Determinants of General Practitioner referrals to mental health services

A Thesis Submitted to the University of Manchester for the Degree of Doctor of Clinical Psychology in the Faculty of Medical and Human Sciences

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Abstract

Determinants of General Practitioner referrals to mental health services
A Thesis Submitted for the Degree of Doctor of Clinical Psychology
Sally Craven, University of Manchester, 2012

The overall aim of the thesis is to explore the determinants of General Practitioner (GP) referrals to specialist mental health services, in particular psychological therapy.

Paper 1 is intended to contribute to this literature by providing a systematic review of GP and organisational factors identified as impacting on referral in previous research. According to this literature, referral to a mental health specialist was more likely if the GP does not feel that they have the ‘capacity to help’ and perceives ‘time constraints’ on how long they can spend with the patient. Referral also appeared more likely if the GP felt they had acceptable ‘access to services’ and if they had a close ‘consultation/liaison’ relationship with specialists. The theoretical and clinical implications of these findings are discussed, and gaps in the current literature identified for further research.

Paper 2 describes an empirical study aimed at exploring the determinants of GP referral for psychological interventions within Primary Care Mental Health Services (PCMHS). 132 GPs completed questionnaires, including demographic information, attitudes towards mental health and its treatment and responses to short fictional case vignettes indicating their likelihood of referral to the PCMHS. Qualitative results suggested that GPs consider a range of factors in their referral decisions, including patient preference, severity of the problem, access to services and the effectiveness of the service. Alternative options considered included signposting to other services, reviewing, medication and providing advice and support. Quantitative results suggested that younger GPs reported a higher likelihood of referral, and were more likely to refer in line with guidelines. Psychological factors were not associated with referral likelihood or referral in agreement with guidelines.

In line with previous research on clinician behaviour, findings of papers 1 and 2 are considered primarily in the context of the Theory of Planned Behaviour, and the utility of this model in predicting referral behaviour is evaluated throughout. A greater understanding of predictors of referral is thought to be valuable in designing clinician and service level interventions to improve the proportion of those in need who are able to access psychological therapy.

Paper 3 provides a critical evaluation of the research process as a whole, including the processes involved in the literature review and empirical study. The strengths and weaknesses of both of these elements are discussed, along with an evaluation of the overall approach taken throughout the thesis. The findings of both studies are integrated and discussed in the context of current policy and proposed changes to healthcare provision. Implications for theory, clinical practice and further research are 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.
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Acknowledgements

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I would also like to thank all of the GPs who generously gave their time to participate in the research. I am grateful to Dr. Tom Tasker and Dr. Phil McEvoy for their advice and practical support in recruitment and design and to Liz Murphy, for being a constant source of ideas, advice and good natured support.

Thank you to Lauren, Alex, and particularly Mum, for all the time you spent proof reading this work.

Thanks to all the friends and colleagues who have taught me a great deal and made the last three years so much fun.

A special thanks to Lauren, and to my family, for your unconditional support. Thanks for giving me perspective and things to look forward to.
Paper 1

Service and clinician level factors influencing the likelihood of General Practitioner referral to a mental health specialist: a systematic review

Prepared in accordance with author guidelines for Clinical Psychology Review (Appendix 1). Authors will be listed as follows: Craven, S. & Mansell, W.

For ease of reading, tables and figures are included in the main text. These will be removed and placed at the end of the manuscript before submission, in line with author guidelines.

Appendices are included for completeness. References to Appendices will be removed from the manuscript before submission.

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Abstract
Studies have attempted to understand the mechanisms behind the widely reported variability in referral rate for mental health disorders, beyond that which can be explained by patient characteristics. Studies reporting factors associated with quantitative referral rate, or those qualitatively reported by General Practitioners (GPs) as impacting on their referral decisions were identified according to a systematic search process.

Sixteen studies were identified, and synthesised using principles of meta-ethnography to generate a number of constructs reported to be related to referral. GP factors with good quality qualitative and quantitative support were the GP’s perceived ‘capacity to help’ and ‘time constraints’, suggesting that GPs who felt less confident to treat patients with mental health difficulties, and had less time available to do this, were more likely to refer. On a service level, the evidence suggested that high availability of ‘access to services’ and a closer ‘consultation/liaison’ relationship between general practices and specialist teams may increase the likelihood of referral. These findings are considered in relation to social cognitive theories of behaviour.

The clinical implications of these findings for services providing psychological therapy are discussed, along with limitations of the review and suggestions for further research.

Keywords: Primary care, general practitioner, GP, referral, mental health, self-efficacy
**Introduction**

Recent reports suggest that variation in General Practitioner (GP) management of patients with mental health conditions can have an observable impact on patient outcomes (e.g. Gyani, Shafran, Layard, & Clark, 2011). It is therefore proposed that a greater understanding of the factors contributing to GPs’ referral decisions for such patients would have considerable practical value to services receiving these referrals. The current review aims to identify and critically evaluate studies that have reported GP and service level factors related to the likelihood of referral to mental health specialists.

These findings will be considered in relation to the available theoretical frameworks in order to consider their implications for clinician training, and development of services providing psychological therapies. It is anticipated that the application of psychological theory to the understanding of clinician behaviour would be beneficial in designing such interventions, as has been the case in other areas of healthcare (e.g. Eccles et al., 2009).

The reported prevalence of mental health conditions is varied, although recent estimates suggest a lifetime prevalence of 25% (Department of Health, 2011). It is estimated that mental health concerns account for one in four GP consultations in the UK (Department of Health, 2000). However, current literature suggests a high level of unmet need for mental health care worldwide, the World Health Organisation reporting that ‘roughly half’ of patients with severe mental disorders receive specialist services in developed Western countries (Wang et al., 2007). Variation in who is referred for specialist treatment by GPs, who are often seen as ‘gatekeepers’ to services, may account for a proportion of this unmet need (Wang et al.). For example, one study in the UK found referral rates to Community Mental Health Teams to vary ‘nearly 40 fold’ between GP practices (Soomro, Burns & Majeed, 2002).

A range of patient characteristics associated with likelihood of referral to a mental health specialist have been identified. These include gender (Hyde et al., 2005), age (Cooper et al., 2010; Kendrick et al., 2009), ethnicity (Miranda & Cooper, 2004), type of presentation (Walker, Haeney & Naik, 2005), severity of symptoms (Kendrick et al., 2009) and preference (Lin et al, 2005). However, in studies in general medicine,
these factors alone have not been found to explain all of the variance in referral rates (O’Donnell, 2000), suggesting that the clinical practice of the referring GP and the organisational context are also likely to play a part.

This has been demonstrated in the literature on referral patterns in general health, with GP factors such as demographics and expectations of outcome, in addition to organisational factors such as practice size, found to be associated with referral rates (Foot, Naylor & Imison, 2010). Within mental health, individual differences in GPs’ attitudes towards psychological therapy have been suggested to impact on their clinical decision making, in terms of antidepressant prescribing (Dowrick, Gask, Perry, Dixon & Usherwood, 2000; Kerr, Blizard & Mann, 1995).

The current literature on the effectiveness of GP training in improving diagnosis and management of mental health conditions is mixed, with reviews suggesting little evidence for an effect of training on diagnostic competence (Benthem, Heg, van Leeuwen & Metsemakers, 2009) or clinician knowledge, confidence or referral patterns (Hodges, Ince & Silver, 2001). Similarly, studies have reported no significant effect of the dissemination of diagnosis and management guidelines on patient outcomes (Croudace et al., 2003), and no effect of implementing standardised severity measures on referral agreement between teams (Slade et al., 2008).

It has been suggested, therefore, that a more comprehensive theoretical understanding of the determinants of healthcare professionals’ clinical behaviour is necessary in order to improve the effectiveness of such interventions (Michie et al., 2005; Russo et al., 2011). The application of psychological theory to clinician behaviour has been relatively understudied in the literature to date, in comparison to the large literature on psychological models of patient health behaviour (Godin, Belanger-Gravel, Eccles, & Grimshaw, 2008).

However, a number of recent studies have examined the application of psychological theory to predicting professional behaviour in the wider health context. Godin et al. (2008) reviewed 16 studies considering determinants of health professionals’ behaviour based on social cognitive theories (e.g. Social Cognitive Theory, Bandura, 1986; Theory of Reasoned Action, Fishbein & Ajzen, 1975; Theory of Planned
Godin et al. (2008) concluded that the two categories of variables most frequently reported to predict behaviour were ‘intention’ and ‘beliefs about capabilities’. As the authors point out, these categories map onto two key components of the Theory of Planned Behaviour (TPB); intention and perceived behavioural control.

Ajzen’s (1985) TPB (Figure 1) proposes that human behaviour can be predicted based on measures of ‘intention’ and ‘perceived behavioural control’. Perceived behavioural control refers to the combination of the individual’s self perceived ability to perform the behaviour (derived from Bandura’s concept of ‘self-efficacy’; Bandura, 1977), and the individual’s actual ability to control the behaviour (allowing for external factors such as environmental constraints, Ajzen, 2002). The theory proposes that perceived behavioural control also influences an individual’s ‘intention’, or motivation to engage in a behaviour. According to the theory, intention is also influenced by an outcome expectancy evaluation based on attitudes and beliefs towards the behaviour, and beliefs about the ‘subjective norm’, based on perceived social pressure to engage or not engage in the behaviour (Ajzen, 1991).

Figure 1: Theory of Planned Behaviour (reproduced from Ajzen, 1991)
Based on this theory, it could be hypothesised that GPs’ perceived behavioural control and intention to refer may emerge as factors relevant to referral behaviour. Perceived behavioural control might refer to the GPs’ ability to make the referral, both in terms of their own perceived competency in being able to make an appropriate referral, and external variables limiting the ability to refer, such as access to services. The TPB would suggest that these factors would impact both directly on the referral behaviour, and on the intention to refer. Any such findings would also support Bandura’s (1986) Social Cognitive Theory, which identified ‘self-efficacy’ as a key determinant of behaviour.

Also according to TPB, attitudes regarding the costs and benefits of a referral, and beliefs regarding the perceived social desirability of doing so might be expected to impact on referral behaviour indirectly, through an impact on the intention or motivation to refer.

Two studies have demonstrated the possible application of psychological theory to professional behaviour in the field of mental health. Conner and Heywood-Everett (1998) demonstrated that different variables in the TPB model could be identified as predictors of referral to specialist mental health providers for Asian patients compared with non Asian patients. Additionally, Russo et al. (2011) reported that the TPB constructs could be used to predict GPs’ intention to identify individuals at high risk of psychosis. These findings tentatively suggest that the use of psychological theory to understand clinician behaviour could have useful applications in developing interventions to improve service provision.

**Review aims**
The current review aims to identify GP and service level factors influencing the referral decision making process and/or likelihood of referral to mental health specialists, as reported in the recent literature. It is intended that a greater understanding of these factors and their theoretical underpinnings will have implications for development of psychological therapy services and effective GP training in mental health.
Method

Search strategy

Search terms (Table 1) were developed based on the stated aims of the review. The choice of search field was adapted to allow equivalent searching across four databases (Medline, PsychINFO, Embase and Web of Science). Searches were conducted on 20\textsuperscript{th} January 2012.

Records from the four databases were combined and duplicated records removed, before SC screened the titles and abstracts to identify relevant articles for full text review. These records were then read in full, and studies meeting the inclusion criteria were selected for inclusion. The reference and citation lists of all relevant papers were also searched by hand to identify additional relevant studies not identified by the original search.

<table>
<thead>
<tr>
<th>Field</th>
<th>Keyword/abstract/subject heading</th>
<th>Search terms</th>
<th>Title</th>
<th>Title</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search terms</td>
<td>G.P. OR GP OR general practitioner OR family doctor OR family practitioner</td>
<td>AND</td>
<td>refer* OR decision OR management OR prescrib* OR clinical behaviour OR choice OR treatment</td>
<td>AND</td>
<td>mental OR depression OR anxiety OR psychol* OR psychia* OR CMHT OR community mental health team</td>
</tr>
</tbody>
</table>

Table 1: Full search terms

Exclusion and inclusion criteria

Studies were included in the review if they were published in English, in a peer reviewed journal between 2002 and 2012. This was in an attempt to ensure that included studies were applicable to current practice, due to the changeable nature of health care services and structures. For example, the National Service Framework on Mental Health, published in 1999, was designed to have considerable impact on the implementation of mental health Services in the UK (Department of Health, 1999).

Studies presenting data on service and/or GP factors in relation to rates of referral to mental health specialists were included. Quantitative studies were included if reporting data on referral (including self reported referral rates and response to
simulated vignettes) to any mental health specialist provider (e.g. Community Mental Health Team, psychiatry, psychological therapy). Qualitative studies describing factors reported by GPs to be involved in referral decisions were also included.

Studies relating to referral to specialist services (e.g. child, learning disability and dementia services) were excluded, as referral pathways to such services are likely to be different to that in general adult mental health services. Additionally, studies were excluded if they did not report tests of statistical significance (for quantitative data) or a recognised method of qualitative analysis.

**Quality assessment**
Rating checklists were used to assess the quality of included papers. Due to the small number of relevant studies, all papers meeting the inclusion criteria above were included. Quality assessment was therefore used to allow for comment on the quality of included studies rather than for exclusion purposes.

Qualitative papers were assessed using the Critical Appraisal Skills Programme rating scale (CASP, Public Health Resource Unit, 2006), yielding a score between 0 and 10. Quantitative studies were scored according to the checklist devised by Barley, Murray, Walters and Tylee (2011) based on the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement of guidelines for reporting of observational studies (von Elm et al., 2007). This produced a score from 0 to 7 for each paper. Papers were read in detail and assigned a score by SC.

**Synthesis of Results**
The results of the identified studies were synthesised using principles of meta-ethnography (Noblit & Hare, 1988), as described by Britten et al. (2002). This method has been shown to be applicable to the synthesis of mixed qualitative and quantitative studies (e.g. Barley et al., 2011).

Initially, all identified studies were read by SC and factors discussed in relation to referral were identified as a list of concepts. These concepts were then grouped and conceptualised into themes (second order constructs). All papers were then re-read to examine and clarify how and if each study relates to each second order construct.
Finally, the framework of concepts and second order constructs was reviewed by WM for verification of the identified themes.

**Results**

A total of 432 articles were identified following the database search, after removal of duplicates (Figure 2). After screening titles and abstracts, 53 papers were selected for full text review of eligibility. Fourteen of these papers met the inclusion criteria. A further three papers were identified by hand searching reference lists and papers citing the included studies. One of these papers was found to be reporting on the same data set as one of the originally included papers. Following comparison of the two papers, the original (Epstein et al., 2008) was excluded from the review on the basis that the additional study (Hooper, Epstein, Qu & Hannah, 2011) described the data on referral in more detail.

A total of 16 papers were therefore included in the review, including 10 quantitative, 4 qualitative and two mixed-method studies. These studies are summarised in Tables 2 and 3.

**Quality assessment**

The two papers employing both qualitative and quantitative methodologies were scored according to the CASP checklist as both employed qualitative methods for synthesising and reporting findings.

Studies can be deemed to be of ‘reasonable quality’ if they were in the upper tertile of possible scores (Barley et al., 2011; Feder, Hutson, Ramsey & Taket, 2006). This equates to a score of 5/7 or above for quantitative papers and 7/10 or above for qualitative papers. All qualitative studies met these criteria, although 5 of the 10 quantitative papers were scored below this cut off (Appendix 2 and 3). Reasons for this are discussed below. Quality assessment scores for each study are reported in Tables 2 and 3.
Records excluded at screening stage – not relevant (n=379)

Records identified from Medline (n=116)

Records identified from PsychINFO (n=11)

Records identified from Web of Science (n=173)

Records identified from Embase (n=305)

Title/abstracts screened after removal of duplicates (n=432)

Eligibility assessment of full text (n=53)

Full text articles excluded (n=40)

Reasons for exclusion:
- Quantitative studies with no actual or reported measure of referral (n=14)
- Quantitative studies with no measure of statistical significance (n=8)
- Use of services not separated from referral data (n=5)
- Qualitative studies without focus on referral decision (n=4)
- No GP or service factors considered in relation to referral (n=4)
- Full text not in English (n=3)
- Studies reporting on the same data set (n=2)

Additional records identified from references and citation lists (n=3)

Studies included in review (n=16)

Total records obtained through database searching (n=605)

Figure 2: Flowchart of study selection process
<table>
<thead>
<tr>
<th>Study</th>
<th>Location</th>
<th>Sample (Response rate)</th>
<th>Design/procedure</th>
<th>Referral type</th>
<th>Condition</th>
<th>Statistical analysis</th>
<th>Main findings - GP Factors</th>
<th>Main findings - service factors</th>
<th>Quality score</th>
</tr>
</thead>
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<tr>
<td>Ashworth et al., 2002</td>
<td>UK: London</td>
<td>Psychiatric service records - 622 referrals (N/A)</td>
<td>Retrospective case note review of referrals</td>
<td>Psychiatrist</td>
<td>‘Non psychotic mental illness’</td>
<td>Mann-Whitney U</td>
<td>‘High referring practices’ had lower Mental Health Worker allocations when split by top quartile (U=38.0, p=.04) or quintile (U=30.0, p=.03)</td>
<td>Consultation-liaison’ relationship between practices and CMHTs significant predictor of referral rate (β=.89, 95% CI 46-10.33, p&lt;.001) Larger practices refer more to primary care psychology (p=.001) and less to psychiatry (p=.001)</td>
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<td>Hull et al., 2002</td>
<td>UK:London</td>
<td>151 GP practice managers (94%)</td>
<td>Questionnaire to GP practice managers – retrospective review of patient records</td>
<td>CMHT</td>
<td>Mental health</td>
<td>Correlations and 'simple linear regression models'</td>
<td>Significant increase in referrals to PCLT (H=17.925, df=1, p&lt;.001)</td>
<td>Significant increase in referrals to PCLT (H=17.925, df=1, p&lt;.001)</td>
<td>5</td>
</tr>
<tr>
<td>Murphy et al., 2002</td>
<td>UK: Plymouth</td>
<td>Referral data from 29 practices (N/A)</td>
<td>Longitudinal observation of referral data in 12 months pre and post a reconfiguration of CMHT into 5 smaller Primary Care Liaison Teams.</td>
<td>CMHT</td>
<td>Mental health</td>
<td>Kruskall-Wallis</td>
<td>No significant correlation between referral rates to CMHTs and Townsend (R=-.3, p=.1) or Jarman (values not reported) indices.</td>
<td>No significant correlation between referral rates to CMHTs and Townsend (R=-.3, p=.1) or Jarman (values not reported) indices.</td>
<td>5</td>
</tr>
<tr>
<td>Soomro et al., 2002</td>
<td>UK: London</td>
<td>928 referrals to CMHTs (N/A)</td>
<td>Retrospective case note review of referrals</td>
<td>CMHT</td>
<td>Mental health</td>
<td>Spearman's Rho</td>
<td>Referral to psychologist predicted by confidence in liaising with MH professionals (β=-.19 t=-1.93, p&lt;0.00) and belief that ‘working with depressed patients is hard work’ (β=.13 t=1.93, p=.06) Referral to psychiatrists predicted by belief that ‘GPs can do little for depressed patients’ (β=.19 t=2.84, p&lt;0.01)</td>
<td>Referral to psychologist predicted by confidence in liaising with MH professionals (β=-.19 t=-1.93, p&lt;0.00) and belief that ‘working with depressed patients is hard work’ (β=.13 t=1.93, p=.06) Referral to psychiatrists predicted by belief that ‘GPs can do little for depressed patients’ (β=.19 t=2.84, p&lt;0.01)</td>
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</tr>
<tr>
<td>Richards et al., 2004</td>
<td>52 Divisions of General Practice across Australia</td>
<td>420 GPs (89%)</td>
<td>Cross sectional. GP questionnaire.</td>
<td>Psychiatrist / psychologist</td>
<td>Depression</td>
<td>Standard multiple regression analyses</td>
<td>Referral to psychiatrist predicted by belief that ‘GPs can do little for depressed patients’ (β=.19 t=2.84, p&lt;.01)</td>
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<tr>
<td>Study</td>
<td>Location</td>
<td>Sample Characteristics</td>
<td>Methodology</td>
<td>Results</td>
<td>Quality Assessment</td>
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<tr>
<td>Kravitz et al. 2006</td>
<td>3 US cities</td>
<td>152 primary care physicians and general internists (53-61% depending on site)</td>
<td>Experimental. 2 Standardised patient (SP) roles - sent unannounced to each GP.</td>
<td>Major depression and adjustment disorder</td>
<td>Random intercept mixed effects logistic regression</td>
<td>Independent predictors of referral: Less than 90% time direct patient care less than 'very confident' to manage antidepressant therapy (OR=0.39, 95% CI 0.17-0.86, p=0.02), personal experience of psychotherapy (OR=2.74, 95% CI 1.15-6.52, p=0.022).</td>
<td>Significant predictor of referral: GP reports able to obtain consultation within 2 weeks (OR=2.94, 95% CI 1.26-6.92, p=0.005).</td>
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<tr>
<td>Parker and Hyett, 2009</td>
<td>Australia</td>
<td>517 patients (Not reported)</td>
<td>Cross sectional. Online patient questionnaire</td>
<td>Any specialist</td>
<td>Depression</td>
<td>Chi squared</td>
<td>More referrals from female GPs ($\chi^2 = 11.4, p &lt;.001$)</td>
<td>Significant predictors of referral: GP Perceived importance of working with psychiatrists ($\beta=0.166 t=2.33, p=0.02$), local health and primary care centres ($\beta=0.122 t=2.27, p=0.024$), and psychiatric team ($\beta=0.152 t=2.08, p=0.038$)</td>
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<tr>
<td>Fleury et al., 2010</td>
<td>Quebec</td>
<td>398 GPs (41%)</td>
<td>Cross sectional. GP questionnaire.</td>
<td>Any specialist</td>
<td>Mental health</td>
<td>Multiple regression</td>
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<tr>
<td>Hooper et al., 2011</td>
<td>US: Washington, Baltimore</td>
<td>404 (67%)</td>
<td>Experimental. CD-ROM vignette followed by semi structured interview and written questionnaire</td>
<td>‘External mental health care’</td>
<td>Depression</td>
<td>Regression</td>
<td>Independent predictor of referral: GP age (OR=0.58, 95% CI 0.46–0.75, p&lt;.001)</td>
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<tr>
<td>Piek, et al., 2011</td>
<td>Netherlands</td>
<td>344 patients. (45%) Unspecified number of GPs</td>
<td>Retrospective patient questionnaire cross referenced with patient notes and GP questionnaire</td>
<td>‘Primary and secondary care specialists’</td>
<td>Depression</td>
<td>Chi squared/t test</td>
<td>No difference between referred patients in GP years experience ($p=.13$) or special interest in depression ($p=.69$)</td>
<td>No impact of presence of mental health professional in practice ($p=.39$)</td>
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Table 2: Location, sample characteristics, methodology, results and quality assessment scores of identified quantitative studies
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<th>Study</th>
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<th>Referral destination</th>
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<th>Service factors identified</th>
<th>CASP score</th>
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<td>Knight, 2003</td>
<td>UK: Northamptonshire</td>
<td>9 GPs (Not reported)</td>
<td>Structured interviews using 9 case vignettes and short questionnaire</td>
<td>Any specialist</td>
<td>Range, including PTSD, health anxiety, self harm, anger, depression</td>
<td>Content analysis and descriptive statistics</td>
<td>Time, doctor patient relationship, experience, expertise, success of GP treatment, needing assessment/advice</td>
<td>In order of frequency: Availability/waiting list, quality of the service, previous experience with the service</td>
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<tr>
<td>Sigel and Leiper, 2004</td>
<td>UK: London</td>
<td>10 GPs (37%)</td>
<td>30 minute semi structured interviews.</td>
<td>Referral for psychological therapies</td>
<td>‘Psychological problems’</td>
<td>Grounded theory</td>
<td>Reached limits of capability to treat, did not have the time to treat. Impact of belief in positive outcome of therapy</td>
<td>Deferred by poor/slow access to services. Referrals more likely if have professional contact with psychologists</td>
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<td>Beel et al., 2008</td>
<td>Western Australia</td>
<td>12 (100%)</td>
<td>Semi structured interviews</td>
<td>Psychologists</td>
<td>Mental health</td>
<td>Thematic content analysis (inductive)</td>
<td>High knowledge of psychologists, low confidence in skills</td>
<td>Access to services and in house support</td>
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<tr>
<td>Chew-Graham et al., 2008</td>
<td>UK: Manchester, Croydon</td>
<td>35 GPs, 12 CMHT team leaders, 5 psychiatrists (Not reported)</td>
<td>30-90 minute semi structured interviews</td>
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<td>Mental health</td>
<td>Thematic analysis</td>
<td>Referrals made for ‘Access to specialist knowledge’ or when ‘Personal Threshold’ met.</td>
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<tr>
<td>Stavrou et al., 2009</td>
<td>UK: London</td>
<td>14 GPs (47%)</td>
<td>50 minute semi structured interviews based around matched pairs of referred/not referred patients</td>
<td>Clinical psychologists and practice counsellors</td>
<td>Mental health</td>
<td>Thematic analysis. Iterative Grounded theory integrating interview and questionnaire responses</td>
<td>Capacity to help</td>
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<tr>
<td>Anthony et. al., 2010</td>
<td>US: Greater Cincinnati</td>
<td>40 (Not reported)</td>
<td>Interviews, questionnaire and survey</td>
<td>Any specialist</td>
<td>Depression</td>
<td>Clinician comfort and perception of complexity</td>
<td>Access to and relationship with specialists</td>
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Table 3: Location, sample characteristics, methodology, results and quality assessment scores of identified qualitative studies
**GP Factors**

**Demographic Factors**

Several quantitative studies investigated the association of GP demographic factors with referral practices. Fleury, Bamvita, Tremblay and Lesage (2010) reported that GPs with more years of experience were less likely to refer to mental health specialists. However, the results presented in this study suggest that the variable ‘years experience’ was not a significant predictor (at a 5% significance level) of referral in their overall multivariate model ($p = .055$), suggesting that this conclusion should be treated with caution. GP age was identified as a significant independent predictor of referral in one study (Hooper et al., 2011), which found that younger GPs in the United States were more likely to recommend referral to external mental health services for depressed patients simulated on a CD-rom.

However, an earlier study also conducted in the United States (Kravitz et al, 2006), found no significant predictive effect of GP age on referral likelihood. This study examined GP responses to unannounced ‘Standardised Patients’ (portrayed by actors) presenting in their clinic with symptoms of depression and adjustment disorder. It could be argued that this design has greater ecological validity as a detection variable was included, the results of which indicated that the majority of GPs had not identified these consultations as being part of the research study. It may therefore be more reasonable to assume that GPs’ responses were more indicative of actual clinical behaviour in this study.

Similarly, a recent observational study in the Netherlands did not find GPs’ length of experience to be a significant predictor of referral to primary and secondary mental health services (Pick, van der Meer, Penninx, Verhaak, & Nolen, 2011). However, it should be noted that the quality of this study was scored at 3 out of 7 due to methodological limitations. The authors report using evidence of contact with a mental health professional in case notes as an index of referral, meaning that referral data for patients who were referred but did not attend may have been missed. Additionally, the study may have been vulnerable to response bias as only data was reported for those patients whose GP completed a questionnaire relating to mental health, and the response rate for this is not reported.
One study examined the relationship between GP ethnicity and referral practices. Kravitz et. al. (2006) found that GP ethnicity was significantly associated with referral to mental health specialists in univariate analysis, in that Caucasian GPs were more likely to refer than non-Caucasian GPs. However, this effect did not emerge as a significant independent predictor in a multiple regression model, suggesting that the effect was not significant when controlling for other variables.

Four studies reported the impact of GP gender on referral rates, with inconclusive results. Parker and Hyett (2009) reported that female GPs were more likely than males to refer to a specialist for depression. However, it should be noted that as an online questionnaire study, this result is limited by its dependence on accurate recall by patients, and is unable to control for patient factors or geographical location. In contrast, Kravitz et al. (2006) found that male GPs were more likely to refer when presented with actors portraying depressive symptoms, although this variable did not prove significant in multivariate analysis, suggesting a potential impact of other variables on this association. Reasons for the difference in findings between the two studies are unclear, although it is possible that cultural differences may have played a role as they were conducted in different countries (Australia and United States). Furthermore, 2 studies have failed to find a significant effect of GP gender on likelihood of referral (Hooper et al., 2011; Fleury et al., 2010).

**Perceived capacity to help**

A construct related to GPs’ perceived competence to treat patients themselves was identified by all of the six qualitative studies reviewed. Anthony et al. (2010) identified themes related to ‘clinician comfort’ and ‘perception of complexity’ from GPs’ reports of the decision to refer patients with depression for psychological therapy. They report that GPs discussed both their own level of comfort and confidence in treating mental health conditions, and the impact of the complexity or severity of the problem on this:

“I’m pretty good at it. You know, with the basics...once it becomes bipolar and certain schizophrenia I’m usually referring that” (Anthony et al., 2010, interview 1, pg 116)
This replicates the earlier finding of Sigel and Leiper (2004), who reported that GPs reported referring a patient for psychological therapy when they felt ‘out of their depth’.

Similarly, Stavrou, Cape and Barker (2009) reported that GPs in London described their perceived ‘capacity to help’ as a factor in their decision to refer certain patients. This was discussed in terms of perceived competence in dealing with specific presentations, and perception of being able to offer help without referring:

‘I just don’t know what to do with somebody who has been abused.’ (Stavrou et al., 2009, GP 4, pg 293)

‘I felt I was offering something.’ (Stavrou et al., 2009, GP 1, pg 293)

These concepts are further supported by similar findings in studies conducted in Australia and the UK (Beel, Gringart & Edwards, 2008; Knight, 2003). Also in support, Chew-Graham, Slade, Montana, Stewart and Gask (2008) describe a ‘referral threshold’ held by each GP, suggesting that referral occurs when a patient represents the limit of the GP’s perceived competence:

‘...once I’ve decided I can’t hold that risk myself, I’m afraid I do want the, the more expert team to see them’ (Chew-Graham et al., 2008, GP 649/176, pg 8)

This construct appears to have been explored in two quantitative studies. Richards, Ryan, McCabe, Groom and Hickie, (2004) report that GPs scoring highly on the ‘Depression Attitudes Questionnaire’ subscale ‘GPs can do little’ were more likely to refer to psychiatrists. However, it should be noted that authors of this study have developed a new factor structure of the Depression Attitudes Questionnaire based on analysis of their data. As the psychometric properties of the revised factor structure are not reported and the individual items making up each subscale are not specified it is difficult to replicate this study or verify the reliability of the measure.

Despite these limitations, this finding is supported by Kravitz et al. (2006), who report that GPs describing themselves as less than ‘very confident’ to manage antidepressant
therapy were more likely to refer for specialist treatment. Therefore the qualitatively reported impact of GPs’ perceived capacity to help may be observable quantitatively.

**Special interest**

Two of the qualitative studies identified particular interest in, or previous experience with, particular presentations as contributing to the decision making process. Knight (2003) reported that GPs described feeling less likely to refer a particular vignette due to a particular interest or expertise in the type of presentation:

‘They are the sort of problems I tend to sort out myself for a while’ (Knight, 2003, Dr. X, pg 206)

This is replicated in Beel et al.’s (2008) study:

‘You have an idea of what mental health cases you feel comfortable in managing…’

(Beel et al., 2008, pg 258)

These findings suggest that GPs’ preferences for managing certain presentations may affect their referral decisions. No quantitative support was found for this finding. One study included a variable related to ‘special interest in depression’, finding no association with referrals for depression (Piek et al., 2011).

**Accessing specialist knowledge**

Two qualitative studies identified the need to access specialist expertise as important factors in the referral decision. Chew-Graham et al. (2008) identified ‘access to specialist knowledge’ as a key driver of referral to CMHTs. Interestingly, the authors report that GPs in the study typically described this specialist knowledge as coming specifically from the psychiatrist within the team:

‘..And it was a situation where I needed a consultant to see the couple…using the consultant for a consultant’s opinion.’ (Chew-Graham et al., 2008, GP 630/168, pg 8)

Knight (2003) reported a number of GPs’ descriptions of referring for specialist ‘assessment’ or when particular ‘expertise’ is required:
‘..it is probably too difficult to deal with, you need more specialist interventions’
(Knight, 2003, Dr. U, pg 206)

This construct did not appear to be addressed quantitatively in the identified studies.

**Time Constraints**

Four of the qualitative studies, conducted across different geographical locations, identified limited time availability as a factor influencing the referral decision. All 12 of the Australian GPs interviewed in Beel et al. (2008) mentioned lack of time to spend with patients as contributing to their decision to refer to a psychologist. Similarly, Sigel and Leiper (2004) reported that London GPs described referring a patient for psychological therapy when they did not feel they had the time to treat them themselves. Anthony et al. (2010) replicated this finding in the United States, for example:

‘I have time to write for medicine. I don’t have time to give counselling’ (Anthony et al., 2010, interview 22, pg 119)

In a content analysis of interview data, Knight (2003) reported that issues around time constraints were the most common factor mentioned by GPs in relation to referral decisions (reported on 8 occasions). For example:

‘I wouldn’t have the time to get on top of such a problem’ (Knight, 2003, Dr S, pg 206).

These findings are supported to some extent by quantitative research. Kravitz et al. (2006) found that GPs spending less than 90% of their working hours in direct clinical contact was a significant predictor of referral. This finding suggests that GPs with additional demands on their time were more likely to refer. In contrast, Hooper et al. (2011) found that GPs’ scores on an ‘attitude’ subscale of a previously validated questionnaire, containing items such as ‘I am too pressured for time to routinely investigate depression issues’ did not emerge as a significant independent predictor of their likelihood of recommending referral for simulated patients.
However, as previously discussed, this study may be vulnerable to bias, as the referral decisions were being made during an interview with a researcher in relation to a fictional patient presented on a computer screen. It could be that time constraints were therefore less relevant to the clinical decision making process in this study as no further demands would be placed on the GP participants regardless of the decision made. Kravitz et al. (2006) included a detection variable to allow assumption that GP participants were generally unaware that the ‘Standardised Patients’ were part of the research study, suggesting that their results may be more representative of actual clinical practice.

Therefore, there appears to be reasonably strong evidence to suggest that limits on GPs’ time can be seen as a factor influencing referral decisions.

‘Emotional burden’

Beel et al. (2008) discussed the impact of GPs’ emotional response to patients with mental health difficulties on referral practices. The authors described supporting a high volume of such patients as contributing to GP stress because of the ‘emotional nature of the task’, illustrated by one GP who described seeing three patients with mental health difficulties before lunch:

‘a bad, bad run today’ (Beel et al., 2008, pg 258)

Although it may be a reasonable assumption, it is unclear in this study if comments such as this were made by participants directly in relation to the decision to refer, or if this was inferred by the authors.

However, this link does appear to be made explicit in other qualitative studies. In Knight, (2003) GPs reported referring when their limit of ‘emotional burden’ has been reached:

‘There is a limit to how many people with similar problems I can take on, emotionally and time wise.’ (Knight, 2003, Dr. S, pg 206)
In support of this, Chew-Graham et al. (2008) report one GP describing the decision to refer in order to share clinical responsibility:

‘..it is about having someone to share the burden’ (Chew-Graham et al., 2008. GP 160/172, pg 8)

These findings are tentatively supported quantitatively by the finding that greater belief that ‘dealing with depressed patients is hard work’ was predictive of higher rates of referral to psychologists, although not to psychiatrists (Richards et al., 2004). However, the implications of the term ‘hard work’ remain open to interpretation and could equally be viewed as a reflection of a perceived demand on physical and practical resources. Additionally, the revised questionnaire factor structure used to operationalise this variable is subject to the methodological limitations described above. This construct did not appear to be addressed in the remaining quantitative studies reviewed.

**Perceptions of specialists**

GPs’ perceptions of the effectiveness of specialists were mentioned in two qualitative studies. Knight (2003) reported that GPs described considering whether the specialist has been helpful for other patients and if they had specific skills which might help the patient:

‘The psychology unit… is very good at helping people with that sort of problem’

(Knight, 2003, Dr. X, pg 205)

Similarly, Sigel and Leiper (2004) reported GPs’ description of their views about their professional interactions with psychologists, and proposed a link to the subsequent referral decision. However, it appears unclear if this link was explicitly stated by GPs in the study or inferred by the authors, as no example quotes are offered.

This construct does not appear to have been widely investigated quantitatively. Kravitz et al. (2006) reported that GPs with personal experience of psychological therapy were more likely to refer to a mental health specialist. However, this association was evident regardless of whether the GP reported a successful outcome
in their personal experience, suggesting that GPs’ perceptions of the effectiveness of psychological therapy did not underpin this relationship. As the authors suggest, it may be that a third factor, such as a tendency to think in psychological terms, is associated with the likelihood of both making a referral and seeking personal experience of psychological therapy.

**Doctor Patient Relationship**

One study (Knight, 2003), found that GPs reported their relationship with the patient as a factor in the referral decision, with the suggestion that those who feel they have a good relationship with the patient may be less likely to refer:

‘*I don’t think in the first instance that I would refer her. She has come to me in the first place, she seems to have opened up a lot of information to me.*’ (Knight, 2003, Dr W, pg 206)

As this was not replicated in any of the studies reviewed, further exploration of this construct would be required to verify the finding.

**Service/organisational factors**

**GP practice factors**

Hull, Jones, Tissier, Eldridge & Maclaren (2002) reported that larger practices referred significantly more to primary care psychologists and less to psychiatrists. The authors suggest that this may be due to the resources available in larger practices (i.e. having a primary care psychologist available), and comment that smaller practices may be ‘constrained’ into making additional psychiatry referrals because of a lack of other options. In contrast, Ashworth et al. (2002) reported no significant relationship between practice size and psychiatry referral rates.

Two studies considered referral rate in relation to the level of social deprivation in the area served by the GP practice. Soomro et al. (2002) found no significant correlation between Jarman or Townsend indices of deprivation and referral rate. This study was noted to have a number of limitations, including the length of time between data collection and publication (data was collected in 1993-1994) and potential vulnerability to bias through excluding smaller practices, resulting in a quality
assessment checklist score of 3/7. However, their findings are supported by Hull et al. (2002), who found no significant correlation between ‘underprivileged area score’ and referral rate to CMHT.

Additionally, two studies failed to find an association between practices’ fundholding status and referral rates (Ashworth et al., 2002; Soomro et al., 2002).

Consultation/liaison
A number of studies referred to the strength of the relationship between GPs and mental health specialists. In Anthony et al. (2010), GPs described a working relationship with specialists as influencing their decision to refer:

‘I like my patients to be seen by someone I know. Somebody I feel will be a good match for a particular patient’. (Anthony et al., 2010, interview 27, pg 120)

Three additional studies (Beel et al., 2008; Chew-Graham et al., 2008; Sigel and Leiper, 2004) report that the GPs interviewed described a beneficial effect of positive relationships with specialists, in particular in terms of obtaining feedback on referrals made. In all three cases these findings are presented in terms of close relationships with specialists contributing to the decision to refer. However, as no examples are provided to illustrate this, it is not clear whether the impact on referral decisions is an inference made by the authors or a feature of the interview data.

Two quantitative studies have addressed this question. Murphy, James and Lloyd, (2002) measured the rate of referral to CMHTs in Plymouth, UK before and after service restructuring to allow closer liaison between General Practices and CMHTs. They found that referral rate increased significantly, concluding that closer liaison between GPs and CMHTs leads to a higher frequency of referral. This study benefits from the use of actual referral data obtained from medical records, although it should be noted that other reasons for this change in referral patterns over time cannot be ruled out and therefore a causal link cannot be inferred between the service restructuring and change in referral patterns.
Their conclusion is supported, however, by Hull et al. (2002), who reported that a ‘consultation-liaison’ relationship between CMHTs and GP practices (assessed by questionnaire to practice managers) was associated with greater number of referrals to CMHTs.

**On site collaboration**

Three quantitative studies explored the effects of on site mental health specialists on practices’ referral rates, with mixed results. Hull et al. (2002) reported that the involvement of a primary care based psychologist in GP practices was associated with increased referral rates to CMHTs.

Seemingly in contrast, Ashworth et al. (2002) examined referrals to psychiatry in relation to the allocation of on site mental health worker hours, reporting that ‘high referring practices’ (upper quartile) had significantly lower mental health worker allocations. However, only tentative conclusions can be drawn from this, as the initial method of comparison, correlation between referral rate and allocation, was found to be non-significant and the authors state that the secondary analysis of grouping practices by referral rate was not stated *a priori*.

The referral destination may be significant in considering the differences between these two studies, as Ashworth et al. (2002) considered referral to secondary care psychiatry, excluding patients with ‘psychotic illness’. The results are then discussed in terms of reducing ‘referral burden’ on secondary care services. In contrast, Hull et al. (2002) took referral to CMHTs (of which the on site worker was a member) as their outcome. Therefore, based on these studies it could be concluded that on site collaboration may serve to increase referrals to the service provided by the on site worker, and this may decrease referrals to secondary care services.

However, a recent study in the Netherlands (Piek et al., 2011) failed to replicate either of these findings, reporting no relationship between the presence of an on site mental health worker and the proportion of patients referred to primary or secondary care specialists. Although this study is limited by the methodological concerns described above, it provides cause to suggest further research would be necessary to clarify the association between on site mental health workers and referral rates.
**Access to services**

Four of the six qualitative studies identified factors related to access to specialist services as a factor in referral decisions. Sigel and Leiper (2004) reported that ‘many participants’ described being deterred from referring for psychological therapy by long waiting times. This replicates the earlier finding of Knight (2003), who reported comments about ‘availability/waiting list’ as the service related factor most frequently mentioned by GPs as influencing their referral decision:

‘The decision whether to use a counsellor would be based on whether the service was available at the time, and in recent months there has been a significant wait to see the counsellor, so just recently I have referred very few’. (Knight, 2003, Dr. S, pg 205)

These findings have been replicated more recently by studies in the United States and Australia (Beel et al., 2008, Anthony et al., 2010). These studies support the suggestion that GPs appear to report being more likely to refer if they are able to obtain timely access to services.

This construct is supported quantitatively by Kravitz et al. (2006), who reported that referrals to a range of specialists (for standardised patients with depression) were higher for GPs reporting that they are able to access an appointment within 2 weeks. This offers support to the argument that GPs’ decisions about referral may be influenced by their perception of how quickly the patient will be able to access particular services.

**Discussion**

**Main Findings**

The GP level basic concepts, second order constructs identified and studies supporting them are summarised in Table 4. The evidence suggested that GPs who are less confident in their ability to treat patients with mental health difficulties, and those who feel that they do not have the time to do this may be more likely to refer.
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<td></td>
</tr>
<tr>
<td>Seeking specialist expertise/opinion</td>
<td>Accessing specialist knowledge</td>
<td>Chew-Graham et al., 2008</td>
<td>Knight, 2003</td>
<td>Kravitz et. al., 2006</td>
</tr>
<tr>
<td>Advice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘Time constraints’</td>
<td>‘Time constraints’</td>
<td>Beel et al., 2008</td>
<td>Sigel and Leiper, 2004</td>
<td>Kravitz et. al., 2006</td>
</tr>
<tr>
<td>Competing demands on time</td>
<td></td>
<td>Knight, 2003</td>
<td></td>
<td>Hooper et al., 2011</td>
</tr>
<tr>
<td>GP stress</td>
<td>‘Emotional burden’</td>
<td>Chew-Graham et al., 2008</td>
<td>Beel et al., 2008</td>
<td>Richards et al., 2004</td>
</tr>
<tr>
<td>‘Emotional burden’</td>
<td></td>
<td>Knight, 2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘Quality of the service’</td>
<td>Perception of specialists</td>
<td>Knight, 2003</td>
<td>Sigel and Leiper, 2004</td>
<td></td>
</tr>
<tr>
<td>Previous experience of specialist</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor-patient relationship</td>
<td>Doctor-patient relationship</td>
<td>Knight, 2003</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Summary of included concepts and supporting evidence for GP constructs

Studies highlighted in **bold** are of ‘acceptable quality’
<table>
<thead>
<tr>
<th>Concepts</th>
<th>Second order construct</th>
<th>Qualitative support</th>
<th>Quantitative support</th>
<th>Null/contradictory evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice size</td>
<td>Demographics</td>
<td>Hull et al., 2002</td>
<td></td>
<td>Ashworth et al, 2002</td>
</tr>
<tr>
<td>Deprivation indices</td>
<td></td>
<td></td>
<td></td>
<td>Soomro et al., 2002</td>
</tr>
<tr>
<td>Fundholding status</td>
<td></td>
<td></td>
<td></td>
<td>Hull et al., 2002</td>
</tr>
<tr>
<td>Relationships with teams</td>
<td>‘Consultation/liaison’</td>
<td>Beel et al., 2008</td>
<td>Sigel and Leiper, 2004</td>
<td>Murphy et al., 2002</td>
</tr>
<tr>
<td>Working relationship with specialists</td>
<td></td>
<td>Anthony et al., 2010</td>
<td>Chew-Graham et al., 2008</td>
<td>Hull et al., 2002</td>
</tr>
<tr>
<td>Collaboration between services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback on referrals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On site mental health worker</td>
<td>‘On-site collaboration’</td>
<td>Hull et al., 2002</td>
<td></td>
<td>Piek et al., 2011</td>
</tr>
<tr>
<td>Availability of service</td>
<td>Access to services</td>
<td>Beel et al., 2008</td>
<td>Sigel and Leiper, 2004</td>
<td>Kravitz et. al., 2006</td>
</tr>
<tr>
<td>Waiting list time</td>
<td></td>
<td>Anthony et al., 2010</td>
<td>Knight, 2003</td>
<td></td>
</tr>
<tr>
<td>Access to services</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Summary of included concepts and supporting evidence for service/organisational constructs
Studies highlighted in **bold** are of ‘acceptable quality’

Both of these second order constructs were supported by at least one qualitative and quantitative study of acceptable quality. Although one ‘acceptable quality’ study (Hooper et al., 2007) failed to find an impact of ‘time constraints’, the construct is retained due to the methodological differences in the studies described above.

Qualitative support was found for the importance of factors related to GPs’ level of interest in mental health, perceived importance of accessing specialist knowledge, the ‘emotional burden’ of working with patients with mental health difficulties, and GPs’ perceptions of the effectiveness of specialists in mental health. However, quantitative exploration of the impact of these psychological variables on actual referral practice appears to be lacking.
The evidence was more equivocal regarding the impact of GP demographic characteristics on referral likelihood, with little conclusive support identified for an impact of GP age, ethnicity or gender on referral practices.

A summary of the evidence of each of the service/organisational level factors identified can be seen in Table 5. According to the constructs with both qualitative and quantitative evidence of acceptable quality, specialist services with close collaboration with GPs, and those that GPs feel are accessible to their patients appear likely to attract more referrals. Some evidence was identified for an impact of the presence of an on-site mental health worker, although the evidence suggests that this relationship may be more complex, and depend on the type of referral.

Little evidence was found for an impact of the demographic factors of size, social deprivation and fundholding status of the GP practice on referral rate.

Although presented as separate constructs, the factors identified above have clear overlaps, and it appears likely that many of the constructs will impact on referral decisions interactively. For example, the GP constructs of ‘capacity to help’, and desire to access ‘specialist knowledge’ are likely to interact, as it could be hypothesised that GPs reporting a lack of confidence in their ability to deal with mental health problems may be more likely to refer in order to access specialist expertise.

Quality of the literature
A number of the studies included in the review were limited by relatively low response rates (e.g. Kravitz et al., 2006). This has been widely recognised as a difficulty in conducting research with GPs as participants (e.g. Bonevski, Magin, Horton, Foster & Girgis, 2011). This raises the possibility of response bias, as GPs with a particular interest in mental health may be more likely to take part in such studies, creating a sample which is unrepresentative of the general GP population.

It is also noted that a number of the studies reviewed were conducted by mental health professionals, most frequently psychologists (e.g. Stavrou et al., 2009; Sigel and Leiper, 2004). This may have introduced bias, both in terms of the reporting of the
study (for example in qualitative analysis of interview data), and in the responses given by GPs who had knowledge of the profession of the researchers.

Although a number of non-significant results were identified in the review, it is noted that the majority of these were extracted from studies reporting significant findings in other analyses. Given the well-documented tendency for a bias towards publication of studies with significant findings (e.g., Dwan et al., 2008), it may be that non-significant results are under-reported in the published evidence, therefore overestimating the strength of support for the identified constructs.

Limitations of the review
Due to the limited number of recent studies in the subject area, the review adopted wide inclusion criteria, including studies of referral to a range of mental health specialists. Some studies suggested that different types of referral may have different motives and underlying factors (e.g., Richards et al., 2004), limiting the relevance of the overall findings to psychology services specifically. However, a number of the included qualitative studies did consider referrals specifically to a ‘psychologist’ or for psychological therapy (e.g., Beel et al., 2008; Sigel & Leiper, 2004). Importantly, each of the four main constructs identified has qualitative support from one of these studies, providing tentative evidence that these constructs may be applicable to referrals for psychological therapy specifically.

The quantitative studies reviewed were more general in the referral destination considered, with a number of the studies measuring a combined referral rate to different professionals (e.g., Kravitz et al., 2006; Parker & Hyett, 2009). The results of these studies are therefore more difficult to apply directly to referrals to psychology services, and this may represent an area for future research.

As studies across a range of geographical locations were considered in the review there may be limitations in terms of the generalisability of the findings to a particular country, due to differences in service context across locations. For example, differences in funding and access to services across healthcare systems (e.g., Wang et al., 2007) may lead to differing considerations in the referral decision. However, a number of the constructs, including the four identified as the most supported in the
literature, were supported by evidence from a range of countries, providing tentative evidence that these factors may be applicable across different service contexts. It should also be noted that only studies published from 2002 onwards were included, meaning that earlier studies with informative results could have been omitted.

Interpretation and clinical implications of findings

The identified constructs relating to GPs’ perceived ‘capacity to help’ and ‘time constraints’ are supported by evidence from the literature on referrals outside of mental health (Foot et al., 2010). These findings support Bandura’s (1986) Social Cognitive Theory, in that it appears that GPs’ self-efficacy in managing patients with mental health difficulties could be an important determinant of their decision to continue to treat a patient independently of specialist services (i.e. not refer). This is also consistent with the Theory of Planned Behaviour (Ajzen, 1985) concept of perceived behavioural control, as it appears that the decision to refer may be influenced by the GPs’ perceived ability to manage the situation themselves, both in terms of self-efficacy and environmental factors (time constraints).

Chew-Graham et al. (2008) discussed this in terms of a ‘referral threshold’ held by each GP, whereby they refer when this threshold has been reached and the GP no longer feels able to manage the patient alone. Chew-Graham et al. raise the question of whether differences in referral likelihood may be an appropriate response to differing skills and expertise among GPs. They report that there appears to be an acknowledgement of this among CMHT workers interviewed in the study, who described variation in their acceptance criteria according to their knowledge of the GP concerned.

It could be argued, therefore, that it would be beneficial for services to employ more flexible referral criteria in order to allow for the range of skills and available time among referring GPs. However, this assumes that GPs’ perceived self-efficacy is generally accurate, an assumption that is unclear from the literature reviewed and would merit further investigation.

The qualitative reports of the ‘emotional burden’ of working with patients with mental health concerns supports the suggestion of Nandy, Chalmers-Watson, Gantley and
Underwood (2001), that mental health referrals could be separated into two categories; ‘referrals to’ and ‘referrals away’, with the latter related to negative emotions elicited in GPs when working with such patients. These qualitative reports suggest that it may be beneficial to consider how GPs could be supported in managing the emotional demands of such work. For example, the use of formal peer support could be beneficial in improving patient care and reducing the risk of ‘burnout’ (Jackson-Bowers and Holmwood, 2002).

The evidence that a ‘consultation/liaison’ relationship between GP practices and specialist teams is associated with increased referrals suggests that psychology services may benefit from increasing their links with General Practices. However, such services would need to be appropriately resourced to manage the potential increase in referrals. Additionally, given the opportunity for collaboration and ‘feedback’ on referrals (Sigel and Leiper, 2004), it is possible that such interventions would have a positive impact on the appropriateness of referrals. This has been suggested in previous research (Herrington, Baker, Gibson and Golden, 2003).

The identification of difficulties in accessing services as a barrier to referral suggests that additional resources may be required in order to meet the population need. This has been reported to be a particular difficulty in the field of mental health (e.g. Trude and Stoddard, 2003). In the UK, this has been recognised at government level and has led to the ‘Improving Access to Psychological Therapies’ (IAPT) initiative (Department of Health, 2008). It should be noted that the majority of the UK studies reviewed were conducted prior to this intervention being implemented.

It is noticeable that, with the exception of perceived capacity to help, the constructs with the strongest evidence in terms of their impact on referral likelihood are related to practical factors, namely time constraints on busy clinicians, availability of services and liaison between services. It could be possible therefore, that although variables such as perceptions of the usefulness of the service and relationship with the patient are reported qualitatively by GPs as considerations in referral decisions, actual referral decisions are influenced more strongly by practical and organisational factors.
In a TPB framework, this would suggest the possibility that attitudinal variables such as perceptions of the benefits of referral have an impact on GPs intention to provide a referral, as indicated by qualitative reports. However, it appears that this intention may not be reflected in actual behaviour, as indicated by referral rates in quantitative studies. According to the model, this may be due to the direct effect of perceived behavioural control on referral, as an individual is unlikely to engage in a behaviour if they believe themselves to be unable to achieve the intended result (Perkins et al., 2007). That is, if a GP feels unable to make a referral due to organisational constraints, these attitudinal variables become less important. Assuming this to be the case, notwithstanding the need to verify these assumptions, it may be that interventions aimed at improving GPs perceptions of psychological therapy are unlikely to have an impact on referral behaviour.

**Implications for future research**

As discussed, it is likely that the constructs identified interact both with each other and with patient factors, such as severity of presenting problem and preference for referral (e.g. Armstrong, Fry & Armstrong, 1991). Therefore research considering the relative contribution of each of these factors, and the interactions between them, would add to the understanding of the factors underpinning differences in referral behaviour.

Although supported qualitatively to some extent, limited quantitative evidence was found for a factor related to GPs’ views of the effectiveness of the specialist service. This contradicts previous evidence that the perceived competence and value to the community of psychologists is associated with increased referrals (Pryor and Knowles, 2001). Additionally, perceived efficacy of the service have been found to increase referrals in other health specialties (Cowen and Zodet, 1999; Baker, Lecouturier and Bond, 2006). Further exploration of this construct is necessary before implications for GP training can be considered.

This is also true of the other GP psychological constructs identified from qualitative research, but lacking in qualitative support; ‘Special interest’ in mental health, perceived need to ‘access specialist advice’ and ‘doctor-patient relationship’. This appears to be due to inconclusive or poor quality quantitative research and/or a lack of
studies addressing these variables. It may be that these psychological variables are more difficult to capture quantitatively, or that these factors are less salient in predicting referral. Further good quality quantitative exploration of these constructs is necessary to identify the impact of these factors on actual referral in clinical practice. This is also true for GP and service level demographic factors, where the research evidence was weak or contradictory and therefore conclusions cannot be drawn.

The finding that the impact of some of the factors discussed, such as on site mental health workers, appears to be dependent on the local service context and the referral destination suggests that it may be clinically useful to evaluate these factors on a local level. This provides rationale for services providing psychological therapy to evaluate these factors through clinical audit and local research, in order to inform service delivery. Additionally, given the reported benefits of employing psychological theory in targeting interventions in other areas of clinical practice (e.g. Eccles et al., 2009), it would be beneficial for future research to consider the factors related to referral practices within a theoretical framework. This is currently lacking in the literature.

Finally, although an understanding of the factors related to referral rate is clinically useful, consideration of variables associated with the appropriateness of these referrals appears to be lacking in the studies reviewed. A recent study in the UK reported considerable variability among GP practices in adherence to National Institute for Health and Clinical Excellence guidelines (NICE, 2011;2009) in the referral of patients with anxiety and depression (Belgamwar, Bates, Goes, and Taylor, 2011). Further exploration of the reasons for this variation may have considerable clinical utility in terms of clinician training and service development.

Conclusions
A number of GP and service level factors related to likelihood of referral to mental health specialists were identified. The available evidence suggests that GPs who feel less confident to manage the problem themselves and have constraints on their time to work with such patients, and those who have a closer working relationship with specialists and are able to access services for their patients, are more likely to refer. Additional factors were identified relating to demographic characteristics of the GP and service context, and GP psychological variables. However, further research is
necessary to clarify the impact of these variables on referral likelihood in clinical practice.

These findings lend themselves to consideration of how services could be configured to allow access to psychological therapy for those who need it. Further research is required to identify factors related specifically to referral to psychological services. Psychological theories of behaviour may be a useful aid in understanding the impact of these factors on referral practices. This is lacking in the current research in the field.


Murphy, F. M., James, H. D., & Lloyd, K. R. (2002). Closer working with primary care is associated with a sharp increase in referrals to community mental health services. *Journal of Mental Health, 11*(6), 605-610.


Paper 2
Psychological and demographic factors influencing General Practitioner referrals to Primary Care Mental Health Teams: A mixed methods cross-sectional vignette study

Prepared in accordance with author guidelines for Implementation Science (appendix 4). Authors will be listed as follows: Craven, S., Mansell, W., Murphy, E. & McEvoy, P.

For ease of reading, tables and figures are included in the main text. These will be removed and placed at the end of the manuscript before submission, in line with author guidelines.

Appendices are included for completeness. References to Appendices will be removed from the manuscript before submission.

Word count (excluding abstract, tables and figures): 7287
Word count (including abstract, tables and figures): 8894
Abstract

Background: Studies have demonstrated variation among General Practitioners (GPs) in their patterns of referral to mental health specialists. A number of GP demographic and psychological factors have been found to contribute to this variance, although this is relatively understudied in referrals specifically for psychological therapy. The Theory of Planned Behaviour has been considered a useful framework to understand clinician behaviour.

Methods: 132 GPs from 9 Primary Care Trusts in Greater Manchester completed a questionnaire including demographic information, attitudes towards depression and anxiety and perceptions of the IAPT initiative. They were also asked to read four case vignettes and rate their likelihood of referral to the Primary Care Mental Health Service and give comments. Results were analysed using content analysis and correlational, multiple regression and ordinal regression analyses.

Results: GPs most frequently reported considering patient preference, severity of the problem, availability of access to the service and perceptions of the effectiveness of the service in their referral decisions. Alternative options such as signposting, reviewing, medication, referral to secondary care and providing advice and support were considered. Younger GPs were more likely to refer, and to refer in agreement with guidelines. GPs in certain Primary Care Trusts were more likely to refer in agreement with guidelines. Psychological factors, including self-efficacy in managing depression and beliefs about the usefulness of psychological therapy, were not associated with either referral likelihood or agreement with guidelines. Positive attitudes towards psychological therapy were associated with positive views of the IAPT initiative.
Conclusions: GPs considered a range of factors in their referral decisions, although reported referral likelihood was not associated with psychological variables. This may be due to perceived practical constraints on referral, such as waiting times. Interventions aimed at improving GPs perceptions of psychological therapy may not be effective in improving referral practices. Services may benefit from ensuring that GPs are aware of their referral criteria and current waiting time. The Theory of Planned Behaviour may not adequately explain GP referral behaviour, and further research is necessary to identify an appropriate theoretical framework.

Keywords: General Practitioner, IAPT, primary care, mental health, referral, Theory of Planned Behaviour
**Background**

The present study aims to explore the demographic and psychological characteristics contributing to variation in General Practitioners' (GPs) decisions to refer patients with common mental health conditions to Primary Care Mental Health Services (PCMHS). The findings are intended to contribute to a theoretical understanding of clinician behaviour in this context, and to identify areas for further research. It is hoped that this will inform the development of interventions and service level initiatives to improve the equity of access to these services for patients.

Recent estimates suggest that 6.1 million people in England experience anxiety and depression disorders [1]. GPs are frequently the first health professional consulted by these patients [2], with an estimated one in four GP consultations related to mental health concerns [3]. As such, GPs are often described as ‘gatekeepers’ to specialist mental health services such as psychological therapy [4].

Recent reports have suggested large variations among GPs in adherence to National Institute for Clinical Excellence (NICE) guidelines in the referral of such patients to specialists [5]. Evidence based psychological therapies such as Cognitive Behavioural Therapy are recommended by NICE for the effective treatment of depression [6] and anxiety disorders [7]. Historically in the UK, the low proportion of patients accessing such services has been attributed to a lack of available resources within the National Health Service (NHS), in particular a lack of trained psychological therapists [8]. This problem led to the development of the ‘Improving Access to Psychological Therapies’ (IAPT) initiative in England [9], which has led to increases in the number of psychological therapists available within PCMHS.
Increasing the proportion of people who are able to access evidence based psychological therapy, and improving the equity of access to these services, are key performance targets of the IAPT program [10]. Variation in the proportion of patients being referred to such services is reported to have significant impact on treatment outcomes [11]. The present study therefore aims to explore the contribution of GP factors contributing to this variation in service provision, and consider these factors in a theoretical context.

It is widely acknowledged that patient factors are likely to account for some of this variance. Older people, men and people from black and ethnic minority groups are reported as underrepresented in those receiving treatment through IAPT [12].

Additionally, a number of service level factors have been identified in relation to GP referral to mental health specialists. Studies have identified difficulties in access to services [13,14] and long waiting list times [15] as barriers to referral. Additionally, the relationship between the GP or GP practice and specialist services has been found to be associated with referral rates [16,17].

In addition, however, recent research has suggested a contribution of individual differences among GPs to the reported variation in referral rate, although these factors appear relatively understudied (Craven and Mansell, unpublished manuscript). In terms of GP demographic factors, this research has proved inconclusive. Studies have suggested both male [15] and female [18] GPs to be more likely to refer to a specialist for depression, while additional studies have failed to find an association [19,20]. Similarly, a recent study found that younger GPs were more likely to refer patients
with mental health conditions to a specialist [19], although additional studies have failed to find this effect [15,21].

Findings on the effectiveness of interventions to improve medical professionals’ adherence to evidence based guidelines have been mixed [22]. As a result, there has been a recent drive in the literature to develop and evaluate interventions grounded in psychological theory [23]. A recent review of studies based on social cognitive theories [24] concluded that the Theory of Planned Behaviour (TPB) had the most empirical support in terms of predicting clinician behaviour.

Ajzen’s TPB proposes that a person’s ‘intention’ to perform a behaviour is influenced by a combination of three factors; ‘perceived behavioural control’, ‘attitudes towards the behaviour’ and ‘subjective norms’ [25]. Perceived behavioural control refers to both the individual’s self perceived ability (‘self-efficacy’, [26]) and actual ability (allowing for external factors such as environmental constraints, [27]) to perform the behaviour. The ‘attitude to the behaviour’ is said to be based on an ‘outcome expectancy evaluation’ of the possible positive and negative outcomes, and ‘subjective norm’ describes the perceived social norm and pressures related to the behaviour [28]. The theory proposes that ‘intention’ is a reliable predictor of actual behaviour [25].

The current study will explore two aspects of this model in relation to GPs’ intention to refer a series of case vignettes to the PCMHS; ‘attitudes towards the behaviour’ and ‘perceived behavioural control’. Previous qualitative research has identified GPs’ perceptions of the effectiveness of the service as a factor in their decision to refer for
psychological therapy [14,29], although this does not appear to have been studied quantitatively to date. In TPB terms, this would represent GPs’ ‘attitudes towards the behaviour’.

Research has also supported the role of self-efficacy (contributing to perceived behavioural control) as a factor influencing referral decisions, in that GPs who feel more competent to manage patients with mental health conditions may be less likely to refer to a specialist [15,16].

Although there appears a lack of research on the factors contributing to GPs referral decisions specifically in the context of PCMHS, a range of other psychological factors have been identified as potential factors in decisions about mental health referrals. These include the ‘doctor-patient relationship’ and GPs’ special interests [14], and the emotional ‘burden’ of working with such patients [16]. The study therefore employs a mixed method design, allowing for exploratory analysis of other such factors reported qualitatively by GPs.

In addition, the recent Health and Social Care Bill [30] in the UK proposes changes to the way that services are commissioned, placing increased responsibility on GPs to decide which services should be commissioned to meet the needs of their patients. Therefore GPs’ views and attitudes towards services providing psychological therapy are likely to become increasingly important in the provision of these services. The present study will explore whether GPs’ views of the usefulness of IAPT services is associated with their opinions on the effectiveness of psychological therapy in general.
**Study aims**

The study aims to consider the factors underlying GP referral to PCMHS within a theoretical framework. Both the likelihood of referral, and the extent to which referrals are in agreement with clinical guidelines will be considered. These findings are intended to inform the development of services providing psychological therapy, and the development of theory based interventions to support GPs in making appropriate referrals to such services.

**Hypotheses/research questions**

The following hypotheses and research questions were formulated based on the study aims.

Using self reported intention to refer a series of case vignettes to the PCMHS as a proxy measure of PG referral behaviour:

- Qualitative research question – what factors do GPs report as influencing their referral decision?
- Hypothesis 1 – Positive attitudes towards psychological therapy will be associated with increased referral for anxiety and depression.
- Hypothesis 2 – Low self-efficacy in treating depression will be associated with increased referral for depression.
- Hypothesis 3 – Positive attitudes towards psychological therapy will be associated with positive evaluation of the IAPT initiative.
- Exploratory Questions – Which demographic and psychological factors predict a) referral for ‘depression’, b) overall referral likelihood and c) referral ‘guideline agreement’?
Method

Background

Data collection initially took place through completion of paper questionnaires by GPs in one Primary Care Trust (PCT 2), as part of a wider study aiming to explore reasons for non-attendance at initial therapy appointments (Murphy, Mansell, Craven & McEvoy, unpublished manuscript). It was intended to use the data to test hypotheses related to the impact of GP attitudes towards psychological therapy on patient attendance.

However, due to difficulties in recruiting GPs within participating General Practices, the GP questionnaire element of this wider study was omitted. Therefore, the questionnaire data were used solely for the present study.

In order to allow for wider recruitment of GPs the questionnaire was then made available online, with recruitment expanded to GPs across eight additional Primary Care Trusts (PCTs) within Greater Manchester, all of which have an established Primary Care Mental Health Service in partnership with the IAPT initiative.

Design

The study employed a cross-sectional questionnaire design, using fictional case vignettes to obtain a proxy measure of GPs intent to refer patients with a range of presenting problems to the PCMHS. A mixed methods approach was taken to analyse and interpret the data obtained, including quantitative analysis of the self reported likelihood of referral for each vignette, and qualitative analysis of the comments provided by GPs on these referral decisions.
Participants

A total of 132 GPs from 9 PCTs in Greater Manchester participated in the study (Table 1).

Table 1: Sample demographic characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paper/online completion</strong></td>
<td></td>
</tr>
<tr>
<td>Online</td>
<td>107 (81.1)</td>
</tr>
<tr>
<td>Paper</td>
<td>25 (18.9)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>72 (54.5)</td>
</tr>
<tr>
<td>Female</td>
<td>60 (45.5)</td>
</tr>
<tr>
<td><strong>PCT</strong></td>
<td></td>
</tr>
<tr>
<td>PCT 1</td>
<td>43 (32.6)</td>
</tr>
<tr>
<td>PCT 2</td>
<td>20 (15.2)</td>
</tr>
<tr>
<td>PCT 3</td>
<td>15 (11.4)</td>
</tr>
<tr>
<td>PCT 4</td>
<td>10 (7.6)</td>
</tr>
<tr>
<td>PCT 5</td>
<td>7 (5.3)</td>
</tr>
<tr>
<td>PCT 6</td>
<td>1 (0.8)</td>
</tr>
<tr>
<td>PCT 7</td>
<td>16 (12.1)</td>
</tr>
<tr>
<td>PCT 8</td>
<td>1 (0.8)</td>
</tr>
<tr>
<td>PCT 9</td>
<td>3 (2.3)</td>
</tr>
<tr>
<td><strong>PCT not provided</strong></td>
<td>16 (12.1)</td>
</tr>
</tbody>
</table>

**Age** (n=130)
Mean=44.95, SD=9.53

**Years as GP** (n=128)
Mean=15.98, SD=9.52

The wide ranging recruitment strategy meant that it was not possible to calculate a response rate. Due to the low number of participants, 3 PCTs with n<4 (PCTs 6, 8 and 9) were excluded from all analyses. The PCT variable for these five participants was recoded as missing data.
Materials

Both versions of the questionnaire (paper and electronic) contained identically worded questions (Appendix 5). The questionnaire was comprised of questions relating to the following components:

Demographic Information

GPs were asked to provide their age, gender, and number of years working as a GP. GPs completing the initial version of the paper questionnaire were also asked to provide their name and GP practice.

Case Vignettes

The questionnaire contained four short case vignettes, developed in collaboration with a Clinical Psychologist working in Primary Care and the manager of a PCMHS (Appendix 6). Three vignettes described patients with symptoms of ‘Major Depressive Disorder’, ‘Panic Disorder’ and possible symptoms of psychosis, with another describing symptoms better explained by bereavement [31]. NICE and IAPT guidelines suggest that a PCMHS referral would be appropriate for the ‘depression’ and ‘panic’ vignettes, with alternative treatment or monitoring recommended for the ‘psychosis’ and ‘bereavement’ presentations [6,7,32,33]. All patients were described as male professionals between the ages of 36 and 42.

In order to verify the appropriateness of these presentations for a PCMHS, the vignettes were discussed with two teams of Psychological Wellbeing Practitioners working in different localities of one of the participating trusts (PCT 2). Members of both teams read the vignettes independently, and reported unanimously that they
would consider the patients described in vignettes 1 and 4 (‘depression’ and ‘panic’) to be appropriate for their service, and that those in vignettes 2 and 3 (‘bereavement’ and ‘psychosis’) would not meet their acceptance criteria.

Following each vignette, participants were asked ‘How likely would you be to refer this patient to the Primary Care Mental Health Service’. The paper version required participants to mark a point on a 10cm line, while the electronic version asked GPs to select a number between 0 and 10. On both versions the extremes of these scales were marked from ‘Would not refer’ (0) to ‘Would definitely refer’ (10). Space was also provided for participants to provide ‘comments’ on each vignette.

Depression Attitudes Questionnaire

The Depression Attitudes Questionnaire (DAQ) [34], is a standardised questionnaire designed to measure GPs attitudes towards depression and its management in general practice according to four subscales; ‘antidepressants vs psychotherapy’, ‘professional unease’, ‘inevitable course of depression’ and ‘identification of depression’ (Appendix 7). It is the most widely used questionnaire for this purpose [35] and has been suggested to have predictive validity in terms of identifying an association between attitudes towards treatment methods for depression and antidepressant prescribing habits [36,37]. The subscales ‘antidepressants vs psychotherapy’ and ‘professional unease’ were intended to represent attitudes about psychological therapy and self-efficacy respectively.

The questionnaire included all 20 items of the DAQ. Additionally, an equivalent of the ‘Antidepressant vs Psychotherapy’ subscale was created by altering the items in
this subscale to refer to anxiety disorders. GPs were asked to respond to all items on a scale between 0 (Strongly Disagree) and 10 (Strongly Agree), by marking a point on a 10cm line on paper questionnaires, or choosing a number in the online version. Paper questionnaires were scored by measuring the point on the line to the nearest round number.

Additional questionnaire items

The item ‘Improving Access to Psychological Therapies’ is a worthwhile use of NHS resources’ was included within the questionnaire items, with the same response method.

A further 2 subscales related to ‘explanation of process’ and ‘patient choice’ were included to test hypotheses in relation to patient attendance. As this aspect of the study was not conducted (see above), responses to these subscales are not included in the analyses for this study.

Procedure

A favourable opinion was obtained from the relevant National Research Ethics Service Committee and Research and Development departments of the relevant Primary Care Trusts (Appendix 8, 9). Approval of the amendment to the study to allow for online data collection was also obtained (Appendix 10).

In the initial phase of the study, paper questionnaires were provided to all GPs at participating general practices and returned to the research team through administration staff.
Following expansion to allow online participation, GPs were mostly recruited through their PCT. Depending on the individual PCT’s dissemination procedure, participants were recruited through an email directly to them from the PCT containing a link to the online questionnaire, an email to practice managers with a request to forward to GPs, or inclusion of a link to the questionnaire in a newsletter email sent to GPs. In addition, an email inviting participation was also sent by the office of the local GP training deanery to all GPs who provide registrar training in the participating trusts.

Information sheets (Appendix 11) were provided to all participants. GPs completing paper questionnaires before the amendment to the study also completed a consent form (Appendix 12). Following the amendment to the study, completion of the online questionnaire was assumed to imply consent to participate, as identifiable data was no longer required.

Data Analysis

The data from the GP comments on each vignette were analysed using qualitative content analysis [38]. Initially, this involved SC reading and re-reading the comments from each vignette to develop initial thoughts. A coding frame was developed using a ‘conventional’ data driven content analysis approach [39], to identify categories and subcategories derived from the data. This coding frame was piloted by inviting an independent researcher (a trainee clinical psychologist) to code a sample of 12 of the responses (3 from each vignette). These codes were compared to the original codings, with 11/12 in agreement. The disagreement on the coding of one comment led to a slight alteration of the description of a subcategory to avoid ambiguity. The responses
were then coded in full by SC and frequencies of the occurrence of each code within the comments for each vignette were calculated.

The reliability of this coding frame was evaluated by measuring its ‘coder stability’ across time [40]. The responses were coded again by SC 5 weeks after initial coding was completed. A percentage agreement statistic [40] of 94.9% was calculated by identifying the number of responses in which the two sets of coding were in agreement as a percentage of the total number of responses (337/355x100). This figure is above the 80% ‘minimum level’ of agreement suggested for acceptable reliability [41]. Codings which did not match were discussed with the second coder to agree the correct code.

Quantitative data were analysed using the Statistical Package for the Social Sciences (SPSS), version 16. Missing data (2.37%) were excluded pairwise. Correlational hypotheses were tested using Pearson’s r statistics (Spearman’s Rho if either variable was non-normally distributed). Predictive models were developed using multiple regression (ordinal regression for non-normally distributed outcome variables), with backwards stepwise deletion of variables.

Required sample size
Based on accepted convention, [42] a minimum of 10-15 participants per independent variable are required in order to achieve sufficient power to detect effects in multiple regression analyses. As 9 potential independent variables were included in these analyses, it was estimated that the study would require a minimum sample of 90-135
GP participants. This was confirmed with a statistician at the author’s employing NHS trust.

Results

Comparison of online and paper samples.

Participants completing the questionnaire online did not differ significantly from those completing paper questionnaires in age ($t(128) = .55, p = .59$), gender ($\chi^2 = .81, p = .78$) or overall vignette referral score ($t(128) = .2, p = .84$). Therefore the sets of data from both completion methods were combined and treated as one sample.

Comparison with national GP population

The current sample was not significantly different in gender ($\chi^2 = .015, p = .90$) or age range distribution ($U = 2094740, Z = -1.76, p = 0.08$) compared with demographic statistics for all GPs in England in 2011 [43].

Quantitative responses to vignettes

‘Referral likelihood’ responses to each vignette were not normally distributed (Appendix 13). Figure 1 demonstrates the differences in distribution of self reported referral likelihood for each vignette. This is particularly stark for the ‘psychosis’ vignette, responses to which showed a bimodal distribution, with the most frequent responses being 0 (n=30) and 10 (n=37).
Figure 1: Frequency of referral likelihood response (0=would not refer, 10=would definitely refer) by vignette

- 'Panic' vignette (meets criteria)
- 'Depression' vignette (meets criteria)
- 'Psychosis' vignette (does not meet criteria)
- 'Bereavement' vignette (does not meet criteria)
The median reported ‘referral likelihood’ for each vignette is shown in Figure 2. Friedman’s ANOVA was used to compare responses to the four vignettes, suggesting a significant effect of vignette on reported referral likelihood ($\chi^2(3) = 82.26$, $P < .001$). Wilcoxon signed-rank tests were used to compare individual vignettes, using a Bonferroni corrected significance level of 0.008 (0.05/6) to allow for multiple comparisons [42]. These tests showed a significantly lower likelihood of referral for the ‘bereavement’ vignette compared with ‘psychosis’ ($z = -6.75$, $P < .001$), ‘panic’ ($z = -7.51$, $P < .001$), and ‘depression’ ($z = 6.42$, $P < .001$). A significantly lower likelihood of referral was also reported for the ‘depression’ vignette, compared with ‘panic’ ($z = -3.17$, $p = .002$). Differences between ‘psychosis’ and ‘depression’ and ‘psychosis’ and ‘panic’ vignettes were not found to be significant at the corrected level ($p = .009$ and $p = .230$ respectively).
Qualitative responses to vignettes

Between 86 and 91 of the participants commented on each of the vignettes. Two overall categories were identified through qualitative content analysis; ‘factors influencing referral decision’ and ‘alternative treatment options’. These categories and their subcategories, and the frequency with which each subcategory occurred, is reported in Table 2.

‘Factors influencing referral decision’

GPs reported a number of factors influencing their referral decision. GPs reported that they would consider ‘patient preference’, and/or discuss the options with the patient when making their referral decision on 68 occasions throughout the four vignettes. This was most frequently reported for the ‘Depression’ vignette (37 GPs, 41% of those commenting). In contrast, only two (2% of the comments on the ‘Psychosis’ vignette) mentioned patient preference/choice as a consideration.

Comments related to taking the ‘severity’ of the problem into account were noted on 35 occasions, including gathering further information on the nature, level of risk and history of the presenting problem. This was particularly frequent among comments on the ‘psychosis’ vignette (16 GPs, 18%), e.g. ‘I would need to explore this man’s history and symptoms further to explore if he has a severe psychotic illness’ (‘Psychosis’ vignette, likelihood of referral: 3). Participants also reported the use of psychometric measures to assess the severity of the problem and aid in the decision making process, e.g. ‘..ask the patient to complete a PHQ-9 questionnaire and pending on result...’ (‘Depression’, 6).
Table 2: Data driven coding frame with descriptions, examples and frequencies of each subcategory

<table>
<thead>
<tr>
<th>Category</th>
<th>Subcategory</th>
<th>Descriptions</th>
<th>Example [Vignette, Referral likelihood rating]</th>
<th>Overall freq.</th>
<th>Depression (n=91) Freq (%)</th>
<th>Psychosis (n=88) Freq (%)</th>
<th>Bereavement (n=90) Freq (%)</th>
<th>Panic (n=86) Freq (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Factors influencing referral decision'</td>
<td>Patient preference</td>
<td>Give/ discuss options, request, patient’s wishes</td>
<td>'I would give him the option of meds or psychology or both' ['Depression', 3]</td>
<td>68</td>
<td>37 (41)</td>
<td>2 (2)</td>
<td>12 (13)</td>
<td>17 (20)</td>
</tr>
<tr>
<td></td>
<td>Severity</td>
<td>History, urgency, severity, risk</td>
<td>'Would not refer initially unless there was any suicidal ideation elicited' ['Depression', 2]</td>
<td>35</td>
<td>10 (11)</td>
<td>16 (18)</td>
<td>6 (7)</td>
<td>3 (3)</td>
</tr>
<tr>
<td></td>
<td>Waiting time</td>
<td>Take too long, waiting list length, availability, practicality</td>
<td>'at present services from PCMHS would take too long to be of any use' ['Panic', 0] ‘Offer brief intervention psychol initially because wait is much shorter' ['Panic', 7]</td>
<td>30</td>
<td>16 (18)</td>
<td>1 (1)</td>
<td>4 (4)</td>
<td>9 (10)</td>
</tr>
<tr>
<td></td>
<td>Effectiveness</td>
<td>Benefit, useful, effective, will help</td>
<td>'Panic attack CBT=good' ['Panic', 6]</td>
<td>30</td>
<td>8 (9)</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td>20 (23)</td>
</tr>
<tr>
<td></td>
<td>Normality</td>
<td>Common, typical, normal, abnormal [Not] managed in house, improve with GP support, consider managing myself</td>
<td>'Normal bereavement reaction’ ['Bereavement', 0]</td>
<td>29</td>
<td>3 (3)</td>
<td>0 (0)</td>
<td>25 (28)</td>
<td>1 (1)</td>
</tr>
<tr>
<td></td>
<td>Ability to manage ‘in house’</td>
<td>‘I would be able to support this man in routine general practice’ ['Depression', 1] ‘The treatment is probably beyond what most GP surgeries could manage' ['Psychosis, 10]</td>
<td>22</td>
<td>8 (9)</td>
<td>3 (3)</td>
<td>6 (7)</td>
<td>5 (6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Success of other treatment</td>
<td>If [x] doesn’t work, if no improvement</td>
<td>'Would try alternative Rx for anxiety first, may refer depending on response’ ['Panic', 3]</td>
<td>11</td>
<td>3 (3)</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td>6 (7)</td>
</tr>
<tr>
<td></td>
<td>Guidelines</td>
<td>NICE, referral criteria</td>
<td>'Would not meet PCMHS criteria’ ['Psychosis, 1]</td>
<td>5</td>
<td>0 (0)</td>
<td>2 (2)</td>
<td>1 (1)</td>
<td>2 (2)</td>
</tr>
<tr>
<td></td>
<td>Previous treatment</td>
<td>Worked before, previously beneficial</td>
<td>'explore previous experience of services and treatments that have worked before’ ['Psychosis, 8]</td>
<td>2</td>
<td>0 (0)</td>
<td>2 (2)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Category</td>
<td>Subcategory</td>
<td>Descriptions</td>
<td>Example [Vignette, Referral likelihood rating]</td>
<td>Overall freq.</td>
<td>Depression (n=91) Freq (%)</td>
<td>Psychosis (n=88) Freq (%)</td>
<td>Bereavement (n=90) Freq (%)</td>
<td>Panic n=86 Freq (%)</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>---------------------------</td>
<td>-----------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>‘Alternative treatment options’</td>
<td>Signposting</td>
<td>Voluntary services, self help websites, counselling</td>
<td>‘Give number for CRUISE’ ['Bereavement', 0]</td>
<td>63</td>
<td>24 (26)</td>
<td>0 (0)</td>
<td>28 (31)</td>
<td>11 (13)</td>
</tr>
<tr>
<td>Review</td>
<td>Review, watchful waiting, see again</td>
<td>‘Arrange to review him to assess progress’ ['Bereavement', 0]</td>
<td></td>
<td>61</td>
<td>10 (11)</td>
<td>1 (1)</td>
<td>40 (44)</td>
<td>10 (12)</td>
</tr>
<tr>
<td>Medication</td>
<td>Anxiolytic, antidepressant, ssri, ‘benzo’, beta-blockers</td>
<td>‘Would trial an antidepressant unless patient wanted counselling specifically’ ['Depression', 2]</td>
<td></td>
<td>56</td>
<td>30 (33)</td>
<td>1 (1)</td>
<td>2 (2)</td>
<td>23 (27)</td>
</tr>
<tr>
<td>Secondary Care</td>
<td>CMHT, secondary care, psychiatrist, crisis team, hospital</td>
<td>‘Psychosis needs community MH team input’ ['Psychosis', 0]</td>
<td></td>
<td>55</td>
<td>0 (0)</td>
<td>55 (63)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Advice/psychoeducation</td>
<td>Give advice, information, leaflets, teach relaxation</td>
<td>‘sleep hygiene advice’['Depression', 1]</td>
<td></td>
<td>51</td>
<td>14 (15)</td>
<td>0 (0)</td>
<td>22 (24)</td>
<td>15 (17)</td>
</tr>
<tr>
<td>Physical investigations</td>
<td>Blood tests, thyroid function, investigate underlying disease, metabolic cause</td>
<td>‘Would carry out blood tests…to rule out any metabolic cause for his symptoms’ ['Psychosis, 10]</td>
<td></td>
<td>16</td>
<td>2 (2)</td>
<td>6 (7)</td>
<td>0 (0)</td>
<td>8 (9)</td>
</tr>
<tr>
<td>Time off work</td>
<td>Sick note, time off work,</td>
<td>likely persuade him to accept sick note ['Depression', 6]</td>
<td></td>
<td>7</td>
<td>4 (4)</td>
<td>0 (0)</td>
<td>3 (3)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>
Figure 3: Percentage of comments for each vignette mentioning each subcategory of ‘factors influencing referral decision’
Waiting lists and difficulty in accessing services was reported as a consideration on 30 occasions across all vignettes, with GPs reporting a range of waiting times between ‘14 weeks’ to ‘12 months’. Some expressed frustration with this, e.g. ‘Very likely to benefit from CBT - but the current waiting time frustrates me’ (‘Panic’, 9). GPs described this as a deterrent to referral and reported exploring alternative treatment options, such as counselling or medication (e.g. ‘waiting lists too long, I always try to find alternative self help/counselling’, ‘Depression’, 0). In contrast, one GP described referring to the PCMHS as a good option because the ‘wait is much shorter’ (‘Panic’, 7).

Comments related to the effectiveness of the PCMHS and/or psychological therapy in general were recorded on 30 occasions across the four vignettes. GPs frequently identified ‘CBT’ as the main service offered by the PCMHS, and discussed the benefits of this, e.g. ‘good evidence for CBT’ (‘Depression’, 7) in considering referral. This appeared to be particularly commonly reported (20 GPs, 23%) in relation to the ‘panic’ vignette (e.g. ‘Panic attack CBT=good’, ‘Panic’, 6). However, comments related to the effectiveness of psychological therapy were frequently made alongside reports of the difficulty in accessing services described above (e.g. ‘This chap would be ideal for a CBT based approach…at present services from PCMHS would take too long to be of any use’, ‘Panic’, 0), suggesting that long waiting times may have deterred GPs from referring at times despite positive beliefs about the benefits of the service.

Comments related to ‘normality’ were coded on 29 occasions. The majority of these comments were in relation to the ‘bereavement’ vignette, with symptoms frequently
interpreted by GPs as ‘normal’ or ‘typical’ and therefore not necessitating referral (25 GPs, 28%). A smaller number of GPs (3, 3%) made similar comments on the ‘Depression’ vignette (e.g. ‘Common consultation in general practice cannot see me ever referring’, ‘Depression’, 0).

Twenty nine comments were in relation to whether the GP felt they would be able to ‘manage’ the patient ‘in-house’. This consideration was discussed by both high referring (e.g. ‘The treatment is probably beyond what most GP surgeries could manage’, ‘Psychosis’, 10) and low referring (‘I would be able to support this man in routine general practice’ (‘Depression’, 1) GPs.

In addition, GPs also reported considering referral if their initial treatment choice did not lead to improvements (11 comments), taking into account NICE guidelines and the acceptance criteria of the PCMHS (5), and exploring whether any form of treatment had been beneficial to the patient in the past (2).

The percentage of GP comments mentioning each subcategory of ‘factors influencing referral decision’ for each vignette is displayed in Figure 3. This highlights the differences in referral considerations across the vignettes, with each having a different modal value.

‘Alternative treatment options’
A range of alternative and ancillary treatment options were described by participants. Sixty three comments across the four vignettes described ‘signposting’ to alternative services, such as self-help websites, specific counselling organisations (e.g. RELATE)
or work based psychological support. As discussed, this was commonly mentioned as an alternative to the PCMHS due to waiting times. Similarly, GP advice, support and/or psychoeducation was reported as a strategy on 51 occasions. This included providing advice, written information, teaching relaxation techniques, reassurance and ‘simple CBT techniques’ (‘Depression’, 5). Neither of these strategies were mentioned in the responses to the ‘psychosis’ vignette.

GPs frequently reported the intention to ‘review’ the patient, or assess progress over time. This was most frequently reported for the ‘bereavement’ vignette (40 GPs, 40% of comments). This was commonly reported in connection with the issue of ‘normal grieving’, in that GPs reported the intention to review to assess recovery from this, e.g. ‘review pt…normal grief reaction I would refer if low mood persisted’ (‘Bereavement’, 7).

Medication was suggested as a treatment option on 56 occasions. This was suggested as an alternative to referral (e.g. ‘pills first’, ‘Panic’, 4), one of a number of options given to the patient, and an alternative treatment option if initial treatments do not help. A number of GPs reported using medication due to the wait for psychological therapy, e.g. ‘the wait time…14 weeks so realistically he will need to go on antidepressants while he is waiting’ (‘Depression, 5).

Fifty five GPs (63%) commented that a referral to secondary care services, including psychiatry, Community Mental Health Teams and hospital services, would be appropriate. These were all in relation to the ‘psychosis’ vignette. This was stated by all of the commenting GPs who rated their likelihood of referral to the PCMHS as ‘0’
(‘Would not refer’). However, a number of the GPs rating their likelihood of referral to the PCMHS as high also made similar comments (e.g. ‘needing CMHT referral’, ‘Psychosis’, 10).

GPs also reported the use of physical examinations and tests to ‘rule out’ other causes for the symptoms described. This was most frequently mentioned in response to the ‘panic’ vignette (8 GPs, 9%). Additionally, a number of GPs commenting on the ‘depression’ and ‘bereavement’ vignettes (7 overall), suggested that time off from work may be beneficial.

*Responses to attitudinal subscales*

Responses to three of the five relevant subscales (Professional Unease, Inevitable Course of Depression and Anxiety Medication vs Psychotherapy) were not normally distributed (Appendix 13). Therefore the median and interquartile range are reported for each subscale in Table 3.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Median (/10)</th>
<th>IQR</th>
<th>Chronbach’s Alpha¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAQ: Antidepressants vs Psychotherapy</td>
<td>4.33</td>
<td>1.5</td>
<td>.34</td>
</tr>
<tr>
<td>DAQ: Professional Unease</td>
<td>4.45</td>
<td>1.75</td>
<td>.49</td>
</tr>
<tr>
<td>DAQ: Inevitable course of depression</td>
<td>2.75</td>
<td>1.31</td>
<td>.42</td>
</tr>
<tr>
<td>DAQ: Identification of depression</td>
<td>4</td>
<td>2.33</td>
<td>.46</td>
</tr>
<tr>
<td>Anxiety: Medication vs Psychotherapy</td>
<td>3.33</td>
<td>1.33</td>
<td>.43</td>
</tr>
</tbody>
</table>

¹ Due to the low Chronbach’s Alpha coefficients, the subscales were analysed to determine whether removal of individual items would improve their reliability. As removal of poorly correlating items did not significantly improve the Alpha statistic of each subscale, the original structure was retained (corrected item-total correlations are included in appendix 7).
The difference between the existing DAQ subscale of ‘Antidepressants vs. Psychotherapy’ and the new subscale of Anxiety: Medication vs. Psychotherapy was found to be significant (Wilcoxon signed-rank test, $Z = -8.43, p < .001$), suggesting that GPs reported more positive beliefs about the benefits of psychological therapy for anxiety than for depression. Therefore the two subscales were retained as separate variables.

**Hypothesis 1 – Positive attitudes towards psychological therapy will be associated with increased likelihood of referral.**

Scores on the DAQ factor ‘Antidepressants vs psychotherapy’ were not significantly correlated with reported referral likelihood of the ‘Depression’ vignette ($r_s = -.01, p = .917$). Similarly, the factor ‘Anxiety: Medication vs Psychotherapy’ was not correlated with reported referral likelihood of the ‘Panic’ vignette ($r_s = .01, p = .882$). Therefore the hypothesis that positive attitudes towards psychological therapy would be associated with increased reported referral likelihood was rejected.

**Hypothesis 2 – Low self-efficacy in treating depression will be associated with increased referrals for depression.**

The DAQ subscale ‘Professional Unease’ was not significantly correlated with reported referral of the ‘Depression’ vignette ($r_s = .01, p = .919$). Additionally, scores on this subscale did not correlate significantly with overall referral likelihood ($r_s = .06, p = .516$). Therefore this hypothesis was rejected.
Hypothesis 3 – Positive attitudes towards psychological therapy will be associated with positive evaluation of the IAPT initiative.

Responses to the questionnaire item ‘Improving Access to Psychological Therapies is a good use of NHS resources’ suggest a largely positive response (median = 8, Interquartile range = 4). Responses were negatively correlated with the DAQ subscale ‘Antidepressants vs Psychotherapy’ ($r_s = -.27, p = .002$) and the new subscale ‘Anxiety: Medication vs psychotherapy’ ($r_s = -.18, p = .042$), suggesting that participants with more positive views of psychological therapy, both for depression and anxiety, more strongly endorsed the IAPT initiative as worthwhile. Therefore this hypothesis was accepted.

Exploratory Question a) Which demographic and psychological factors predict reported likelihood of referral for ‘depression’?

As responses to the ‘depression’ vignette were not normally distributed, the responses were grouped into 3 ordered categories; low (0-3), mid (4-6) and high (7-10) referral likelihood, to allow ordinal regression to be performed. Univariate analysis compared these three groups in relation to the 9 potential predictor variables (Table 4).

One way Analysis of Variance (ANOVA) was used to examine the association with normally distributed continuous predictor variables, and Kruskal-Wallis tests for non normally distributed continuous variables. The distribution of gender and PCT across the three ordered groups was examined using Chi squared and Fisher’s Exact Test respectively.
Table 4: Results of univariate analysis of referral likelihood for 'depression' vignette (items meeting criteria for inclusion (p<.1) highlighted in **bold**)

<table>
<thead>
<tr>
<th>Referral of 'depression' vignette</th>
<th>Low</th>
<th>Mid</th>
<th>High</th>
<th>Test statistic</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Mean (SD)</strong></td>
<td><strong>Mean (SD)</strong></td>
<td><strong>Mean (SD)</strong></td>
<td><strong>F</strong></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td><strong>47 (10.07)</strong></td>
<td><strong>43.32 (8.05)</strong></td>
<td><strong>42.62 (8.95)</strong></td>
<td><strong>3.161</strong></td>
<td><strong>0.046</strong></td>
</tr>
<tr>
<td>Years as GP</td>
<td>17.66 (10.36)</td>
<td>14.72 (8.50)</td>
<td>14.03 (8.34)</td>
<td>2.068</td>
<td>0.131</td>
</tr>
<tr>
<td>DAQ: Antidepressants vs Psychotherapy</td>
<td>4.37 (1.10)</td>
<td>4.09 (1.07)</td>
<td>4.35 (1.02)</td>
<td>0.666</td>
<td>0.516</td>
</tr>
<tr>
<td>DAQ: Identification of depression</td>
<td>3.88 (1.90)</td>
<td>4.45 (1.48)</td>
<td>3.91 (1.47)</td>
<td>1.116</td>
<td>0.331</td>
</tr>
<tr>
<td>DAQ: Professional Unease</td>
<td>4.38 (2.06)</td>
<td>3.88 (1.88)</td>
<td>4.25 (1.5)</td>
<td>2.018</td>
<td>0.365</td>
</tr>
<tr>
<td>DAQ: Inevitable course of depression</td>
<td>2.75 (1.75)</td>
<td>2.5 (1.31)</td>
<td>2.75 (2.33)</td>
<td>0.663</td>
<td>0.718</td>
</tr>
<tr>
<td>Anxiety: Medication vs Psychotherapy</td>
<td><strong>3.33 (1.21)</strong></td>
<td><strong>3 (1.29)</strong></td>
<td><strong>3.58 (1.5)</strong></td>
<td><strong>5.269</strong></td>
<td><strong>0.072</strong></td>
</tr>
<tr>
<td>Gender</td>
<td>N (%)</td>
<td>N(%)</td>
<td>N(%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>39 (54)</td>
<td>13 (18)</td>
<td>20 (28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>27 (45)</td>
<td>13 (22)</td>
<td>20 (33)</td>
<td>1.1</td>
<td>0.577</td>
</tr>
<tr>
<td>PCT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 1</td>
<td>20 (47)</td>
<td>7 (16)</td>
<td>16 (37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 2</td>
<td>7 (35)</td>
<td>3 (15)</td>
<td>10 (50)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 3</td>
<td>12 (80)</td>
<td>1 (7)</td>
<td>2 (13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 4</td>
<td>6 (60)</td>
<td>3 (30)</td>
<td>1 (10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 5</td>
<td>4 (57)</td>
<td>1 (14)</td>
<td>2 (29)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 7</td>
<td>6 (37)</td>
<td>3 (19)</td>
<td>7 (44)</td>
<td>12.124</td>
<td>0.244</td>
</tr>
</tbody>
</table>
The 2 variables meeting the entry criteria ($P < .1$ in univariate analysis) were age and ‘Anxiety: medication vs psychotherapy’. These variables were entered into a manual backwards stepwise ordinal regression analysis. The variable ‘Anxiety: medication vs psychotherapy’ was eliminated in the first iteration ($p = .249$), therefore the only variable included in the final model (Appendix 14) was age, suggesting that younger GPs reported a higher likelihood of referral for this vignette (Wald statistic = 6.04, $\text{EXB}(\beta) = 0.956, \text{CI} = 0.922-0.991, p = .014$).

**Exploratory Question b) Which demographic and psychological factors predict overall referral likelihood?**

Overall referral likelihood was calculated by adding together GPs ratings from each of the 4 vignettes, resulting in a value between 0 and 40. Following univariate analysis of the 9 predictor variables (Appendix 15), the four variables found to be associated with overall referral at the $P < .1$ significance level were age ($r = -.25, p = .004$), years as GP ($r = -.20, p = .025$), gender ($t = 2.04, p = .044$) and DAQ ‘Identification of depression’ ($r = .20, p = .022$).

As the variables ‘age’ and ‘years as GP’ were highly correlated ($r = .86, p < .001$), ‘years as GP’ was excluded from the multivariate analysis to avoid multicollinearity as it had a lesser correlation with overall referral than age. The remaining three variables were entered into a multiple regression analysis (Appendix 16), using a backwards stepwise elimination method to eliminate variables which did not emerge as significant predictors ($p > .05$).
Only age remained as a significant independent predictor in the final model \( (\beta = -.25, CI = -.31 - -.06, t = 2.90, p = .004) \), suggesting that younger GPs reported a higher likelihood of referral overall. The model explained 6.3% of the variance in overall referral likelihood \( (R^2 = .063) \).

**Exploratory Question c) Which demographic and psychological factors predict guideline agreement?**

Guideline agreement scores were calculated for each GP by subtracting the sum of GPs responses to the ‘bereavement’ and ‘psychosis’ vignettes from the sum of responses to the ‘panic’ and ‘depression’ vignettes, yielding a value between -20 and 20. As these scores were not normally distributed, they were divided into three ordered categories; low (-20 to -7), mid (-6 to 6) and high (7 to 20). Univariate analysis of the distribution of these categories within the 9 predictor variables were carried out as with the ‘depression’ vignette ordered scores. Table 5 shows that the variables ‘age’, ‘DAQ: Antidepressants vs Psychotherapy’ and ‘PCT’ met criteria for inclusion in the initial ordinal regression model \( (p < .01) \).

Following manual backwards stepwise ordinal regression analysis, the variable ‘DAQ: Antidepressants vs Psychotherapy’ was eliminated as it did not emerge as a significant predictor \( (p = .888, \text{Appendix 17}) \). ‘Age’ and ‘PCT’ were retained as significant independent predictors in the final model (Table 6). The model suggests that older GPs had lower guideline agreement rankings, as did those based within PCT 3 or PCT 4, in comparison to the reference group of PCT 7.
Table 5: Results of univariate analysis of guideline agreement (items meeting criteria for inclusion (p<.1) highlighted in bold)

<table>
<thead>
<tr>
<th>Guideline agreement</th>
<th>Low Mean (SD)</th>
<th>Mid Mean (SD)</th>
<th>High Mean (SD)</th>
<th>Test statistic</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>48.87 (9.98)</td>
<td>44.65 (9.79)</td>
<td>42.89 (8.02)</td>
<td>2.922</td>
<td>0.058</td>
</tr>
<tr>
<td>Years as GP</td>
<td>19.14 (9.52)</td>
<td>15.87 (10.31)</td>
<td>14.46 (7.67)</td>
<td>1.662</td>
<td>0.194</td>
</tr>
<tr>
<td>DAQ: Antidepressants vs Psychotherapy</td>
<td>4.56 (1.16)</td>
<td>4.11 (1.07)</td>
<td>4.51 (0.97)</td>
<td>2.558</td>
<td>0.082</td>
</tr>
<tr>
<td>DAQ: Identification of depression</td>
<td>4.39 (2.05)</td>
<td>3.82 (1.66)</td>
<td>4.17 (1.51)</td>
<td>1.173</td>
<td>0.313</td>
</tr>
<tr>
<td>DAQ: Professional Unease</td>
<td>4.75 (2.25)</td>
<td>4 (1.75)</td>
<td>4 (1.88)</td>
<td>0.822</td>
<td>0.663</td>
</tr>
<tr>
<td>DAQ: Inevitable course of depression</td>
<td>2.5 (1.75)</td>
<td>2.75 (1.12)</td>
<td>2.75 (1.88)</td>
<td>0.126</td>
<td>0.939</td>
</tr>
<tr>
<td>Anxiety: Medication vs Psychotherapy</td>
<td>3.33 (1.5)</td>
<td>3.25 (1.33)</td>
<td>3.33 (1.58)</td>
<td>0.543</td>
<td>0.762</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>14 (20)</td>
<td>38 (54)</td>
<td>18 (26)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>8 (14)</td>
<td>32 (54)</td>
<td>19 (32)</td>
<td>0.864</td>
<td>0.649</td>
</tr>
<tr>
<td>PCT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 1</td>
<td>5 (12)</td>
<td>26 (60)</td>
<td>12 (28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 2</td>
<td>3 (17)</td>
<td>6 (33)</td>
<td>9 (50)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 3</td>
<td>7 (47)</td>
<td>6 (40)</td>
<td>2 (13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 4</td>
<td>3 (30)</td>
<td>6 (60)</td>
<td>1 (10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 5</td>
<td>1 (14.3)</td>
<td>5 (71.4)</td>
<td>1 (14.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 7</td>
<td>1 (6)</td>
<td>7 (44)</td>
<td>8 (50)</td>
<td>18.115</td>
<td>0.035</td>
</tr>
</tbody>
</table>
### Table 6: Ordinal regression model of ‘guideline agreement’ following backwards stepwise elimination of non-significant variables

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>SE</th>
<th>Wald statistic</th>
<th>p</th>
<th>EXP(β) (odds ratio)</th>
<th>95% Confidence Interval of EXP(β)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.044</td>
<td>.020</td>
<td>4.729</td>
<td>.030</td>
<td>0.957</td>
<td>0.919-0.996</td>
</tr>
<tr>
<td>PCT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 1</td>
<td>-.995</td>
<td>.583</td>
<td>2.918</td>
<td>.088</td>
<td>0.370</td>
<td>0.118-1.158</td>
</tr>
<tr>
<td>PCT 2</td>
<td>-.446</td>
<td>.697</td>
<td>.408</td>
<td>.523</td>
<td>0.640</td>
<td>0.163-2.513</td>
</tr>
<tr>
<td>PCT 3</td>
<td>-2.357</td>
<td>.743</td>
<td>10.068</td>
<td>.002</td>
<td>0.095</td>
<td>0.022-0.406</td>
</tr>
<tr>
<td>PCT 4</td>
<td>-2.024</td>
<td>.813</td>
<td>6.202</td>
<td>.013</td>
<td>0.132</td>
<td>0.027-0.650</td>
</tr>
<tr>
<td>PCT 5</td>
<td>-1.008</td>
<td>.904</td>
<td>1.243</td>
<td>.265</td>
<td>0.365</td>
<td>0.062-2.148</td>
</tr>
</tbody>
</table>

b. Calculated by hand (=EXP(β), [52]) Indicates the proportional odds of ‘high’ category versus ‘low’ and ‘mid’ with a one unit increase in the predictor variable (or in presence of categorical predictor variable) [52].

Significant predictors are highlighted in bold.

Link function: Logit.

Test of parallel lines non significant ($\chi^2$ =4.85, p = .567) therefore slope function assumed to be equal across categories.

Pseudo R² statistics: Cox and Snell: .171, Nagelkerke: .196, McFadden: .092

Model-fitting information: the model represents a significantly better fit than that with all coefficients set to 0 ($\chi^2$ =20.01, p = .003).

**Individual Questionnaire Items**

The low Chronbach’s Alpha statistics of the DAQ subscales raised concerns about the reliability of the factor structure of the questionnaire². Therefore additional post hoc correlation analyses were used to examine the association of individual DAQ items and responses to the ‘Depression’ vignette, overall referral likelihood and guideline agreement (Appendix 19).

None of the DAQ items were significantly correlated with either responses to the ‘depression’ vignette or overall referral likelihood. Two items (*It is possible to distinguish two main groups of depression: one psychological in origin and the other

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² Due to the low Alpha coefficients of the subscales, a principle component analysis was conducted on the current data. This failed to identify a more meaningful factor structure (Appendix 18)
caused by biochemical mechanisms’ and ‘Becoming depressed is a way that people with poor stamina deal with life difficulties’) were negatively correlated with guideline agreement at the .05 significance level ($r_s = -.20, p = .025$ and $r_s = -.19, p = .037$ respectively). However, neither correlation remained significant after adjusting the significance level to $p < .0025$ (Bonferroni correction, .05/20) to allow for multiple correlations.

Similarly, the items making up the subscale ‘Anxiety: Medication vs psychotherapy’ were compared with referral likelihood responses to the ‘Panic’ vignette. (Appendix 20) One item; ‘An underlying biological abnormality is at the basis of severe anxiety disorders’ was significantly correlated with referral of the ‘panic vignette’ ($r_s = .20, p = .020$), at the 0.05 significance level, although this did not reach significance after Bonferroni correction of the significance level to $p < .008$ (.05/6).

**Discussion**

**Main findings**

In line with previous qualitative findings [13,14,16,29], GPs in the study reported considering a range of relevant factors in their decision to refer to a PCMHs, including patient preference, severity of the problem, waiting times, the ‘normality’ of the problem, effectiveness of psychological therapy and their ability to treat the patient in their referral decisions. Other factors mentioned less frequently were the success of initial treatment options, guidelines and referral criteria, and what had worked before for the patient. Differences were observed in the considerations of GPs across different presenting problems, for example ‘patient preference’ appeared to be
considered less in the ‘psychosis’ vignette, and effectiveness of the service was most frequently mentioned for ‘panic’.

Many GPs considered alternative or ancillary treatments in line with relevant guidelines (e.g. offering advice, reviewing, referral to secondary care) [6,7]. Some responses suggested possible confusion as to the role of the PCMHT, for example GPs reporting a need to refer to secondary care but reporting a high likelihood of referral to the PCMHS.

The hypothesis that positive attitudes towards psychological therapy would be associated with increased referral for anxiety and depression was not supported; scores on these subscales were not associated with referral likelihood. This is in contrast to previous qualitative findings [14,29]. The hypothesis that low self-efficacy in treating depression will be associated with increased referral for depression was also rejected, as no correlation was found between ‘professional unease’ in managing depression and likelihood of referral for depression. This fails to replicate previous results [15,16].

The hypothesis that positive attitudes towards psychological therapy will be significantly associated with positive evaluation of the IAPT initiative was supported, as GPs reporting more positive views of psychological therapy were more likely to endorse IAPT as ‘worthwhile’.

Following multivariate analysis including demographic and psychological variables, only GP age (younger) emerged as a significant predictor of increased intention to
refer, both overall and specifically for ‘depression’. This replicates previous findings to some extent [19], although previous research has been contradictory on the effect of age on referral practices [15]. Additionally, although not entered into the multiple regression model due to multicollinearity, ‘years as GP’ was found to be negatively correlated with referral, supporting previous findings that GPs with more experience may be less likely to refer [20]. Although female GPs appeared more likely to refer overall in univariate analysis, gender did not emerge as a significant independent predictor of referral, supporting previous findings that gender may not be associated with referral after controlling for other variables [15].

GP age (older) and being based in two specific PCTs was predictive of lower ‘guideline agreement’. The variable ‘years as GP’ was not significantly associated with guideline agreement.

Therefore, none of the psychological variables were found to be predictive of referral likelihood, or guideline agreement. Although reported qualitatively by GPs as a consideration, the rejection of the quantitative hypothesis that GP beliefs about psychological therapy would impact on their intention to refer appears to be in contrast with the TPB model.

The findings may be explained to some extent by qualitative reports from participants that despite feeling that the patient may benefit from psychological therapy, they are deterred from referring due to long waiting lists. A number also commented that they would use alternative treatments for this reason. This replicates previous findings that
GPs may be deterred from referring due to concerns about access to services and long waiting times [13,14,15].

Within a TPB framework, this could be understood in terms of the effect of the ‘actual control’ element of perceived behavioural control on referral intention, as an individual is unlikely to engage in a behaviour if they believe that they will be unable to achieve the intended result [44]. Therefore if a GP feels unable to access timely services, their attitudes to psychological therapy may have less of an impact on their referral decision, with perceived behavioural control playing a more important role.

This could also explain the lack of a quantitative association between professional unease and referral. GPs perceived behavioural control in terms of being able to access services may have outweighed the importance of their perceived self efficacy in managing the case themselves (i.e. not referring), although GPs ability to manage the case themselves was discussed qualitatively as a consideration.

It could be argued, therefore, that a TPB explanation of determinants of a single, clearly defined behaviour (i.e. referring) oversimplifies the concept of referral behaviour. The component of perceived behavioural control may impact on referral behaviour in different ways depending on whether the specific behaviour in question is making a referral, or managing the patient independently; behaviours which impact on each other. In support of this, a previous study reported that GPs described multiple influences on their ‘evidence based behaviours’, including their interaction with other behavioural goals [45].
Limitations

The findings of this study should be considered alongside a number of methodological limitations. The wide ranging recruitment strategy did not allow for a response rate to be calculated, therefore the impact of response bias cannot be estimated. GPs with an interest in mental health may have been more likely to participate, leading to an unrepresentative sample. Additionally, to control for patient effects, the vignettes were limited to male professionals with an age range of 36 to 42. Therefore the results should be generalised across other populations with caution. The study is also limited by not controlling for factors related to waiting times and access to services, which are reported to impact on referral decisions both qualitatively in this study and in previous research [15].

The use of fictional case vignettes to represent actual referral behaviour could have limited ecological validity. This is in line with TPB, however, which suggests a ‘predictable’ relationship between intention and actual behaviour [25]. This proposal is supported by a review of evidence from studies of clinician behaviour [46]. Case vignettes are commonly used as a proxy measure of clinician behaviour [19], and are supported by evidence to suggest their predictive validity [47,48].

The ‘guideline agreement’ measure was calculated on the assumption that responses in agreement with guidelines would be at the extreme end of the scale (‘would definitely refer’ or ‘would not refer’, depending on the vignette). This does not allow for the influence of patient choice or further assessment in the referral decision and therefore may have oversimplified this issue. Additionally, it is possible that variation
referral procedures across services may mean that different referral practices between GPs are expected, and therefore appropriate.

The low internal consistency statistics of the DAQ subscales limit their reliability, suggesting that the hypothesis that these psychological factors would be related to referral practices may have been rejected falsely. This may in part be due to the low number of items within some subscales. However, the finding that individual questionnaire items, some of which had high face validity in terms of attitudes towards psychological therapy, did not appear to be significantly associated with referral likelihood or guideline agreement, supports this conclusion.

Clinical implications

The qualitative finding that many GPs valued psychological therapy but viewed access as a barrier to referral suggests that despite improvements in access, this remains an important issue to be addressed. Further investment may be needed to reduce waiting times to a level that GPs feel is manageable for their patients.

However, this finding may in part be explained by the historical difficulty in accessing mental health services, as GPs are likely to base their expectations on their prior experiences of referring patients. Therefore, it may be beneficial for services to ensure that all GPs are aware of improvements to access. Similarly, the apparent discrepancy between the qualitative comments and likelihood of referral suggested some confusion as to the remit of the PCMHS. Services may benefit from closer collaboration with GPs in order to ensure transparency of their referral pathways and
acceptance criteria, in order to provide GPs with the information to be able to make appropriate referrals according to their clinical judgement.

The finding that patient preference appeared to be considered less in the ‘psychosis’ vignette raises the possibility that patients with more severe mental health conditions may be given less choice in their treatment. This is in contrast with Department of Health standards on the importance of patient choice across health populations [49], and may therefore represent an area to target for improvement.

The finding that older GPs appeared to make less referrals, and refer with less guideline agreement suggests that this may be a group for interventions to target. However, attitudes towards psychological therapy and self-efficacy in treating depression did not appear to be related to referral practices. This suggests that interventions targeting these aspects of GPs cognitions (for example improving GPs’ perceptions of psychological therapy) may not be effective in impacting on referral practices.

The significant predictive effect of being in certain PCTs on ‘guideline agreement’ suggests that there may be differences across locations in who is referred to the PCMHS. This may reflect the reported differences in structure, referral criteria and resources across IAPT services [50]. Further service development and evaluation work may be useful in identifying ways to increase the equity of access to the service across locations.

Services may be interested in the finding that GPs referral rates may not be an appropriate way to approximate their beliefs about psychological therapy, as GPs who refer most frequently may not necessarily be those with the most positive attitudes
towards psychological therapy. GPs views on psychological therapy were, however, associated with their evaluation of IAPT services as a worthwhile use of resources. This provides tentative evidence that these attitudes may be used to predict which GPs might be more likely to commission psychological therapy services.

Research implications

In order to verify that the results described in response to case vignettes are representative of actual referral behaviour it would be important to investigate whether the findings are replicated in a naturalistic study, with data on GPs actual clinical practice.

The poor psychometric properties of the DAQ and lack of alternative measures suggest that research in this area would benefit from the development of more reliable measures of GP attitudes towards the treatment of depression, along with similar measures for other mental health conditions.

The predictive models resulting from this study, both for referral likelihood and ‘guideline agreement’, explained small proportions of the variance observed, suggesting that other determinants of GPs referral behaviour may not have been identified. Further studies in this area would benefit from taking into account organisational factors such as waiting times to explore whether these factors may account for some of the unexplained variance. Additionally, a number of other factors have been reported to impact on GPs’ referral decisions, such as the doctor-patient relationship [14] and the emotional ‘burden’ of treating patients with mental health
conditions [16]. These factors would benefit from further exploration specifically within the context of referrals for psychological therapy.

Finally, given the limitations discussed above of the use of TPB, further research is needed to explore the potential utility of other psychological theories in explaining GP referral behaviour. Frameworks which consider the influence of multiple goals, such as Perceptual Control Theory [51], may be a useful starting point.

Conclusions

The findings of the current study suggest that GPs consider a range of factors when deciding whether to refer patients to a PCMHS, and these considerations may vary depending on the presenting problem. GPs frequently reported positive views of psychological therapy and the IAPT initiative, although reported frustration at waiting times leading to a lower likelihood of referral.

The lack of a predictive effect of GP self-efficacy and attitudes to psychological therapy, and the range of considerations reported by GPs in their referral decisions suggest that the TPB may not allow enough complexity to adequately explain the phenomenon of GP referral behaviour. Further research is needed to replicate these findings in actual clinical behaviour, and to explore if alternative psychological theories would have more utility in informing interventions aimed at clinicians’ referring behaviour.
Paper 2 references


Paper 3

Critical Evaluation

Word Count: 6677
**Introduction**

The overall aim of this thesis was to explore the relationship between General Practitioner (GP) variables and referrals to mental health specialists, with particular emphasis on referrals for psychological therapy. This is a change to the original primary aim, as discussed below. Since the onset of the work, the Health and Social Care Bill (Department of Health, 2011a) has been made law by parliament. This bill proposes a restructuring of health services in England, notably placing increased responsibility on GPs to decide which services should be commissioned to meet the needs of their patients. Therefore GPs’ attitudes towards, and referrals for, psychological therapy is likely to be of increased relevance and interest to those developing and providing such services.

This paper will discuss and critically evaluate the methodology and conclusions of the preceding literature review and empirical paper. Changes from the original research plan will be explained and discussed. The strengths and weaknesses of the overall methodological approach will be considered, in addition to implications for theory, practice and further research.

**Summary and theoretical interpretation of main findings**

The literature review identified studies which have explored GP and/or service level determinants of referrals to mental health specialists. Four key constructs were identified. These were the GP’s perceived ‘capacity to help’, ‘time constraints’ on GPs’ ability to work with such patients, GPs’ perceived ‘access to services’ and the level of ‘consultation/liaison’ between general practices and specialist teams.

The empirical paper employed a cross sectional vignette design to explore the determinants of GP referrals specifically to Primary Care Mental Health Services (PCMHS) under the Improving Access to Psychological Therapies (IAPT) initiative. Qualitative reports suggested a range of considerations in GPs’ referral decision, including patient preference, severity of the problem and perceptions of the effectiveness of the service. These findings are broadly in line with the findings of the qualitative studies reviewed. In line with the conclusions of the literature review, GPs also qualitatively reported frustration with not feeling able to access services quickly enough, and described seeking alternative treatment options as a result. Alternative
treatment options included signposting to other services, providing advice and support, medication and keeping the patient under review.

Quantitative results suggested that younger GPs were more likely to refer to a PCMHS, and more likely to refer in agreement with clinical guidelines. This is in contrast to the mixed findings on GP age from the literature reviewed. GPs in certain trusts were also more likely to refer in agreement with guidelines. None of the GP attitudes measured (including professional unease with depression) were associated with referral likelihood.

The main difference observed in the findings of the two papers was the lack of replication of the quantitative impact of the construct of ‘self efficacy’ on referral rates. Additionally, the qualitative support for an impact of ‘perception of specialists’ from the literature was not supported quantitatively by the empirical study. Based on GPs’ qualitative reports in the empirical study, this may be due to the overriding influence of practical issues (namely access to services) on referral. However, differences in the findings could also be explained by methodological differences between the studies reviewed and present empirical study, and/or the fact that the review included referrals to all specialists, whereas the empirical study focused solely on referrals to a PCMHS.

The utility of the Theory of Planned Behaviour (TPB; Ajzen, 1985) in explaining these results is discussed in each paper. The theory appears to have some utility in explaining the findings, particularly those of the literature review. For example, the support for a construct related to self-efficacy in the literature (‘capacity to help’) supports the component of perceived behavioural control. However, a central component of the TPB is the argument that there is a direct predictive relationship between intention and behaviour (Ajzen, 1985). The discrepancies observed between qualitative and quantitative findings in both the literature review and empirical paper could be understood in terms of differences between GPs self reported influences on their intention to refer, and quantitative determinants of actual referral behaviour. This suggests that GP referral behaviour may not be directly predictable based on intentions. Additionally, the finding that psychological factors, including subscales intended to map onto ‘perceived behavioural control’ and ‘attitudes towards the
behaviour’, did not predict referral in the empirical study appears to suggest limited support for the model in terms of predicting referral behaviour. This is discussed in terms of the apparent overriding influence of practical factors such as waiting times and access to services.

**Evaluation of literature review**

*Selection of studies*

Due to the small amount of research conducted in the area, the review included studies considering referral to any specialist, across a range of countries and service contexts. However, some of the studies reviewed suggested that different factors may be associated with referrals across service contexts. For example, reports of the effect of on-site mental health worker collaboration on referral rates appeared to be inconsistent and contradictory. This finding, replicating those of an earlier systematic review (Bower & Sibbald, 2000), may be the result of individual differences in how these collaborations work, the relationships formed in each practice, and referral pathways in different localities. Therefore the application of the overall conclusions of the review to a particular service context, such as psychological therapy provision in the UK, should be carried out with caution.

*Quality assessment*

The review was strengthened by the systematic quality assessment of studies using previously published rating scales. It is noticeable, however, that all of the six qualitative studies were rated as of ‘acceptable quality’, while only five of ten quantitative studies met these criteria. This may have been because different quality assessment tools were used to score the studies, potentially leading to inequality in the standards required to be considered of ‘acceptable quality’ across qualitative and quantitative studies. A single quality assessment tool designed to be used across different methodologies (e.g. Pluye, Gagnon, Griffiths and Johnson-Lafleur, 2006) may have been more appropriate.

Quality assessment was carried out by one rater. Due to the subjectivity of these ratings, it would have been beneficial to use a second rater to verify their reliability. Although all studies were included in the review regardless of quality score, quality
assessment scores impacted on the conclusions of the review, which took into account whether each construct was supported by studies of ‘acceptable quality’.

**Synthesis and interpretation of results**

The validity of the constructs and second order concepts identified were strengthened by verification from a second researcher. However, it could be argued that this is a subjective procedure and some overlapping constructs, such as ‘capacity to help’ and ‘special interest’, may have been collapsed into the same construct by a different researcher.

The conclusions of the review were based around the constructs which had the most ‘acceptable quality’ support from the literature. This attached less value to factors with less evidence from the reviewed literature. Some of these factors may have been of high clinical importance and had support from earlier literature. For example, the construct related to the importance of the doctor-patient relationship was the least supported in the studies reviewed, identified in only one study (Knight, 2003). However, it is supported by earlier research suggesting that referrals to mental health specialists occur when the GP reports a deterioration in the relationship (Morgan, 1989).

**Evaluation of empirical paper**

*Change to design*

The original primary aim of the empirical study was to examine the impact of GPs’ attitudes towards mental health and psychological therapy on patients’ initial PCMHS appointment attendance. This was part of a wider study employing a patient questionnaire at the point of referral to explore the relationship between patient factors and initial attendance rates (Murphy, Mansell, Craven & McEvoy, unpublished manuscript).

The initial study design aimed to recruit 12-15 GP practices from one Primary Care Trust (PCT). GPs from these practices would then be asked to participate by completing the questionnaire described in the empirical paper and giving consent for data on the attendance of the patients they referred to the PCMHS to be collected. Based on power calculations for the primary analysis (Generalised Estimating
Equations, patient attendance/non attendance as the outcome, attitude scales as predictors) it was estimated that a minimum of 40 GPs referring 360 patients would be required in order for the study to have 80% power to detect effect sizes of between 0.3 and 0.35 on the attitude scales. It was hypothesised that GPs’ attitudes towards psychological therapy would be predictive of patients’ likelihood of attending their initial appointment.

This was based on previous research suggesting that such attitudes can impact on clinical communication (e.g. Cape, Morris, Burd & Buszewicz, 2008), which may then affect patients’ beliefs and expectations about psychological therapy. Further exploratory research questions would explore whether any other GP attitude subscales or demographic factors were predictive of patient attendance. In conjunction with a small number of GPs and Psychological Wellbeing Practitioners (PWPs), additional subscales were developed based around ‘patient choice’ and ‘explanation of psychological therapy’. These questions were developed according to the Loss of Valued Control (LVC) model (Schauman & Mansell, 2012) of nonattendance at therapy, which is based on principles of Perceptual Control Theory (Powers, 1973). According to the model, factors such as fear of stigma, fears around treatment, and external pressure to seek help contribute to ambivalence about therapy due to a ‘loss of valued control’. The initial study design aimed to explore whether the GPs’ explanation of the process of therapy, and the extent to which the patient feels that it is their choice to be referred, would impact on patient attendance through these mechanisms.

This design proved difficult to implement in the time available, due to difficulty recruiting enough GP practices to take part in the overall study, and GPs within these practices to complete questionnaires. After an initial period of five months of recruitment (May to October 2011), eight GPs from three practices had been recruited. The difficulty in recruiting GPs to participate in research has been well documented (e.g. Bonevski, Magin, Horton, Foster & Girgis, 2011), reportedly due to the competing demands on the time of busy clinicians (Kellerman & Herold, 2001). This was experienced in the process of attempting to recruit GP practices through practice managers, who frequently described GPs and practices as being overstretched.
and not having the time or resources to engage in research requests. This difficulty, although expected to some extent, had been underestimated in the design stage.

The decision was therefore taken to change the design of the study to that described in the empirical paper, focusing on predictors of clinician referral behaviour. GPs’ responses to vignettes, which had been the focus of secondary hypotheses in the original design, became the primary outcome variable and the study was widened to allow anonymous online completion in order to increase the sample size. Following the change in design discussed above, the TPB was the primary theoretical framework under consideration. Support for this model in terms of predicting clinician behaviour has been identified in previous literature (Godin, Belanger-Gravel, Eccles, & Grimshaw, 2008).

This change meant that the final sample included GPs who had completed the paper and online versions of the questionnaire. GPs completing the paper questionnaire as part of the original study design were asked to give their names and consent for data on their patients’ attendance to be collected. In contrast, online completion was anonymous. Therefore there may have been differences in who responded and in the nature of these responses. This was addressed to some extent by the comparison of the two samples on age, gender and overall referral likelihood. The lack of significant differences in these variables suggests tentative evidence that the two samples were similar in demographics and responses.

A further limitation of the change in design is that the questionnaire was retained in its original form to ensure consistency. Therefore, subscales specifically related to the attendance hypotheses were included in the data but not analysed, as the hypotheses and research questions being answered in the new empirical design did not require them. It could be considered unethical that GPs spent time providing responses that would not be used. An alternative design, if time had allowed, would have been to use the data from the paper questionnaires as ‘pilot data’ on which to evaluate the questionnaire, and then redesign the questionnaire for the online study, treating this as a separate sample.
A further qualitative element was planned, involving conducting semi-structured interviews with a small number of GPs and analysing this data using Interpretive Phenomenological Analysis. This was planned to be undertaken alongside the questionnaire component, but was not conducted as it was felt that following the change to the design of the study it would not be possible to analyse both sets of data in sufficient detail within the time frame available. In retrospect, this may have been an overly ambitious design given the time available.

Recruitment

Due to the difficulties described above, a wide ranging recruitment strategy was used to ensure that sufficient numbers of GPs were recruited. This meant that the sample included GPs working within differing PCTs, with the potential for different referral procedures. This may have particularly impacted on the ‘guideline agreement’ measure, which was reliant on an assessment of which vignettes were ‘suitable’ for referral. Although only trusts where PCMHS were in partnership with the IAPT initiative were included, services may still vary in both the type of intervention offered (e.g. counselling and group interventions in addition to individual psychological therapy), and referral acceptance criteria (Clark et al., 2009). In addition, some services are known by different names, which may have caused confusion. For example, the PCMHS in one participating PCT underwent significant service development during the data collection period and was subsequently renamed. If the study were to be replicated, it would benefit from more careful consideration of the potential effects of such differences on ‘referral likelihood’ responses.

As the questionnaire was disseminated across nine different trusts, using different procedures (e.g. email to practice managers, email directly to GPs, inclusion in electronic newsletter), it was not possible to calculate a response rate. It is likely, however, that significantly more GPs were invited than the number actually participating. Although research has suggested that response bias may be less of a concern in medical professionals (Kellerman & Herold, 2001), it is possible that GPs with a greater interest in mental health and/or research were more likely to take part in the study. The finding that the sample was not significantly different to the general GP population in age or gender is encouraging, but does not rule out the possibility of response bias in terms of attitudes and interest.
The final sample size of 132 GPs was within the range predicted to be sufficient according to the rule of thumb of 10-15 cases per predictor for the primary multiple regression analyses suggested by the trust statistician. However, the recent literature has suggested that more complex power calculations taking into account expected effect size may be more appropriate in planning multiple regression analyses (Field, 2009). This may have provided a more accurate assessment of the probability of type II error. However, due to the lack of similar studies, it may have been difficult to estimate an effect size prior to the study being carried out.

**Measures**

**DAQ**

The Depression Attitudes Questionnaire (DAQ, Botega, Blizard, Wilkinson & Mann, 1992) was used to assess GPs attitudes and beliefs about depression and its treatment. In addition, an extra subscale was created to measure GPs views about the treatment of anxiety by adapting the questionnaire items making up the ‘Antidepressants vs psychotherapy’ subscale.

The low Chronbach’s Alpha statistics for each of the subscales suggests poor internal consistency. Therefore the extent to which the items within each subscale were measuring the same overall concept could be questioned. This led to consideration of whether the DAQ was the most appropriate measure to use for this purpose, as previous studies have suggested concerns about the factor structure, with some conducting additional factor analysis (e.g. Ross, Moffat, McConnachie, Gordon & Wilson, 1999). However, previous studies using the DAQ have largely failed to report Alpha values for the subscales (Haddad et al., 2012). Therefore although some concerns about the subscales had been suggested, the low internal consistency could not have been predicted before the data was collected.

The age of this measure may also represent a limitation in the context of a rapidly changing healthcare system, in that it was first published in 1992. However, in the absence of alternative measures of clinician attitudes towards mental health, the DAQ was selected despite these limitations. This decision is supported by its wide use in the literature on clinician attitudes (Haddad et al., 2012).
Due to the poor internal consistency of the subscales, post hoc analyses were conducted, exploring correlations between the individual items of the questionnaire and overall referral, referral of the ‘depression’ vignette and referral guideline agreement. A number of these items appeared to have high face validity in terms of measuring attitudes towards psychological therapy. The finding that none of these correlations were significant after correcting for multiple comparisons supports the rejection of the hypothesis that positive attitudes towards psychological therapy would be associated with increased referral likelihood. Additionally, the finding that both of the subscales relating to attitudes to psychological therapy were significantly associated with endorsement of IAPT in the expected direction suggests some predictive validity of these subscales.

Since the onset of the empirical study, a meta-analysis examining the factor structure of the DAQ has been published (Haddad et al., 2012). This study proposed that the DAQ should be revised. A large scale evaluation of a revised version is currently underway (Haddad, personal communication, 2012). It was therefore felt that given the imminent production of a revised version, focusing the empirical paper on in depth analysis of the psychometric properties and most appropriate factor structure of the original DAQ would not add significantly to the field.

The questionnaire included subscales targeted towards two of the three main components of TPB (‘perceived behavioural control’ and ‘attitudes towards the behaviour’), meaning that the ‘subjective norm’ component was not considered. This represents a limitation, as Francis et al.’ (2004) handbook for researchers designing TPB based questionnaires recommends that all three components are included.

These subscales were identified based on their apparent similarity to the TPB components. However, Francis et al. (2004) recommend a number of stages in questionnaire design in studies based on TPB. This includes an ‘elicitation study’, where themes are identified based on each of the three components from participants from the target population. Questionnaire items are then developed based on these themes. Future studies would benefit from a more thorough questionnaire development process.
Vignettes
As discussed in the empirical paper, the use of vignettes to represent actual clinical practice may have limited ecological validity. Due to the difficulty in obtaining actual clinical data described above, the use of fictional vignettes became unavoidable in the new design, but replicating the results with actual clinical data should be a priority for future research.

The use of vignettes as a proxy measure of clinical behaviour is recommended by Francis et al. (2004). However, although evidence exists to suggest that responses to case vignettes are predictive of actual clinical behaviour (Hooper et al., 2008), the lack of actual clinical data means that the results should be generalised to actual behaviour with caution. For example, some GPs qualitatively stated that in reality they would explore the problem further before making a decision on referral. The use of short factual vignettes may have therefore oversimplified the issue of referral, as in reality a number of factors would impact on GPs’ clinical opinion. However, the length of the vignettes was in line with the guidelines of Francis et al. (2004), who suggested vignettes of 80-100 words. Longer vignettes would need to have been balanced with the risk of deterring busy clinicians from participating.

A number of GPs stated that patient preference would play an important part in their referral decision, in line with current clinical guidelines (Department of Health, 2011b). To minimise the impact of this unknown factor on GPs responses, it would have been more appropriate to ask GPs how likely they would be to ‘offer’ a referral, rather than how likely they would be to refer. The ‘guideline agreement’ variable was calculated on the assumption that selection at the expected extreme of the referral likelihood question for each vignette would indicate the highest guideline agreement. This may not necessarily have been the case, as GPs may not have reported ‘would definitely refer’ (scoring 10) for cases that ‘meet criteria’, as the referral decision would take into account the factors described above. However, this limitation may be counteracted somewhat by the transformation of the variable into 3 ordered categories rather than a continuous scale, meaning that differences at the extreme ends of the scale may not have been as influential.
All of the vignettes described male professionals of a similar age. This has the advantage of controlling for patient demographic factors. However, the results may be limited in their applicability across the range of patient demographic factors. This is illustrated by one GP who commented that ‘some middle aged blokes have an aversion to talking therapies’, suggesting a possible influence of the patients’ gender and age on responses. Additionally, the ‘referral likelihood’ responses for each vignette do not take into account the GP’s ability to recognise the presenting problem. Future research could invite GPs to note their clinical impressions or diagnoses, in order to separate diagnostic ability from the GPs’ referral behaviour after identifying a presenting problem.

Data analysis
The coding of qualitative data was strengthened by the use of a second coder to pilot the coding frame to verify its fit with a sample of the data (Schreier, 2012). The reliability of the coding frame over time was also assessed. Ideally, it would have been beneficial to use a second coder in order to obtain a measure of ‘inter-rater reliability’, which is described as the ‘primary’ measure of reliability (Rourke, Anderson, Garrison, & Archer, 2001).

The nature of the qualitative analysis used to explore GPs’ comments produced numerical results (percentages of comments mentioning each subcategory) that could theoretically have been analysed using quantitative statistical analysis. For example, chi squared analysis could have been used to explore the statistical significance of the difference found in the number of GPs mentioning ‘patient preference’ across each vignette.

However, as Rourke and Anderson (2004) argue, this method of analysis may be appropriate when an objective coding frame has been used to count the frequency of certain words (e.g. a summative content analysis, Hseie & Shannon, 2005) but is likely to be less valid with qualitative data that has been analysed using interpretive themes. This is because the process of coding the data was carried out subjectively, using inference to generate categories to best describe the data. It is therefore argued that a statistical analysis based on the frequency of these codes would be
inappropriate. It was therefore decided that the qualitative data would not be analysed statistically.

The outcomes of referral likelihood of the ‘depression’ vignette, and referral guideline agreement showed significant deviations from a normal distribution. As both logarithmic and square root transformations did not produce normally distributed data, a multiple regression analysis was not deemed appropriate. It would have been beneficial to consider this scenario and plan for alternative statistical procedures in the research design stage, as the resulting analyses had the disadvantage of not being planned before data collection.

The option of transforming these outcomes into binary variables by splitting each into two groups (e.g. ‘high’ and ‘low’ referral likelihood for the depression vignette) was considered. However, it was felt that this would lose a significant amount of the variance within the data. After seeking statistical advice, the sample was instead split into three ordered categories (e.g. low, mid and high referral likelihood of the depression vignette), in order to allow ordinal regression analyses to be performed. This had the advantage of being able to take into account the ordered nature of the categories, in addition to maintaining more of the variance from the initial data.

A disadvantage of using this procedure is that ordinal regression is a less commonly used analysis, and the resulting odds ratios for each predictor variable require calculation by hand and are more complicated to interpret than in logistic regression. The results of these analyses may therefore be less recognisable to readers of the empirical paper. To attempt to address this issue, explanations of the meaning of the odds ratios quoted were included with the presentation of the model.

**Evaluation of overall approach**

*Theoretical approach*

The TPB was adopted as the primary theory to be examined in the findings after the change in design. It could be argued that the TPB oversimplifies the process of clinician decision making, as it seeks to predict a single isolated behaviour in a linear fashion. Researchers have argued that this does not allow for the impact of competing demands and conflicting goals on clinician behaviour (Presseau, Sniehotta, Francis &
Campbell, 2009). For example, the goal of making an appropriate referral may interact with and be impacted by a range of other goal directed behaviour, such as the desire to treat the patient independently, take patient preference into account and maintain the GPs’ own emotional wellbeing. All of these factors are supported qualitatively within the literature review and/or empirical study.

Future research may be required to explore clinician referral behaviour within a more comprehensive theoretical framework, allowing for the interaction of multiple goals on the performance of evidence-based behaviour. As stated in the empirical paper, Perceptual Control Theory may be a useful framework to consider for this purpose.

**Focus on clinician/service level factors**

Following the change to the design of the empirical paper discussed above, the focus of the thesis was on GP and service level factors influencing referral to specialist mental health services, and psychological therapy in particular. The research question for the literature review was chosen after the above changes in design, with this aim in mind.

With the exception of consideration of the presenting problem in the case vignettes in the empirical study, variables associated with the patient were not directly explored. This means that the conclusions of both the literature review and empirical paper are limited by the lack of consideration of patient factors found to be associated with likelihood of referral. Therefore, the findings of the review and empirical paper should be considered alongside established findings on the impact of patient demographic (e.g. Hyde et al., 2005; Cooper et al., 2010; Kendrick et al., 2009) and psychological (e.g. Lin et al., 2005; Walker, Haeney and Naik, 2005) variables.

A possible alternative design to incorporate patient variables in the empirical study would have been to vary the case vignettes, for example by age, gender or preference for psychological therapy. This would have allowed for direct exploration of the impact of these factors on referral, both independently and in their interaction with GP factors.
**Mixed methods approach**

A mixed methods approach was used throughout the literature review and empirical paper, describing data obtained using both qualitative and quantitative methods. A mixed methods approach to the literature review was selected due to the small body of literature on referrals to mental health services, within which both qualitative and quantitative studies appeared to be relevant. As a result of including both types of study, interesting differences were highlighted. For example, psychological factors such as GPs perceptions of specialists and the impact of ‘emotional burden’ on referral practices were identified in qualitative studies, but either not yet studied or not found to be significantly associated with referral in the quantitative literature. This was helpful in identifying areas for further research.

A mixed methods approach was selected for the empirical study to allow for comparison of qualitative reports of factors influencing referral with quantitative data on referral likelihood. This has the benefit of allowing for ‘triangulation’, in that results are strengthened if they are found through different methodologies (Johnson, Onwuegbuzie & Turner, 2007). This may be particularly useful in this area of research given the differences found between studies using different methodologies in the literature review. This allowed the quantitative findings that psychological factors did not appear to be predictive of referral to be directly compared with qualitative reports suggesting that such factors do play a part in the decision making process. This difference, within the same sample, could then be discussed in relation to the theoretical and practical context.

Although the ‘incompatibility thesis’ between the two methodologies is reportedly rarely held among modern researchers (Teddie & Tashakkori, 2003), experts in the field have raised concerns that the rigour of each independent methodology is ‘diluted’ when they are combined within the same study (Morse, 2003). Mixed methods research has been criticised on the grounds that it is not as transparent or replicable because methodology is often not as clearly defined as in single method studies (Maxwell and Loomis, 2003). Therefore effort was made to ensure that the stages of the research process were described in detail in the empirical paper, with qualitative and quantitative techniques clearly defined.
The use of both types of data meant that the empirical paper presented a large set of results, which may have meant that the conclusions from each set of data were less clear. In practical terms, this also led to a longer paper, which may be less accessible to the target audience of busy researchers and clinicians. Although presented as one paper for the purposes of the thesis, it may be that the results would have been more accessible if presented as two linked research papers. Depending on feedback after submission to the target journal, separating the findings into two papers may be considered. However, it is acknowledged that this would mean losing some of the benefits of considering the findings in parallel.

If more time had been available, an alternative design would have been to use the different methodologies in two stages, using the qualitative stage to inform the ‘development’ of further quantitative exploration (Greene, Caracelli & Graham, 1989). This would involve collecting in depth qualitative data from interviewing a small number of GPs and/or conducting GP focus groups. This data could then be used to generate hypotheses to be tested quantitatively, with questionnaire items determined by the qualitative data.

**Researcher bias**

Both the literature review and empirical paper had potential for researcher bias, both in formulation of hypotheses and interpretation of results. This may have been particularly relevant in the qualitative component of both papers, where subjective interpretations were used to organise the data into labelled constructs and factors.

The research focus was selected partly due to the primary author’s interests and previous experiences, particularly as a trainee clinical psychologist. For example, hearing clients’ experiences of consulting a GP about their mental health has led to a personal belief that the service received can vary. This may have led to a personal bias in the interpretation of results.

A number of measures were taken to attempt to reduce the potential impact of such bias, such as the informal involvement of other professionals (GPs and PWPs) in the design stage of the empirical study. A small number of GPs and PWPs commented on the suitability of the questionnaire and gave advice on recruitment. However, the
interpretation and presentation of the results was carried out primarily by the trainee clinical psychologist, and as such remained open to personal bias.

In order to limit bias, attempts were made to make the process as objective as possible. For example, clearly stating the stages and methodology used for the content analysis of GP comments, and using a data driven approach for this analysis. This aimed to ensure that previous knowledge and experience was not taken into account when coding the data. However, this remains a subjective process. Analysis of data for the empirical study was carried out after the literature review, and therefore the researcher may have been more primed to pick out evidence supporting the constructs previously identified. The empirical study benefitted from the use of a second coder to pilot the coding frame, although it could be argued that as the coding frame itself was developed individually, this remains a limitation.

Similarly, the second author of the literature review reviewed the constructs identified from the evidence. This reduces the risk of personal researcher bias in the findings, as they were agreed by two professionals. However, in both cases the second coder and reviewer were also from a clinical psychology background. Both studies may have benefitted from the involvement of different professionals, such as GPs, in the analysis and interpretation of the results in order to limit this potential bias.

**Clinical implications**

Across both studies, limited support was found for the suggestion that GPs’ referral decisions are significantly influenced by their perceptions of the effectiveness of the service. This may explain previous findings suggesting that interventions that are effective in changing GPs attitudes towards mental health treatment may not significantly affect actual clinical practice (McCall, Clarke, & Rowley, 2004). Therefore, interventions aimed at improving GPs’ perceptions and beliefs about the effectiveness of psychological therapy may not be effective in increasing appropriate referrals.

The ‘collaboration-liaison’ construct identified in the literature review suggests that services providing psychological therapy might benefit from increasing their level of communication and working relationships with GPs and GP practices. This may have
a positive impact on the number of suitable people referred to such services, and the appropriateness of such referrals, based on the benefits described by GPs of receiving feedback on referrals received.

Results from both studies suggested an influence of the availability of access to services on referral patterns. This suggests that further work on increasing resources and decreasing waiting times may be required within the IAPT initiative. This is supported by a recent report highlighting the continued need for increased resources in mental health provision (Centre for Economic Performance, Mental Health Policy Group, 2012). However, although timely access to services does remain an issue in many contexts, anecdotal reports from professionals working within IAPT services have suggested that GPs may not always be aware of recent improvements in access. GPs may be deterred from referring due to their historical experience of long waiting times, when in some cases they may be unaware that this has now improved. Services are therefore likely to benefit from ensuring that GPs are made aware of any changes in service provision and access.

The suggestion from the empirical paper that some GPs appeared unclear on the remit and referral criteria of the PCMHS and how to access services such as secondary care psychiatry also suggests that communication between services could be improved. Services may consider providing clearer information to GPs on the specific remit of the service and the appropriate referral pathways.

The finding that GPs within certain PCTs appeared to show less agreement with guidelines in their referral of vignettes suggests differences in who is referred to the PCMHS across trusts. This is in contrast with one of the key targets of the IAPT initiative; that of increasing the equity of access to services (Department of Health, 2011c). Although some of this variation may be due to individual differences among GPs, this may also reflect differences in acceptance criteria between IAPT services in different localities (Clark et al., 2009). Therefore, in the continuing development of the IAPT program, working closely with PCTs in order to ensure that acceptance criteria are as consistent as possible may be beneficial in improving equity of access between patients living in different locations.
The current findings may be relevant to providers of psychological therapy services in the context of the recently approved Health and Social Care Bill. In particular, neither study found quantitative support for an association between beliefs about effectiveness of psychological therapy and referral rates. This provides tentative evidence that GPs who currently refer the most frequently may not necessarily be those with the most positive views of psychological therapy. Therefore referral rates may not be a useful predictor of whether GPs are likely to commission services for their patient population. This could be understood in the context of GPs stating that they would be deterred from referring due to a lack of accessible services rather than negative views of the effectiveness of the service.

The empirical paper did, however, suggest that beliefs about the effectiveness of psychological therapy were associated with endorsement of the IAPT initiative as a worthwhile use of resources. Based on this finding, services may be encouraged to explore how their effectiveness is viewed by GPs, as this may impact on how likely GPs are to commission such services. However, at present these interpretations of the data remain speculative and should be explored through further research.

**Research implications**

The findings described in the empirical paper are based on fictional case vignettes, and future research is necessary to explore whether these results are replicated in an observational study of actual referrals. Additionally, the original aims and hypothesis of the research, related to the impact of GP clinical behaviour on patients’ attendance at initial appointments for psychological therapy, would still merit investigation. Research attempting to test these hypotheses in a real world setting would need to be appropriately resourced and allow sufficient time to recruit busy GP practices to participate in the research. Recruitment in such a study may benefit from considering ways to engage GP practices in the research, such as providing incentives.

A number of GPs in the empirical study specified the length of time that they would expect patients to wait for treatment through the PCMHS. However, no measure of actual waiting times was obtained. Further studies would benefit from exploring whether GPs perceptions of the waiting list time are accurately matched with the actual waiting times in their area.
The DAQ has a number of limitations. Research in the field would benefit from the development of a valid and reliable measure of clinician attitudes towards mental health. Although a large scale revision of the DAQ is currently underway, the field would benefit from the development of a similar measure incorporating other mental health conditions, such as anxiety disorders. This may be of particular importance as the findings of the empirical paper suggest differences in GPs’ views about the treatment of depression and anxiety.

Given the inconsistent support for guideline provision in improving clinical practice, the recommendations made above for providing clearer information on referral pathways would benefit from evaluation of their effectiveness. It may be worthwhile to explore whether providing such information has observable impact on clinical practice (e.g. improving the appropriateness of referrals). The method of providing this information would also merit investigation, for example studying whether this information is best provided in the form of formal training, written information or electronic communication. This may be particularly important given the reported conflicting demands on GPs’ time.

**Conclusions**

The combined findings of the two studies suggest a strong influence of practical and organisational factors, such as waiting times and communication between services, on GPs referral decisions. This has potential implications for service design and development. The conclusions of both studies suggest that the TPB may be limited in its ability to explain the full complexity of GP referral behaviour, and further research is necessary to identify a more comprehensive theoretical framework upon which effective interventions can be based.

Although the literature review and empirical study are subject to the described methodological limitations, both have identified useful starting points for further research. Evaluation of the process has identified aspects of both studies which could be improved if they were to be replicated, or if additional time and resources were available. This has been a useful learning process for the researcher and provides a
good grounding in the processes involved in service level research, which is likely to be practically useful post qualification.
Paper 3 references


Appendix 1. *Clinical Psychology Review* author guidelines
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*Clinical Psychology Review* publishes substantive reviews of topics germane to clinical psychology. Papers cover diverse issues including: psychopathology, psychotherapy, behavior therapy, cognition and cognitive therapies, behavioral medicine, community mental health, assessment, and child development. Papers should be cutting edge and advance the science and/or practice of clinical psychology.

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Appendix 2. Quality assessment scoring of quantitative studies
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<th>Study</th>
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<th>Appropriate selection of participants</th>
<th>Appropriate measurement of variables</th>
<th>Control of bias</th>
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Appendix 3. Quality assessment scoring of qualitative studies
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Preparing main manuscript text

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The Abstract of the manuscript should not exceed 350 words and must be structured into separate sections: **Background**, the context and purpose of the study; **Methods**, how the study was performed and statistical tests used; **Results**, the main findings; **Conclusions**, brief summary and potential implications. Please minimize the use of abbreviations and do not cite references in the abstract. **Trial registration**, if your research reports the results of a controlled health care intervention, please list your trial registry, along with the unique identifying number (e.g. **Trial registration**: Current Controlled Trials ISRCTN73824458). Please note that there should be no space between the letters and numbers of your trial registration number. We recommend manuscripts that report randomized controlled trials follow the [CONSORT extension for abstracts](#).

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This should state clearly the main conclusions of the research and give a clear explanation of their importance and relevance. Summary illustrations may be included.

Availability of supporting data

*Implementation Science* encourages authors to deposit the data set(s) supporting the results reported in submitted manuscripts in a publicly-accessible data repository, when it is not possible to publish them as additional files. This section should only be included when supporting data are available and must include the name of the repository and the permanent identifier or accession number and persistent hyperlink(s) for the data set(s). The following format is required:

"The data set(s) supporting the results of this article is(are) available in the [repository name] repository, [unique persistent identifier and hyperlink to dataset(s) in http:// format]."

Where all supporting data are included in the article or additional files the following format is required:

"The data set(s) supporting the results of this article is(are) included within the article (and its additional file(s))"

We also recommend that the data set(s) be cited, where appropriate in the manuscript, and included in the reference list.

A list of available scientific research data repositories can be found [here](#). A list of all BioMed Central journals that require or encourage this section to be included in research articles can be found [here](#).

List of abbreviations

If abbreviations are used in the text they should be defined in the text at first use, and a list of abbreviations can be provided, which should precede the competing interests and authors’ contributions.

Endnotes

Endnotes should be designated within the text using a superscript lowercase letter and all notes (along with their corresponding letter) should be included in the Endnotes section. Please format this section in a paragraph rather than a list.

References

All references, including URLs, must be numbered consecutively, in square brackets, in the order in which they are cited in the text, followed by any in tables or legends. Each reference must have an individual reference number. Please avoid excessive referencing. If automatic numbering systems are used, the reference numbers must be finalized and the bibliography must be fully formatted before submission.
Only articles, datasets and abstracts that have been published or are in press, or are available through public e-print/preprint servers, may be cited; unpublished abstracts, unpublished data and personal communications should not be included in the reference list, but may be included in the text and referred to as “unpublished observations” or “personal communications” giving the names of the involved researchers. Obtaining permission to quote personal communications and unpublished data from the cited colleagues is the responsibility of the author. Footnotes are not allowed, but endnotes are permitted. Journal abbreviations follow Index Medicus/MEDLINE. Citations in the reference list should include all named authors, up to the first 30 before adding ‘et al.’.

Any in press articles cited within the references and necessary for the reviewers’ assessment of the manuscript should be made available if requested by the editorial office.

Style files are available for use with popular bibliographic management software:

- BibTeX
- EndNote style file
- Reference Manager
- Zotero

Examples of the Implementation Science reference style are shown below. Please ensure that the reference style is followed precisely; if the references are not in the correct style they may have to be retyped and carefully proofread.

All web links and URLs, including links to the authors’ own websites, should be given a reference number and included in the reference list rather than within the text of the manuscript. They should be provided in full, including both the title of the site and the URL, in the following format: The Mouse Tumor Biology Database [http://tumor.informatics.jax.org/mtbwi/index.do]. If an author or group of authors can clearly be associated with a web link, such as for weblogs, then they should be included in the reference.

Examples of the Implementation Science reference style

Article within a journal

Article within a journal supplement

In press article

Published abstract

Article within conference proceedings
Preparing illustrations and figures

Illustrations should be provided as separate files, not embedded in the text file. Each figure should include a single illustration and should fit on a single page in portrait format. If a figure consists of separate parts, it is important that a single composite illustration file be submitted which contains all parts of the figure. There is no charge for the use of color figures.

Please read our figure preparation guidelines for detailed instructions on maximising the quality of your figures.

Formats
The following file formats can be accepted:

- PDF (preferred format for diagrams)
- DOCX/DOC (single page only)
- PPTX/PPT (single slide only)
- EPS
- PNG (preferred format for photos or images)
- TIFF
- JPEG
- BMP

**Figure legends**

The legends should be included in the main manuscript text file at the end of the document, rather than being a part of the figure file. For each figure, the following information should be provided: Figure number (in sequence, using Arabic numerals - i.e. Figure 1, 2, 3 etc); short title of figure (maximum 15 words); detailed legend, up to 300 words.

Please note that it is the responsibility of the author(s) to obtain permission from the copyright holder to reproduce figures or tables that have previously been published elsewhere.

**Preparing a personal cover page**

If you wish to do so, you may submit an image which, in the event of publication, will be used to create a cover page for the PDF version of your article. The cover page will also display the journal logo, article title and citation details. The image may either be a figure from your manuscript or another relevant image. You must have permission from the copyright to reproduce the image. Images that do not meet our requirements will not be used.

Images must be 300dpi and 155mm square (1831 x 1831 pixels for a raster image).

Allowable formats - EPS, PDF (for line drawings), PNG, TIFF (for photographs and screen dumps), JPEG, BMP, DOC, PPT, CDX, TGF (ISIS/Draw).

**Preparing tables**

Each table should be numbered and cited in sequence using Arabic numerals (i.e. Table 1, 2, 3 etc.). Tables should also have a title (above the table) that summarizes the whole table; it should be no longer than 15 words. Detailed legends may then follow, but they should be concise. Tables should always be cited in text in consecutive numerical order.

Smaller tables considered to be integral to the manuscript can be pasted into the end of the document text file, in A4 portrait or landscape format. These will be typeset and displayed in the final published form of the article. Such tables should be formatted using the 'Table object' in a word processing program to ensure that columns of data are kept aligned when the file is sent electronically for review; this will not always be the case if columns are generated by simply using tabs to separate text. Columns and rows of data should be made visibly distinct by ensuring that the borders of each cell display as black lines. Commas should not be used to indicate numerical values. Color and shading may not be used; parts of the table can be highlighted using symbols or bold text, the meaning of which should be explained in a table legend. Tables should not be embedded as figures or spreadsheet files.
Larger datasets or tables too wide for a landscape page can be uploaded separately as additional files. Additional files will not be displayed in the final, laid-out PDF of the article, but a link will be provided to the files as supplied by the author.

Tabular data provided as additional files can be uploaded as an Excel spreadsheet (.xls) or comma separated values (.csv). As with all files, please use the standard file extensions.

**Preparing additional files**

Although *Implementation Science* does not restrict the length and quantity of data included in an article, there may still be occasions where an author wishes to provide data sets, tables, movie files, or other information as additional files. Results that would otherwise be indicated as "data not shown" can and should be included as additional files. Since many weblinks and URLs rapidly become broken, *Implementation Science* requires that all supplementary data are included as additional files rather than as a link to your own website. These files can be uploaded using the 'Additional Material files' button in the manuscript submission tool.

The maximum file size for additional files is 20 MB each, and files will be virus-scanned on submission.

Additional files will be linked to the final published article in the form supplied by the author, but will not be displayed within the article. They will be made available in exactly the same form as originally provided by the authors.

If additional material is provided, please list the following information in a separate section of the manuscript text, immediately following the tables (if any):

- File name (e.g. Additional file 1)
- File format including the three-letter file extension (including name and a URL of an appropriate viewer if format is unusual)
- Title of data
- Description of data

Additional files should be named "Additional file 1" and so on and should be referenced explicitly by file name within the body of the article, e.g. 'An additional movie file shows this in more detail [see Additional file 1].'

**Style and language**

**General**

Currently, *Implementation Science* can only accept manuscripts written in English. Spelling should be US English or British English, but not a mixture.

There is no explicit limit on the length of articles submitted, but authors are encouraged to be concise. There is also no restriction on the number of figures, tables or additional files that can be included with each article online. Figures and tables should be numbered in the order in which they are referred to in the text. Authors should include all relevant supporting data with each article.

*Implementation Science* will not edit submitted manuscripts for style or language; reviewers may advise rejection of a manuscript if it is compromised by grammatical errors. Authors are advised to write clearly and simply, and to have their article checked by colleagues before
submission. In-house copyediting will be minimal. Non-native speakers of English may choose to make use of a copyediting service.

**Help and advice on scientific writing**

The abstract is one of the most important parts of a manuscript. For guidance, please visit our page on [Writing titles and abstracts for scientific articles](#).

Tim Albert has produced for BioMed Central a [list of tips](#) for writing a scientific manuscript. [American Scientist](#) also provides a list of resources for science writing.

**Abbreviations**

Abbreviations should be used as sparingly as possible. They should be defined when first used and a list of abbreviations can be provided following the main manuscript text.

**Typography**

- Please use double line spacing.
- Type the text unjustified, without hyphenating words at line breaks.
- Use hard returns only to end headings and paragraphs, not to rearrange lines.
- Capitalize only the first word, and proper nouns, in the title.
- All pages should be numbered.
- Use the *Implementation Science* [reference format](#).
- Footnotes are not allowed, but endnotes are permitted.
- Please do not format the text in multiple columns.
- Greek and other special characters may be included. If you are unable to reproduce a particular special character, please type out the name of the symbol in full. **Please ensure that all special characters used are embedded in the text, otherwise they will be lost during conversion to PDF.**

**Units**

SI units should be used throughout (liter and molar are permitted, however).
Appendix 5. GP Questionnaire
G.P. Attitudes Towards Mental Health Questionnaire

Your Name: ..........................  Your Age: ..........................  Sex: Male/Female  Year of gaining medical degree: ..........................
How many years have you been working as a general practitioner? ..........................

Please read the following descriptions of initial consultations and indicate a point on each line reflecting how likely you would be to refer each case to the Primary Care Mental Health Team, based on the limited information available. For example:

Would not refer ..........................  Would definitely refer ..........................

This response would indicate more likely to refer than not but some uncertainty
Feel free to make any comments (including alternative treatment options) on your thoughts on each case in the space below.

Businessman Mr A, 39, presents with a 3 month history of low mood, describing feelings of sadness, difficulty sleeping and lack of energy during the day. He reports difficulties at work due to poor concentration and says that he currently feels he ‘cannot cope’. He describes difficulties in his relationship with his wife, and states that they are contemplating a trial separation. Mr A has no significant physical or mental health history.

How likely would you be to refer this patient to the Primary Care Mental Health Service?
Would not refer ..........................  Would definitely refer ..........................
Comments: .............................................................................................................................................

Mr D, 40, a small business owner, reports that he has come to see you because he fears he may be ‘dying’, as he is experiencing hearing a man’s voice telling him that he has cancer and is going to die. He presents as extremely anxious, reporting that he is hearing this voice during your consultation, and requests that you carry out full medical investigations urgently. Mr D has a history of psychiatric input, although he is not currently in contact with services.

How likely would you be to refer this patient to the Primary Care Mental Health Service?
Would not refer ..........................  Would definitely refer ..........................
Comments: .............................................................................................................................................

Mr C, 36, a car salesman, attends an appointment for a routine medical check up. During the course of the appointment he becomes tearful and appears extremely distressed, and tells you of the death of his elderly father 2 weeks ago. He tells you that he was forced to take time off work to make funeral arrangements, and describes this as an ‘extremely stressful time’. He has now returned to work and reports that he is ‘improving’, but is concerned that he remains low in mood.

How likely would you be to refer this patient to the Primary Care Mental Health Service?
Would not refer ..........................  Would definitely refer ..........................
Comments: .............................................................................................................................................

Retail Manager Mr B, 42, describes suffering from episodes of ‘shaking, sweating and palpitations’, during which he feels he may have a heart attack, approximately 3-4 times per week for the last 6 weeks. These episodes typically occur at work, during times when he is ‘under pressure’, and he reports that he is forced to leave the office and go outside for a cigarette. Mr B has no history of heart conditions and you find no medical explanation for these symptoms.

How likely would you be to refer this patient to the Primary Care Mental Health Service?
Would not refer ..........................  Would definitely refer ..........................
Comments: .............................................................................................................................................
The purpose of this study is to explore the range of G.P. views on mental health issues. We are interested in your observation derived from day to day clinical practice. In completing the items, please consider any patients in whom you recognise mental health to be a significant part of the clinical picture, not just those who are accessing specialist mental health services.

The questionnaire contains statements that reflect different viewpoints on mental health. Please indicate a point on each line which best reflects your daily clinical experience. For example:

An underlying biological abnormality is at the basis of severe anxiety disorders

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
</table>

This response would indicate more agreement than disagreement but some uncertainty.

| An underlying biological abnormality is at the basis of severe anxiety disorders | Strongly agree |
|------------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| Anxiety disorders are the way that people with poor stamina deal with life difficulties | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| General Practitioners do not have enough time in consultations to discuss what psychological therapy will involve | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| I know what is likely to work best for my patients with depression and anxiety, therefore they should accept the treatment I recommend | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| I like my patients to feel involved in decision making when considering treatments for depression and anxiety | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| If psychotherapy were freely available, this would be more beneficial than medication for anxiety disorders | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| It is important to ensure that patients are given a choice in the treatment they receive for depression and anxiety | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| It is not my job to encourage patients to attend for psychological therapy once the referral has been made | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| Medication usually produces a satisfactory result in the treatment of anxiety disorders in general practice | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| Most anxiety disorders seen in general practice improve without medication | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| Patients are less likely to attend for psychological therapy if they feel ‘pushed’ into it | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| Patients are more likely to attend for psychological therapy if they understand how it might help them | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| Psychotherapy tends to be unsuccessful with patients with anxiety disorders | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| When referring for psychological therapy, I feel able to explain what the process will involve | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| When referring for psychological therapy, it is part of my role to ensure that patients feel able to attend and explore any factors that might prevent this | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

| When referring for psychological therapy, it is part of my role to explain what the process will involve | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |

<p>| ‘Improving Access to Psychological Therapies’ is a worthwhile use of NHS resources | Strongly agree |
|--------------------------------------------------------------------------------------------|
| Strongly disagree | Strongly agree |</p>
<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the last 5 years, I have seen an increase in the number of patients presenting with depressive symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The majority of depression seen in general practice originates from patients’ recent misfortunes</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Most depressive disorders seen in general practice improve without medication</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>An underlying biological abnormality is at the basis of severe cases of depression</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>It is difficult to differentiate whether patients are presenting with unhappiness or a clinical depressive disorder that needs treatment</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>It is possible to distinguish two main groups of depression: one psychological in origin and the other caused by biochemical mechanisms</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Becoming depressed is a way that people with poor stamina deal with life difficulties</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Depressed patients are more likely to have experienced deprivation in early life than other people</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>I feel comfortable in dealing with depressed patients needs</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Depression reflects a characteristic response in patients which is not amenable to change</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Becoming depressed is a natural part of being old</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>The practice nurse could be a useful person to support depressed patients</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Working with depressed patients is heavy going</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>There is little to be offered to those depressed patients who do not respond to what G.P.s do</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>It is rewarding to spend time looking after depressed patients</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Psychotherapy tends to be unsuccessful with depressed patients</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>If depressed patients need antidepressants, they are better off with a psychiatrist than with a general practitioner</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Antidepressants usually produce a satisfactory result in the treatment of depressed patients in general practice</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Psychotherapy for depressed patients should be left to a specialist</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>If psychotherapy were freely available, this would be more beneficial than antidepressants for most depressed patients</td>
<td>Strongly disagree</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

Thank you for taking the time to complete this questionnaire. No further input from you is required for this element of the study. However, G.P.s are currently being recruited to take part in short (30 minute) interviews with a researcher to explore these themes further. If you would be interested in participating in this component of the study, please tick this box to give permission for the researcher to contact you with further information ☐
Appendix 6. Vignette design table
### Appendix 6: Description, intended diagnosis, guideline recommended treatment and PCMHS team assessment of case vignettes

<table>
<thead>
<tr>
<th>Vignette</th>
<th>Description</th>
<th>Intended diagnosis (^a)</th>
<th>NICE/IAPT recommended intervention (^b)</th>
<th>PCMHS team decision on suitability for service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low mood, difficulties concentrating, difficulty sleeping, relationship problems, lack of energy, ‘cannot cope’.</td>
<td>‘Major Depressive Disorder’ (‘mild’)</td>
<td>‘Low intensity psychosocial interventions’</td>
<td>Meets criteria</td>
</tr>
<tr>
<td>2</td>
<td>Presents as anxious, hearing a man’s voice telling him he is ‘going to die’. Requests physical examinations.</td>
<td>Query symptoms of psychosis</td>
<td>Referral to secondary mental health service</td>
<td>Does not meet criteria</td>
</tr>
<tr>
<td>3</td>
<td>Tearful and low in mood 2 weeks following a bereavement. ‘Improving’.</td>
<td>None – symptoms accounted for by bereavement</td>
<td>‘Active monitoring’</td>
<td>Does not meet criteria</td>
</tr>
<tr>
<td>4</td>
<td>Frequent episodes of ‘shaking, sweating and palpitations’, during which he feels he may have a heart attack.</td>
<td>‘Panic disorder’</td>
<td>Cognitive Behavioural Therapy</td>
<td>Meets criteria</td>
</tr>
</tbody>
</table>

\(^a\) Diagnostic and Statistical Manual of Mental Disorders criteria (DSM-IV, American Psychiatric Association, 1994).

\(^b\) National Institute for Clinical Excellence guidelines (NICE, 2009a, 2009b, 2011); Department of Health (2010)
Appendix 7. DAQ subscales: descriptions and component items
### Questionnaire Items

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Description</th>
<th>Questionnaire Items</th>
<th>Corrected item-total correlation (current data set)</th>
</tr>
</thead>
</table>
| **DAQ: Antidepressants vs Psychotherapy** | Higher score = positive view towards antidepressants, negative view of psychological therapy | - Most depressive disorders seen in general practice improve without medication (reverse)  
- An underlying biological abnormality is at the basis of severe cases of depression  
- Becoming depressed is a way that people with poor stamina deal with life difficulties  
- Psychotherapy tends to be unsuccessful with depressed patients  
- Antidepressants usually produce a satisfactory result in the treatment of depressed patients in general practice  
- If psychotherapy were freely available, this would be more beneficial than antidepressants for most depressed patients (reverse) | .156  
.216  
.055  
.206  
.164  
.160 |
| **DAQ: Professional Unease** | Higher score= uncomfortable dealing with depressed patients                  | - I feel comfortable in dealing with depressed patients’ needs (reverse)  
- Working with depressed patients is heavy going  
- It is rewarding to spend time looking after depressed patients (reverse)  
- Psychotherapy for depressed patients should be left to a specialist | .369  
.364  
.266  
.229 |
| **DAQ: Inevitable course of depression** | Higher score=more ‘pessimistic’ attitude towards improvement of depression | - Depressed patients are more likely to have experienced deprivation in early life than other people  
- Depression reflects a characteristic response in patients which is not amenable to change  
- Becoming depressed is a natural part of being old  
- If depressed patients need antidepressants, they are better off with a psychiatrist than with a general practitioner | .090  
.260  
.288  
.370 |
<table>
<thead>
<tr>
<th>Subscale</th>
<th>Description</th>
<th>Questionnaire Items</th>
<th>Corrected item-total correlation (current data set)</th>
</tr>
</thead>
</table>
| DAQ: Identification of depression | Higher score = belief that depression is difficult to distinguish from unhappiness, and little benefit from treatment beyond the GP | - The majority of depression seen in general practice originates from patients’ recent misfortunes  
- It is difficult to differentiate whether patients are presenting with unhappiness or a clinical depressive disorder that needs treatment  
- There is little to be offered to those depressed patients who do not respond to what GPs do  | .281  
.283  
.281 |
| New items - Anxiety: Medication vs Psychotherapy | Higher score = positive view towards medication, negative view of psychological therapy for anxiety | - Most anxiety disorders seen in general practice improve without medication (reverse)  
- An underlying biological abnormality is at the basis of severe anxiety disorders  
- Anxiety disorders are the way that people with poor stamina deal with life difficulties  
- Psychotherapy tends to be unsuccessful with patients with anxiety disorders  
- Medication usually produces a satisfactory result in the treatment of anxiety disorders in general practice  
- If psychotherapy were freely available, this would be more beneficial than medication for anxiety disorders (reverse) | .185  
.174  
.170  
.352  
.276  
.107 |
Appendix 8. National Research Ethics Service approval letter
Dear Miss Murphy

Study title: Psychological factors associated with first session attendance at therapy appointments - a prospective study of patients and general practitioners

REC reference: 11/NW0078

Thank you for your response to the Committee’s request for further information on the above research and for submitting revised documentation. This has been considered on behalf of the Committee by the Chair.

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, subject to the conditions specified below.

Ethical review of research sites

NHS 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” below).

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](http://www.rdforum.nhs.uk).

This Research Ethics Committee is an advisory committee to the North West Strategic Health Authority. The National Research Ethics Service (NRES) represents the NRES Directorate within the National Patient Safety Agency and Research Ethics Committees in England.
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.

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

**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).**

**Approved documents**

The final list of documents reviewed and approved by the Committee is as follows:

<table>
<thead>
<tr>
<th>Document</th>
<th>Version</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV: Academic Supervisor</td>
<td>Dr W Mansell</td>
<td>07 February 2011</td>
</tr>
<tr>
<td>Insurance Arrangements for University of Manchester</td>
<td>C Barrow</td>
<td>10 February 2011</td>
</tr>
<tr>
<td>Appendix 3: GP Semi-structured Interview Schedule</td>
<td>1.0</td>
<td>30 January 2011</td>
</tr>
<tr>
<td>Appendix 7: Agreement Letter From GP Practice</td>
<td></td>
<td>17 November 2010</td>
</tr>
<tr>
<td>CV - Key Collaborator</td>
<td>Dr P McEvoy</td>
<td>01 February 2011</td>
</tr>
<tr>
<td>Appendix 2 - Poster</td>
<td>1.1</td>
<td>07 April 2011</td>
</tr>
<tr>
<td>REC application</td>
<td>3.0</td>
<td>11 February 2011</td>
</tr>
<tr>
<td>Response to Request for Further Information</td>
<td></td>
<td>11 April 2011</td>
</tr>
<tr>
<td>Referees or other scientific critique report</td>
<td>Feedback from Research Sub-committee</td>
<td>18 October 2010</td>
</tr>
<tr>
<td>Covering Letter</td>
<td>C Barrow</td>
<td>11 February 2011</td>
</tr>
<tr>
<td>Letter from Sponsor</td>
<td></td>
<td>10 February 2011</td>
</tr>
<tr>
<td>Questionnaire:</td>
<td>1.0</td>
<td>30 January 2011</td>
</tr>
<tr>
<td>Appendix 2: GP Vignette Questions &amp; Questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questionnaire: Initial Appointment Questionnaire</td>
<td>1.1</td>
<td>07 April 2011</td>
</tr>
<tr>
<td>Participant Information Sheet</td>
<td>1.1</td>
<td>07 April 2011</td>
</tr>
<tr>
<td>Investigator CV</td>
<td>Miss E Murphy</td>
<td>09 February 2011</td>
</tr>
<tr>
<td>Participant Consent Form</td>
<td>1.1</td>
<td>07 April 2011</td>
</tr>
<tr>
<td>Participant Consent Form: GP Questionnaire</td>
<td>1.1</td>
<td>07 April 2011</td>
</tr>
<tr>
<td>Participant Consent Form: GP Interviews</td>
<td>1.1</td>
<td>07 April 2011</td>
</tr>
<tr>
<td>Protocol</td>
<td>1.1</td>
<td>07 April 2011</td>
</tr>
<tr>
<td>Appendix 7: Agreement Letter from GP Practice</td>
<td></td>
<td>27 November 2010</td>
</tr>
<tr>
<td>CV - Key Collaborator</td>
<td>Ma S Craven</td>
<td>09 February 2011</td>
</tr>
</tbody>
</table>

**Statement of compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

**After ethical review**

Now that you have completed the application process please visit the National Research Ethics Service website > After Review
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 website.

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
- Progress and safety reports
- Notifying the end of the study

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

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

11/NW/0078 Please quote this number on all correspondence

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

Yours sincerely

Mr Francis Chan
Chair

Email: elaine.hutchings@northwest.nhs.uk

Enclosure: “After ethical review – guidance for researchers”

Copy to: Mrs Catherine Barrow
R&D, University of Manchester
Appendix 9. Research and Development approval letter
10th January 2012

Miss Elizabeth Murphy
Trainee Clinical Psychologist
Manchester Mental Health and Social Care Trust
Department of Clinical Psychology
Zochonis Building
University of Manchester
M13 9PL

Dear Elizabeth

Study Title: Psychological factors associated with first session attendance at therapy appointments a prospective study of patients and general practitioners

REC Reference: 11/NW/0078
R&D Reference: 2011/089

Thank you for forwarding all the required documentation for your study as above. I am pleased to inform you that your study has been registered with NHS Salford+D and has gained NHS R&D approval from the following NHS Trusts:


It is a legal requirement for Principal Investigators involved in Clinical Trials to have completed accredited ICH GCP training within the last 2 years. Please ensure that you provide the R&D Department with evidence of this (certificate for completing the course). A list of GCP training courses can be obtained from the R&D Office.

All researchers who do not hold a substantive contract with the Trust must hold an honorary research contract before commencing any study activities related to this approval. The ‘Research Passport Application Form’. This can be obtained from web addresses: http://www.gmregroup.nhs.uk/researchers/passports.html and http://www.hope-academic.org.uk/academic/salfordr/Research%20Passports.html This form should be completed and returned, with a summary CV and recent (within 6 months) CRB to the address shown above.

It is a condition of both NRES and NHS R&D approval that participant recruitment data should be forwarded on a regular basis. Therefore, progress reports must be submitted annually to the main REC and copied to the R&D office until the end of the study. http://www.nres.npsa.nhs.uk/applications/after-ethical-review/annual-progress-reports/
Where clinical trials of investigational medicinal products are sponsored by Salford Royal NHS Foundation Trust or Salford Primary Care Trust, it is a condition of Trust approval that Chief Investigators submit quarterly progress reports (to include Annual Safety Reports at the appropriate time) to R&D. For clinical trials of investigational medicinal products hosted within Salford Royal NHS Foundation Trust and Salford Primary Care Trust, the local PI will be expected to submit bi-annual progress reports to R&D. It is also a condition of approval that delegated duties (as agreed within clinical trial agreements and trial delegation logs) are fulfilled by only those delegated to undertake a specific duty. This will be monitored by the Sponsor’s Representative during routine monitoring of the trial. Persistent non-compliance with these requirements may result in removal of Sponsorship or Trust R&D Approval.

Any amendments to the study should also be notified and approval sought by Ethics Committee and R&D Department. Where Salford Royal NHS Foundation Trust or Salford Primary Care Trust is acting as Sponsor then amendments or changes MUST be discussed with the Sponsor prior to REC submission. On completion of the study you are required to submit a ‘Declaration of End of Study’ form to the main REC, which should also be copied and forwarded to the R&D office at the address shown above.

Any serious adverse events or governance issues related to the research must be notified to the R&D office.

Yours sincerely,

Rachel Georgiou
R&D Lead

Research & Development Department
Ground Floor, Sunnyside House
544 Eccles New Road, Salford M5 5AP
Appendix 10. Study amendment approval letter
01 November 2011

Miss Elizabeth Murphy
Division of Clinical Psychology
2nd Floor Zochonis Building
University of Manchester
M13 9PL

Dear Miss Murphy

Study title: Psychological factors associated with first session attendance at therapy appointments - a prospective study of patients and general practitioners

REC reference: 11/NW/0078
Amendment number: 3.0
Amendment date: 28 October 2011

Overview of Amendment:

Introducing an on-line version of the GP questionnaire.

The above amendment was reviewed on 01 November 2011 by the Sub-Committee in correspondence.

Ethical opinion

The committee found there to be no ethical issues.

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

<table>
<thead>
<tr>
<th>Document</th>
<th>Version</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary/Synopsis</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>Participant Information Sheet</td>
<td>1.3</td>
<td>28 October 2011</td>
</tr>
<tr>
<td>Protocol</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>Notice of Substantial Amendment (non-CTIMPs)</td>
<td>3.0</td>
<td>28 October 2011</td>
</tr>
</tbody>
</table>

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

This Research Ethics Committee is an advisory committee to the North West Strategic Health Authority. The National Research Ethics Service (NRES) represents the NRES Directorates within the National Patient Safety Agency and Research Ethics Committees in England.
R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

11/NW/0078: Please quote this number on all correspondence

Yours sincerely

[Signature]

Mr Francis Chan
Chair

E-mail: nicola.burgess@northwest.nhs.uk

Enclosures: List of names and professions of members who took part in the review

Copy to: Mrs Catherine Barrow
Rachel Georgiou, GM ReGrouP
Appendix 11. Participant information sheets
PARTICIPANT INFORMATION SHEET – G.P. QUESTIONNAIRE STUDY
Factors Associated with Attendance at Initial Therapy Appointment

This sheet explains a research study which involves completing some brief questionnaires. Please read the information carefully so that you can decide whether or not to take part.

What is the purpose of this study? Many people do not attend their first therapy appointment. We want to find out the reasons for this, so that more people can get the help that they need. We are especially interested in peoples’ concerns and hopes about therapy, and the potential influence that their G.P. could have on this when making the referral.

Why have I been invited? We are inviting all GPs at participating practices to take part in the research.

The research will involve completion of the attached questionnaire. This will take less than 10 minutes, and requires you to answer a number of questions on your views of mental illness and its treatment, and comment on whether you would be likely to refer four fictional cases based on short fictional case vignettes. No further input from you is required following completion of this questionnaire.

However, you may wish to consider participating in the next phase of the study, which involves meeting with a researcher for 30 minutes to discuss these themes further. You can indicate your interest in this at the end of the questionnaire. We appreciate that G.P.’s time is limited, and completing the questionnaire does not oblige you to take part in this element of the study.

Participation in this research is entirely voluntary. You are free to withdraw from the study at any time without giving a reason, and to request your research questionnaires to be destroyed.

Information about you will be kept strictly confidential. Your name and identifiable data will be removed from the questionnaires. No identifiable data will leave the NHS. Responsible individuals from the University of Manchester may also look at the research records to audit the conduct of the research.

What are the possible benefits of taking part? This research project aims to identify strategies which may decrease the rate of non-attendance for psychological therapy, thereby reducing the financial and time burden to primary care services and ensuring that those patients requiring the service are able to access it. Your service will be provided with a summary report of the findings of the study on completion.

What are the possible risks of taking part? It is unlikely that the questionnaires will cause distress. However, should you have any concerns or queries, you are welcome to contact the researchers on the numbers below.

Further Information and questions: Please contact one of the researchers in the first instance: Sally Craven or Elizabeth Murphy (Trainee Clinical Psychologists) on 0161 306 0400, email: Sally.Craven@postgrad.manchester.ac.uk. Elizabeth.Murphy@manchester.ac.uk; or contact supervisor Dr Warren Mansell (Clinical Psychologist) on 0161 275 8589, email: Warren.mansell@manchester.ac.uk; Division of Clinical Psychology, Zochonis Building, University of Manchester, Oxford Road, Manchester, M13 9PL.

What if there is a problem? If the researchers unable to answer your concerns or you wish to make a complaint, please contact a University Research Practice and Governance Co-ordinator on 0161 2757583 or 0161 2758093 or email: research-governance@manchester.ac.uk.

Thank you very much for considering taking part in our research. If you wish to take part, please sign the consent form overleaf and complete the attached questionnaires.
PARTICIPANT INFORMATION SHEET – G.P. QUESTIONNAIRE STUDY
Factors Associated with Attendance at Initial Therapy Appointment

This sheet explains a research study which involves completing a brief online questionnaire. Please read the information carefully so that you can decide whether or not to take part.

**What is the purpose of this study?** Many people do not attend their first therapy appointment. We want to find out the reasons for this, so that more people can get the help that they need. This survey is part of a larger study that is interested in peoples’ concerns and hopes about therapy, and the potential influence that their G.P. could have on this when making the referral. We are also interested in the kind of people who are being referred for psychological therapy in primary care.

**Why have I been invited?** We are inviting all GPs within [Redacted] Primary Care Trusts to take part in the research.

The research will involve completion of the online questionnaire linked to the email you have received. This will take around 5 minutes, and requires you to answer a number of questions on your views of mental illness and its treatment, and comment on whether you would be likely to refer four fictional cases based on short fictional case vignettes. No further input from you is required following completion of this questionnaire.

**Your responses will be anonymous.** You will not be required to provide your name to complete the questionnaire.

**Participation in this research is entirely voluntary.** You are free to stop completing the online questionnaire at any time without giving a reason, and your responses will not be submitted.

**What are the possible benefits of taking part?** This research project aims to identify strategies which may decrease the rate of non-attendance for psychological therapy, thereby reducing the financial and time burden to primary care services and ensuring that those patients requiring the service are able to access it. Your service will be provided with a summary report of the findings of the study on completion.

**What are the possible risks of taking part?** It is unlikely that the questionnaires will cause distress. However, should you have any concerns or queries, you are welcome to contact the researchers on the numbers below.

**Further information and questions:** Please contact one of the researchers in the first instance: Sally Craven or Elizabeth Murphy (Trainee Clinical Psychologists) on 0161 306 0400, email: Sally.Craven@postgrad.manchester.ac.uk, Elizabeth.Murphy@manchester.ac.uk, or contact supervisor Dr Warren Mansell (Clinical Psychologist) on 0161 275 8589, email: Warren.mansell@manchester.ac.uk, Division of Clinical Psychology, Zochonis Building, University of Manchester, Oxford Road, Manchester, M13 9PL.

**What if there is a problem?**
If the researchers unable to answer your concerns or you wish to make a complaint, please contact a University Research Practice and Governance Co-ordinator on 0161 2757583 or 0161 2758093 or email: research-governance@manchester.ac.uk.

Thank you very much for considering taking part in our research. If you wish to take part, please sign the consent form overleaf and complete the attached questionnaires.
Appendix 12. Consent form
Consent Form – G.P. Questionnaire

This consent form is for the research study entitled Factors Associated with Attendance at Initial Therapy Appointment. The project is sponsored by the University of Manchester.

Please read the participant information sheet before you complete this consent form. Please consider each of the following statements.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I confirm that I have read, understand and agree to the information provided in the information sheet for the above study and have had the opportunity to ask questions.</td>
<td></td>
</tr>
<tr>
<td>2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.</td>
<td></td>
</tr>
<tr>
<td>3. I understand that the named researchers will access electronic records to collect information on whether patients I referred to the primary Care Mental Health Service attended their first appointment.</td>
<td></td>
</tr>
<tr>
<td>4. I understand that the named researchers may access electronic records to collect information on my rate of referral to the Primary Care Mental Health Service.</td>
<td></td>
</tr>
<tr>
<td>5. I understand that data collected during the study may be looked at by individuals from the University of Manchester, from regulatory authorities or from the NHS Trust. I give permission for these individuals to have access to my questionnaire responses.</td>
<td></td>
</tr>
<tr>
<td>6. I agree to take part in the above study.</td>
<td></td>
</tr>
</tbody>
</table>

I would be grateful if you would sign this form to show that you have read the contents of this information sheet and that you consent to take part in the study.

Name of participant          Date          Signature

Thank you. Your involvement is very much appreciated. If you have any further questions please contact Sally Craven who is a researcher on the project, using the contact details at the top of this page.
Appendix 13. Tests of normality
Appendix 13: Kolmogorov-Smirnov statistics for age, years as GP, responses to vignettes and DAQ subscales (items highlighted in bold indicate significant difference from normal distribution)

<table>
<thead>
<tr>
<th>Kolmogorov-Smirnov Statistic</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.064</td>
<td>130</td>
</tr>
<tr>
<td>Years as GP</td>
<td>.065</td>
<td>128</td>
</tr>
<tr>
<td>‘Depression’ vignette</td>
<td>.133</td>
<td>132</td>
</tr>
<tr>
<td>‘Psychosis’ vignette</td>
<td>.184</td>
<td>130</td>
</tr>
<tr>
<td>‘Bereavement’ vignette</td>
<td>.187</td>
<td>131</td>
</tr>
<tr>
<td>‘Panic’ vignette</td>
<td>.124</td>
<td>132</td>
</tr>
<tr>
<td>Overall Referral Likelihood</td>
<td>.048</td>
<td>130</td>
</tr>
<tr>
<td>Referral Accuracy</td>
<td>.091</td>
<td>130</td>
</tr>
<tr>
<td>DAQ: Antidepressants vs Psychotherapy</td>
<td>.061</td>
<td>128</td>
</tr>
<tr>
<td>DAQ: Professional Unease</td>
<td>.102</td>
<td>130</td>
</tr>
<tr>
<td>DAQ: Inevitable course of depression</td>
<td>.111</td>
<td>130</td>
</tr>
<tr>
<td>DAQ: Identification of depression</td>
<td>.069</td>
<td>130</td>
</tr>
<tr>
<td>Anxiety: Medication vs Psychotherapy</td>
<td>.081</td>
<td>131</td>
</tr>
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</table>
Appendix 14. Ordinal regression model of responses to ‘depression’ vignette
Model 1:

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>SE</th>
<th>Wald statistic</th>
<th>p</th>
<th>EXP(β)</th>
<th>95% Confidence Interval of EXP(β)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-1.567</td>
<td>0.019</td>
<td>6.773</td>
<td>.009</td>
<td>0.952</td>
<td>0.919-0.988</td>
</tr>
</tbody>
</table>

Anxiety: Medication vs Psychotherapy

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>SE</th>
<th>Wald statistic</th>
<th>p</th>
<th>EXP(β)</th>
<th>95% Confidence Interval of EXP(β)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.045</td>
<td>.018</td>
<td>6.040</td>
<td>.014</td>
<td>0.956</td>
<td>0.922-0.991</td>
</tr>
</tbody>
</table>

Model 2 (Anxiety: Medication vs Psychotherapy removed):

<table>
<thead>
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<th>Predictor</th>
<th>β</th>
<th>SE</th>
<th>Wald statistic</th>
<th>p</th>
<th>EXP(β)</th>
<th>95% Confidence Interval of EXP(β)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.045</td>
<td>.018</td>
<td>6.040</td>
<td>.014</td>
<td>0.956</td>
<td>0.922-0.991</td>
</tr>
</tbody>
</table>

a. Calculated by hand (=EXP(β), Norusis, 2012)
Significant predictors are highlighted in bold
Link function: Logit
Test of parallel lines non significant ($\chi^2 = 4.38$, $p = .112$) therefore slope function assumed to be equal across categories
Pseudo $R^2$ statistics: Cox and Snell: .064, Nagelkerke: .073, McFadden: .032

b. Calculated by hand (=EXP(β), Norusis, 2012)
Significant predictors are highlighted in bold
Link function: Logit
Test of parallel lines non significant ($\chi^2 = 2.66$, $p = .066$) therefore slope function assumed to be equal across categories
Pseudo $R^2$ statistics: Cox and Snell: .046, Nagelkerke: .053, McFadden: .023
Model fitting information: the model represented a significantly better fit than that with all coefficients set to 0 ($\chi^2 = 6.18$, $p = .013$).
Appendix 15. Univariate analysis of ‘overall referral’
### Appendix 15: Results of univariate analysis for overall referral likelihood

<table>
<thead>
<tr>
<th>Test statistic</th>
<th>r</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.250</td>
<td>0.004</td>
</tr>
<tr>
<td>Years as GP</td>
<td>-.199</td>
<td>0.025</td>
</tr>
<tr>
<td>DAQ: Antidepressants vs Psychotherapy</td>
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<td>0.389</td>
</tr>
<tr>
<td>DAQ: Identification of depression</td>
<td>.202</td>
<td>0.022</td>
</tr>
<tr>
<td>DAQ: Professional Unease</td>
<td>.058</td>
<td>0.516</td>
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<td>DAQ: Inevitable course of depression</td>
<td>.055</td>
<td>0.538</td>
</tr>
<tr>
<td>Anxiety: Medication vs Psychotherapy</td>
<td>.128</td>
<td>0.147</td>
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</table>

Mean overall referral (SD)

<table>
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<tr>
<th>Gender</th>
<th>Mean referral (SD)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>15.3 (6.64)</td>
<td>-2.038</td>
<td>0.044</td>
</tr>
<tr>
<td>Female</td>
<td>17.77 (7.16)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean overall referral (SD)

<table>
<thead>
<tr>
<th>PCT</th>
<th>Mean referral (SD)</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCT 1</td>
<td>16.21 (8.58)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 2</td>
<td>18.77 (5.36)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 3</td>
<td>12.20 (6.33)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 4</td>
<td>15.80 (5.37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 5</td>
<td>15.86 (6.31)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT 7</td>
<td>18.75 (6.99)</td>
<td>1.77</td>
<td>0.126</td>
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</tbody>
</table>
Appendix 16. Multiple regression model of ‘overall referral’
<table>
<thead>
<tr>
<th>Predictor</th>
<th>B (95% CI)</th>
<th>SE</th>
<th>t</th>
<th>β</th>
<th>p</th>
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<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Constant</td>
<td>18.28 (9.75 – 26.81)</td>
<td>4.31</td>
<td>4.24</td>
<td>0.033</td>
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<tr>
<td>Age</td>
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<td>-0.20</td>
<td>0.033</td>
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<tr>
<td>Gender</td>
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<td>1.26</td>
<td>1.05</td>
<td>0.10</td>
<td>0.295</td>
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<tr>
<td>'Identification of depression'</td>
<td>0.66 (-0.3 – 1.36)</td>
<td>0.35</td>
<td>1.90</td>
<td>0.16</td>
<td>0.062</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>21.09 (14.38 – 27.79)</td>
<td>3.39</td>
<td>6.22</td>
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<td></td>
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<tr>
<td>Age</td>
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<td>0.06</td>
<td>-2.62</td>
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<td>'Identification of depression'</td>
<td>0.69 (-0.01 – 1.39)</td>
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<td>1.97</td>
<td>0.17</td>
<td>0.052</td>
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<tr>
<td><strong>Step 3</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Constant</td>
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<td>2.90</td>
<td>8.52</td>
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<td>Age</td>
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<td>0.06</td>
<td>-2.90</td>
<td>-0.25</td>
<td>0.004</td>
</tr>
</tbody>
</table>

Entry method: Backwards stepwise

$R^2$: Step 1 = .099, Step 2 = .091, Step 3 = .063.
Appendix 17. Initial logistic regression model of ‘guideline agreement’
<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>SE</th>
<th>Wald statistic</th>
<th>p</th>
<th>EXP(β) (odds ratio)</th>
<th>95% Confidence Interval of EXP(β)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.044</td>
<td>.021</td>
<td>4.259</td>
<td>.039</td>
<td>0.956954</td>
<td>0.957-0.998</td>
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<td>DAQ:</td>
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<td>.020</td>
<td>.888</td>
<td>0.974335</td>
<td>0.6741.406</td>
</tr>
<tr>
<td>Antidepressants vs Psychotherapy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PCT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PCT 1</strong></td>
<td>-1.044</td>
<td>.587</td>
<td>3.162</td>
<td>.075</td>
<td>0.352044</td>
<td>0.111-1.113</td>
</tr>
<tr>
<td><strong>PCT 2</strong></td>
<td>-.443</td>
<td>.697</td>
<td>.403</td>
<td>.525</td>
<td>0.642107</td>
<td>0.164-2.519</td>
</tr>
<tr>
<td><strong>PCT 3</strong></td>
<td>-2.367</td>
<td>.749</td>
<td>9.973</td>
<td>.002</td>
<td>0.093762</td>
<td>0.022-0.407</td>
</tr>
<tr>
<td><strong>PCT 4</strong></td>
<td>-2.048</td>
<td>.831</td>
<td>6.070</td>
<td>.014</td>
<td>0.128993</td>
<td>0.025-0.658</td>
</tr>
<tr>
<td><strong>PCT 5</strong></td>
<td>-1.029</td>
<td>.918</td>
<td>1.254</td>
<td>.263</td>
<td>0.357364</td>
<td>0.059-2.162</td>
</tr>
</tbody>
</table>

a. Compared with reference group: PCT 7  
b. Calculated by hand (=EXP(β), Norusis, 2012)  
Significant predictors are highlighted in bold  
Link function: Logit  
Test of parallel lines non significant ($\chi^2 = 7.97, p = .335$) therefore slope function assumed to be equal across categories  
Pseudo R² statistics: Cox and Snell: .172, Nagelkerke: .198, McFadden: .093  
Model-fitting information: the model represents a significantly better fit than that with all coefficients set to 0 ($\chi^2 = 19.85, p = .006$).
Appendix 18. Principle Component Analysis of DAQ items
### DAQ item

<table>
<thead>
<tr>
<th>DAQ item</th>
<th>Component 1</th>
<th>Component 2</th>
<th>Component 3</th>
<th>Component 4</th>
<th>Component 5</th>
<th>Component 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the last 5 years, I have seen an increase in the number of patients presenting with depressive symptoms</td>
<td>.148</td>
<td>.263</td>
<td>.701</td>
<td>-.107</td>
<td>-.014</td>
<td>-.054</td>
</tr>
<tr>
<td>The majority of depression seen in general practice originates from patients’ recent misfortunes</td>
<td>.039</td>
<td>.177</td>
<td>.741</td>
<td>.035</td>
<td>.073</td>
<td>.217</td>
</tr>
<tr>
<td>Most depressive disorders seen in general practice improve without medication</td>
<td>.076</td>
<td>.064</td>
<td>-.032</td>
<td>-.029</td>
<td>-.642</td>
<td>.188</td>
</tr>
<tr>
<td>An underlying biological abnormality is at the basis of severe cases of depression</td>
<td>.219</td>
<td>.100</td>
<td>-.218</td>
<td>-.199</td>
<td>.686</td>
<td>.074</td>
</tr>
<tr>
<td>It is difficult to differentiate whether patients are presenting with unhappiness or a clinical depressive disorder that needs treatment</td>
<td>.641</td>
<td>-.007</td>
<td>.203</td>
<td>-.139</td>
<td>.024</td>
<td>.200</td>
</tr>
<tr>
<td>It is possible to distinguish two main groups of depression: one psychological in origin and the other caused by biochemical mechanisms</td>
<td>-.008</td>
<td>.548</td>
<td>.061</td>
<td>.166</td>
<td>.187</td>
<td>.079</td>
</tr>
<tr>
<td>Becoming depressed is a way that people with poor stamina deal with life difficulties</td>
<td>.433</td>
<td>.521</td>
<td>.083</td>
<td>-.047</td>
<td>-.227</td>
<td>.197</td>
</tr>
<tr>
<td>Depressed patients are more likely to have experienced deprivation in early life than other people</td>
<td>-.005</td>
<td>.012</td>
<td>.072</td>
<td>.082</td>
<td>-.044</td>
<td>.830</td>
</tr>
<tr>
<td>I feel comfortable in dealing with depressed patients needs</td>
<td>-.587</td>
<td>-.176</td>
<td>-.193</td>
<td>-.245</td>
<td>-.062</td>
<td>.260</td>
</tr>
<tr>
<td>Depression reflects a characteristic response in patients which is not amenable to change</td>
<td>.523</td>
<td>.486</td>
<td>-.108</td>
<td>.159</td>
<td>.002</td>
<td>.162</td>
</tr>
<tr>
<td>Becoming depressed is a natural part of being old</td>
<td>-.030</td>
<td>.304</td>
<td>.037</td>
<td>.670</td>
<td>-.011</td>
<td>-.068</td>
</tr>
<tr>
<td>The practice nurse could be a useful person to support depressed patients</td>
<td>.002</td>
<td>.007</td>
<td>.145</td>
<td>-.651</td>
<td>.001</td>
<td>-.143</td>
</tr>
<tr>
<td>Working with depressed patients is heavy going</td>
<td>.412</td>
<td>-.195</td>
<td>.531</td>
<td>-.035</td>
<td>.334</td>
<td>.244</td>
</tr>
<tr>
<td>There is little to be offered to those depressed patients who do not respond to what G.P.s do</td>
<td>.533</td>
<td>.472</td>
<td>.129</td>
<td>.075</td>
<td>.095</td>
<td>.082</td>
</tr>
<tr>
<td>It is rewarding to spend time looking after depressed patients</td>
<td>-.663</td>
<td>.022</td>
<td>-.113</td>
<td>-.174</td>
<td>-.006</td>
<td>.283</td>
</tr>
<tr>
<td>Psychotherapy tends to be unsuccessful with depressed patients</td>
<td>.069</td>
<td>.758</td>
<td>.098</td>
<td>.056</td>
<td>.024</td>
<td>-.198</td>
</tr>
</tbody>
</table>
Principle Component Analysis
Rotation method: varimax
Highest factor loading highlighted in **bold**

*If depressed patients need antidepressants, they are better off with a psychiatrist than with a general practitioner*

|              | .273 | .161 | .236 | **.662** | .227 | .036 |

*Antidepressants usually produce a satisfactory result in the treatment of depressed patients in general practice*

|              | -.248 | .318 | .107 | **-.473** | .246 | .212 |

*Psychotherapy for depressed patients should be left to a specialist*

|              | .012 | .243 | .175 | .261 | **.651** | .138 |

*If psychotherapy were freely available, this would be more beneficial than antidepressants for most depressed patients*

|              | .256 | -.201 | **.615** | .082 | -.229 | -.260 |
Appendix 19. Correlations of individual DAQ items with responses to ‘depression’ vignette, ‘overall referral’ and ‘guideline agreement’
Appendix 19: Correlations of individual DAQ items with responses to ‘depression’ vignette, ‘overall referral’ and ‘guideline agreement’ (significant correlations (p < .05) highlighted in bold)

<table>
<thead>
<tr>
<th>DAQ Item</th>
<th>'<code>Depression</code> vignette`</th>
<th>Overall Referral</th>
<th>Guideline agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the last 5 years, I have seen an increase in the number of patients presenting with depressive symptoms</td>
<td>Rs -.047</td>
<td>.063</td>
<td>-.120</td>
</tr>
<tr>
<td></td>
<td>p .599</td>
<td>.485</td>
<td>.178</td>
</tr>
<tr>
<td></td>
<td>N 128</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>The majority of depression seen in general practice originates from patients’ recent misfortunes</td>
<td>Rs .033</td>
<td>.119</td>
<td>-.071</td>
</tr>
<tr>
<td></td>
<td>p .708</td>
<td>.183</td>
<td>.431</td>
</tr>
<tr>
<td></td>
<td>N 128</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>Most depressive disorders seen in general practice improve without medication</td>
<td>Rs -.109</td>
<td>-.054</td>
<td>-.095</td>
</tr>
<tr>
<td></td>
<td>p .221</td>
<td>.545</td>
<td>.287</td>
</tr>
<tr>
<td></td>
<td>N 128</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>An underlying biological abnormality is at the basis of severe cases of depression</td>
<td>Rs .023</td>
<td>.023</td>
<td>.038</td>
</tr>
<tr>
<td></td>
<td>p .797</td>
<td>.798</td>
<td>.671</td>
</tr>
<tr>
<td></td>
<td>N 128</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>It is difficult to differentiate whether patients are presenting with unhappiness or a clinical depressive disorder that needs treatment</td>
<td>Rs .013</td>
<td>.157</td>
<td>-.083</td>
</tr>
<tr>
<td></td>
<td>p .886</td>
<td>.077</td>
<td>.354</td>
</tr>
<tr>
<td></td>
<td>N 128</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>It is possible to distinguish two main groups of depression: one psychological in origin and the other caused by biochemical mechanisms</td>
<td>Rs -.017</td>
<td>.097</td>
<td>-.199</td>
</tr>
<tr>
<td></td>
<td>p .849</td>
<td>.280</td>
<td>.025</td>
</tr>
<tr>
<td></td>
<td>N 128</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>Becoming depressed is a way that people with poor stamina deal with life difficulties</td>
<td>Rs -.133</td>
<td>-.014</td>
<td>-.186</td>
</tr>
<tr>
<td></td>
<td>p .136</td>
<td>.878</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>N 127</td>
<td>126</td>
<td>127</td>
</tr>
<tr>
<td>Depressed patients are more likely to have experienced deprivation in early life than other people</td>
<td>Rs -.027</td>
<td>.003</td>
<td>.072</td>
</tr>
<tr>
<td></td>
<td>p .761</td>
<td>.972</td>
<td>.424</td>
</tr>
<tr>
<td></td>
<td>N 128</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>I feel comfortable in dealing with depressed patients needs</td>
<td>Rs -.079</td>
<td>-.107</td>
<td>.077</td>
</tr>
<tr>
<td></td>
<td>p .378</td>
<td>.231</td>
<td>.387</td>
</tr>
<tr>
<td></td>
<td>N 128</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>Depression reflects a characteristic response in patients which is not amenable to change</td>
<td>Rs .020</td>
<td>.017</td>
<td>-.024</td>
</tr>
<tr>
<td></td>
<td>p .818</td>
<td>.847</td>
<td>.788</td>
</tr>
<tr>
<td></td>
<td>N 128</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>Statement</td>
<td>Rs</td>
<td>p</td>
<td>N</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-----</td>
<td>------</td>
<td>-----</td>
</tr>
<tr>
<td>Becoming depressed is a natural part of being old.</td>
<td>-.019</td>
<td>.827</td>
<td>128</td>
</tr>
<tr>
<td>The practice nurse could be a useful person to support depressed patients</td>
<td>.087</td>
<td>.331</td>
<td>128</td>
</tr>
<tr>
<td>Working with depressed patients is heavy going</td>
<td>-.016</td>
<td>.861</td>
<td>128</td>
</tr>
<tr>
<td>There is little to be offered to those depressed patients who do not</td>
<td>.048</td>
<td>.593</td>
<td>128</td>
</tr>
<tr>
<td>respond to what G.P.s do</td>
<td>.074</td>
<td>.411</td>
<td>128</td>
</tr>
<tr>
<td>It is rewarding to spend time looking after depressed patients</td>
<td>.124</td>
<td>.162</td>
<td>128</td>
</tr>
<tr>
<td>Psychotherapy tends to be unsuccessful with depressed patients</td>
<td>-.048</td>
<td>.592</td>
<td>127</td>
</tr>
<tr>
<td>If depressed patients need antidepressants, they are better off with a</td>
<td>.088</td>
<td>.323</td>
<td>127</td>
</tr>
<tr>
<td>psychiatrist than with a general practitioner</td>
<td>.183</td>
<td>.040</td>
<td>127</td>
</tr>
<tr>
<td>Antidepressants usually produce a satisfactory result in the treatment of</td>
<td>-.023</td>
<td>.796</td>
<td>128</td>
</tr>
<tr>
<td>depressed patients in general practice</td>
<td>-.026</td>
<td>.768</td>
<td>127</td>
</tr>
<tr>
<td>Psychotherapy for depressed patients should be left to a specialist</td>
<td>.071</td>
<td>.429</td>
<td>128</td>
</tr>
<tr>
<td>If psychotherapy were freely available, this would be more beneficial</td>
<td>-.044</td>
<td>.622</td>
<td>128</td>
</tr>
<tr>
<td>than antidepressants for most depressed patients</td>
<td>.171</td>
<td>.054</td>
<td>127</td>
</tr>
</tbody>
</table>

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Appendix 20. Correlations of individual ‘Anxiety: Medication vs Psychotherapy’ items with responses to ‘panic’ vignette
<table>
<thead>
<tr>
<th>Individual Item</th>
<th>‘Panic’ vignette</th>
</tr>
</thead>
<tbody>
<tr>
<td>An underlying biological abnormality is at the basis of severe anxiety disorders</td>
<td>Rs .203&lt;sup&gt;*&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>p .020</td>
</tr>
<tr>
<td></td>
<td>N 130</td>
</tr>
<tr>
<td>Anxiety disorders are the way that people with poor stamina deal with life difficulties</td>
<td>Rs .011</td>
</tr>
<tr>
<td></td>
<td>p .903</td>
</tr>
<tr>
<td></td>
<td>N 130</td>
</tr>
<tr>
<td>If psychotherapy were freely available, this would be more beneficial than medication for anxiety disorders</td>
<td>Rs .114</td>
</tr>
<tr>
<td></td>
<td>p .198</td>
</tr>
<tr>
<td></td>
<td>N 130</td>
</tr>
<tr>
<td>Medication usually produces a satisfactory result in the treatment of anxiety disorders in general practice</td>
<td>Rs -.079</td>
</tr>
<tr>
<td></td>
<td>p .371</td>
</tr>
<tr>
<td></td>
<td>N 130</td>
</tr>
<tr>
<td>Most anxiety disorders seen in general practice improve without medication</td>
<td>Rs .014</td>
</tr>
<tr>
<td></td>
<td>p .877</td>
</tr>
<tr>
<td></td>
<td>N 130</td>
</tr>
<tr>
<td>Psychotherapy tends to be unsuccessful with patients with anxiety disorders</td>
<td>Rs -.072</td>
</tr>
<tr>
<td></td>
<td>p .415</td>
</tr>
<tr>
<td></td>
<td>N 130</td>
</tr>
</tbody>
</table>