing it that, I’m not hungry why am I doing this? type of thought. And I do find sometimes, occasionally and this is only occasionally that I can stop myself.

5. I: How do you do that?

6. P: By talking to myself really and saying ‘look you don’t need this, it’s not food you need, you’re not hungry stop it’. Erm.

7. I: What is it you feel you do need at that point?

8. P: Quite often sleep erm but I don’t feel able because I’m the one, I often joke that I’ve become a single parent with three kids since my husband lost his eye sight. It’s not actually a joke but you brush it off as a joke. Erm, that whilst my husband is still awake, this is going to sound awful, it’s like having a toddler around. And I don’t feel like I can actually relax and sleep even in the evening. I can’t have any half an hour doze on the couch because I’ve got to be alert for him. Erm, there have been occasions when for instance we’ve got a wood burning stove and I do it all and on this one occasion I had dozed off I think and he couldn’t resist a poke. And whatever he did woke me up because in actual fact he had dropped a bit of wood on the carpet and now we’ve got a nice big burn hole on the carpet. It sounds awful when I say it’s like being around a toddler. He also can’t cope with what’s happened, he also read and done things with his hands, so it’s been a hell of a change. His moods are not as bad as they were. But he does get frustrated, he does get angry.

9. I: Using food to deal with the secondary guilt/shame?

10. I: Different to being caught by others?

11. Language - caugh

12. Language - sleep

13. Language - need to get away from worries?

14. Language - single parent - lack of support - resentful?

15. Language - toddler

16. Language - toddler

17. Looking for a way to cope with major change

18. ‘He can’t cope’ - reflection on her feelings? Where does food come in?

19. ‘Hell of a change’

20. Feeling responsible - never able to fully relax.

21. Coping with major change.
1. Feeling on edge.
2. General anxiety around in the house anyway. You know you'd think after all this time after eight years it's no. You don't get used to it. The kids. I've basically brought them up since they were young and some of the stress has gone in terms of drop them off at school in the morning and then drive on to work and the nature of my job was, well I trained as a primary school teacher and I had a timetable with regards to when I could be home and things but got such an unsupportive management team it was a new management team, who were so unsupportive if I felt if they wanted you there till seven you had to be there till then and they could just round and tell. No warning. So he would then get anxious because he couldn't go and fetch them and I would get anxious and by the time I'd got home. I've never, yes I've had the occasional glass of wine but it is only occasional. I've never smoked but I've obviously turned to food. I do shake when I'm very anxious.

8. At time when needed support - none provided.


11. Lack of control over situation.


18. Narrative of coping with sense of humour?

20. Food provides a sense of comfort?

17. Food takes mind away from anxiety.

19. Feeling calms self-down

25. Turning to food.

27. Similar strategy to alcohol.

2. Feeling anxious.

4. Turning to food like alcohol or smoking.


9. Turning to food like alcohol or smoking.


15. Feeling anxious.


25. Feeling anxious.

P: I think it gives me something to do. My daughter used to joke because I'd sit there with my legs and she'd be going off to work and the chewing, the action of chewing, was probably the only thing that used to calm me down. I don't whether it's what you've eaten that affects your mood, I don't know.

I: You mentioned smoking and drinking alcohol, were you talking about food as a similar strategy?

P: My husband used to smoke, he has given up now and I've known other people that smoke. I could see that when I was turning to food and do still turn to food is when they go and light a cigarette. Colleagues that I work with, a lot of them would go home and open a bottle of whiskey. I wouldn't do that I would go home and eat. It's interesting talking to them. I think we would probably fall into two camps; those that went home and drank and those that went home and ate. There were some that drank and ate and there were a couple who would smoke. But yeah, I think it is probably similar.
### Appendix 20: Focused coding examples

#### Comfort – emotional regulation

<table>
<thead>
<tr>
<th>Interview</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1-P10-L21</td>
<td>Usually deals with difficult emotions through escape/distraction - “I would say that I played quite a lot of computer games and stuff on the computer and I'd say sort of, I used that as a little bit of an escape you know, from day to day.”</td>
</tr>
<tr>
<td>I1-P14-L29</td>
<td>Food helps regulate emotions - helps to feel better - “Well I think it was just ( ) I think everybody enjoys having something to eat, don't they? And I think it was probably a bit of that. You know, I like food it tastes nice. It makes you feel better when you have something to eat.”</td>
</tr>
<tr>
<td>I1-P15-L4</td>
<td>NE provides distraction from thoughts/feelings - “P: I think while I was doing it, it would keep my mind off stuff. I think the phrase is comfort eating. From it ( ) I'm rubbish at explaining stuff (pause). Yeah I can't really think of anything else to say its comfort eating, it makes you feel better temporarily. It's just a temporary feeling.”</td>
</tr>
<tr>
<td>I1-P15-L7</td>
<td>Temporary comfort -</td>
</tr>
<tr>
<td>I1-P15-L15</td>
<td>Distraction ( ) don't know if satisfied is the right word. That kind of ( ) a bit of satisfaction and a bit of enjoyment. ‘Cos obviously at the time I wasn't thinking of the consequences of it or anything it was just well this tastes nice, it's good to have something to eat that kind of thing. “P: You mentioned it took your mind of things? I: Yeah well it probably took my mind off the fact that I had to go into school the next day.”</td>
</tr>
<tr>
<td>I1-P16-L1</td>
<td>Trying to zone out ( ) don't know about you but I find it a very uncomfortable feeling being hungry. So when you're trying to zone out and get to sleep, it's quite disruptive you know.”</td>
</tr>
<tr>
<td>I2-P4-L2</td>
<td>Food comforting when alone at night - when thinking -</td>
</tr>
<tr>
<td>I2-P10-L17</td>
<td>It feels good. There's no hunger pain, it's comfort eating. - “I suppose it gives you comfort. It keeps my stomach under control. It's comfort eating. I think maybe anyone that's alone and elderly, they all do a bit of comfort eating. I'd say an awful lot of them do anyway. P: What’s that comfort feel like for you? I: It feels good. There's no hunger pain. It's comfort eating. I: Does it take your mind off certain things?”</td>
</tr>
<tr>
<td>Speaker</td>
<td>Script</td>
</tr>
<tr>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>I2-P10-L20</td>
<td><strong>Comparison to drinking</strong> - 'Well you see if you're drinking alone that can be naughty as well, it can be very naughty. I: Is comfort eating and comfort drinking similar? P: Yeah I think they are. The penalty I pay is being overweight and the penalty a drinker pays is his liver.'</td>
</tr>
<tr>
<td>I3-P3-L9</td>
<td><strong>Temporarily feeling happy when eating</strong> - How would you describe that feeling? P: It makes me feel happy until I've finished and then ((pause)). I: How long does that happy feeling last? P: It goes as soon as I've finished what I'm eating and then that feeling changes to guilt.</td>
</tr>
<tr>
<td>I3-P7-L5</td>
<td><strong>Food as distraction</strong> - I: What is it about food do you think? P: I don't know I can't explain it but if I get nervous as well like this. So this situation is a good example of a situation where you may turn to food? P: Yeah but I don't know why. I: What does it do? P: It's probably a distraction. I've never really thought about it. But for some strange reason it just happens.'</td>
</tr>
<tr>
<td>I3-P7-L14</td>
<td><strong>Generally deals with difficult emotions by suppressing/hiding</strong></td>
</tr>
<tr>
<td>I4-P3-L9</td>
<td><strong>Eating can make self feel better when upset</strong> - 'If I'm tired ((.) if I know myself, I'm tired then if I have something I could be okay.'</td>
</tr>
<tr>
<td>I5-P1-L27</td>
<td><strong>Eating relaxes/calms self &amp; pain reduces</strong> - 'If I'm hungry ((.) if I eat, I just start to calm down and the pain calms down. Because you're tense aren't you, you go really tense when you're angry.'</td>
</tr>
<tr>
<td>I5-P2-L5</td>
<td><strong>It's almost like the feeling's gone</strong></td>
</tr>
<tr>
<td>I5-P7-L16</td>
<td><strong>Need for comfort - need for support</strong> - 'What is it you need? P: I don't know. I need an arm, you know what I mean. I need a good arm.'</td>
</tr>
<tr>
<td>I5-P9-L24</td>
<td><strong>Feeling numb/feeling drained/blank</strong> - 'If I'm going back upstairs or sometimes you're sitting there and you're like (blank facial expression). I: What's that feel like? P: Just draining. You've got nothing. Imagine running a marathon and how'd you'd sit afterwards but without the breath, breath, breath) and'</td>
</tr>
<tr>
<td>ID</td>
<td>Text</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>I5-P16-L26</td>
<td>To stop feelings/thoughts - I'm there of my own free will. Isn't it really? And it's to stop you feeling all these thoughts and whatever is going round.</td>
</tr>
<tr>
<td>I6-P2-L3</td>
<td>Food is calming/enjoyable - P: They're just nice. Calming. I feel calm when I'm eating them. I'm enjoying it.</td>
</tr>
<tr>
<td></td>
<td>I: So at the time that you're eating it, you're feeling (in overlap).</td>
</tr>
<tr>
<td>I6-P2-L6</td>
<td></td>
</tr>
<tr>
<td>I6-P14-L18</td>
<td>Food calms &amp; reduces pain -</td>
</tr>
<tr>
<td>I7-P5-L17</td>
<td>Food takes mind away from anxiety - Does food help with that?</td>
</tr>
<tr>
<td></td>
<td>P: I think it gives me something to do. My daughter used to joke because I'd sit there with my leg and she'd be going 'leg!' And the chewing, the action of chewing was probably the only thing that used to calm me down. I don't whether it's what you've eaten that affects your mood, I don't know.</td>
</tr>
<tr>
<td>I7-P5-L25</td>
<td>Turning to food for support/comfort - I could see that when I was turning to food and do still turn to food is when they go and light a cigarette. Colleagues that I work with, a lot of them would go home and open a bottle of whiskey. I wouldn't do that I would go home and eat.</td>
</tr>
<tr>
<td>I7-P5-L27</td>
<td>Comparison to drinking</td>
</tr>
<tr>
<td>I7-P6-L12</td>
<td>Eating never enough/never fully satisfied - I do know that at those times when I'm particularly stressed I have never felt full and satisfied.</td>
</tr>
<tr>
<td>I8-P12-L16</td>
<td>Settling down once eaten - It must be a habit, I mean it must be a habit, it can't be anything else, but once I've had something to eat I can settle down.</td>
</tr>
<tr>
<td>I8-P18-L8</td>
<td>Pragmatic view of emotion 'You have to get on with it' -</td>
</tr>
<tr>
<td>I10-P3-P26</td>
<td>Feeling good when eating - Right ok. How do you feel afterwards after you've had a bag of crisps say? How do you describe it?</td>
</tr>
<tr>
<td></td>
<td>I: It does make you feel good doesn't it?</td>
</tr>
<tr>
<td>I10-P5-L13</td>
<td>Comparison to drinking - to make self feel better - Yeah it does. I do think food, I do, I've never thought of it like that really before, but it's like an addiction really. Like with someone with cigarettes could imagine, or someone who has alcohol they do it, to make themselves feel better or that they think they need it. I possibly was thinking I needed it</td>
</tr>
</tbody>
</table>
### Night eating as a vicious cycle - control

<table>
<thead>
<tr>
<th>Interview</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1-P11-L23</td>
<td>Lack of control - Impossible task NE - &quot;I felt like I couldn't do it and that there was no point trying. That was (...) yeah that was pretty much it. I felt like it was like an impossible task. I just felt like it was always going to be like this&quot;</td>
</tr>
<tr>
<td>I1-P14-L8</td>
<td>Inability to control urge -</td>
</tr>
<tr>
<td>I2-P2-L28</td>
<td>Hopeless to resist urge to eat - &quot;where my daughter comes in to see me each day and she will cook my tea and leave me in a position where I just have to warm it up. And then after that of course the snacking starts. I'm hopeless at that time&quot;</td>
</tr>
<tr>
<td>I2-P7-L31</td>
<td>Urge too strong</td>
</tr>
<tr>
<td>I3-P6-L9</td>
<td>Feelings impact on sense of control - &quot;When you are feeling like that, do you feel you have control? P: Yes ((pause)) a bit. (...) Well if I'm overly anxious and not able to stop myself.&quot;</td>
</tr>
<tr>
<td>I3-P6-L17</td>
<td>Trying to gain control - &quot;I will actually say to myself in my head you don't need food. But I end up eating anyway. I try to stop myself, but I can't stop&quot;</td>
</tr>
<tr>
<td>I5-P2-L10</td>
<td>Vicious cycle of eating - &quot;I try to do that more than actually eat but that depends on how hungry (emotionally) I am. I: So why do you try to do that more than eat? P: Because I don't want it impacting back at me. It's a vicious circle isn't it? If you don't eat, you lose the weight. Stick to your controlled diet() three o'clock in the morning, I'm hungry, I'm awake.&quot;</td>
</tr>
<tr>
<td>I5-P5-L16</td>
<td>Feeling trapped in a cycle - &quot;I just don't want to be in this circle ((Pause)) Sorry. (crying) (...) It's just a circle. It really is and I just don't want to be in it. You know I could finish here and go 'that's it' and become a blob or I can try to work at it again.&quot;</td>
</tr>
<tr>
<td>I5-P14-L14</td>
<td>Two inevitable circles - trapped - &quot;I'm trying not to get up because I'm trying to lose weight. That's what I mean, it's a circle because once you jump on it, it goes round and round and its all different things. It's not just the same circle. You know I'm trying to lose weight, no you can't eat and then I'm getting more and more angry (...) It's because I'm in a circle that I get depressed about it all because there's no way out.&quot;</td>
</tr>
<tr>
<td>I5-P16-L17</td>
<td>Food creates short term emotional control - &quot;That's the only way to cure it. You eat. I've come to the&quot;</td>
</tr>
<tr>
<td>ID</td>
<td>Text</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>I5-P16-L19</td>
<td>Making a choice - you might as well just do it, rather than fight with your conscience; ’cos that’s what it is. You fight with it, you wrestle with it and you know, someone always comes off worse.’</td>
</tr>
</tbody>
</table>
| I6-P13-L2  | Emotions impact on level of control - Bits are out of control.  
I: Which bits are out of control?  
P: Em (.) I suppose it depends on how upset I get. If I’m upset and proper fed up with myself, I’d go and eat anyway. |
| I7-P1-L21  | Fear of losing emo control in interview - I still experience problems emotionally because of the experiences that I’ve had. You know there’s always that slight angst about talking to anybody that you’re going to burst into tears any minute. |
| I7-P8-L23  | Gaining awareness = control - But it’s working through things and understanding and giving yourself back the control because that’s what I feel as though I’ve lost. |
| I7-P8-L26  | No control in life (home/work) - I suppose at work, I had no control over what I was doing. I had no control over what was happening at home. |
| I7-P10-L10 | Feeling trapped - not strong enough to cope with situation - ’I felt like I was in this situation that I didn’t know how to get out of it... I’d just describe myself as being like a timid little mouse, terrified of the situation. |
| I8-P1-L28  | Letting guard down & lack of control - ’If I just let my guard down, I’ll find myself in the kitchen, we don’t have biscuits in now, we don’t have cakes or anything like that, but I’ll be looking’ |
| I8-P3-L28  | Trying to keep focus/control to prevent eating - If I wasn’t keeping concentrating, I probably would (eat) yeah, and I’d probably do it without even realising I’m doing it. |
| I8-P18-L18 | Finds it difficult not to be in control - ’I find it very hard not to be in charge, I suppose that’s a way of doing that.  
I: So you like to be in control?  
P: Yeah, I’d like to be more in control of myself, but I like to know where I am, I don’t like wishy-washy. |
## Emotional hunger

<table>
<thead>
<tr>
<th>Interview</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1-P14-L13</td>
<td>Bad day = Stress &amp; eating - ‘What I’m saying is that if I’m given the chance depending on how my day’s gone or something like that. There’s probably a lot of factors in it but I may make the wrong decision to get up and eat if the chance is available to me.’</td>
</tr>
<tr>
<td>I1-P15-L31</td>
<td>Feeling uncomfortable &amp; trying to zone out - ‘I don’t know about you but I find it a very uncomfortable feeling being hungry. So when you’re trying to zone out and get to sleep, it’s quite disruptive you know.’</td>
</tr>
<tr>
<td>I2-P7-L14</td>
<td>Thinking of food - boredom/lonely - ‘I’m always thinking about food during the evening. I think about what I’ve got in the fridge. This is what goes around in my mind when the television becomes boring. What’s in the freezer? Well there’s ice cream, yeah I know that’s there. And I’ve got biscuits and cake. I always bring a packet of biscuits in with me and put them on a table next to me’</td>
</tr>
<tr>
<td>I2-P7-L28</td>
<td>Eating always wins - ‘Stomach screaming for food’ - ‘the eating always wins you know. I did try on occasions going back some time, having my tea, my main meal and then having nothing after it and then supper maybe a piece of toast and I did it a few times you know. But I was holding my stomach. It was hurtful. My stomach was screaming for food. All I could think about was what have I got? And it’s flashing through my mind.’</td>
</tr>
<tr>
<td>I2-P10-L6</td>
<td>More than normal hunger - ‘I think it’s a little bit more than what I normally have if I was hungry. If I was hungry during the day, which doesn’t happen believe it or not, I’m not snacking in between meals.’</td>
</tr>
</tbody>
</table>
| I3-P5-L24 | Eating depends on feeling - ‘I: Could you describe a typical night eating experience?  
P: *’Erm* well I have my meal and then I probably have a drink with it. Sometimes I might have dessert, iced cream or mousse or something like that and then I’ll start to snack.  
I: How often do you tend to do that?  
P: *’Erm* probably three times a week. It depends how I’m feeling.’ |
| I4-P7-L1 | Urge telling self to get something - ‘The urge is telling me to go and get something. But I don’t always want to.’ |
| I5-P2-L18 | Contrast between typical hunger & emo hunger - ‘P: You know like, when you sort of like I’m a bit hungry and I could munch on something. But if I’m hungry it’s like get out my way, I’ll light you.  
I: Could you describe that feeling for me?  
P: You get a rumble or a grumble’ |
| I5-P2-L23 | Rumble (stomach) & Grumble (head) - contrast |
| I5-P7-L7 | Grumbling impacts on other things (pain/thoughts) - ‘I’m not very happy going to bed so I get hungry because I’m not happy. Then it becomes a comfort.  
I: Is there a relationship between not feeling happy and being hungry?’ |
<table>
<thead>
<tr>
<th>Reference</th>
<th>Transcription</th>
</tr>
</thead>
<tbody>
<tr>
<td>I5-P13-L23</td>
<td>Need to eat - rumbling in mind -</td>
</tr>
</tbody>
</table>
| I5-P14-L6 | Hunger in mind - In your mind, your belly is really really rumbling, it’s all within (.) and you’ve got to eat... The need is to get up.  
I: What thought is going through your mind?  
P: ((Pause)) It’s just the feeling of hunger. |
| I6-P2-L8  | Wanting something - Erm, I just feel like I want something. I can get up go to the cupboard and the fridge and come back again. I might do it a couple of times and go back again and then decide what I’m going to eat and then eat it. |
| I6-P2-L28 | Looking for something to feel better - ((Pause)) Erm, it’s just, it’s just like I want something nice. Does that sound right? I’m looking for something to make me feel better. |
| I6-P3-L16 | Feeling upset/fed up and wanting something - I’ll see something on the TV, and that can sometimes trigger me. And other times I’m just going getting something because I’m wanting something. Or maybe feeling a bit fed up or something. |
| I6-P12-L5 | "..."  
I: Tea at teatime and then after that I tend to have chocolate most nights. I think last night I had a bit more than probably what I should have.  
I: How were you feeling last night?  
P: A bit fed up because I put the weight on the day before. (Laugh). And that’s when I want to eat again. |
| I6-P13-L7 | Wanting/looking for something - feeling in mind - it’s a wanting something, it’s a looking for something.  
I: Where is the feeling would you say?  
P: I don’t feel hungry. It’s more in your mind. |
| I7-P6-L12 | Not feeling full/satisfied when stressed- looking for something -  
And I do know that at those times when I’m particularly stressed I have never felt full and satisfied. So there’s been that aspect that I could eat a big evening meal and still be looking for something else. |
| I7-P6-L17 | Not a feeling of hunger - wanting something - I don’t actually feel hungry. It’s a feeling of wanting something; it’s not hunger. It’s not a physical feeling of hunger, it’s a feeling of fancy something. That’s the phrase I would
<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-P6-L26</td>
<td>Feeling content &amp; not feeling urge</td>
</tr>
<tr>
<td>17-P18-L4</td>
<td>Symptom of something — this is a symptom of something else not term() as I say you know I've seen people get into trouble with drinking because they've gone down that route and again it's not a case of well just stop buying it</td>
</tr>
<tr>
<td>18-P19-L23</td>
<td>Contrast between typical hunger &amp; emo hunger — I don't know, I don't know if it's hunger, I don't know... maybe it's in my head, I don't know, when you're hungry you know you're hungry. If I want something to eat, quite often my belly starts rumbling. I: So that's a signal, and that's different than P: Oh yeah, yeah, that's why I say it's probably in here (head) rather than my belly, you just fancy something different, I think that's what it is.</td>
</tr>
<tr>
<td>18-P22-L6</td>
<td>Eating in response to emotions — ‘...there's no hunger (physical), it's just now and again, when you slip off the wagon, and I think it's that little fella in here (head) saying I'll rather have one of them.</td>
</tr>
<tr>
<td>19-P2-L7</td>
<td>Eating when restless</td>
</tr>
<tr>
<td>19-P5-L8</td>
<td>Not eating in response to hunger in physical sense — I don't eat because I'm hungry. I: So it isn't a typical hunger feeling at that point? P: No. I: Where would you say that feeling is coming from then? P: A drive to eat. Probably because it's, I think perhaps its comfort</td>
</tr>
<tr>
<td>110-P2-L27</td>
<td>Contrast between typical hunger &amp; emo hunger — ‘I need my tea' hungry, do you know when you feel like god, I haven't eaten all day.'</td>
</tr>
</tbody>
</table>
| 110-P4-L2 | Needing something - Using food when not physically hungry — “You know when you're a kid years ago, and you think ok I feel like I need something, and I think that's what it is, do you know what I mean, and I think I'm using food when really it's not that
<table>
<thead>
<tr>
<th>Interview</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I5-P4-L14</td>
<td>Childhood experiences - told to finish meal - (I’m) from a generation where you’d get a crack across the back of the head. It’s there, you eat it. I: So your upbringing ((in overlap)). P: So now you’ve got to fight you’re upbringing. Because I’m now fifty four (laugh). You know, it’s fifty years of being conditioned to ‘you eat your dinner’. You don’t think ‘oh I’ve got to eat all this’. It’s just what I was taught. But now I’m trying to teach myself to leave something. I’m not a lover of potatoes, so if he’s put potatoes on my plate it’s easy. I’m like ‘oh look I left some’ (laugh).</td>
</tr>
<tr>
<td>I5-P4-L17</td>
<td>Fighting against upbringing - conditioned</td>
</tr>
<tr>
<td>I5-P4-L21</td>
<td>Trying to teach self new relationship with food</td>
</tr>
<tr>
<td>I6-P7-L21</td>
<td>Food always been there (form of support) - ‘Food’s always been there, it’s not like we’ve not had the food. I suppose when you were kids you’ve got pocket money and stuff to go and buy chocolate and sweets and stuff. But it was never you’re not having this, you’re not having that. But there was six of us so (…) money was a bit scarce and you got things when you could afford it, you know.’</td>
</tr>
<tr>
<td>I7-P16-L7</td>
<td>Having to finish meal - ‘You will eat it’ - I remember this one particular occasion where (…) I don’t know where she had it from but she had a rabbit and somehow I knew it wasn’t what we normally have and I remember saying to my mum ‘what’s this?’ and she said ‘I’ll tell you when you’ve eaten it’. And I refused to eat it because she wouldn’t tell me. And she said ‘If you don’t eat it now, you’ll have it for your supper and if you don’t eat it then you’ll have it for your breakfast’. It was like you will eat it. But yeah there’s been, you had to ask permission to leave the table and you weren’t allowed to leave the table until every scrap of crumbs had gone</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>I7-P16-L10</td>
<td>Find it difficult to leave food due to experiences - Has that shaped your eating?</td>
</tr>
<tr>
<td></td>
<td>F: I find it difficult to leave anything on my plate now. <em>Em</em> again () I don't make my kids eat everything on the plate. If they've had enough then they leave it and that's fine. But I have to finish everything that's on the plate. I find it very difficult not to. <em>Em</em> there has been occasion when I'm so full that I can't eat anymore and I have left it but they are few and far between.</td>
</tr>
<tr>
<td>I8-P11-L20</td>
<td>Food as reward when younger</td>
</tr>
<tr>
<td>I9-P10-L24</td>
<td>Having to finish meal - <em>Every last bit</em> - I was a big child, we had to eat, we were given a meal and we had to eat it. Every last little bit, and if you didn't eat it you got it the next day.</td>
</tr>
<tr>
<td></td>
<td>I: Right. So that was the ((In overlap))</td>
</tr>
<tr>
<td></td>
<td>F: I'm a child of the 50's and 60's, and it was after the war so if you go through the war and rationing, food was precious, when it started coming back in again, you could get food freely, so because my mother was in the war, part of that, she was like 17, 18, when that was on, you know, you were brought up like that and she didn't do portion control, so the three of us, were chubby, classed as chubby, and it was down to the fact of the way we were fed.</td>
</tr>
<tr>
<td>I9-P10-L27</td>
<td>Food was precious</td>
</tr>
<tr>
<td>I10-P17-L10</td>
<td>Would always finish meal - not sure when next meal would be - And when food was served when you were a kid, was it a case of making sure you ate it all?</td>
</tr>
<tr>
<td></td>
<td>F: Yeah. You had to eat it all because you didn't know whether you were going to get a meal the next day.</td>
</tr>
<tr>
<td></td>
<td>I: So it was very precious in that sense?</td>
</tr>
<tr>
<td></td>
<td>F: Yeah. Even now I try to finish my whole meal, the plate.</td>
</tr>
<tr>
<td>I10-P17-L116</td>
<td>Not wanting to be wasteful - whereas my husband would leave what he didn't want. Whereas I don't want to be wasteful. I think it's psychological yeah.</td>
</tr>
<tr>
<td>Interview</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>I1-P1-L9</td>
<td>Now being honest - notifying ...Well I'm quite open about it, there's no point lying about it is there? I might as well be honest.</td>
</tr>
<tr>
<td>I1-P2-L16</td>
<td>Afterwards disappointed in self/unhappy - (Pause) I don't know, it's sort of like a (.) I want to say self-loathing but it's not that strong. I think the feeling is more disappointment, being unhappy with yourself. I don't really know how to explain.</td>
</tr>
<tr>
<td>I1-P2-L22</td>
<td>Dissonance - lying to self -: 'Well (.) I'd always try and tell myself like it's alright you know, it's just one sort of blip. Obviously it wasn't just one blip, it was every night but I was trying to tell myself that erm you know, the next night it'll be alright. You know, the next night I won't do it. But I always knew in the back of my mind that it wasn't. I was sort of lying to myself.'</td>
</tr>
<tr>
<td>I1-P3-L31</td>
<td>Breaking promising - letting people down - 'I think it was less of understanding and more sort of promising her that I wouldn't do it but I would go and do it anyway. Obviously like I said, because at the time nothing else mattered. But then afterwards, you know, I'd remember that I'd made a promise to my mum and then when she found out, that when the arguments would start.'</td>
</tr>
<tr>
<td>I1-P4-L16</td>
<td>Burden on others - 'You just sort of feel worthless and like erm ((pause)) like you're a bit useless. Like you're just a drag on other people. That's how I felt anyway.'</td>
</tr>
<tr>
<td>I1-P11-L1</td>
<td>Sneaking food to prevent hurting others -: I tried to sneak food without other people seeing it. I: What was the reason for sneaking food? P: I don't know really(.) I suppose it was to stop other people finding out. I don't know(.) I've never really thought about it: What was so bad about people finding out about it? P: I just didn't want to upset other people(.) hurting my mum and making her upset. I always knew it wasn't the right thing to do.</td>
</tr>
<tr>
<td>I2-P7-L22</td>
<td>Lying self - I kid myself you know. As I'm eating, I think well I won't have any supper. I: What do you mean by kid yourself? P: Well I'm looking for excuses for the eating that I'm doing.</td>
</tr>
<tr>
<td>I2-P11-L14</td>
<td>Acknowledgement that snacking is bad - '... You shouldn't be snacking in that period. Definitely not.'</td>
</tr>
<tr>
<td>I3-P7-L19</td>
<td>Letting self down due to impact on weight/health - I: In terms of</td>
</tr>
</tbody>
</table>
| I4-P3-L11 | Going against other's advice - After you do eat in the evenings how are you generally feeling?  
 | P: Well, if I'm tired I feel emotionally upset at myself and I can be horrible to people.  
 | I: In what way do you feel emotionally upset? How would you describe that feeling?  
 | P: If I'm tired (...) if I know myself, I'm tired then if I have something I could be okay.  
 | I: When you have eaten, how does it make you feel?  
 | P: It makes you feel guilty  
 | I: Why is that do you think?  
 | P: It's because I shouldn't be eating those sorts of foods. Like if you eating over night it just sits in your stomach.  
 | I: So you feel a bit frustrated with yourself?  
 | P: Yeah because I always get told not to eat after a certain point at night 'cos fat lies on your stomach until the next day. |

| I5-P5-L1 | Being caught eating by daughter - 'Well my daughter has caught me a few times in the fridge.  
 | I: And how was that? How did that feel?  
 | P: She's just gone bawl on me and really told me off. And that upsets me that and then I just go to bed. And then I'm even worse in bed then.' |

| I5-P6-L8 | Lots of emotions afterward - impact on weight - 'Yeah you feel like you've erm you know and then it's 'you stupid cow you supposed to be losing weight'. And it comes back at me like that.  
 | I: How would you describe that feeling?  
 | P: It's mixed isn't it? Anger (...) Sad that I've done it. You know what I mean. It's trying to find the right words. Sometimes I struggle to find the right words. I get angry that I'm doing it (...) It's a ton of emotion. |

| I5-P6-L14 | Creating a victim - being a burden - 'My husband is the victim. He's that personality. He's the victim in my lameness. He's the victim in my pain. I've got about seven things wrong with me and they all impact on each other. So if I've broken him up through pain he's the victim not me. I just look at him and think why am I here with you.' |

| I5-P14-L23 | Fear of being caught by children - 'Yeah but I do try and do it myself but the stairs can be really tricky. And if the kids have stopped over, it's hard work because if they catch me there's |
173

| 15-P15-L24 | Making excuses to self – ‘The bowls are on the top shelf, at the back are the small ones and there’s also the big square ones. So it’s really naughty to have the bigger bowl, but I can’t reach the others.’ |
| 16-P5-L27 | Impact emotionally on family – worry – ‘Not really. Well my eldest daughter gets very upset and emotional when she sees me eating all the wrong things and she knows that if I don’t do something now something could happen to me and I won’t be here later on for them.’ |
| 16-P6-L25 | Hiding snacking from family members – ‘If I eat a chocolate bar I tend not to take a picture of it and send it (Laugh). And then she comes round and says ‘what have you had as snacks?’’ |
| 17-P11-L10 | Letting family down - breaking promises – ‘I feel as though I have let them down. My daughter in particular is concerned and I know my son is as well. I think they’re concerned that I’m the healthy one at home and if anything happens to me (.) and I do feel as though I let them down. I have made promises to both of them, particularly my daughter that I will do something about it and I’ve struggled for the last three years to do anything about it. And it’s that feeling that I’ve let them down that leads into that vicious cycle. Starting to eat more but I have let them down and then it’s a downward spiral.’ |
## Habitus eating

<table>
<thead>
<tr>
<th>Interview</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1-P1-L28</td>
<td><strong>Doing not thinking</strong> - ‘Erm (pause) it’s quite difficult to explain to whilst I was doing it (pause) well at the time I was night eating it never really crossed my mind. Like it was sort of like (pause) I don’t know how to explain this really. While I was actually eating I wasn’t actually thinking about it, it was just that I was doing it’</td>
</tr>
<tr>
<td>I1-P3-L9</td>
<td><strong>Happy - nothing else mattered</strong> - ‘You know when I was doing it. Instead of saying erm that I wasn’t thinking about it, it was more that while I was actually there eating (pause) I just didn’t care. You know it was that I was happy and nothing else mattered.’</td>
</tr>
<tr>
<td>I1-P3-L14</td>
<td><strong>Most important thing at the time</strong> - ‘While I was doing it I didn’t really care about my weight loss. I didn’t really care about waking up the next day, you know and missing stuff.’</td>
</tr>
<tr>
<td>I1-P4-L1</td>
<td><strong>Nothing mattered</strong> - ‘... at the time nothing else mattered’</td>
</tr>
<tr>
<td>I3-P3-L18</td>
<td><strong>Some awareness of action but not when or duration</strong> - ‘Well I know I’m doing it at the time but I’m not aware when or how long it’s been going on.’</td>
</tr>
</tbody>
</table>
| I5-P9-L9  | **Separation of body & mind – habit** - Can you identify any thoughts that you have when you’re eating?  
  P: ‘Cos your thoughts take you away and your body can do something totally different to what your thoughts are doing. ... You know my mind is still wherever it is and you could have eaten whatever you’ve eaten and wake up to it and be like I just eaten all that. It’s like a habit because your brain is doing something else, your body stays in the habit.’ |
| I5-P9-L20 | **Auto-pilot** - ‘It’s on auto-pilot. It’s like when you’re driving.’  
  I: Your body is there ((in overlap))  
  P: But your mind is thinking about other stuff. |
| I7-P1-L31 | **Not recognising eating habit** - ‘I didn’t recognise it at the time, I found out that I was starting to eat after my evening meal.’ |
| I7-P4-L6  | **Not recognising eating** - ‘catching self’ - ‘Before you go and eat can you identify any thoughts that you have?  
  P: ((Pause)) No. Sometimes I don’t actually realise I’m doing it. It’s only when I’ve caught myself doing it that, I’m not hungry why I am doing this?’ type of thought. |
| I7-P6-L4  | **Not consciously done** - ‘how do you think food helps with stress?’  
  P: I don’t know really it’s not consciously, it’s not consciously done. I couldn’t honestly say. Whether the actual action of getting up and going into the kitchen is taking me away from the situation which it
could well be. Erm, sometimes I could see that that actually will be the case where just getting up is physically taking me away and trying to deal with. But it’s not something that I’m not sort of consciously aware of. Quite often I’d be eating and not realise that I’m actually doing it.

<table>
<thead>
<tr>
<th>Ref</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>I8-P3-L29</td>
<td><strong>Eating &amp; not realising</strong> - ‘If I wasn’t keeping concentrating I probably would yeah, and I’d probably do it without even realising I’m doing it.’</td>
</tr>
<tr>
<td>I8-P5-L6</td>
<td><strong>Habitual nature</strong> - ‘It must be a habit, I mean it must be a habit, it can’t be anything else, but once I’ve had something to eat I can settle down.’</td>
</tr>
<tr>
<td>I8-P16-L19</td>
<td><strong>Consciously unaware – switching off</strong> - ‘… the conscious must have made a decision, but without the conscious knowing of it, then you think oh I: So it’s a little bit like mindless eating attimes? P: Yeah, it’s like it’s switched off hasn’t it? It’s under control or something else if you understand me?’</td>
</tr>
<tr>
<td>I9-P22-L3</td>
<td><strong>Previously not aware</strong> -</td>
</tr>
</tbody>
</table>
Method of eating

<table>
<thead>
<tr>
<th>Interview</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I3-P1-L15</td>
<td>Picking at food - 'I start to think and worry about things. So it's then that I start to <strong>pick at things to eat</strong>.'</td>
</tr>
<tr>
<td>I7-P2-L10</td>
<td>Grazing ... I: How would you describe the style or form of snacking? P: Errm, I suppose it would be a graze, it wasn't a, well it wasn't like the evening meal in terms of preparing something...... It would be every time I went into the kitchen, I would nibble whatever was there. We don't have biscuits in very often but if there were, I would have a biscuit. If it's fruit it would be fruit. It's whatever is in the kitchen basically because that's the only room where we keep food'.</td>
</tr>
<tr>
<td>I7-P14-L17</td>
<td>Picking at food -</td>
</tr>
</tbody>
</table>
### Food type

<table>
<thead>
<tr>
<th>Interview</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1-P11-L9</td>
<td>Quick/convenient foods 'quick stuff, easy stuff': ...the kind of stuff I’d eat would be like canned soups and a lot of the time it would be breakfast cereals. Erm it was all stuff that was easily available and quick; sandwiches. Yeah, they were the big three things that I’d eat. Quick stuff, easy stuff, not stuff that I’d have to prepare or would take a long time.'</td>
</tr>
<tr>
<td>I2-P1-L32</td>
<td>Easily available - 'I’d always make sure there was a packet of biscuits handy; I wouldn’t have to go out to the kitchen to get them ... I always bring a packet of biscuits in with me and put them on a table next to me.'</td>
</tr>
<tr>
<td>I3-P3-L2</td>
<td>Sweet things - gives a high feeling. And erm (.) of course everything’s accessible and I choose what foods I eat which unfortunately tend to be sweet things. I: What is it about sweet things? P: I think they just, especially chocolate, give me a little bit of a high at the moment, at that moment.'</td>
</tr>
<tr>
<td>I6-P1-L28</td>
<td>Attracted to sweet foods - 'I love them': So you mentioned that you eat chocolate and things like that. What other types of food would you eat? P: Usually chocolate and biscuits and cake if I’ve got it in. It just depends on what we’ve got in at the time. I: What is it about those particular foods? P: I love them. Oh yeah, I like cake, sweets and chocolate. I: Is there anything in particular as to why you choose those foods? P: They’re just nice (.) calming, I feel calm when I’m eating them. I’m enjoying it.</td>
</tr>
<tr>
<td>I6-P10-L6</td>
<td>Different foods give different feeling - 'No, there’s a big difference. It doesn’t give you that (.) satisfaction I would say. I do try to have fruit now though. But we do end up throwing quite a lot away. I: Do you eat fruit because you feel you should or because you want to? P: Because I feel I should.'</td>
</tr>
</tbody>
</table>
| I5-P13-L11 | Relevance to relationship with father - sweet shop -
## Switching off – automatic eating

<table>
<thead>
<tr>
<th>Interview</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1-P1-L28</td>
<td>Doing not thinking - ‘Erm (pause) it’s quite difficult to explain but whilst I was doing it (pause) well at the time I was night eating it never really crossed my mind. Like it was sort of like (pause) I don’t know how to explain this really. While I was actually eating I wasn’t actually thinking about it, it was just that I was doing it’</td>
</tr>
<tr>
<td>I1-P3-L9</td>
<td>Happy - nothing else mattered - ‘You know when I was doing it. Instead of saying erm that I wasn’t thinking about it, it was more that while I was actually there eating (pause) I just didn’t care. You know it was that I was happy and nothing else mattered.’</td>
</tr>
<tr>
<td>I1-P3-L14</td>
<td>Most important thing at the time - ‘While I was doing it I didn’t really care about my weight loss. I didn’t really care about waking up the next day, you know and missing stuff.’</td>
</tr>
<tr>
<td>I1-P4-L1</td>
<td>Nothing mattered — ‘… at the time nothing else mattered’</td>
</tr>
<tr>
<td>I3-P3-L18</td>
<td>Some awareness of action but not when or duration — ‘Well I know I’m doing it at the time but I’m not aware when or how long it’s been going on.’</td>
</tr>
<tr>
<td>I5-P9-L9</td>
<td>Separation of body &amp; mind — Can you identify any thoughts that you have when you’re eating?</td>
</tr>
<tr>
<td></td>
<td>P: It’s difficult because sometimes you’re not all there.</td>
</tr>
<tr>
<td></td>
<td>I: Could you explain?</td>
</tr>
<tr>
<td></td>
<td>P: ‘Cos your thoughts take you away and your body can do something totally different to what your thoughts are doing. You know my mind is still wherever it is and you could have eaten whatever you’ve eaten and wake up to it and be like I just eaten all that.’</td>
</tr>
<tr>
<td>I5-P9-L20</td>
<td>Auto-pilot — It’s on auto-pilot. It’s like when you’re driving.</td>
</tr>
<tr>
<td></td>
<td>I: Your body is there ((in overlap))</td>
</tr>
<tr>
<td></td>
<td>P: But your mind is thinking about other stuff.</td>
</tr>
<tr>
<td>I7-P1-L31</td>
<td>Not recognising eating habit — ‘I didn’t recognise it at the time, I found out that I was starting to eat after my evening meal.’</td>
</tr>
<tr>
<td>I7-P4-L6</td>
<td>Not recognising eating - catching self — ‘Before you go and eat can you identify any thoughts that you have?’</td>
</tr>
<tr>
<td></td>
<td>P: ((Pause)) No. Sometimes I don’t actually realise I’m doing it. It’s only when I’ve caught myself doing it that, I’m not hungry why I am doing this? type of thought.</td>
</tr>
<tr>
<td>I7-P6-L4</td>
<td>Not consciously done — how do you think food helps with stress?</td>
</tr>
<tr>
<td></td>
<td>P: I don’t know really it’s not consciously, it’s not consciously done. I couldn’t honestly say. Whether the actual action of getting up and going into the kitchen is taking me away from the situation which it could well be. Erm, sometimes I could see that that actually will be</td>
</tr>
</tbody>
</table>
the case where just getting up is physically taking me away and trying to deal with. But it’s not something that I’m not sort of consciously aware of. Quite often I’d be eating and not realise that I’m actually doing it.

| I8-P3-L29 | **Eating & not realising** | ‘If I wasn’t keeping concentrating, I probably wouldn’t yeah, and I’d probably do it without even realising I’m doing it.’ |
| I8-P3-L13 | **””** | **””** |
| I8-P16-L19 | **Consciously unaware – switching off – ‘… the conscious must have made a decision, but without the conscious knowing of it, then you think oh’** | I: So it’s a little bit like mindless eating at times? P: Yeah, it’s like it’s switched off hasn’t it? It’s under control or something else if you understand me? |
| I9-P22-L3 | **Previously not aware -** |
## Feeling misunderstood

<table>
<thead>
<tr>
<th>Interview</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1-P3-L19</td>
<td>Difficult for others (family) to emphasise - It caused quite a bit of trouble between me and my mum particularly cos she tried to help me a lot through the years. <em>Erm</em> and I think it difficult for her to empathise sometimes. Obviously she hasn't struggled with this kind of thing before.</td>
</tr>
<tr>
<td>I1-P4-L9</td>
<td>Lack of understanding - eating for sake of it - <em>You're not doing anything to burn it off and stuff like that and that I was just eating for the sake of it (</em>) not because you need it or anything. It was that kind of thing.*</td>
</tr>
<tr>
<td>I5-P18-L4</td>
<td>Feeling misunderstood - medical focus wanting to be seen as a whole package - <em>When you come here all they're interested in is their box. They don't take you as a whole package. It would be better if they did take you as a whole package.</em></td>
</tr>
<tr>
<td>I5-P19-L2</td>
<td>Not feeling listened to <em>you</em> try to tell them and it's no, they're just <em>f</em> busting. That's it. It's a shame really</td>
</tr>
<tr>
<td>I7-P17-L8</td>
<td>Not enough understanding from professionals - <em>I think the one thing I'd like to them to understand generally is that it's not just about knowing about the calories in, calories out and it's not so easy. There's more to it. There's more going on and I think once people understand and recognise that erm then I think we're going to be in a better situation to help people.</em></td>
</tr>
<tr>
<td>I7-P17-L31</td>
<td>More than physical explanation <em>we do know we need to exercise more and eat less but for some reason I can't exercise more and eat less you know, something is stopping me (</em>).*</td>
</tr>
<tr>
<td>I7-P18-L1</td>
<td>Importance of recognising reasons for eating - <em>Because I think that if people could recognise that there is a reason for this person behaving in this particular way, let's try and sort out what the reason is and cope with that and then (</em>) this is a symptom of something else.*</td>
</tr>
<tr>
<td>I8-P24-L1</td>
<td>Lack of understanding from D &amp; N - <em>It's like reading from a book</em> - <em>Sometimes I think there's a lack of understanding on medical professionals part, it's like reading from a book without that little bit of leeway about the human factor if you understand what I mean.</em></td>
</tr>
<tr>
<td>I8-P24-L26</td>
<td>Tick box - <em>everything</em> a tick box, if you can't tick the box.</td>
</tr>
<tr>
<td>I10-P19-L11</td>
<td>Lack of understanding from professionals - <em>feeling judged</em> - <em>I went to see the chest consultant, and she weighed me and this is a person who's just I don't know, she just weighs you, does your blood pressure, and whatever, now she said to me, oh I couldn't believe it, my mum went absolutely berserk, because she said to me oh if you put on any more weight they wouldn't perform an operation on you if you were in a car accident.</em></td>
</tr>
<tr>
<td>I10-P17-L28</td>
<td>Too narrow focus - <em>Because when you come to the hospital, you see the dietician or whatever, they think you're big, I think because you're just eating, and that's the whole thing. I do think it's like a tool, I do think what's the point anyway, and I do think I'm getting deflated more than inflated, if you know what I mean, to the point of I think of what's the point?</em></td>
</tr>
</tbody>
</table>
# The significance of night

<table>
<thead>
<tr>
<th>Interview</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I2-P1-L11</td>
<td>Worst part of the day - alone - ((Pause)) My worst part of the day. I do nothing but snack after my evening meal and we’re talking about biscuits, cake erm (.) and really it’s all because I’m sitting there alone.</td>
</tr>
<tr>
<td>I2-P3-L4</td>
<td>Depressed - ve thoughts- alone - I’m quite okay, you know. But I do get the odd moments of course, when I’m on my own especially. I do get a little bit depressed.</td>
</tr>
<tr>
<td>I2-P10-L10</td>
<td>Eating when lonely - I think maybe it’s because I’m sitting there alone and what do they call it now (.) there’s an expression for it. Anyway it’s about eating when you’re lonely.</td>
</tr>
<tr>
<td>I2-P10-L28</td>
<td>Not snacking during day - ‘I think it’s a little bit more than what I normally have if I was hungry. If I was hungry during the day, which doesn’t happen believe it or not, I’m not snacking in between meals.’</td>
</tr>
<tr>
<td>I3-P1-L14</td>
<td>Nothing to do – worry – Erm I only eat at night when I’ve got nothing to do and that’s when I start to think and worry about things. So it’s then that I start to pick at things to eat.</td>
</tr>
<tr>
<td>I3-P1-L18</td>
<td>Feeling Sad/Anxious – : Yeah, there’s just more time on my hands (at night) to think basically. I: Is there anything particularly that you worry about? P: Erm, well my dad’s not well (.) very unwell and he’s not going to get better. So with me not living at home, that’s a worry for me. I: How does it make you feel when you think about that? P: Sad and anxious.</td>
</tr>
<tr>
<td>I4-P6-L1</td>
<td>Thinking a lot at night – mood - : I think a lot about it at night. I’ve discovered problems from it erm like (.) depression. So it’s affected my mood quite a bit.</td>
</tr>
<tr>
<td>I4-P4-L17</td>
<td>Waking/not sleeping/thinking – What goes through your mind at night? P: Well I was in a car crash two years ago. I: Do you still think of that? P: Yeah that and I’m also worried about my friend who’s sick in hospital. .......... I: So is this worry impacting on your sleep?</td>
</tr>
<tr>
<td>I5-P1-L10</td>
<td>NE brings out worst – ‘(·) It brings out the worst. I can be really nasty. My husband never saw the side of that until I piled it on and because of the pain as well.’</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>I5-P2-L27</td>
<td>Everything worse – ‘Everything is worse at night. You could have the same thing all day long and then come nighttime it’s worse.’</td>
</tr>
<tr>
<td>I5-P3-L1</td>
<td>Hours to get through – ‘Psychologically, I think I’ve got all them hours to go till breakfast. It tumbles out of control.’</td>
</tr>
<tr>
<td>I5-P3-L4</td>
<td>Dark thoughts/Depression – ‘I have really dark thoughts at night (·) so if I’m hungry, I suppose the cereal helps, it brings you down, it calms you down. Because the depression of a night time is bad. If I can sleep through it I’m laughing.’</td>
</tr>
<tr>
<td>I5-P8-L30</td>
<td>Sinister – ‘I still get the typical rumbling tummy and stuff that anyone can get during the day, but in the night everything just seems so dark. You know dark, sinister. Walking round my house getting something to eat; it’s sinister (·).’</td>
</tr>
<tr>
<td>I6-P14-L1</td>
<td>Pain/mood/eating – ‘When do you tend to feel the most pain? P: Erm, usually evening time. Well during the day I tend to be moving around a lot more. It’s during the evening that I tend to be sitting around. I: Does that ever get you down when you’re feeling pain? P: Pain. Yeah. Yeah.’</td>
</tr>
<tr>
<td>I7-P16-L31</td>
<td>Day time distracted - NT time to worry – ‘I don’t tend to snack during the daytime at all. I: Why is that? P: I think because during the day, I am so busy there wasn’t a time to think about anything other than what you were doing, so I wouldn’t and I don’t tend to now either because I’m busy around the house or busy doing what I’m doing. And it’s only in the evening when there’s nothing that specifically’</td>
</tr>
</tbody>
</table>
### Appendix 21: Verification check example

<table>
<thead>
<tr>
<th>Theme</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional hunger</td>
<td>From our discussion, I got the sense that you felt, in response to stress or difficult emotions, an urge to eat. I got the sense that this was not a typical feeling of hunger in the physical sense, but more an emotional hunger. I understood this hunger as being a feeling of emotional discomfort or a feeling of wanting something, coupled with a desire to suppress or remove this discomfort through eating.</td>
</tr>
<tr>
<td>Habitual eating</td>
<td>You described the process of evening eating as being a habit. I understood the process of evening eating for you as being automatic, in the sense that at the time there was little conscious awareness with regards to why you were eating and the potential consequences.</td>
</tr>
<tr>
<td>Comfort</td>
<td>I got the sense from our discussion that there was a need for emotional comfort or support at times. When talking about food, I understood this as being a dependable source or method of enabling you to distract or suppress the difficult emotion. As result, I understood this as temporarily resulting in you feeling better or comforted.</td>
</tr>
<tr>
<td>Consequences</td>
<td>I understood that as result of nighttime eating, there were a number of consequences. One emotion you talked about was a feeling of guilt in relation to the impact of nighttime eating was having on others and your relationship with others. You also talked about a feeling of shame and self-disappointment due to the impact of nighttime eating was having upon your weight and ultimately your sense of self-worth.</td>
</tr>
<tr>
<td>Misunderstanding</td>
<td>I got the sense that you felt that others found it difficult to understand your difficulties and reasons for eating, focusing more on weight management and physical explanations rather than the underlying reasons.</td>
</tr>
<tr>
<td>Awareness</td>
<td>I understand from our discussion that in developing an awareness of your eating you were able to re-gain a sense of control. To break the habit, I got the sense that being aware of why you are choosing to eat and then identifying alternative strategies of comfort or self-care is important in you regaining a sense of control.</td>
</tr>
</tbody>
</table>
Appendix 22: Respondent verification sheet

Respondent Verification sheet

After reading the Interview Summary sheet are there any parts that you strongly agree with or strongly disagree with?

Please do not feel as though you have to complete all points.

Comments:
1)

2)

3)

4)

5)

Name:________________________________________

Signature:____________________________________