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**The impact of maternal psychological distress and parental
bonding on mother-adolescent agreement
about emotional problems.**

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Doctorate in Clinical Psychology

The University of Edinburgh

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Insert Front Sheet & declaration of own work - 2 pages

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CONTENT AND FORMAT

Chapters 1 and 6 (systematic review and journal article) adhere to the author guidelines issued for the Journal of Clinical Child and Adolescent Psychology (appendix 1).

Chapters 2 - 5 adhere to guidelines issued by the British Psychological Society, as recommended by the Doctorate in Clinical Psychology handbook, The University of Edinburgh.

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WORD COUNTS

Systematic Review	7,600
Thesis Aims & Hypotheses	1,183
Methodology	3,109
Results	2,986
Discussion	5,974
Journal Article	8,057
Total Thesis Portfolio	29,173

ABSTRACT

Objective. To explore the impact of parent psychological distress and parental bonding on agreement between informants about adolescent emotional functioning.

Methods. The study employed an observational design in which 87 pairs of mothers and their adolescent sons or daughters aged 12-17 completed proxy- and self-report ratings on the Strengths and Difficulties Questionnaire. Mothers also completed the Depression, Anxiety and Stress scale as a measure of their own psychological distress, and adolescents completed the Parental Bonding Instrument as a measure of their parenting experience. Moderation analyses using multiple linear regression were used to assess whether the association between maternal psychological distress and mother-adolescent agreement changed as a factor of parental bonding.

Results. Kappa values indicated that mother-adolescent agreement was 'fair' for emotional problems. Mothers' psychological distress and sub-optimal parenting were both associated with greater reporting discrepancies. Maternal psychological distress and perceived maternal were unique and combined predictors of reporting discrepancies. Perceived care moderated the relationship between maternal distress and agreement such that when care

was rated as low, higher levels of maternal distress predicted poor agreement, but when care was rated as high no significant relationship was found between distress and agreement.

Conclusions. Increased mother-adolescent agreement was associated with lower maternal psychological distress and higher ratings of perceived care. The effect of psychological distress on informant agreement varied as a factor of perceived maternal care. Results of this study support the need for multi-informant assessment and suggest that enquiry about mothers' own psychological functioning could facilitate accurate assessment and intervention for adolescents who present at psychology services.

Keywords: parent-adolescent reporting discrepancies; informant agreement; parental bonding

CHAPTER 1:

Systematic Review

Effects of parent mental health on reporting discrepancies about adolescent internalising problems: a systematic review.

Objective. Poor agreement between informants about adolescent mental health is a widespread finding that brings with it difficulties in assessment and intervention. A systematic review of the impact of parental psychopathology on parent-adolescent agreement about adolescent internalising problems was conducted to identify whether any patterns could be determined. *Method.* A systematic search of electronic databases identified 256 studies, of which 14 met the review criteria. Included studies focused on adolescents aged 10-18 years of age and their parents in clinical and community settings. Methods involved self- and parent-proxy report questionnaires or semi-structure clinical interview. Quality of studies was systematically appraised using structured guidelines provided by the Agency for Healthcare Research and Quality and the Centre for Reviews and Dissemination, and subsequently analysed using narrative synthesis. *Results.* Various states of parental emotional distress were associated with greater parent-adolescent reporting discrepancies. Parental psychological problems were associated with parents reporting more symptoms than adolescents endorsed in themselves. The pattern was pervasive irrespective of the adolescent gender or clinical status, parent type of psychological problem, or measurement tools used.

Conclusions. The review lends support for the proposition that psychopathology distorts parental perceptions of their children's emotional

functioning. This confirms the need for multidimensional assessment of adolescents who present at specialist mental health services. Furthermore, results indicate that including an evaluation of parents' psychological state may be beneficial in making sense of discrepant reports of the presenting problem.

Keywords: reporting discrepancy; parent mental health.

Introduction to Systematic Review

Overall discrepancies between informants

Over the past twenty years it has been well established that parents and children tend not to agree with each other regarding the presence, level or severity of emotional and behaviour problems in the child. A meta-analysis by Achenbach and colleagues identified that different informants' ratings of social, emotional and behavioural problems in the same child tended to be discrepant (Achenbach, McConaughy, & Howell, 1987). Since this time an abundance of further research including another meta-analysis (Duhig, Renk, Epstein, & Phares, 2000) has replicated this finding such that it is now widely accepted that only low to moderate agreement exists between different informants (for example; Barker, Bornstein, Putnick, Hendricks, & Suwalsky, 2007; Briggs-Gowan, Carter, & Schwab-Stone, 1996; Conrad & Hammen, 1989; De Los Reyes & Kazdin, 2005; Jensen et al., 1999; Karver, 2006; Seiffge-Krenke & Kollmar, 1998; Vassi et al., 2008). This low level of concordance between informants has been found across a variety of assessment instruments including clinical interview, rating scales and questionnaires (Grills & Ollendick, 2002). It occurs irrespective of demographic factors and has been identified across diverse ethnic and cultural backgrounds (Seiffge-Krenke & Kollmar, 1998; Sourander, Helstela, & Helenius, 1999; van der Meer, Dixon, & Rose, 2008; Verhulst & van der Ende, 1992; Youngstrom, Loeber, &

Stouthamer-Loeber, 2000). On the whole, it is accepted that agreement between parents and children regarding child psychopathology is relatively poor.

Impact of discrepancies

Despite significant research in the area, the problem remains poorly understood and presents a variety of difficulties for clinicians attempting to assess young people in the clinic. Parents are often relied upon to provide accurate, unbiased accounts of their children's functioning. However, inconsistencies in the description and measurement of a young person's emotional or behavioural state risks inaccurate identification of the problem, misdiagnosis and inaccurate treatment (De Los Reyes & Kazdin, 2005; Martin, Ford, Dyer-Friedman, Tang, & Huffman, 2004). Low rates of agreement between parents and children regarding problem areas are associated with poor engagement in treatment (Yeh & Weisz, 2001), missed appointments and problems in the development of a therapeutic alliance (De Los Reyes & Kazdin, 2005).

Poor parent-child agreement is concerning because parents are generally responsible for initiating and facilitating contact with mental health services on behalf of their child (Logan & King, 2001). In the United Kingdom, an estimated ten per cent of children and adolescents suffer mental health problems at any one point in time, with only one fifth of these accessing

specialist services (Ford, Hamilton, Goodman, & Meltzer, 2005; Green, McGinnity, Meltzer, Ford, & Goodman, 2005). Poor parent-child agreement about child difficulties may be a factor in this. Prevalence rates of child internalising problems derived from parental ratings, for example, tend to be lower compared with those derived directly from children (De Los Reyes & Kazdin, 2005). Mental health problems in childhood can have a significant impact on a child's social, emotional and psychological development and early intervention is considered crucial in order to minimise this disruption and the possibility of problems persisting into adulthood (World Health Organisation, WHO, 2004; 2009). Evidence also suggests that poor agreement between parents and adolescents predicts adverse outcomes in the future, including increased drug use, legal problems, exclusion from school, deliberate self-harm and referral to mental health services in adulthood (Ferdinand, van der Ende & Verhulst, 2004). Therefore, discrepancies in parent and child perspectives on a problem contribute to the risk of children who require treatment being overlooked and thus not accessing the treatment needed during childhood.

Understanding discrepancies & patterns of agreement

Accordingly, it seems important to continue to try to better understand what factors influence stronger parent-child agreement on emotional and behavioural problems. Research to date has examined a range of potential contributing factors. Demographic factors such as age, gender and culture or socio-economic status, have generally been considered to add little to our

understanding of the discrepancies between parent and child reports of a problem. Although the original meta-analysis suggested stronger correlations were found between parents and younger children (Achenbach et al., 1987), more recent research has found no effects of age (Choudhury, Pimentel, & Kendall, 2003; Engel, Rodrigue, & Geffken, 1994; Kolko & Kazdin, 1993) or indeed that agreement is greater between older children and their parents (Grills & Ollendick, 2003). No consistent effect has been found regarding child gender, although some studies suggest greater agreement for boys than girls (Handwerk, Larzelere, Soper, & Friman, 1999; Sourander et al., 1999; Stanger & Lewis, 1993; Tarullo, Richardson, Radke-Yarrow, & Martinez, 1995; Verhulst & van der Ende, 1992) and, whilst some research suggests agreement maybe be better in non-Caucasian populations (Wachtel, Rodrigue, Geffken, & Graham-Pole, 1994), a meta-analysis found no effect of ethnicity (Duhig et al., 2000). An inconsistent negative relationship between agreement and socio-economic status has been suggested, but seems spurious given that its effect is negated when other child and parent characteristics are considered (Chi & Hinshaw, 2002; Treutler & Epkins, 2003). The most consistent pattern exists with regard to the type of problem that the young person presents with, such that greater agreement is found for externalising, concrete, observable behaviours over internalising, emotional-type problems (Achenbach et al., 1987; Handwerk et al., 1999; Kolko & Kazdin, 1993; Sourander et al., 1999; Youngstrom et al., 2000) with only a couple of exceptions (Seiffge-Krenke & Kollmar, 1998; Verhulst & van der Ende, 1992).

One of the most frequently studied characteristics related to informant discrepancies is the impact of informant mental health problems on agreement, although there has been little success in making sense of the variance between ratings. There is mixed evidence regarding the effect of parent psychopathology on agreement. Some literature argues for what is known as the 'depression-distortion hypothesis', based on Beck's (1967) idea that depressed people have distorted cognitions, which argues that depression can lead parents to exaggerate or over-report behaviour or emotional problems in their children (Boyle & Pickles, 1997; Chilcoat & Breslau, 1997; Fergusson, Lynskey, & Horwood, 1993; Najman et al., 2000). However, similar patterns of over-reporting have been associated with parental anxiety, stress and anger problems (Briggs-Gowan et al., 1996; Frick, Silverthorn, & Evans, 1994; Kolko & Kazdin, 1993; Phares, Compas, & Howell, 1989; Renk, Roddenberry, Oliveros, & Sieger, 2007) such that cognitive distortion within the context of general psychopathology, rather than solely that observed within the context of depression only, may be the problematic issue. Further studies, however, suggest that there is *increased* agreement when a parent suffers from an affective illness (Tarullo et al., 1995). In light of this, it is perhaps not surprising that an early review of the literature on this issue found that there was insufficient evidence to conclude the existence of a depression related reporting bias (Richters, 1992). There is widespread agreement that numerous examples of parent psychopathology, including substance misuse,

stress, mental health problems and antisocial behaviour are directly associated with increased level of child psychopathology, possibly a consequence of parent-child interactions and/or genetic vulnerabilities (Mash & Dozois, 2003). Therefore, parent psychopathology appears to play a key role in both influencing perceptions of child symptoms and on the development of childhood disorder.

The effect of what population is studied appears to be an important variable, with parents reporting fewer problems than their children in non-clinical populations compared with clinical samples where parents appear to report more problems than are endorsed by their children (Seiffge-Krenke & Kollmar, 1998; Stanger & Lewis, 1993; Thurber & Snow, 1990; Verhulst & van der Ende, 1992; Waters, Stewart-Brown, & Fitzpatrick, 2003).

Much of the variance between parent and child reports of child psychopathology remains unexplained, particularly in relation to internalising problems in adolescents, with no consensus on who is likely to report more problems and under what circumstances. With adolescence being a time when young people become more independent and spend increasing time separate from their parents (Carr, 2006), self-report is a natural source of information about a young person's difficulties in the clinic. Yet adolescents are unlikely to initiate referrals themselves, rather it is parents or school that instigate contact with mental health services on their behalf (Flisher et al.,

1997). Therefore, it seems important to have a clear understanding of discrepancies during this period and what they mean in terms of understanding adolescent psychological functioning.

Aims of Review

The aim of this systematic review was to synthesize the literature on the impact of parent mental health on parent-adolescent agreement regarding adolescent internalising problems. In particular the goals were to explore systematically: (1) whether agreement about internalising problems is greater or poorer when parent informants have mental health problems themselves; and (2) whether parent mental health problems result in over- or under-report of adolescent internalising problems in comparison with the young person's self-report. A systematic review approach facilitates coherent understanding of patterns and relationships between variables and contributes to both clinicians' and researchers' understanding of how to integrate different informants' reports of adolescents' symptoms.

Methodology

Relevant papers were identified using a systematic search strategy and then assessed using quality criteria developed from guidelines provided by the Agency for Healthcare Research and Quality (AHRQ; 2002) indicators and the Centre for Reviews and Dissemination (CRD, 2009) guidance for undertaking reviews in health care.

Search Strategy

Relevant articles for this review were identified using a combination of electronic databases, citation, and reference list searches (Petticrew & Roberts, 2006).

Papers were first identified through identical systematic searches of electronic databases including OVID databases (Medline (1949-2011); EMBASE (1980-2011) and EBSCO collections (CINAHL-Plus with Full Text, MEDLINE with Full Text, PsycINFO, and the Psychology and Behavioral Sciences Collection; 1951-2011). No search limits were imposed during the initial searches and search terms were not mapped in order to obtain a comprehensive selection of potential studies for the review. Search terms included keywords from relevant literature, terms associated with the review objective and other closely related words. Details of the exact terms used are provided in Table 1.

Two searches were conducted in an identical manner using each of the databases. Search A obtained papers examining parent-child agreement on any measure using search terms labeled 'search terms A', identifying a total of 36621 studies across all electronic databases included. Search B obtained papers examining parents with mental health problems using the terms labeled 'search terms B' and produced a total of 13848 papers. The two

searches were then combined to incorporate papers addressing both parent-child agreement and issues of parent mental health. The removal of duplicates left a total of 150 potentially relevant papers.

Table 1. Overview of search strategy

Databases searched:

OVID databases

Medline (1949 – 2011)

EMBASE (1980 – 2011)

EBSCO collections (1951 – 2011)

CINAHL Plus with Full Text

MEDLINE with Full Text

PsycINFO

Psychology and Behavioral Sciences Collection

Search terms A: “Parent-child agreement”, “Parent-adolescent agreement”, “Mother-child agreement”, “Father-child agreement”, “Mother-adolescent agreement”, “Father-adolescent agreement”, “Interrater reliability”, “Cross-informant agreement”, “Parent and adolescent report”, “Parent and child report”, “Mother and child report”, “Father and child report”, “Mother and adolescent report”, “Father and adolescent report”, “Child assessment”, “Adolescent assessment”, “Reporting bias”. The search term “reporting discrepans\$” was initially included, but later abandoned due to it producing either no results or the same results as “reporting bias”.

Search terms B: “Parental mental health” AND “Maternal mental health” AND “Paternal mental health” AND “Parent depression OR anxiety OR stress OR distress/ OR mood OR emotions\$” AND “Maternal depression OR anxiety OR stress OR distress OR mood OR emotions\$” AND “Paternal depression anxiety OR stress OR distress OR mood OR emotions\$”.

Titles and abstracts of these 150 studies were examined for relevance based on predefined inclusion and exclusion criteria, outlined in Table 2.

Papers where it could be clearly ascertained from the title or abstract that they were irrelevant or did not meet the inclusion criteria were excluded. Where this was not clear, the full text was obtained and assessed for relevance. The

reference lists of the remaining papers (19) were then searched for relevant articles. This produced a further 101 studies that appeared to meet inclusion criteria based on their titles, meaning that a total of 251 article abstracts were screened for relevance. Of these, 38 were identified as potentially appropriate. A subsequent full-text review of these articles left 11 which met the inclusion criteria, with one paper eliminated because it had used the same data sample as another. In this instance the more recent paper, published in 2001, was selected because the analysis was broken down into internalising and externalizing problems separately, which seemed more relevant to this review. Additionally, this stage included the exclusion of papers published prior to the year 2000 such that the review would focus on the most contemporary literature produced over the past ten years. Finally a 'web-of-knowledge' cited-reference search was conducted on these 11 papers to examine whether they had been cited by any papers not already considered for inclusion. This produced a further four papers that met inclusion criteria, the references of which were checked, but no further new papers were identified. It was not possible to source the full-text article for one paper at the time of writing, leaving a final total of 14 studies included in the review. Figure 1 illustrates a flow-chart of the search process.

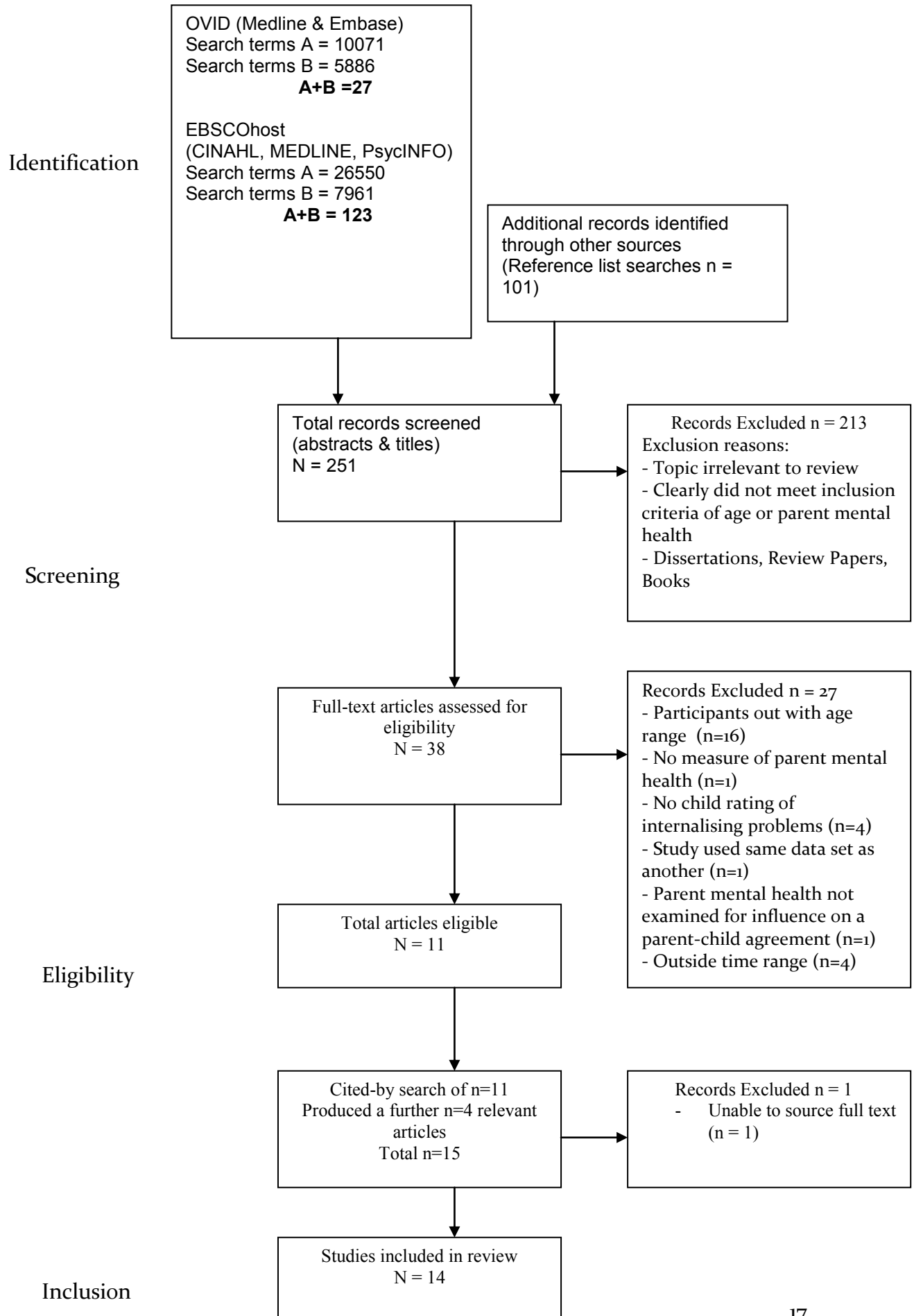


Figure 1. Flowchart of search process

Criteria for Inclusion and Exclusion

The following criteria were used to assess the eligibility of studies for inclusion in this systematic review: (a) the paper was written in English and published in a peer-reviewed journal, (b) the study examined agreement between adolescents and their parents, including biological, adoptive or foster parents, (c) participants were adolescents, aged 10-19 years as defined by the World Health Organisation (WHO, 2012), (d) the study included both an adolescent self-rating and a parent proxy-rating of adolescent internalising symptoms, (e) the study included a formal measure of parent psychopathology, determined either by clinical interview by a qualified professional or by completion of a standardized measure, and (f) the study explicitly examined the effect of parent mental health on agreement between parent and adolescent ratings of adolescent emotional well-being in relation to the adolescent's self-report. Dissertations, review articles, book chapters and case studies were excluded, as were studies that examined exclusively agreement regarding externalising or behaviour problems.

Table 2. Inclusion and Exclusion Criteria

Inclusion

- Adolescents aged 10-19 and their parent(s)
- Both an adolescent self-rating **and** a parent proxy-rating of adolescent emotional/internalising problems were included in the study
- A formal measure of parental mental health (clinical interview or standardized measure) was included in the study
- Parent mental health was examined as an influencing factor on agreement between parent-proxy ratings and adolescent self-ratings of internalising problems.
- Papers published in English and in peer-reviewed journals.

Exclusion

- Review articles including Critical Review, Systematic Review and Meta-analysis.
 - Book chapters, Dissertations and Case studies.
 - Papers examining exclusively agreement about externalising or behaviour problems.
 - Studies of poor methodological quality based on the quality analysis
-

Data Extraction

Data from each paper was summarised in relation to the key variables associated with the purpose of the systematic review. Many of the included studies examined surplus variables and conducted statistical analyses that were not relevant to the purpose of this systematic review. Therefore, each paper was reviewed and data relevant to the research objective was extracted (CRD, 2009), including relevant research objectives, study design, participants, measures, definition of parent-adolescent 'agreement', data analysis and key findings. Extracted data is displayed in Table 3.

Table 3. Extraction of Relevant Information from Included Studies

Study	Relevant Research Objectives	Country	Design	Sample	Age	Measures	Definition of Agreement	Analyses
Youngstrom et al., 2000	Examine whether agreement between parents and sons was correlated with caregiver psychological functioning, specifically depressive symptoms	USA	Observational	394 Schools involved in Pittsburgh Youth Study	12-16	CBCL/YSR (self-report) Structured Interview based on DSM-III Depression, stress, substance misuse	Interrater correlations Differences in raw scores, q-correlations & generalized distance.	Correlations Regression
Najman et al., 2001	Examine the influence of mental or emotional impairment of the respondent on reports of a child's behaviour/mental health	Australia	Longitudinal/ Observational	70% of 7241 Mater-University study of pregnancy & outcomes	14	CBCL/YSR (self-report) DSSI/SAD (self-report) maternal depression & anxiety	Mother – child difference scores Kappa coefficients (agreement on individual items)	Poly-nomial Regression Sensitivity & Specificity
Borge et al., 2001	Examine the extent of maternal emotional distress on the agreements and differences among ratings	Norway	Observational	216 (111M; 105F) Junior High Schools	13-15	RRPSS + Developed a child version of this scale. BFW maternal emotional distress	Odds ratio to express the strength of agreement across informants	Regression

Table 3. Continued

Study	Relevant Research Objectives	Country	Design	Sample	Age	Measures	Definition of Agreement	Analyses
Berg-Nielsen et al., 2003	Examine how mothers' depression influences accounts of mental problems of their adolescents compared to the adolescents themselves.	Norway	Observational	65 (gender unspecified) CAMHS	11-17	CBCL/YSR HADS (self-report) depression & anxiety	CBCL-YSR difference score	Pearson's correlations Regression coefficients
Treutler & Epkins, 2003	Examine whether parent psychological symptoms contribute to discrepancies between parents and children on ratings of internalizing issues.	USA	Observational	100 (50M: 50F) Community sample through newspaper adverts	10-12	CBCL/YSR BSI (self-report)	CBCL/YSR difference score	Hierarchical regression
Martin et al., 2004	Explore how parent stress relates to patterns of agreement between parents and children	USA	Observational	274 (gender unspecified) Child & Adolescent Psychiatry	11-18	CBCL/YSR BSI (self-report)	Kappa coefficient	Pearson's correlations ANOVA
Barker et al., 2007	Identify predictors of adolescent-mother discrepancies.	USA	Observational	128 (78M: 55F)Community	Mean age 13.84	CBCL/YSR CES-D(self-report)	CBCL/YSR difference score	Regression Correlations

Table 3. Continued

Study	Relevant Research Objectives	Country	Design	Sample	Age	Measures	Definition of Agreement	Analyses
Renk et al., 2007	Clarify the relationship between parental anxiety & depression and parental ratings of adolescent internalizing problems	USA	Observational	272 (142M:130F) Community Sample	11-18	CBCL/YSR BDI, BAI (self-report) anxiety & depression	Correlations between parents & adolescents ratings Paired t-tests: to examine the discrepancies among ratings by informants	Correlations Hierarchical regression
Ghesquiere et al., 2008	Examine the associations between parent PTSD symptoms and parents ratings of adolescent PTSD symptoms	USA	Observational	99 (gender unspecified) +parents Clinical	12-18	Adolescent PTSD-RI/PTSD-RI PCL-C	Kappa coefficient Poor agreement between parents & adolescents at time 1 & 2, moderate at time 3 & 4	Kappa Coefficient
Garstein et al., 2009	Apply statistical advancements to understand the extent to which maternal depression distorts reports of child and adolescent psychopathology & the contribution of maternal depressive symptoms to over-reporting	USA	Longitudinal/ Observational	221 (108M:113F) Community Sample of 'at risk' adolescents	10-14	BSI & CBCL (self-report) psychological symptoms CES-D (self-report) depression	SEM analyses	SEM analyses (structural equation modelling)

Table 3. Continued.

Study	Relevant Research Objectives	Country	Design	Sample	Age	Measures	Definition of Agreement	Analyses
Hood et al., 2009	Test whether a higher degree of depressive symptoms in caregivers of youth with diabetes would inflate their proxy reports of youth depressive symptoms in comparison to the youth's own report	USA	Observational	187 Children receiving tertiary service care from MDT re: diabetes	10-18	CDI/CDI:P (self-report) depression CES-D (self-report) depression	Regression analyses with CDI, CES-D, their interaction & covariates as predictors of the CDI:P	Regression Analyses
Klaus et al., 2009	Explore factors that might differentiate parent-only report from parent-child agreement regarding youth suicidal thoughts & behaviours, including parent psychopathology	USA	Observational	448 (gender unspecified) Suicidal patients in admitted to a psychiatric hospital	13-17	DISC-IV / K-SADS / SIQ-JR / YSR suicidal ideation questions (structured interview) BSI / FHS (self-report) emotional distress & parental history of depression	Kappa values	Regression analyses

Table 3. Continued

Study	Relevant Research Objectives	Country	Design	Sample	Age	Measures	Definition of Agreement	Analyses
Van der Toorn et al., 2010	Analyse the effect of maternal depressive and anxious symptoms separately on informant discrepancies for boys and girls. To what extent are maternal depression and anxiety symptoms predictors of positive mother-child reporting discrepancies on affective and anxiety problems in children?	Holland	Observational	1986 (971M; 1015F) Community Sample from the TRAILS study	10-12	YSR/CBCL DASS-21 (self-report) depression & anxiety	Standardised difference scores for depression & anxiety	Correlation coefficients Linear Regression analyses
Hughes & Gullone, 2010	Examine whether higher levels of parent depressive, anxiety or stress symptoms would be associated with greater informant discrepancies regarding adolescent symptoms.	Australia	Observational	219 (123M; 96F) Community sample – high schools	13-18	RADS-2/RCMAS / CBCL internalizing (self-report) depression & anxiety DASS-42 (self-report) depression, anxiety & stress	Discrepancy/Difference scores	Correlations Hierarchical regression

Quality Criteria

The use of quality assessment in systematic reviews of intervention studies or randomized controlled trials (RCT) is well established and reviews by Moher et al. (1995) and Verhagen et al. (2001) have identified that between 25 and 60 quality assessment tools now exist. However, the use of quality assessment tools to appraise non-intervention studies, such as those of an observational design, in systematic reviews is less well established. This may reflect the generally accepted view that RCTs are the gold-standard by which interventions should be assessed (AHRQ, 2002). However, health care practices also require knowledge about the aetiology of mental health difficulties and this tends to come from observational research (von Elm et al., 2007). Since quality assessment tools allow original research to be systematically appraised and evaluated based on a set of stringent criteria, it seems appropriate for this to be applied to the evaluation of non-intervention research as well. The range of methods used to assess non-intervention studies is widely varied, possibly due to the lack of standardised quality assessment tools, and ranges from formally developed guidelines to vague reference to relevant criteria (von Elm et al., 2007).

In order to assess the quality of the studies included in this systematic review, a combination of checklists was employed. Quality appraisal criteria for observational studies described in the Systems to Rate the Strength of Scientific Evidence document (AHRQ, 2002) formed the basis of the checklist

used in this review. However, additional criteria relating to quality of reporting, presentation of results and the generalisability of outcomes as described in the Centre for Reviews and Dissemination (CRD, 2009) guidance for undertaking reviews in health care, were also included to ensure that studies were thoroughly assessed with criteria most pertinent to the review questions. Although the AHRQ criteria are relatively comprehensive, Mallen, Peat, and Croft (2006) suggested that including additional criteria from alternative checklists is advantageous because one single quality checklist may not include all relevant items or may include irrelevant items and this may result in risk of misclassification of study quality. Therefore a quality assessment form derived from both was considered optimal to suit the requirements of this systematic review.

Together the AHRQ criteria and the CRD guidance provide a comprehensive overview of the essential aspects of observational research with a focus on methodological quality, particularly issues of external and internal validity. Six sections with items relating to the introduction, methods, results and discussion of each article were included. For the purpose of the current review, these items were organised into groups in order to present the results in a structured manner encompassing aspects of both the quality of reporting as well as quality of the studies themselves. Quality appraisal results are presented in Table 4. Closed or partial circles were used to indicate whether each criterion was fully or partially met, whilst an open circle denoted that the

criterion was not met (AHRQ, 2002). Partially meeting a criterion meant that some elements of that criterion were present, but at least one essential aspect was missing. Elements appearing in bold are those for which the criteria denote as requiring to be fully met, therefore, partial ratings could not be given for these (AHRQ, 2002).

Table 4. Quality appraisal of studies exploring the impact of parent psychopathology on parent-adolescent agreement about adolescent internalising problems.

		Youngstrom et al., 2000	Borge et al., 2001	Najman et al., 2001	Berg-Neilsen et al., 2003	Treutler & Epkins 2003	Martin et al., 2004	Renk et al., 2007
Intro- duction	Study design identified	●	○	●	○	○	○	○
	Scientific background & rationale describe	●	●	●	●	●	●	●
	Study objectives and hypotheses highlighted	●	●	○	○	●	●	●
Study Population	Description of study population(recruitment/source)	●	●	●	●	○	●	●
	Sample size justification	○	○	○	○	○	○	○
	Specific inclusion/exclusion criteria for all groups	●	○	●	○	○	○	●
	Criteria applied equally to all groups	●	○	●	○	○	○	●
	Comparability of participants vs non-participants	●	○	○	○	○	●	●
Exposure & Outcomes	Clear definition of exposure	○	●	●	○	○	●	●
	Measurement method (standard/valid/reliable)	○	◐	●	●	●	●	●
	Exposure measured equally in all study groups	●	●	●	●	●	●	●
	Primary/Secondary outcomes clearly defined	●	●	●	●	●	●	●
	Method of outcome assessment (standard/valid/reliable)	●	◐	●	●	●	●	●
Analyses	Statistical Tests Appropriate (valid/appropriate measure of effect/precision)	●	●	●	●	●	●	●
	Multiple comparisons taken into consideration	●	●	●	●	●	●	●
	Power calculation provided	○	○	○	○	○	○	○
	Assessment of confounding	●	○	○	○	○	●	●
Results	Effect size reported	●	●	○	●	●	●	●
	Missing data recorded/accounted for	●	○	●	○	○	○	○
	Presentation of results (includes mean, SD, CI & test data)	●	●	◐	◐	◐	●	●
Discuss- ion	Key results summarised	●	●	●	●	◐	●	●
	Conclusions supported by results- biases/limitations	●	○	○	○	●	●	●
	Generalisability	●	◐	●	◐	◐	◐	◐

Table 4. Continued

		Barker et al., 2007	Ghesquiere et al., 2008	Hood 2009	Klaus et al., 2009	Garstein et al., 2009	Hughes & Gullone 2010	Van-der Toorn et al., 2010
Intro- duction	Study design identified	○	○	○	○	●	○	●
	Scientific background & rationale describe	●	●	●	●	●	●	●
	Study objectives and hypotheses highlighted	●	●	●	●	●	●	●
Study Population	Description of study populations (recruitment/source)	○	○	●	○	●	○	●
	Sample size justification	○	○	○	○	○	○	○
	Specific inclusion/exclusion criteria for all groups	○	○	●	○	●	○	●
	Criteria applied equally to all groups	○	○	●	○	●	○	●
	Comparability of participants vs non-participants	○	○	◐	○	●	●	●
Exposure & Outcomes	Clear definition of exposure	○	○	●	●	●	○	●
	Measurement method (standard/valid/reliable)	●	●	●	●	●	●	●
	Exposure measured equally in all study groups	○	●	●	●	●	●	●
	Primary/Secondary outcomes clearly defined	●	●	●	●	●	●	●
	Method of outcome assessment (standard/valid/reliable)	●	●	●	●	●	◐	●
Analyses	Statistical Tests Appropriate (valid/appropriate measure of effect/precision)	●	●	●	●	●	●	●
	Multiple comparisons taken into consideration	●	●	●	●	●	●	●
	Power calculation provided	○	○	○	○	○	○	○
	Assessment of confounding	●	●	●	●	●	○	●
Results	Effect size reported	●	●	●	●	●	●	●
	Missing data recorded/accounted for	○	○	●	○	●	●	●
	Presentation of results (includes mean, SD, CI & test data)	◐	◐	◐	◐	●	◐	●
Discussion	Key results summarised	◐	●	●	●	◐	●	●
	Conclusions supported by results- biases/limitations	○	●	○	●	●	●	●
	Generalisability	○	○	○	○	◐	◐	●

Data Synthesis

The CRD (2009) guidelines recommend that a narrative synthesis be used to assess the overall strength of the evidence as it provides a subjective, yet rigorous and transparent approach to analysis of the relationships between studies. Therefore, this strategy was employed in assessing the quality of papers included in this review.

Results

Preliminary Synthesis

General overview of papers.

There were 14 studies included in this systematic review. The standard of methodological quality reported was variable, with some studies providing more comprehensive outlines of sample, data collection and analysis procedures. There were 23 criteria used to assess the overall quality of each study, seven of which were required to be met fully. For ease of description papers were grouped such that papers considered to be of 'high' quality met 15 or more of the overall criteria and six or more of the mandatory criteria (Gartstein, Bridgett, & Dishion, 2009; Hood, 2009; Martin et al., 2004; Renk et al., 2007; van der Toorn et al., 2010; Youngstrom et al., 2000). Papers that met between 11 and 15 of the overall criteria and between three and five of the mandatory criteria were considered to be of 'medium' quality (Berg-Nielsen, Vika, & Dahl, 2003; Borge, Samuelsen, & Rutter, 2001; Ghesquiere et al., 2008;

Hughes & Gullone, 2010; Klaus, Mobilio, & King, 2009; Treutler & Epkins, 2003). Any studies meeting less than ten of the overall criteria and/or less than three of the mandatory criteria were regarded as being of 'poor' quality and were subsequently excluded from the review (Barker et al., 2007).

Although there is some recommendation that low quality studies should be retained for data synthesis on the basis that the low scores may have been a result of poor quality reporting rather than poor methodological quality (CRD, 2009), the retention of such studies can also impact on the robustness of the synthesis and reduce the strength of conclusions drawn from the review.

Therefore, the results of the 13 studies grouped as 'medium' or 'high' quality are presented below and results and conclusions are based on these.

All 13 included studies explored the association between, or impact of, various categories of parental emotional distress or psychological functioning on agreement between parents and their adolescents about the latter's experience of internalising problems. The data obtained from these studies reflects the analysis of 9159 adolescents aged between 10 and 18 years of age and their caregivers, who consisted of a selection of biological-, step-, adoptive- and grand-parents. The research was conducted within 'western' countries only, predominantly the United States, with only three conducted in Europe and two in Australia. Studies spanned both community and clinical settings and encompassed participants of moderate to high socio-economic status. The principal method of data collection was adolescent self-report and

parent-proxy report using standardised questionnaire measures to obtain parent and adolescent views on adolescent emotional difficulties. One study used a semi-structured interview process to gather this information (Klaus et al., 2009). Similarly, for the collection of data on parental psychological functioning, including depression, anxiety, stress and substance misuse, the predominant method was self-report using standardised questionnaires, with only one study having employed a structured interview schedule (Youngstrom et al., 2000).

Impact of parent mental health on agreement

Twelve studies reported that parental psychological distress contributed to discrepancies between parent and adolescent reports of adolescent emotional problems (Berg-Nielsen et al., 2003; Borge et al., 2001; Gartstein et al., 2009; Ghesquiere et al., 2008; Hood, 2009; Hughes & Gullone, 2010; Martin et al., 2004; Najman et al., 2001; Renk et al., 2007; Treutler & Epkins, 2003; van der Toorn et al., 2010; Youngstrom *et al.*, 2000). The remaining study reported no effect of parent psychological distress on agreement and concluded that parent psychological symptoms did not distort perceptions of adolescent symptoms (Klaus et al., 2009). Interestingly, in this latter study, greater discrepancies between parents and adolescents were found when the youths endorsed more symptoms in themselves than did their parents in them. The authors (Klaus et al., 2009) subsequently suggested that parental experience of affective illness improved parent sensitivity to their

adolescent's experience of distress, evidenced by greater parent-adolescent agreement in such cases. However, these results were in contrast with the majority of studies included in this review.

Ten studies found that parents suffering from a form of psychological distress tended to report a higher level of emotional problems in adolescents overall (Borge et al., 2001; Gartstein et al., 2009; Ghesquiere et al., 2008; Hood, 2009; Hughes & Gullone, 2010; Martin et al., 2004; Najman et al., 2001; Renk et al., 2007; van der Toorn et al., 2010; Youngstrom et al., 2000). This pattern manifested when parent report of symptoms was compared to adolescent self-report (Gartstein et al., 2009; Ghesquiere et al., 2008; Hood, 2009; Hughes & Gullone, 2010; Martin et al., 2004; Najman et al., 2001; van der Toorn et al., 2010; Youngstrom et al., 2000) as well as when compared to parents without mental health difficulties (Borge et al., 2001; Ghesquiere et al., 2008; Martin et al., 2004; Najman et al., 2001). Parents who fell below clinical cut-off levels for psychological distress showed a propensity to report fewer symptoms than adolescents endorsed in themselves, whilst parents with higher levels of psychological problems were inclined to over-report adolescent symptoms compared to adolescent self-report (Borge et al., 2001; Martin et al., 2004; Najman et al., 2001). It was also evident that greater psychological impairment in the parent was associated with reliably larger discrepancies between parent and adolescent reports of adolescent emotional symptoms (Berg-Nielsen et al., 2003; Hood, 2009; Martin et al., 2004; Najman et al., 2001; van der Toorn et al.,

2010; Youngstrom et al., 2000). However, one paper suggested that, although mothers and adolescents showed relatively little agreement regarding the presence of adolescent problems, as parent psychopathology increased there was an improvement in agreement when adolescents identified problems in themselves (Najman et al., 2001). This was illustrated through analyses exploring the effect of parent mental health on sensitivity (agreement when youth reports a problem) and specificity (agreement when youth does not report a problem). The greater the level of parent mental health impairment, the more parent-adolescent agreement was found when the adolescents also identified problems in themselves. However, agreement was poorer when level of parent mental health impairment was higher and adolescents did not identify problems in themselves (Najman et al., 2001). As such, mental health problems in parents improved their sensitivity to adolescent problems that were present according to the young person, but decreased parent specificity about problems that the young person did not endorse.

Type of Parent Mental Health Problem

A diverse range of parental psychological symptoms was assessed, including depression, stress, anxiety, substance misuse, post-traumatic stress symptoms and emotional distress in general. Two studies examined parental depression exclusively (Gartstein et al., 2009; Hood, 2009) and five studies explored the combined effect of parental depression and anxiety (Berg-Nielsen et al., 2003; Hughes & Gullone, 2010; Najman et al., 2001; Renk et al., 2007; van

der Toorn et al., 2010). Three studies examined the effect of generic psychological or emotional distress (Borge et al., 2001; Klaus et al., 2009; Treutler & Epkins, 2003), two examined symptoms of stress either in general (Youngstrom et al., 2000) or relating to the parenting role (Martin et al., 2004) and one focused on parent and adolescent post-traumatic stress disorder (Ghesquiere et al., 2008). No pattern of differential findings emerged among disorder types based on the method, questionnaire or interview, through which data regarding parent psychological symptoms was collected.

In 12 of the studies reviewed, parents reported more problems in their adolescent offspring than the young people endorsed in themselves. This pattern emerged for depression alone (Gartstein et al., 2009; Hood, 2009; Hughes & Gullone, 2010; van der Toorn et al., 2010), for depression and anxiety combined (Berg-Nielsen et al., 2003; Hughes & Gullone, 2010; Najman et al., 2001; Renk et al., 2007; van der Toorn et al., 2010) for emotional or psychological distress (Borge et al., 2001; Treutler & Epkins, 2003), for stress (Martin et al., 2004; Youngstrom et al., 2000) and for PTSD (Ghesquiere et al., 2008). Only Klaus et al. (2009) found the opposite to be true; that parent experience of current emotional distress resulted in adolescents reporting experiencing more suicidal thoughts than parents considered of them. Additionally, again in contrast to the majority of studies in this review, Klaus et al. (2009) also reported that parent history of depression led to increased

levels of parent-adolescent agreement about adolescent internalising problems.

Only the two most recent papers included in this review compared the variance in effect of discrete parent symptoms on mother-adolescent agreement. Van der Toorn and colleagues (2010) concluded that a combination of depression and anxiety symptoms explained mother-adolescent difference scores for both anxiety and depression in the adolescent. However, when broken down further only current mother depression, not anxiety, accounted for some of the variance between mother and adolescent scores. Hughes & Gullone (2010) similarly reported that maternal anxiety added little to the understanding of parent-adolescent disagreement, whilst maternal depression and stress separately accounted for differences between mothers and sons, but not daughters. Interestingly, a different pattern emerged for fathers, with depressive symptoms showing no contribution to reporting discrepancies, but rather anxiety and stress separately explaining disagreement regarding daughters, but not sons (Hughes & Gullone, 2010). Although the first study described here was rated more highly for methodological quality, both were conducted within community samples, with the main observable difference being that the van der Toorn (2010) study comprised younger children.

One study explored parent-adolescent agreement with adolescents who had been hospitalised within a psychiatric setting following a serious suicide attempt and/or risk (Klaus et al., 2009). Adolescents who had been admitted to a psychiatric ward following a recent suicide attempt tended to report more suicidal ideation than their parents when parents had low levels of emotional distress. In contrast, parents who reported a history of depression themselves showed better agreement with their adolescents. In all other cases increases in parental emotional distress, irrespective of the diagnosis, were associated with greater parent-adolescent disagreement.

Four studies focused on clinical samples including adolescents referred to child and adolescent mental health or psychiatry services (Berg-Nielsen et al., 2003; Ghesquiere et al., 2008; Klaus et al., 2009; Martin et al., 2004). The remainder concentrated on community samples recruited through schools (Borge et al., 2001; Hughes & Gullone, 2010; Youngstrom et al., 2000), newspaper advertisements (Gartstein et al., 2009; Renk et al., 2007; Treutler & Epkins, 2003), birth cohort groups (Najman et al., 2001; van der Toorn et al., 2010) or adolescents receiving treatment at a diabetes clinic (Hood, 2009). The agreement patterns described above between parents and adolescents were similar whether recruitment was through clinical or community samples, suggesting such patterns exist irrespective of the clinical status of the adolescent.

Subgroups

Definition of agreement.

The definition and measurement of agreement, and the subsequent statistical analyses conducted, varied between studies. The most frequently employed technique to define agreement within studies included in this review was calculation of difference scores by subtracting the adolescent self-report score from the parent-proxy score (Berg-Nielsen et al., 2003; Hughes & Gullone, 2010; Najman et al., 2001; Treutler & Epkins, 2003; van der Toorn et al., 2010; Youngstrom et al., 2000). Five of these studies used Achenbach's (1987) Child Behaviour Checklist (CBCL) and Youth Self-Report inventory (YSR) which had been specifically designed to have matching parent and youth report forms. Hughes and Gullone (2010) used the CBCL, but in comparison with the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1985) and the Reynolds Adolescent Depression Scale (Reynolds, 2002). All six of these studies then analysed the impact of parent mental health on this difference score using regression analyses.

Pearson correlations were used to assess agreement by three studies (Hood, 2009; Klaus et al., 2009; Renk et al., 2007), with all three using regression analyses to explore the impact of parent mental health on relationships between parent scores and adolescent scores. Although the measures used varied, all three studies used matched parent and youth questionnaires, specifically the CBCL and YSR (Renk et al., 2007), the

Children's Depression Inventory (Hood, 2009) and the Diagnostic Interview Schedule for Children, version-IV (Klaus et al., 2009). The latter study included additional measures of suicidal ideation, which were not matched questionnaires for parent and youth and it was the only study included in this review that suggested that parent mental health problems did not contribute to parent-adolescent disagreement about adolescent symptoms.

Alternative methods for assessment of agreement included Cohen's kappa coefficient statistics (Ghesquiere et al., 2008; Martin et al., 2004; Najman et al., 2001). These papers used various matched parent-youth questionnaires, but conducted different statistical analyses on the data, including regression (Najman et al., 2001), correlation (Martin et al., 2004) and further kappa coefficients (Ghesquiere et al., 2008). Odds-Ratios (Borge et al., 2001) and Semantic Equation Modelling (Gartstein et al., 2009) were other methods by which agreement was assessed. However, whilst Borge et al. (2001) used the comparable parent and youth versions of the Revised Rutter Scales (Elander & Rutter, 1996) and conducted regression analyses, Gartstein et al. (2009) used score on the CBCL, the Brief Symptom Inventory and the Symptom Checklist 90-Revised to conduct Semantic Equation Modelling analyses.

No patterns were observed regarding measurement of agreement between studies of varying quality. However, all high quality studies used

regression analyses to explore the impact of parent mental health on agreement.

Gender Differences.

Mothers were the most frequently examined raters with all 13 papers including a comparison of mother and adolescent report. Nine studies also included father ratings (Borge et al., 2001; Gartstein et al., 2009; Ghesquiere et al., 2008; Hood, 2009; Hughes & Gullone, 2010; Martin et al., 2004; Renk et al., 2007; Treutler & Epkins, 2003; Youngstrom et al., 2000) and two studies specifically identified the inclusion of 'other' carers which comprised grandparents or other relatives who were principal carers (Hood, 2009; Youngstrom et al., 2000). Of these, only five studies explored gender differences relating to either mother-adolescent or father-adolescent agreement or to parent- daughter or son in the context of parent psychological functioning (Borge et al., 2001; Gartstein et al., 2009; Hughes & Gullone, 2010; Renk et al., 2007; Treutler & Epkins, 2003). Results were varied, with no consistent trend for agreement to be better for mothers or fathers, daughters or sons. In one study parent depressive symptoms were associated with both mother- and father-adolescent reporting discrepancies (Renk et al., 2007). This corresponded with Borge et al. (2001) who identified high maternal emotional distress to correspond with an increased chance of both mother and father reporting of greater adolescent problems irrespective of the father's own level of distress. However, it contrasts with another study which found only

mother's symptoms, not father's, to be related to reporting discrepancies (Treutler & Epkins, 2003). Garstein et al. (2009) reported that maternal depression was associated with over-reporting of symptoms for daughters but not sons and suggested that for sons a more direct causal link existed between mother and son emotional distress. Contrastingly, Hughes & Gullone (2010) found that maternal symptoms correlated with daughter report, but not sons, and father symptoms with son report but not daughters.

Robustness of the synthesis

Heterogeneity of the research designs included in this review must be taken into consideration when drawing conclusions. Studies used a diverse range of population groups, methods and statistical analyses, which may impact upon the generalisation of results. Furthermore, although narrative synthesis is recommended when more rigorous review techniques cannot be applied (Popay et al., 2006), it is essentially a subjective process, which can be susceptible to reviewer bias. Finally, the shortage of well-established methods for assessing the quality of non-intervention studies meant that criteria for quality appraisal were adapted as best possible to suit the needs of this review and accordingly, results may be less robust.

Discussion

Principal Findings

This systematic review sought to determine the influence of parent mental health difficulties on parent-adolescent agreement regarding adolescent internalising problems. The results indicate that various states of parental emotional distress are associated with greater discrepancies between parent and adolescent reports of adolescent functioning. Parents suffering psychological distress showed a tendency to report more symptoms in their children than the adolescents endorsed in themselves. One paper suggested that a progressive association is evident, where discrepancies increased with increasing severity of parent mental health difficulty. This may indicate that mental health impairment may be related to the magnitude of the observation bias (Najman et al., 2001). No particular trends were identified relating to child age or gender, and there was only weak suggestion that depression may have more impact than other types of distress on mothers' reports, whilst anxiety may do the same for fathers' reports.

Parent mental health problem

This review indicates that variance between parent and adolescent report of adolescent symptoms is discrepant regardless of the type of parent mental health difficulty. Overall, this review appears to have produced results in line with what has previously been defined as the 'depression distortion hypothesis' and lends support to the suggestion that this could be extended

beyond depression to parent psychopathology in general (Muller, Achtergarde, & Furniss, 2011). This theory asserts that depressed mothers, when compared with non-depressed mothers, tend to overstate their child's symptoms and that mothers' judgments of their children's functioning can be predicted by their own depressive symptoms (Richters, 1992). Although results of this review support this hypothesis, they go no further to explain the causal mechanisms behind it. However, the observation that parents with higher levels of affective illness do appear to systematically over-report child symptoms fits with the associated biases in attention and interpretation common in affective illness (Carr & McNulty, 2006). Both anxiety and depressive disorders in particular are associated with irrational beliefs and biased inferential process, to the extent that these appear as diagnostic criteria in the DSM-IV (American Psychiatric Association, 2000). Similarly, there has been suggestion that memory biases can accompany emotional disorders (Beck, Emery, & Greenberg, 1985; Bradley, Mogg, & Williams, 1995). Therefore, it may be that parents suffering from mental ill-health misperceive or inaccurately interpret or recall normal child behaviour, leading to skewed reports. As such, it may be of interest in further research to explore the relative contributions of distorted cognitive function, reduced tolerance of normative behaviours and inaccurate perceptions, to discrepant reports of children's emotional states.

Of particular note is the finding that this pattern of disagreement is present irrespective of the clinical status of the sample. Previous research has indicated a difference between clinical and community child populations (Frank, Van Egeren, Fortier, & Chase, 2000; Martin et al., 2004; Seiffge-Krenke & Kollmar, 1998). However, this review suggests that when parental mental health difficulties are accounted for, parents report more problems than adolescents irrespective of whether the child is attending a psychology or psychiatry service.

The one paper (Klaus et al., 2009) which found opposing results, suggestive that parents' own experiences of low mood facilitated their understanding of their adolescents' inner worlds, differed from the other papers reviewed in a number of ways. First, it was the only study which involved adolescent participants who were inpatients in a psychiatric hospital at the time of taking part in the study. It could be that agreement may have been improved by parents' increased awareness of the severity of their adolescent's emotional distress following the hospital admission. Furthermore, it focused on a specific aspect of adolescent emotional problems, namely suicidal thoughts, whilst the majority of other studies explored agreement about more general internalising problems. It is possible that parents who had experienced low mood or depression themselves were more aware of the associated occurrence of suicidal ideation than parents who had not experienced this for themselves. This could potentially explain the

enhanced agreement between parents and adolescents in this particular study. Tarullo et al. (1995) also produced evidence to refute the depression-distortion hypothesis in their study with mothers suffering Bipolar Affective Disorder. Perhaps when parental psychopathology goes beyond mild to moderate levels of depression or anxiety, as is generally the focus of studies on informant discrepancies, the pattern of disagreement is altered. However, it is interesting to note that Klaus et al. (2009) was the only study to use a clinical interview to obtain information from adolescents and their parents, with all other included studies using questionnaires. This may have facilitated greater clarity of information gained from both parent and adolescent participants, which may have impacted upon the pattern of agreement found by this study.

Gender differences

In terms of parental gender differences no consistent pattern was observed in this review. It cannot be concluded whether depression is associated with both mother and father reporting discrepancies or whether it is specific to mothers as neither observable differences in methodological quality nor demographic factors within the included studies appeared to contribute to understanding this variability. Regarding adolescent gender differences the picture is equally unclear. Demographic factors were comparable between the two studies which explored this factor. However, Gartstein et al. (2009) was rated more highly in methodological quality, which could suggest that maternal depression contributes to reporting discrepancies

for daughters more so than for sons. This is in line with other research which has proposed that parents have gender-related expectations of their children and these influence their judgement of childhood problems such that boys are perceived to have more externalising behaviour problems and internalising, emotional difficulties are attributed to girls (Najman et al., 2001).

Additionally, culture and socialisation factors may have contributed to the differences in gender expectations observed within this review; particularly as all studies were conducted within western countries.

Measurement of agreement

A potentially important influencing factor in making sense of parent-adolescent agreement is the formal definition of agreement itself. The most frequently used technique was calculation of the difference score, which facilitated examination of the direction of disagreement and thereby contributed to observation of instances when parents over- or under-report problems as compared with their children. However, the lack of a 'gold standard' by which to determine actual adolescent functioning may inhibit the extent to which such evidence can be relied upon (De Los Reyes & Kazdin, 2005). Difference score calculations appear to be more useful than simply using a correlation to compare parent and adolescent scores, given that they provide greater information on specific aspects of the directionality of disagreement. Kappa coefficients and odds ratios allow agreement on individual items to be compared directly, although utility of this technique can

be compromised by the poor comparability of adolescent self-report and parent-proxy measures. There is a risk that use of measures consisting items on parent-proxy report measures that are not consistent with adolescent self-report measures potentially contributes to differences in the strength and trends of parent-adolescent agreement (Najman et al., 2000) and that measures, such as the Achenbach checklists (CBCL/YSR; Achenbach, 1987) which permit direct comparison of matching items, are recommended (Najman et al., 2000). Interestingly, despite debate over the most effective way in which to measure agreement between respondents, variance in patterns of agreement was not observed to be associated with the methods used by papers in this review, indicating that the corresponding measures may be equally relevant to matching measures. The only evident inconsistency was whether participants' views on adolescent symptoms were gathered through questionnaire or clinical interview, with the latter producing an opposing pattern of agreement. Recommendations to clinicians involved in diagnosis of adolescent mental health problems specifies the necessity of seeing and interviewing the child to obtain a comprehensive picture of their difficulties and potential diagnostic illness (National Institute for Health and Clinical Excellence, NICE, 2005). Therefore, it may be that the increased detail available when information is gathered via interview rather than standardised questionnaire facilitates stronger agreement between parents and adolescent children. However, as only one included paper used interview, this finding

would require further research to define whether it was the topic of the interview or the interview itself which contributed to the discrepant results.

Limitations

Results of this review must be considered in the context of poor generalisability of findings of the included studies due to factors such as small sample sizes and inadequate specification of inclusion and exclusion criteria for participation. Heterogeneity of research designs calls for further cautious interpretation of findings given that differences in sample groups, severity of problems reported and types of parental emotional distress make direct comparison between studies more problematic. Importantly, some of the studies included did not explicitly examine the impact of other potential confounding factors such as socio-economic status, ethnicity and parent-adolescent relationship factors that have previously been found to contribute to parent-adolescent disagreement (Achenbach et al., 1987; De Los Reyes & Kazdin, 2005; Richters, 1992). A number of theories have been suggested relating to the link between parent mental health difficulty and low levels of parent-adolescent agreement. Whilst this review points to the validity of the depression-distortion theory, alternatives should not be overlooked as only a limited number of papers were reviewed in this instance. For example, whether parental mental health problems have a direct causal effect on their well-being or, in contrast, ameliorate their understanding of adolescent distress such that they can better identify signs and symptoms than the

adolescent may be valid alternative conceptualisations of the influence of parental psychopathology. Future reviews may benefit from wider inclusion criteria to allow the exploration of a greater number of influential factors.

Conclusions

The findings of this review illustrate the complexity of making sense of the impact of parent mental health problems on parent-adolescent agreement. Disagreements between adolescent and parent informants on emotional symptoms do not appear to occur at random and there is a clear indication that parent emotional distress is associated with reporting discrepancies between parents and teenagers. One prominent finding of this review is that parents experiencing emotional or psychological distress showed a tendency to over-report adolescent symptoms when compared with the young person themselves or with parents without mental health difficulties. This supports the proposition that mental health difficulties distort parents' perceptions of their adolescent's psychological functioning in a particular direction. Previously parent report of adolescent symptoms has been considered to vary depending on the clinical status of the sample. Specifically with parents reporting fewer symptoms than adolescents in community groups and more symptoms than adolescents in child clinical groups. However, results of this review suggest that this pattern is altered when parent mental health status is accounted for, such that when parents experience psychological distress, they have a tendency to over-report adolescent symptoms irrespective of the

clinical status of the adolescent. Future research should continue to explore the effect of both discrete and co-morbid parent psychopathology on parent-adolescent agreement. Additional parent and child characteristics such as relationship factors, demographic factors the influence of parent or child perspective on mental illness may also be useful to consider. In conclusion, this review highlights the continuing need for a multidimensional clinical assessment approach to understanding the presentation of adolescents in the clinic. It confirms that informants on adolescent psychopathology are not interchangeable and that clinicians need to be mindful of the parental informants' own psychological functioning in the assessment process.

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CHAPTER 2

2. Bridging Chapter: Thesis Aims and Hypotheses

The preceding systematic review illustrated the contribution that parent psychopathology makes to understanding discrepancies between parent and adolescent reports of adolescent emotional health. It demonstrated that irrespective of the clinical status of the young person, parents with higher levels of mental health difficulties are inclined to report greater levels of internalising symptoms in their teenage children than the adolescents endorse in themselves. This knowledge facilitates the reconciliation of conflicting information obtained from different informants; a problem faced by both clinicians and researchers as regards understanding adolescent psychopathology, as well as improving the accuracy of diagnostic formulations and drawing conclusions about treatment or research outcomes (De Los Reyes & Kazdin, 2005). However, other research has identified additional factors which may contribute to poor concordance between informants. Previous studies have indicated that some demographic factors play a variable role in reporting discrepancies. Achenbach *et al.* (1987) reported that agreement decreased as adolescents got older, whilst Grills and Ollendick (2003) found the opposite, and many studies have reported no effect of age (Choudhury, Pimentel, & Kendall, 2003; Engel, Rodrigue, & Geffken, 1994; Kolko & Kazdin, 1993). The picture is equally inconsistent as regards gender such that there is debate regarding whether agreement is better between parents and daughters or sons (Handwerk *et al.*, 1999; Sourander *et al.*, 1999; Stanger & Lewis, 1993; Tarullo, *et al.*, 1995; Verhulst & van der Ende, 1992).

Therefore, whilst it seems clear that parent mental health difficulties explain some of the variance between parent and adolescent report of problems, alternative explanatory factors should not be ignored as they may play an important mediating, moderating or supplementary role in understanding reporting discrepancies.

Of particular interest in the present study is the role that parent-adolescent relationship factors play in understanding why different perspectives exist. Only five studies were identified to have explored the effect of relationship variables. Two studies, Berger *et al.* (2005) and Ehrlich *et al.* (2011), explored the impact of the attachment relationship as measured by the Adult Attachment Interview (AAI; George *et al.*, 1996), which is considered to be the 'gold standard' for measuring adult attachment and is believed to tap into individuals' 'current states of mind with respect to attachment' (George *et al.*, 1996; pg 1). Studies using the AAI reported that greater adolescent attachment security was found to be associated with patterns of mother-adolescent report of adolescent symptoms. Specifically, mother-adolescent dyads where adolescents were rated as having relatively more insecure than secure attachment organisation were more discrepant in their reports (Berger *et al.*, 2005; Ehrlich *et al.*, 2011). Moreover, adolescents showing an insecure-preoccupied pattern of attachment tended to report significantly more symptoms relative to their parents (Berger *et al.*, 2005). The remaining three studies examined self-reported attachment security (Barker *et al.*, 2007) or

specific aspects of the relationship including patterns of communication and quality and quantity of interactions (Jensen *et al.*, 1988a; Treutler & Epkins, 2003). Although neither self-reported attachment security (Barker *et al.*, 2007) nor mother-report of relationship factors (Treutler & Epkins, 2003) were found to be unique predictors of reporting discrepancies, child-reported relationship factors were consistently found to explain variance between parent and adolescent report of adolescent symptoms (Barker *et al.*, 2007; Jensen *et al.*, 1988a; Treutler & Epkins, 2003). These results are in line with attachment theory, in that a secure attachment relationship facilitates parents' understanding of their children's emotional experience (Allen *et al.*, 2003; Allen *et al.*, 1998; Bowlby, 1988).

From a theoretical perspective, attachment organisation is considered to reflect the ways in which individuals regulate and communicate distress (Bowlby, 1988). Cassidy (1994) asserted that differences in attachment relationships can be conceptualised in terms of the emotional and cognitive strategies that are used to cope with distress. Accordingly, individuals who have developed a secure relationship with attachment figures, most commonly mothers, trust that others will provide comfort and support in times of distress and, consequently, communicate openly about their emotional state (Becker-Stoll, *et al.*, 2001; Kobak *et al.*, 1993). Contrastingly, insecure attachment relationships are associated with difficulties expressing distress, including failure to express emotion or exaggerated expression of emotion as a result of

experiences of rejection or inconsistency in response to expression of distress (Allen *et al.*, 2003; Berger *et al.*, 2005; Kobak *et al.*, 1993). Research has found that insecure parent-adolescent relationships are characterised by avoidance of discussion of emotion and reduced self-disclosure to parents (Becker-Stoll *et al.*, 2001; Berger *et al.*, 2005; Kobak *et al.*, 1993; Mikulincer & Nachson, 1991). Taken together, these findings suggest that the relationship between adolescents and their mothers may be related to adolescents' communication of emotional distress to parents and thus to the level of agreement between their reports of emotional symptoms. Additionally, a consistent association between insecure attachment organisation in children and parents and psychopathology in both has been established (Brown & Wright, 2003; Green & Goldwyn, 2002; Greenberg, 1999). Therefore, exploration of the impact of relationship factors and parent mental health in combination on parent-child concordance about child symptoms seems warranted.

Only two studies were identified to have explored these factors in combination. Treutler and Epkins (2003) examined parents' psychological functioning along with the quality and quantity of their involvement with adolescent children, and noted that mother symptoms explained variance over and above relationship factors. Ehrlich *et al.* (2011) explored adolescent attachment classification using the AAI and parent depressive symptoms. They asserted the existence of a link between the attachment and parental depression such that increased adolescent attachment security was associated with reduced

maternal depression and smaller reporting discrepancies. This corresponds with a study which found that the relationship between attachment organisation and parenting behaviour varied as a function of maternal depressive symptoms (Adam *et al.*, 2004). Therefore, results indicate that both relationship variables, whether measured as attachment organisation or general aspects of mother-adolescent interaction, and parent psychopathology contribute to parent-adolescent reporting discrepancies about adolescent internalising symptoms. Consequently, there may be an interaction between the parent-adolescent relationship, parent psychopathology and parent-adolescent reporting discrepancies that warrants further exploration.

Aims and Hypotheses

This study aimed to explore the impact of parent psychological distress and parental bonding on reporting discrepancies between mothers and adolescents regarding adolescent emotional problems as measured by the Strengths and Difficulties Questionnaire (SDQ, Goodman, 1997).

- 1) It was hypothesised that parent-adolescent agreement about adolescent emotional problems would be:
 - a. poor,
 - b. associated with adolescent gender,
 - c. associated with adolescent age, and

- d. associated with a pattern of parents under-reporting adolescent emotional problems as compared with adolescent self-report.
- 2) It was hypothesised that parental psychological distress would be associated with agreement such that:
- a. parental psychological distress would be associated with greater reporting discrepancies,
 - b. parents with elevated levels of psychological distress would over-report adolescent emotional problems as compared with adolescent self-report.
- 3) It was hypothesised that parental bonding would be associated with agreement, such that:
- a. optimal parenting would be associated with greater agreement than sub-optimal parenting categories, and
 - b. parental bonding would moderate the relationship between parental psychological distress and parent-adolescent agreement about adolescent emotional problems, making it stronger, weaker or a different direction.

CHAPTER 3

3. Methodology

3.1 Design

For this observational study, a cross-sectional design was deemed most appropriate as such a design facilitates measurement of the prevalence of a particular outcome at a specific point in time within the local population.

3.2 Participants

Participants were male and female adolescents and their parents or carers. Adolescents were aged 12 to 17 years and enrolled in high schools across the central region of Scotland. Parent/Carer status was defined as the person the adolescent considered to have been their main carer during their early life, up to their current age. This included biological, adoptive or foster mother or father, a grandparent, step- mother or father, or any other carer figure as defined by the adolescent.

Recruitment was through both community and clinical sites comprising local high schools and mental health services, including National Health Service Child and Adolescent Mental Health Services, Adult Psychology Services and Community Mental Health Teams. For inclusion in the study adolescent participants must have been eligible in terms of age and been enrolled in a local area high school at the time of recruitment. Young people with a formally diagnosed learning disability or Autism Spectrum Disorder were excluded from the study on the basis of potential difficulties in relation to their understanding and also the validity of the self-report measures employed in the study

(Bramston & Fogarty, 2000; Finlay & Lyons, 2001). Parents or carers were required to have been actively involved in caring for the young person during his or her early life.

3.3 Measures

Demographic Information

Demographic information, including adolescent and parent age and gender, postcodes to allow socio-economic information to be acquired, adolescent school year and attendance, and sibling and family information, was collected via a brief questionnaire designed for the study.

Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997)

The SDQ is a brief screening questionnaire for mental health problems in children aged 4 to 17 (Goodman, 1997). It consists of a 25-item self-report measure which can be completed by children aged 11-17 years, and corresponding proxy-report versions for parents and teachers. The questionnaire has an average completion time of five to ten minutes (Goodman, 1997) and asks about both positive and negative attributes using a 3-point Likert scale comprising 'not true', 'somewhat true' and 'certainly true' to indicate the extent to which each attribute applies to the target child. The 25 items are divided into five problem sub-scales of five items each, generating scores for emotional symptoms, conduct problems, hyperactivity-inattention,

peer problems and pro-social behaviour (Goodman, 2001). Participants respond to statements designed to tap into these characteristics, for example “I get very angry and lose my temper”, “I worry a lot” (emotional), “I fight a lot”, “I can make people do what I want” (conduct), “I am constantly fidgeting or squirming”, “I am restless, I cannot stay still for long” (hyperactivity-inattention) and “other people my age tend to like me” (pro-social). The first four scales produce scores of 0-10 which are summed to provide an indication of the child’s total problems on a scale of 0-40, in which scores of 0-15 are categorised as ‘normal’, scores of 16-19 indicate a ‘borderline’ level of problems and scores of 20-40 are suggestive of ‘abnormal’ functioning (Goodman, 2001). The latter scale produces a personal strengths score which measures the child’s ability to act pro-socially, independent of the difficulties measured by the other subscales (Goodman, 2001). The SDQ also includes an impact scale, which measures the extent of impairment in the child’s daily functioning at home or school and in peer relationships or recreational activities, as required by the Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition, Text Revised (DSM-IV-TR; American Psychiatric Association, 2000) for the presence of distress or impairment in role functioning for a diagnosis of mental illness. The ‘emotional problems’ scale, which is scored by parent and adolescent informants on a scale of 0-10 where scores of 0-5 are categorised as ‘normal’ and scores of 6-10 indicate ‘abnormal’ functioning, was the focus of the present study.

The SDQ has demonstrated sound psychometric properties cross-culturally in both clinical and non-clinical settings (Becker *et al.*, 2004; Goodman, 2001; Muris *et al.*, 2004). It has been widely used for research purposes in the United States and Great Britain to distinguish between clinical and community samples and as a screening device to detect children with a mental health problem (Goodman, 2001). Children scoring high on total problems scores tend to have higher rates of psychopathology as assessed by qualified clinicians than children who score below the recommended cut-offs (Becker *et al.*, 2004; Goodman, 1997; Goodman, 2001; Goodman & Goodman, 2009). The SDQ has satisfactory internal, external and predictive validity, and good test-retest reliability (Goodman, 1997). Of particular note is that there tends to be very little overlap between items loading on the internalising problems and externalising problems scales (Goodman, 2001; Goodman & Goodman, 2009), which suggests that they are relatively uncontaminated by one another on this measure (Goodman & Scott, 1999). Interrater agreement for the SDQ is generally found to be substantially better than average for agreement reported for other similar measures (Goodman, 2001; Klasen *et al.*, 2000; Koskelainen *et al.*, 2001).

The ability of the SDQ to identify high risk children and the benefits of its corresponding youth self-rating and parent-proxy rating forms led to it being chosen for this particular study. In addition, it was considered appropriate to

use this measure given that it is currently used as a standard dimensional measure of child difficulties within the local Child and Adolescent Mental Health Service.

**Depression, Anxiety and Stress Scale-short form (DASS-21;
Lovibond & Lovibond, 1996)**

The DASS-21 (Lovibond & Lovibond, 1996) is a short form of the Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995). It is a 21-item self-report questionnaire designed to assess the negative emotional states of depression, anxiety and stress in adults aged 18 or older. Parent participants rated the extent to which they had experienced each state over the past week on a 4-point scale comprising 'not at all', 'some of the time', 'a good part of the time' and 'very much, or most of the time'. The 21 items are divided into three subscales of seven items each. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest, anhedonia, and inertia, with statements such as "I found it difficult to work up the initiative to do things" and "I felt that life was meaningless". The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety and subjective experience of anxious affect through statements such as "I was aware of dryness in my mouth" and "I felt I was close to panic". The stress scale is sensitive to levels of chronic non-specific arousal including difficulty relaxing and being easily upset, agitated, irritable or impatient, assessed using statements such as "I found it hard to wind down" and "I found myself getting

agitated” (Lovibond & Lovibond, 1995). Outcomes for each of the three subscales are calculated by doubling the sums of the scores for the relevant items and combining these to produce a ‘total problems’ score, thus generating standardised problem scores which can be used for comparison with normative data (Henry & Crawford, 2005). Interpretation of the DASS-21 is based on the use of cut-off scores defined by Lovibond and Lovibond (1995) to determine severity ratings ranging from ‘normal’ to ‘extremely severe’ where ‘normal’ is categorised as raw scores of 0-26 for total problems, 0-8 for depression, 0-5 for anxiety and 0-14 for stress. A score is categorised as ‘mild’ if it falls between 27-35 for total problems, 9-13 for depression, 6-8 for anxiety and 15-18 for stress. Scores indicative of ‘moderate-severe’ difficulties are 36-79 for total problems, 14-31 for depression, 9-22 for anxiety and 19-34 for stress. Higher scores on all scores are considered to indicate ‘extremely severe’ difficulties. Although DASS percentiles are recommended for interpreting individual scores in relation to the normative sample (Crawford & Henry, 2003), raw data were required for further analyses. Therefore percentile scores were only used to categorise scores on severity of depression, anxiety, stress and total problems.

The DASS-21 has been found to have good psychometric properties (Antony *et al.*, 1998; Clara *et al.*, 2001; Crawford & Henry, 2003; Henry & Crawford, 2005) and the subscales have shown high internal consistency and meaningful discriminations among the three related states of depression, anxiety and stress in both clinical and non-clinical settings. It has good construct validity,

acceptable internal and external reliability and convergent validity has been defined as superior to alternative scales (Henry & Crawford, 2005).

Discriminant validity is only considered adequate, although this is deemed acceptable in the context that anxiety, depression and stress are not considered to be entirely independent constructs (Crawford & Henry, 2003). DASS-depression and anxiety scales correlate highly with the Beck Depression and Anxiety Inventories (BDI: Beck, 1996; BAI; Beck & Steer, 1993) respectively (Antony *et al.*, 1998). Despite some debate over whether DASS-stress scale can be considered an independent construct, there is increasing evidence that it does in fact represent a legitimate measure in its own right (Henry & Crawford, 2005). Therefore, the DASS-21 is considered to be a valid measure of each of the individual dimensions as well as tapping into a more general dimension of psychological distress or negative affect.

The DASS-21 was selected for use in this study because it has been established as a valid measure to clarify the locus of emotional disturbance and to assess the severity of the core symptoms of depression, anxiety and stress in a dimensional rather than categorical conception of psychological difficulty (Lovibond & Lovibond, 1996). It is becoming increasingly popular due to its availability in the public domain and has advantages over the full length DASS in that it is shorter, has a clearer structure and omits items from the DASS-42 identified as problematic (Antony *et al.*, 1998).

Parental Bonding Instrument (PBI; Parker *et al.*, 1979)

The PBI is a 25-item self-report questionnaire probing subjective experience of parental behaviours and attitudes towards the subject during childhood. It is a retrospective measure asking participants to recall their experience of being parented during the first 16 years of their life. Although originally designed for use with adults, it has been frequently used with adolescents, and is found to be equally valid with this population (Cubis *et al.*, 1989; Kashani *et al.*, 1987; Russell *et al.*, 1992). The questionnaire contains two scales measuring levels of perceived 'care' and 'overprotection' which are considered to be fundamental factors which underlie all important interpersonal relationships (Parker *et al.*, 1979). The 25 questions are divided into 12 'care' items and 13 'overprotection' items in which adolescent participants rated the extent to which each parental attitude or behaviour corresponded to their mothers or fathers on a 4-point scale of 'very like', 'moderately like', 'moderately unlike' and 'very unlike'. Scores enable parents to be assigned to one of four quadrants reflecting variations in care and overprotection, based on normative data where the cut-offs were care scores of 27 for mothers and 24 for fathers and overprotection scores of 13.5 for mothers and 12.5 for fathers. High care/low overprotection is said to be illustrative of 'optimal parenting', whilst scores showing low care/high protection are termed 'affectionless control'; high protection/high care scores reflect 'affectionate constraint' and those of low care/low protection are considered 'neglectful parenting' (Parker *et al.*, 1979).

In both clinical and non-clinical settings, the factorial structure of the PBI has been confirmed and good reliability, validity and internal consistency has been demonstrated (Parker, 1989; Parker, 1990; Parker *et al.*, 1979; Plantes *et al.*, 1988; Wilhelm *et al.*, 2005). The PBI has shown excellent test-retest reliability over short and extended periods of up to 20 years in non-clinical and clinical outpatient samples, indicating excellent long-term stability (Parker, 1990; Wilhelm & Parker, 1990; Wilhelm *et al.*, 2005) and both construct and convergent validity are considered satisfactory and independent of mood states or life experience (Parker, 1989).

Although the PBI measures perceived parental characteristics, it has been demonstrated to accurately reflect actual parenting (Parker, 1990) and therefore was applied in this study as an indicator of the quality of the parent-child relationship. PBI scores have been shown to be associated with an increased risk of several psychiatric disorders (Parker, 1990) in a similar manner to the strong association between poor attachment relationships and psychopathology in children and adolescents (Allen *et al.*, 1998). Findings indicate that the PBI, although not directly measuring attachment relationships, taps into similar parent-child relationship attributes, and it is considered a useful screening tool for attachment related difficulties in non-clinical populations (Manassis *et al.*, 1999).

3.4 Procedure

Power Calculation

A power calculation using G*Power (Faul *et al.*, 2007) indicated that to find a medium effect size of 0.2 with statistical power of 0.8 at an alpha level of .05, a minimum of 81 participants would be required for a hierarchical multiple linear regression with five predictor variables.

Distribution of Questionnaires

Following receipt of ethical permission from academic and healthcare institutions (appendix 2), each participant received a questionnaire pack (appendix 3). These included a cover sheet with basic instructions on the completion of measures and an information leaflet (appendix 4) providing details about the study and how to seek support in case of problems or questions. This detailed the voluntary nature of the research, confirmed freedom to opt-out of participation at any time and explained that participants were not required to answer questions that they did not wish to. It also clearly advised that parents and youths should not discuss their answers with each other in order to obtain individual opinions. Questionnaire packs also contained forms to obtain consent from parents, youths over 16 and parental consent for youths under 16 years of age. They were prompted to sign this form prior to completion of the questionnaires to confirm that they had read and

understood the information sheet. In the case of consent not being obtained, responses were excluded and discarded confidentially.

Recruitment

Participants were approached for recruitment through multiple sites including community settings and mental health services in order to expand the potential to recruit adequate numbers of participants and to ensure that a portion of the sample was representative of those with psychological difficulties.

To access the community sites, permission to approach high schools for recruitment was sought from the relevant directors of education in the central region of Scotland (appendix 5). Once granted, head teachers of all schools across central Scotland were approached about the study individually by letter and later by a follow-up telephone call in the case of no response to the initial letter. They were provided with information about the study and a copy of the questionnaires, and were invited to take part in the study by allowing recruitment of participants from their pupils. For those schools where head teachers granted permission for recruitment, a meeting was arranged with relevant teachers to make specific arrangements regarding questionnaire distribution. Schools chose the most convenient time and method for distribution; either by a selected teacher or by the researcher. For schools that selected distribution by a teacher, usually a form, guidance or Personal and Social Education (PSE) teacher, a meeting was arranged with the researcher to

provide a detailed explanation of the study and instructions for describing the study to pupils. When schools selected distribution by the researcher, this was conducted during an assembly. Of the three schools, out of a possible 15, that opted into the study, one requested that the researcher distribute the questionnaires, whilst the remaining two considered it more appropriate for teachers to incorporate them into their PSE or form classes. All three schools distributed questionnaires to adolescents during school time. Two schools attached a covering letter to the parents' questionnaires and sent them home with the child, whilst one school chose to post the parents' questionnaires directly to parents at home.

Participants recruited through clinical sites were accessed via the mental health clinician working with either the adolescent or parent. They were invited to take part in the research during a routine clinical appointment where they were given questionnaires to take home for completion.

Completion of measures

Adolescent participants completed the brief demographic questionnaire, the self-report SDQ and separate PBI forms for mother figure and father figure. Parent(s) or Carer(s) completed a similar demographic questionnaire, the proxy-report SDQ and the DASS-21. Participants were given the option to complete the paper questionnaires and return them in a stamped-addressed envelope provided, or to go online to complete the questionnaires via a survey-

monkey link. Parent and adolescent questionnaires were coded with unique identifiers to protect confidentiality and to enable the researcher to identify corresponding pairs. This code was a required field on the online version of the questionnaires.

3.5 Ethical Considerations

- Ethical approval was sought and obtained from the University of Edinburgh Ethics Committee, the NHS Tayside Ethics Committee B, and the Forth Valley NHS Research and Development department.
- Participation in the research was voluntary and no participants were coerced into taking part.
- Consent was obtained from all individual participants as well as parental consent for adolescents under 16 years of age, and responses were excluded if consent was not provided.
- Permission was obtained from distributors of the standardised measures to reproduce these in an identical format via survey-monkey.

3.6 Statistical Analysis

Raw data were entered into SPSS version 19 and analyses were conducted using a significance level of .05 (Cohen, 1992). To determine the normality of data distribution, Shapiro-Wilk statistical tests were conducted on DASS-21, PBI and SDQ subscales relevant to the study.

The analytic plan focused on a moderation analysis using hierarchical multiple regression analyses, for which only the residuals are required to be normally distributed (Tabachnick & Fidell, 2001). Therefore, histograms and scatterplots of residuals were examined for homoscedasticity and linearity, and tests of multicollinearity were conducted.

Hypotheses regarding agreement were addressed by performing interrater reliability analyses using Cohen's kappa coefficient (Cohen, 1960) to determine consistency of ratings between parents and adolescents. Independent samples t-tests were conducted to examine differences between parent and adolescent ratings of emotional problems as well as differences in ratings across groups based on adolescent gender, severity of parental psychological distress and style of parental bonding. Correlations were then performed to explore whether significant relationships existed amongst the variables.

A hierarchical multiple regression was conducted to explore the ways in which DASS-21 total, parental bonding and the interaction between the two were related to parent-adolescent reporting discrepancies. Subsequently, a moderation analysis (Baron & Kenny, 1986) was performed to determine whether the relationship between parental psychological distress and parent-adolescent agreement varied as a function of parental bonding.

CHAPTER 4

4. Results

4.1 Description of Sample

The final sample comprised responses from 90 parent-adolescent dyads out of a possible 220 that were distributed. Recruitment through schools resulted in 55 out of 120 possible participant dyads and 35 out of a possible 100 were obtained from clinical settings. This reflects a 41 per cent response rate, which is consistent with the average response in psychological research (Baruch, 1999; Cook *et al.*, 2000).

Parents were 87 mothers, including 1 adoptive mother, and 3 biological fathers. As the sample contained significantly more mothers than fathers, it was decided to exclude father-adolescent dyads from further analyses, leaving a final sample of 87 mother-adolescent pairs.

Mother ages were determined in ranges: 30 per cent were between 25-40 years of age, 62 per cent were between 41-50, and eight per cent were over 50 years of age. Adolescents included 59 girls (mean age 14.64) and 28 boys (mean age 13.71) aged between 12-17 years. The majority of adolescents were regularly attending school at the time of the study (90 per cent, $n=78$). In terms of marital status, 61 per cent of mothers were married, 12 per cent were separated, ten per cent were divorced, nine per cent were currently living with a partner, six per cent were single, one per cent was in a relationship but not living with their partner and one per cent was widowed. Fifty-eight per cent of adolescents lived at home with both their mother and father, 26 per cent lived with their

mother only, two per cent lived with either their mother or father only and six per cent lived with a parent and step-parent. Number of siblings ranged from zero to five with 18 per cent having no siblings, 54 percent having one sibling, 17 per cent having two siblings and 11 per cent having three or more siblings.

Using the Carstairs and Morris index of deprivation decile ranks (Carstairs & Morris, 1991) which range from zero (most affluent) to ten (most deprived) the sample fell across deciles one to nine, and had an average deprivation rank of five.

TABLE 1. Means and Standard Deviations for all variables for overall sample and across relevant groups

	Overall Sample Mean (SD)	Child Gender Mean (SD)		Psychological Distress Mean (SD)		Parent Child Relationship Mean (SD)	
		Girls	Boys	Non-Clinical	Elevated	Optimal	Sub-Optimal
DASS-21 Total	24.58 (26.92)	28.48 (29.49)	16.35 (18.33)	9.37 (7.60)	58.37 (23.35)	17.80 (21.39)	32.17 (30.52)
SDQ parent	2.92 (3.10)	3.36 (3.43)	2.00 (2.02)	1.93 (2.48)	5.11 (3.27)	3.00 (3.26)	2.83 (2.96)
SDQ adolescent	3.98 (3.00)	4.78 (3.07)	2.29 (2.00)	2.93 (2.44)	6.30 (2.85)	4.04 (2.98)	3.90 (3.06)
PBI-care	29.83 (4.65)	29.49 (5.02)	30.54 (3.73)	30.6 (4.09)	28.11 (5.38)	31.8 (3.10)	27.61 (5.12)
PBI- overprotection	12.01 (5.97)	12.69 (5.71)	10.57 (6.36)	10.40 (5.59)	15.59 (5.26)	8.65 (3.77)	15.78 (5.76)
Difference Score	2.16 (2.06)	1.29 (2.36)	2.58 (1.67)	1.67 (1.60)	3.26 (2.52)	1.91 (3.59)	2.44 (2.21)

4.2 Descriptive Statistics (*Means & Standard Deviations are shown in Table 1*)

SDQ. Mean parent-proxy and adolescent self-report ratings for adolescent emotional problems fell within the normal range, indicating that adolescents in the sample were relatively healthy according to both their own and their mothers' reports.

DASS-21. Due to the occurrence of zero scores on DASS-21 subscales, one point was added to all scores in order that they could be multiplied by PBI scores to create interaction terms for the subsequent moderation analysis. Scores ranged from 1 to 117 on the total problems scale, with a mean of 24.58 ($SD=26.92$), which fell within the 'normal' range. Both mean depression ($M=8.79$, $SD=10.64$) and anxiety ($M=6.09$, $SD=8.12$) scores fell within the 'mild' range, whilst the mean stress score ($M=11.69$, $SD=10.29$) fell within the 'normal' range. These scores indicated that the overall sample consisted of mothers with a relatively low level of psychological distress. All DASS-21 data sets were found to deviate significantly from a normal distribution, showing a positive skew. Normative data for the DASS is also found to be positively skewed and distributions on DASS-21 total and subscales for the sample were similar to those of normative samples (Crawford & Henry, 2003).

There were insufficient numbers of mothers in the sample to use all five DASS-21 severity classification categories. Therefore mothers' scores on DASS-21 subscales were dichotomised into a 'non-clinical' group comprising scores that

fell into the DASS-normal category, and an 'elevated' group comprising scores that fell into DASS-mild, moderate, severe and extreme categories. The distribution of DASS-21 total and subscales scores for mothers in the sample are shown in Table 2.

Table 2. Dichotomised DASS-21 distribution

	Non-Clinical (%)	Elevated (%)
Depression	60 (70)	27 (30)
Anxiety	61 (70)	26 (30)
Stress	57 (65.6)	30 (34.4)
Total	60 (69)	27 (31)

PBI. Distribution of parental-bonding styles indicated that 54 per cent of the dyads fell within the 'optimal parenting' category, 24 per cent of dyads were categorised within 'affectionate constraint', 14 per cent were in the 'affectionless control' category and the final eight per cent were classed as 'neglectful parenting'. Due to the small numbers of dyads across each of the latter three groups, a pragmatic decision was made to combine these into one group reflecting 'sub-optimal' parental bonding. Mean care and overprotection scores are outlined in Table 1 and were similar that of the normative sample (Parker, 1989).

4.3 Preliminary Analyses

Data Transformation

Shapiro-Wilk tests of normality illustrated that data showed a considerable positive skew (appendix 6) and data transformation was considered¹.

Histograms and scatterplots of regression residuals demonstrated that the assumptions of normality and homoscedasticity were met. Similarly, best-fit lines for the criterion variable against all predictor variables demonstrated that the assumption of linearity was also met for all variables. However, multicollinearity was found among DASS-21 total problems score, depression,

¹ Both parametric and non-parametric tests were performed on the data and levels of significance were found to be comparable across all variables for means tests and correlations suggesting that data distribution did not have a confounding effect on statistical analyses (appendix 7). Therefore, parametric tests are reported since they are more powerful.

anxiety and stress, therefore only DASS-21 total was included in subsequent analyses rather than the discrete subscales. Appendix 8 contains further information on these issues.

Indices of Agreement

Two approaches were used to measure agreement between parents and adolescents. First a measure of interrater reliability, Cohen's kappa coefficient (Cohen, 1960), was used to determine the overall strength of agreement between parents and adolescents in the sample on a case by case basis. Although there is some debate in the literature over the use of kappa statistics, this mainly focuses on the fact that they are sensitive to sample size and prevalence of the finding under observation (Viera & Garrett, 2005). Given the relatively small sample size in this current study and the high prevalence of poor parent-adolescent agreement, kappa was considered an appropriate statistic to ascertain a measure of overall agreement. Kappa values indicate the extent to which two raters agree with each other, taking into account the occurrence of agreement by chance. They range from zero indicating that agreement occurred by chance, to a coefficient of one, signifying perfect agreement, with negative values indicating that two raters agreed less than would be expected by chance (Cohen, 1960; Landis & Koch, 1977). Coefficients of less than 0.2 are considered 'poor', less than 0.4 reflect a 'fair' amount of agreement, those between 0.41-0.6 are considered 'moderate', and those above

0.61 are considered to reflect a substantial strength of agreement (Landis & Koch, 1977; Vierra & Garrett, 2005)

Next, difference scores were calculated to generate an outcome variable that reflected the magnitude and direction of agreement between mothers and adolescents. Within the existing literature, a number of ways to measure agreement have been defined including correlations, q correlations and difference or generalized difference scores (Richters, 1992; Treutler & Epkins, 2003; De Los Reyes & Kazdin, 2005). The difference score method was selected for this study because it is the only metric that assesses the overall level of problems reported and yields information regarding which informant reports more or less problems, which was of interest in this study (Treutler & Epkins, 2003). It is also the most sensitive to the level, shape and dispersion of patterns of agreement which previous studies have shown to be related to caregiver mental health symptoms (Youngstrom *et al.*, 2000). Although difference scores are commonly used within the literature, some studies have calculated the difference using raw data on identical or common items and others have used standardised scores on similar but not identical items (Epkins, 1996; Kolko & Kazdin, 1993). However, in examining cross informant agreement a parallel-items approach is desirable to ensure that any discrepancies are not attributable to differing item content (Treutler & Epkins, 2003). No standardised scores exist for the SDQ, therefore, in this study difference scores

were calculated by subtracting adolescents' emotional problems scores from parents' scores.

4.4 Principal Analyses

Hypothesis 1: Agreement on adolescent emotional problems will be poor, associated with adolescent gender and age, and mothers in the overall sample will under-report adolescent emotional problems.

To evaluate the strength of agreement between mothers and adolescents in the overall sample and for each adolescent gender, kappa coefficients and mean difference scores were calculated. Independent samples t-tests were then conducted to evaluate differences in report of emotional problems for girls and boys and to determine whether mother-daughter and mother-son difference scores differed significantly from each other. Pearsons' correlations were performed to explore whether a significant relationship existed between mother-adolescent difference scores and adolescent age. Relationships between adolescent age and both mother and adolescent report of problems were also examined. Independent samples t-tests were then conducted to test whether significant differences existed between mothers' and adolescents' ratings of emotional problems in the overall sample.

Agreement on adolescent emotional problems will be poor

Kappa values indicated that interrater agreement between mothers and adolescents in the sample was fair ($k=.39$, $p<0.001$, 95% CI=0.21-0.57). The mean difference score for mothers and adolescents' ratings of emotional problems was 2.16 (SD=2.06).

Agreement will be associated with adolescent gender

Mothers and daughters showed moderate agreement on emotional problems ($k=.43$, $p<.001$, 95% CI=0.23-0.63), whilst mothers and sons showed only chance agreement ($k=.07$, $p=.579$, 95% CI=-0.17-0.31). Independent samples t-tests illustrated that girls self-reported a significantly greater level of emotional problems than boys ($t(85)=-3.912$, $p<.001$), with a large effect size ($d=0.9$, CI=0.4-1.4) and that mother-son dyads showed significantly greater discrepancies in their reports than mother-daughter dyads ($t(85)=-2.845$, $p=0.006$), with a medium effect size ($d=0.6$, CI=0.2-1.1).

Agreement will be associated with adolescent age

Pearson's correlations showed a significant positive correlation between adolescent age and difference scores ($r=.31$, $p=.003$). Correlations also showed that increasing adolescent age was associated with reports of more emotional problems by both mothers ($r=.42$, $p<.001$) and adolescents ($r=.27$, $p=.01$).

Mothers in the overall sample will under-report adolescent emotional problems compared with adolescent self-report

An independent samples t-test showed that there was a significant difference between mothers' and adolescents' ratings of emotional problems ($t(172) = -2.285, p = .024$). Given that the mean for adolescents ratings was higher than that of mothers' ratings, it can be concluded that adolescents reported significantly more problems than their parents considered them to have, with an effect size of 0.4 (CI=0.1-0.9).

Hypothesis 2: Maternal psychological distress will be associated with greater reporting discrepancies, and mothers with elevated levels of psychological distress will over-report, compared with adolescent self-report.

Kappa coefficients were calculated to determine the strength of agreement for mother-adolescent dyads across DASS-21 categories of severity of maternal psychological distress. Independent samples t-tests were then conducted to explore whether mother report of adolescent symptoms differed significant across levels of psychological distress. This was also explored as regards adolescent self-report of symptoms across levels of maternal psychological distress. Independent samples t-tests were conducted to determine whether mother-adolescent difference scores were significantly different in the across DASS-21 categories. Pearsons' correlations were performed to explore

relationships between DASS-21 scores and mothers' and adolescents' ratings of adolescent emotional problems.

Maternal psychological distress will be associated with greater reporting discrepancies

Kappa values calculated to examine the impact of maternal psychological distress on overall interrater agreement indicated that agreement was fair for mother-adolescent dyads in which the mothers' DASS-21 scores fell within the 'non-clinical' group ($k=.40$, $p<.001$, 95% CI=0.12-0.7) and occurred only by chance when mothers reported 'elevated' levels of psychological distress ($k=.13$, $p=.40$, 95% CI=-0.15-0.41). A large effect size ($d=1.2$, CI=0.7-1.6) was found for independent samples t-tests showing that mothers in the 'elevated' group reported significantly higher levels of emotional problems in their adolescent children than mothers in the 'non-clinical' group ($t(85)=-4.996$, $p<.001$). Similarly, an equally large effect size ($d=1.3$, CI=0.8-1.8) was found for children of mothers in the 'elevated' group who also reported significantly higher levels of emotional problems in themselves as compared with children of mothers in the 'non-clinical' group ($t(85)=-5.637$, $p<.001$). In terms of difference scores, mothers in the 'elevated' group showed greater discrepancies with their adolescent children than those in the 'non-clinical' group ($t(85)=0.732$, $p<.001$), which was a small effect size ($d=0.2$, CI=0.14-0.6).

Pearson's correlations were performed to explore whether relationships existed between psychological distress and mothers' reports of adolescent symptoms and difference scores. Significant positive correlations were found between DASS-21 total and mother report of emotional problems ($r=.476$, $p<.001$) as well as adolescent self-report of emotional problems ($r=.548$, $p<.001$) indicating that as mothers' psychological distress increased, both parents and adolescents reported more symptoms in the young person. Maternal psychological distress also correlated with difference scores ($r=.408$, $p<.001$) illustrating that as mothers levels of psychological distress increased, so too did the discrepancies between mothers' and adolescents' ratings of adolescent emotional symptoms.

Mothers with elevated levels of psychological distress will over-report adolescent emotional problems

A medium effect size ($d=0.4$, $CI=0.1-0.7$) was found for an independent samples t-test that showed that adolescents reported significantly more emotional symptoms than their parents when mothers were in the 'elevated' group for psychological distress ($t(118)=-2.227$, $p=.028$). However, although adolescents' mean rating of symptoms was higher than mothers' mean rating when mothers were in the 'non-clinical' group, this difference was not significant ($t(52)=-1.418$, $p=0.162$).

Hypothesis 3: Parental bonding will be associated with agreement and will moderate the relationship between maternal psychological distress and reporting discrepancies.

The effect of parental bonding was explored with regards to the parent who completed the questionnaires, therefore mothers, as it has been noted in previous research that it would be useful to examine the effect of relationship factors in relation to a particular parent (Ehrlich *et al.*, 2011).

Kappa coefficients were calculated to determine interrater agreement across groups of parental bonding styles and independent samples t-tests were performed to explore whether mother-adolescent difference scores were significantly different across parental bonding styles. Pearson's correlations were then conducted to examine whether relationships existed among difference scores, PBI-care and overprotection scores, and DASS-21 scores.

A hierarchical multiple regression and moderation analysis was performed to examine the contribution of maternal psychological distress, parental bonding and the interaction of the two, to variance in difference scores. To control for the effect of confounding variables, adolescent age and gender were included in the regression analysis. In this way, the unique and combined predictive value of parent psychological distress, parental bonding and the interaction between these could be assessed.

Optimal parenting will be associated with greater agreement than sub-optimal parenting

Kappa values showed that agreement between mothers and adolescents was moderate for dyads in the 'optimal parenting' group ($k=.41$, $p=.001$, 95% CI=0.18-0.65), and fair for dyads in the sub-optimal group ($k=.37$, $p=.001$, 95% CI=0.1-0.66). Independent samples t-tests showed no significant difference in mother-adolescent difference scores between the 'optimal' and 'sub-optimal' groups ($t(85)=1.194$, $p=0.236$).

Pearson's correlations demonstrated a significant negative correlation between PBI-care and difference scores ($r=-.413$, $p<.001$). Therefore as adolescents' ratings of perceived maternal care increased, mother-adolescent dyads showed smaller discrepancies in their reports of adolescent symptoms. No significant relationship was found between PBI-overprotection and difference scores ($r=.073$, $p=.503$).

Parental bonding will moderate the relationship between maternal psychological distress and mother-adolescent agreement about emotional problems

Pearson's correlations demonstrated a significant negative relationship between DASS-21 and PBI-care ($r=-.334$, $p=.002$) and a significant positive relationship between DASS-21 and PBI-overprotection ($r=.328$, $p=.002$), indicating that as

mothers' psychological distress increased, they were perceived as less caring and more overprotective.

A moderation analysis was performed to examine the impact of PBI-care, the only aspect of parental bonding found to be significantly associated with difference scores, on the relationship between maternal psychological distress and mother-adolescent agreement. Interaction terms were created by multiplying DASS-21 total scores by PBI-care scores to represent the interaction between the two variables.

Variables were entered hierarchically into the regression model, starting with the control variables, followed by DASS-21 scores, then PBI-care and finally the interaction term. This allowed the relative contribution of each predictor variable as well as the interaction effects to be explored.

Table 3. Hierarchical Regression and R2 change for difference scores

Step	Predictor Variables	β	t (sig.)	R	R ²	ΔR^2	F (Sig)	R ² change	F Change (Sig)
1	Gender/Age								
	Gender	0.297	3.014 (p=.003 [^])	0.432	0.186	0.167	(2,84)=9.61 p<0.001*	0.186	(2,84)=9.61 p<0.001**
	Age	0.315	3.210 (p=.002 [^])						
DASS-21									
2	Gender	0.231	2.411 (p=.018 [^])	0.521	0.271	0.245	(3,83)=10.31 p<0.001*	0.085	(1,83)=9.71 p=0.003**
	Age	0.249	2.590 (p=.011 [^])						
	DASS-21	0.306	3.116 (p=.003 [^])						
3	PBI-Care			0.566	0.32	0.29	(4,82)=9.64 p<0.001*	0.048	(1,82)=5.83 p=0.01**
	Gender	0.218	2.337 (p=.022 [^])						
	Age	0.173	1.760 (p=.082)						
	DASS-21	0.243	2.453 (p=.016 [^])						
	PBI-Care	-0.246	-2.415 (p=.018 [^])						
4	Interaction			0.595	0.36	0.32	(5,81)=8.9 p<0.001*	0.035	(1,81)=4.34 p=0.04**
	Gender	0.213	2.321 (p=.023 [^])						
	Age	0.186	1.922 (p=.06)						
	DASS-21	1.041	2.639 (p=.01 [^])						
	PBI-Care	-0.071	-.540 (p=.591)						
	Interaction	-0.781	-2.087 (p=.04 [^])						

* Regression model significant

** Significant increase in variance

[^] Predictor variable significant

Table 3 illustrates that all four levels of the regression model were significant and explained up to 32 per cent of the variability in difference scores when all variables were included, which was a large effect size ($f^2=0.5$). All predictor variables made unique contributions to variance in difference scores.

Demographic variables individually contributed to 18.6 per cent of the variance, whilst maternal psychological distress contributed to a further 8.5 per cent with an effect size of $f^2=0.1$. Perceived maternal care had a medium effect size ($f^2=0.1$) with its contribution to a further 4.8 per cent of the variance and the interaction between DASS-21 and PBI-care contributed to a further 3.5 per cent, which was a small effect size of $f^2=0.04$.

Mothers' psychological distress predicted unique variance over and above the control variables when added to the model in step two ($\beta=.306$, $p=.003$) and it remained significant, making the greatest contribution to variance, throughout steps three ($\beta=.243$, $p=.016$) and four ($\beta=1.041$, $p=.01$). Adolescent age and gender remained significant at step two. However, with the addition of perceived maternal care in step three, adolescent age was no longer a unique predictor. Adolescent gender continued to predict unique variance throughout all levels of the model. When added to the model initially in step three, perceived maternal care was a significant unique predictor of variance in difference scores ($\beta=-.246$, $p=.018$). However, the interaction between DASS-21 and PBI-care made a significant contribution to variance ($\beta=-.781$, $p=.04$) when added in step four, and it eliminated the effect of PBI-care individually ($\beta=-$

.071, $p=.591$). Both PBI-care and the interaction between PBI-care and DASS-21 predicted a negative change in difference scores, suggesting that as they increased, mother-adolescent reporting discrepancies decreased.

To explore the way in which PBI-care interacted with DASS-21 to moderate the relationship between maternal psychological distress and difference scores, a scatterplot was created of DASS-21 scores on difference scores whilst controlling for levels of care (appendix 9). Linear regression lines illustrated that 34.3 per cent ($R^2=.343$) of the variance in difference scores was accounted for by maternal psychological distress when ratings of perceived care were low, whereas only 0.5 per cent ($R^2=.005$) of this variance could be explained by maternal psychological distress when ratings of perceived care were high. Therefore, the relationship between mothers' psychological distress and mother-adolescent reporting discrepancies varied as a function of the level of care such that it was stronger when PBI-care was low.

CHAPTER 5

5. Discussion

Aims

The aim of the current study was to explore relationships among parent psychological distress, parental bonding and parent-adolescent reporting discrepancies about adolescent emotional problems on the SDQ. Previous research has demonstrated the contribution to informant discrepancies made by parent psychopathology (Boyle & Pickles, 1997; Hughes & Gullone, 2010; Najman *et al.*, 2001; Richters, 1992; van der Toorn *et al.*, 2010), attachment styles (Berger *et al.*, 2005; Ehrlich *et al.*, 2011) and aspects of family relationships (Barker *et al.*, 2007; Jensen *et al.*, 1999; Treutler & Epkins, 2003). However, prior to this study, only two studies were identified to have previously explored these factors in combination. Therefore, this study aimed to further the conceptual understanding of reporting discrepancies in parent-adolescent report of adolescent emotional problems by examining the independent and interaction effects of these influential factors.

5.1 Summary of principal findings

Kappa values indicated that agreement between mothers and adolescents about adolescent emotional functioning was only fair, indicating that parent and adolescent reports of adolescent emotional well-being tended to be discrepant. Demographic factors of adolescent age and gender were associated with reporting discrepancies. Mother-daughter dyads had significantly better agreement than mother-son dyads and girls reported more emotional

problems than boys. As adolescents got older, reporting discrepancies increased and adolescents' self-reported a higher rate of emotional problems. In the overall sample, mothers were found to report fewer problems than their adolescent children. Therefore, all four parts of the first hypothesis were supported.

The second hypothesis was partially supported in that agreement was fair when mothers were in the 'non-clinical' group, but occurred only by chance when mothers were in the 'elevated' group. Higher levels of maternal psychological distress were associated with significantly greater mother-adolescent reporting discrepancies and as distress increased so too did the discrepancies between mothers' and adolescents' ratings. Compared with mothers in the non-clinical group, those with elevated levels of distress reported significantly more symptoms in their adolescent children. However, in contrast to the hypothesis adolescents reported significantly more problems than their parents considered of them irrespective of mothers' levels of psychological distress. Interesting, although not always significant, this pattern was also evident across gender and styles of parental bonding.

The third hypothesis was also supported. Agreement was stronger for mother-adolescent dyads in the 'optimal parenting' group as compared with the 'sub-optimal' group, although the difference was not significant. Reporting discrepancies decreased as adolescent ratings of perceived maternal care

increased. In contrast, reporting discrepancies increased as mothers were rated as more overprotective.

Maternal psychological distress was associated with parental bonding such that as distress increased, mothers were rated as less caring and more overprotective. Maternal psychological distress, parental bonding and the interaction between them were significant predictors of variance in reporting discrepancies. Perceived maternal care moderated the relationship between psychological distress and agreement such that maternal distress predicted agreement when care was low, but not when care was high.

5.2 Mother-adolescent agreement about emotional problems

Consistent with previous research a relatively poor amount of agreement was found between mothers and adolescents in the sample on their ratings of emotional problems (Achenbach *et al.*, 1987; Richters, 1992; De Los Reyes & Kazdin, 2005). This finding is in line with what would be expected in a predominantly non-clinical sample based on previous findings (Weissman *et al.*, 1987; Karver, 2006; Martin *et al.*, 2004). It corresponds with suggestion by Achenbach *et al.* (1987) that no one informant will provide the same data as any other type of informant. From the majority of research on informant agreement, it is clear that different informants represent differing perspectives on an individual's functioning and, whilst this present a challenge for schools

and healthcare services in detecting adolescents in need of referral to mental health services (Sourander *et al.*, 1999), each viewpoint could be considered a valid indication of that informant's perspective (Verhulst & van der Ende, 1992).

5.3 Demographic Factors

The influence of demographic variables on parent-adolescent discrepancies has been inconsistent in previous research. Therefore it is of interest that some differences were observed in relation to age and gender in this study. As would be predicted, girls in the sample reported experiencing more emotional problems than boys (De Los Reyes & Kazdin, 2005; Richters, 1992; Youngstrom *et al.*, 2000). The finding that mother-son dyads showed greater discrepancies than mother-daughter dyads is also perhaps not surprising (Duhig *et al.*, 2000; Kiss *et al.*, 2007), but does contradict much of the existing literature, such as Handwerk *et al.* (1999) and Tarullo *et al.* (1995) who found that male gender contributed to increased correspondence between informant reports. Sourander *et al.* (1999) noted that internalising problems in girls were especially likely to go unnoticed by adults and suggested that problems which could be hidden from parents' view were particularly likely to be hidden by girls. Results of this study, then, may reflect an effect of mothers' psychological state, with their personal experience of psychological distress interfering with their understanding of their sons more so than their

daughters. Alternatively, it may be representative of the tendency for girls to talk more openly than boys about their emotional state whilst boys perhaps display this through overt behaviours (Adams *et al.*, 1995; Brody, 1993), allowing mothers to have greater awareness of their daughters' symptoms. Another possibility is that there could be a gender of parent to gender of child effect (Friedlander *et al.*, 1986; Jensen, Traylor, Xenakis, & Davis, 1988b) meaning that mothers may feel they have more understanding of the experience and expression of emotional distress in girls. Najman *et al.* (2001) reported that parental reports of their children's symptoms were associated with gender-related expectations of girls and boys, such that parents expected girls to be experiencing more internalising problems and boys to be experiencing more externalising problems. It should also be noted that there were more girls than boys in the sample in this study, which may have contributed to the presence of gender effects. The present study was also methodologically different, in terms of sample size, age range and measurements used, to studies that reported contrasting results. Tarullo *et al.* (1995) used a structured interview and Sourander *et al.*, (1999) measured agreement using correlations between parent and child ratings of symptoms. Studies finding similar results have used the CBCL and YSR scales (Stanger & Lewis, 1993), whilst different results are found with variations in diagnostic conceptualisations of the presence of symptoms, such as by category or level of problems (Boyle & Pickles, 1997; De Los Reyes & Kazdin, 2005; De Los Reyes *et al.*, 2011). Overall, the use of a diverse range of measures and approaches to

assessing parent-child equality in ratings of symptoms reduces generalisability and may contribute to disparity in patterns of agreement across studies.

Similar to the findings of Achenbach *et al.* (1987) greater discrepancies occurred between mothers and older adolescents, although this is in contrast with studies which suggest agreement improves as children become more mature and able to articulate their emotional experience accurately to their parents (Grills & Ollendick, 2003). Adolescent self-report of problems also increased with age. This effect of adolescent age could potentially be explained from a developmental perspective, in that adolescence is generally marked by a distinct change in the quality and quantity of parent-child interactions (Collins, 1990). The natural endeavour of adolescents to spend less time with parents and reduce communication is liable to allow parents less opportunity to view or understand their functioning. Carr (2006) describes that during adolescence there is an increased awareness of complex emotional cycles and the development of autonomous strategies to regulate emotions. At the same time adolescents become more aware of the importance of emotional disclosure in maintaining friendships and progressively rely on peers for support with personal problems. Kochanska, (1993; cited in Carr, 2006) suggests that this developmental stage coincides with an increase in awareness that actions and behaviours can lead to disapproval from parents and attachment figures, which may result in reduced self-disclosure and adolescents keeping feelings of sadness or anxiety to themselves (Sourander *et*

al., 1999). Therefore, the finding that increasing age was associated with greater mother-adolescent discrepancies could be understood as an aspect of adolescents' developmental stage as well as their greater independence allowing them to spend less time in the family home and requiring less parental involvement in their emotional lives.

5.4 Maternal psychological distress and reporting discrepancies

Findings support previous research indicating that parent proxy-reports are biased when parents experience mental health difficulties (Phares *et al.*, 1989; Frick *et al.*, 1994; Fergusson *et al.*, 1993; Renk *et al.*, 2007; van der Toorn *et al.*, 2010) and that psychopathology distorts perceptions of behaviour (Beck, 1967). It is of interest that mothers' psychological distress was associated with both mother *and* adolescent report of emotional problems in that the adolescent children of mothers with elevated psychological distress also tended to self-report more symptoms as compared with those of mothers in the non-clinical group. Given that child psychopathology is frequently associated with parental psychiatric disorder (Chilcoat & Breslau, 1997; Richters, 1992) and children of depressed mothers are found to have more internalising problems than those of non-depressed mothers (Cox *et al.*, 1987; Radke-Yarrow, 1998), this finding seems understandable.

However, mother-adolescent reporting discrepancies were larger when mothers reported higher levels of psychological distress, and mothers in the 'elevated' group reported significantly more problems than mothers in the 'non-clinical' group. Consequently, mothers' psychological distress was associated with their perception of symptoms in their children. It could be considered that mothers' own symptoms facilitated their awareness of the expression of emotional distress such that they picked up on minor indications of problems that unimpaired mothers were less concerned about and therefore did not report (Tarrullo *et al.*, 1995). Najman *et al.* (2001) reported that a progressive association was evident between mothers' mental health impairment and greater sensitivity (identification of a problem the adolescent also reports) but poorer specificity (identification of a problem the adolescent does not endorse) about problems. However, Eiser *et al.* (2005) found that mothers who considered their own emotional state to be poor also made corresponding judgements about their child's functioning. They went on to suggest that the cognitive biases associated with psychopathology can result parents projecting their own symptoms onto their children (Eiser *et al.*, 2005). Therefore, it seems that increased maternal psychological distress plays influential role in mothers' reports of child problems.

5.5 Direction of discrepancies

As expected, mothers in the overall sample reported significantly fewer emotional problems in their adolescents than adolescents endorsed in themselves. However, contrary to previous research, parent psychological distress was not associated with parents reporting more symptoms than their adolescent offspring. In fact, adolescents consistently self-reported their emotional problems to be greater than perceived by their mothers, irrespective of their gender or age, mothers' psychological distress or parental bonding style. Interestingly this is similar to previous findings using the SDQ by Van der Meer and colleagues (2008) who reported that children with mood disorders in their sample self-reported more problems than parents. This finding also follows research on non-clinical populations where parents tend to report fewer problems than their children (Seiffge-Krenke & Kollmar, 1998; Stanger & Lewis, 1993; Thurber & Snow, 1990; Verhulst & van der Ende, 1992; Waters *et al.*, 2003). However, it is discrepant with the depression-distortion hypothesis which asserts that the cognitive bias considered to accompany psychological distress leads to distortion in attention, memory and interpretation of childhood disorder resulting in exaggerated report of symptoms by parents (Chilcoat & Breslau, 1997; Najman *et al.*, 2001). As discussed above, mothers' experience of psychological distress was associated with their perceptions of more adolescent symptoms. Therefore, given the pattern of adolescents in this study reporting more symptoms than parents, it seems that mothers in the 'elevated' group did, in fact, have adolescent

children who reported experiencing greater emotional problems. However, it is unclear whether under-reporting was a factor of psychological distress and it may be of interest to further explore whether personal experience of symptoms results in mothers interpreting adolescent symptoms as normal, or if symptoms distracted mothers such that they were less aware of their child's distress.

In addition, findings of the systematic review conducted as part of this research suggested that parents with mental health difficulties tended to over-estimate their child's symptoms irrespective of clinical status of the child. One possible explanation for this unexpected pattern of mothers under-reporting problems might be that a cognitive bias is present with psychological distress but that it can equally result in maternal under-report of adolescent symptoms as much as over-report, the pertinent feature being the lack of concordance.

Furthermore, this current study explored a sample population comprising participants recruited through both adult and child clinical and non-clinical sites. However, overall levels of difficulty in adolescents as reported by mothers and adolescents on the SDQ were within the normal range and, similarly, overall levels of psychological distress in mothers were relatively low. Therefore, it is possible that this unexpected finding occurred due to factors of a relatively psychologically healthy population, comparable to findings of previous studies of parents who fell below clinical cut-offs for psychological

distress who reported fewer symptoms than their adolescent children (Seiffge-Krenke & Kollmar, 1998; Stanger & Lewis, 1993; Thurber & Snow, 1990; Waters *et al.*, 2003). In addition, adolescent cognitive biases associated with their developmental stage which are known to result in exaggerated expression of emotional states, perception of emotions as more intense and increased inward attention (Carr, 2006), may have contributed to discrepant reports with adolescents' experiencing their emotional state as more distressing than mothers' interpretations would suggest. Nonetheless, although mothers reported less symptoms than their adolescent offspring, the discrepancies between mother and adolescent reports remained larger when mothers reported increased psychological distress, suggesting that this remains a factor in understanding reporting discrepancies even if not the direction of these.

5.6 Parental bonding and reporting discrepancies

The influence of parental bonding was explored with regards to overall parenting style and perceived levels of caring and over-protection. Results confirmed previous findings that parenting style was associated with discrepancies between mothers' and adolescents' ratings of symptoms (Berger *et al.*, 2005; Ehrlich *et al.*, 2011) and extended it further by exploring the direction of reports. Agreement was moderate when dyads were in the 'optimal' group and weaker between those in the 'sub-optimal' group. This latter group reflected dyads in which adolescents' PBI scores indicated that

their perception of mothers' parenting behaviour fitted the categories of 'affectionate constraint', 'affectionless control' or 'neglectful parenting'. These were based on reports of experiences of mothers being experienced as over-intrusive, controlling or absent. Kerr and Stattin (2000) and Marshall *et al.* (2005) argued that parents' knowledge of their adolescents' activities and emotions comes from adolescents' open disclosure of information. The types of parenting styles that made up the 'sub-optimal' group could be argued to make for strained relationships between adolescents and their mothers and this is supported by the finding that reporting discrepancies were greater when adolescents perceived their mothers as less caring and more overprotective. As such, it seems reasonable to consider that more problematic parent-child relationships would not facilitate open communication, which may explain the existence of greater discrepancies within dyads in this group. These findings lend support to the proposal by Barker *et al.* (2007) that the quality of the parent-adolescent relationship may affect how information about problems is communicated and give rise to reporting discrepancies.

5.7 Relationships among maternal psychological distress, parental bonding and reporting discrepancies.

An association was found between mothers' psychological distress and discrete aspects of the mother-adolescent relationship. Mothers who reported higher levels of psychological distress were rated by their adolescents as less caring

and more overprotective. This is in line with research which has suggested that parenting behaviour is affected by psychopathology. For example, a meta-analytic review noted that the parenting behaviour of depressed women was characterised by diminished emotional involvement, impaired communication, increased hostility, reduced responsiveness and fewer positive interactions with children (Lovejoy *et al.*, 2000). Consequently, findings of this study are in line with research that proposes that impaired parental mental health contributes to this type of negative parenting which can lead to poor parent-adolescent relationships (Ainsworth *et al.*, 1978; Bowlby, 1978).

However, this is in contrast to the proposal by Najman *et al.* (2001) and Tarullo *et al.* (1995) that mothers' psychopathology facilitates their empathy with youth-reported problems making them more sensitive to and more able to recognise symptoms of distress in their child. Mothers in the present study were less discrepant in their reports of adolescent emotional problems when perceived as more caring, irrespective of their level of psychological distress. Although it is not possible to conclusively establish this from this small cross-sectional study, this finding may be suggestive that an aspect of perceived care was associated with mothers' sensitivity to the presence of symptoms endorsed by the child, which subsequently influenced their behaviour such that communication improved and mothers became more aware of their adolescents' internal worlds. However, further research would be required to clarify this and to explore whether maternal behaviours that resulted in

adolescents rating them higher on care scores were aspects of open and effective communication.

Although both maternal psychological distress and perceived maternal care predicted variance in reporting discrepancies, perceived maternal care had a moderating effect on the relationship between maternal distress and agreement. Whilst psychological distress remained a predictor throughout the model, perceived care was only predictive until the interaction was added. This indicates that there seems to be an aspect of maternal care that interacts with psychological distress to change its impact on mothers' report of adolescent emotional problems. When this was explored further, it was seen that when ratings of perceived care were low, increased reporting discrepancies were associated with increased maternal psychological distress. Contrastingly, when ratings of perceived care were high, no such relationship existed – psychological distress did not predict agreement. Therefore, how caring mothers were rated to be appeared to change the effect of their psychological distress on agreement. In this sample, when maternal care was perceived to by adolescents as low, mothers who experienced more psychological symptoms themselves tended to be more out of tune with their adolescent children.

This finding could be interpreted to suggest that mothers who are perceived as caring, even when suffering psychological difficulties, are likely to be able to

accurately report their adolescent's emotional state. In this study caring reflected how mothers interacted with their adolescent children as they were growing up. Adolescents' ratings of care on the PBI pertained to their perceptions of maternal warmth and affection, positive mother-child interactions and supportiveness of their adolescent individuality. Berger *et al.* (2005) discussed that parent-child relationships lacking these characteristics have been associated with parental lack of awareness and sensitivity to children's difficulties. One explanation for this could be based on the idea that parents' own difficulties not only bias the information and behaviours that they attend to and focus on (De Los Reyes *et al.*, 2011), but also impair interactions with children such that they are experienced as less caring or more rejecting. Treutler and Epkins (2003) found that quantity and quality of involvement with children affected both the emotional connection between parents and children as well as their agreement on ratings. Parental psychopathology can prevent effective communication or positive interactions with children due to its interference with parents being in tune with their adolescents' emotional state (Bowlby, 1977; Cassidy, 1994). Therefore, parents' attempts to show care and affection may be out of sync with adolescents' willingness to share their emotional state with parents thus inhibiting understanding of adolescent functioning. Additionally, it may be that adolescents of mothers with depressive symptoms are aware of their mothers' negative affect and, as a result, may be less likely to tell their mothers about their own symptoms because they do not want to add to her distress or

because they do not find the discussion helpful (Ehrlich *et al.*, 2011). Overall, developmental research regarding the building of parent-child bonds suggests that mothers who were able to be emotionally warm and affectionate in their interactions with children, irrespective of their own emotional state, developed better relationships with their children (Bowlby, 1978; Greenberg, 1999). Therefore, it seems likely that mothers who were rated higher on the care scale may have been those who showed these attributes which may have given their children a sense that they were available to them for support and empathy and that they could cope with hearing their problems, thus facilitating an ongoing open and supportive relationship through adolescents and allowing better maternal understanding of functioning.

However, in contrast to the hypothesis, overall parental bonding style and overprotection were not found to be associated with reporting discrepancies. This is perhaps surprising given that greater discrepancies were found with older adolescents, who rated their parents as more overprotective and whose mothers reported higher levels of psychological distress. Previous research on relationships among attachment style, parent mental health and reporting discrepancies suggests that there is an effect of differential attachment styles on parent-adolescent agreement (Treutler & Epkins, 2003; Berger *et al.*, 2005; Ehrlich *et al.*, 2011). Although the PBI is often considered a useful tool for detecting attachment-related difficulties (Manassis *et al.*, 1999), it addresses aspects of parenting style to determine the relationship rather than specifically

the respondent's state of mind with respect to attachment. Therefore, it may be that PBI scores in this sample did not reflect the subtleties of attachment relationships that have been identified as associated with agreement previously. This may also be a reflection of the decision to combine three of the PBI quadrants into one 'sub-optimal parenting' group. As such, use of all four quadrants, or of a measure designed to pick up on specific attachment related relationship factors, such as the AAI (George *et al.*, 1996) which can provide an overall categorisation of relationship style as well as details of distinct aspects of the relationship, may facilitate the gathering of a more comprehensive picture of the impact of relationship factors on agreement. Unfortunately, the AAI is a time-consuming measure, which could not be employed within the time constraints of this research.

5.8 Interpreting the results in the context of developmental theory

Results of this research could be understood in the context of developmental theories. For example, Bowlby (1988) asserted that a child's early experiences with caregivers lead them to develop internal working models regarding the availability of others for emotional and physical support. These models are considered to influence social relationships throughout life as regards how able a person feels to seek emotional support from others. Ehrlich *et al.* (2011) and Berger *et al.* (2005) described that patterns of agreement were associated with different styles of attachment relationships between parents and

adolescents. Insecure attachment styles were found to be linked to poor agreement when compared with more secure relationships. Given that insecure attachment relationships are thought to develop as a result of rejection, neglect and lack of parental availability to the child (Cassidy, 1999) and often occur in the context of parental experience of mental health problems (Wan & Green, 2009), it seems possible that the moderating effect of caring found in this study could be explained in terms of the child's attachment relationship with the parental informant. One possible interpretation of this is that when mothers' psychological distress does not interfere with the development of a secure bond with their child, they develop more open and sensitive relationships with their children, which facilitates ongoing open communication as they go through adolescence. This points towards a potentially differential effect of current and past maternal psychological problems. Van der Toorn *et al.* (2010) found that both present and lifetime maternal mental health difficulties contributed to reporting discrepancies about internalising problems. However, it may be of interest for future research to explore whether mothers who experienced post-natal psychological distress, as compared to those who did not, go on to have different patterns of agreement with their adolescents.

Individuals classified as having a dismissive state of mind with respect to attachment are found to have difficulty openly discussing painful feelings (Cassidy & Kobak, 1988) whilst those with preoccupied or unresolved

classifications often become caught up in their distress and cannot give a coherent explanation of the experience (Main *et al.*, 2002). These attachment relationships would likely make it difficult for parents to understand their adolescents' emotional state, particularly if they themselves are experiencing psychological difficulties. Therefore, the development of an insecure attachment relationship may result in more difficult behaviours in the child, a worsening of mothers' depression and further impairment of effective communication about emotional state in the teenage years.

Another perspective to consider is that of social learning theory (Bandura, 1969; Grusec, 1992), which contends that children learn new behaviours and acquire information about themselves through observation of the actions of others. In this respect the influence of perceived maternal care and parent psychological distress could be explained by both the parent's and child's understanding of what constitutes acceptable behaviour and emotional experience. In a study of the impact of anchors on parent-child reports of behaviour problems, Carlston and Ogles (2006) suggested that variance between parent and child reports of symptoms was a function of discrepancies in parent and child conceptualisations of typical child behaviour. This implies that parent and child ratings are subjective and based on what is perceived to be normal. From this standpoint when a parent conceptualises adolescent distress as normal teenage angst and the teenager experiences it as distressing, there would understandably be a discrepancy in their reports.

Furthermore, there is anecdotal evidence of a contemporary culture of teenagers in therapy in which the experience and expression of emotional distress is fashionable (Lyness, 2010). It has been suggested that present day adolescents live in a society in which it is acceptable, and possibly expected, that they will express their emotional experience, whereas their parents likely grew up in a time when such expression of distress was not tolerated to the same extent. This may contribute to considerably different viewpoints on the interpretation of levels of distress and may explain why adolescents reported more problems than mothers. The additional impact of parent psychological symptoms and different perceptions of parenting style may serve to further inhibit clarity over what is normal and exacerbate inconsistency between informants.

5.9 Limitations

This study had intended to explore the effect of depression, anxiety and stress individually as well as the combined impact of overall psychological distress. Unfortunately, this was not possible due to high levels of multicollinearity between mothers' ratings on DASS-21 subscales. Few studies have been able to examine the effect of co-morbidity as compared to discrete diagnoses (De Los Reyes & Kazdin, 2005), perhaps because of difficulty defining distinct problems due to the commonality of co-morbid symptoms in mental health problems.

As such, little is known about the effect of distinct parental diagnoses on ratings of child emotional problems (De Los Reyes & Kazdin, 2005). Numerous studies argue that depression has the greatest impact on informant accuracy (Boyle & Pickles, 1997; Chilcoat & Breslau, 1997; Krain & Kendall, 2000; Najman *et al.*, 2000; Najman *et al.*, 2001; van der Toorn *et al.*, 2010), whilst others contend that anxiety leads to greater discrepancies (Briggs-Gowa *et al.*, 1996; Engel *et al.*, 1994; Frick *et al.* 1994). There has also been suggestion that parental substance misuse, anger and stress contribute to parental misinterpretation of adolescent symptoms (Jensen *et al.*, 1988b; Kolko & Kazdin, 1993; Youngstrom *et al.*, 2000). It is possible that high levels of multicollinearity were a result of the DASS having only adequate discriminant validity. However, further exploration of the influence of differential parent psychopathology would likely be of interest in future research, and the risk of multicollinearity could potentially be prevented through use of separate measures of discrete diagnoses.

The population sample studied in this research contained mothers who were relatively unimpaired as regards psychological difficulties. As with any study in which the sample was not a comprehensive representation of a normative population, there exists the unknown effects of attrition (Gray *et al.*, 1996; de Winter *et al.*, 2005; Porter & Whitcomb, 2005). In this study it is likely that results have been biased by the effects of attrition in that those who chose to take part were seemingly relatively psychologically healthy. Furthermore, as

this was a postal study, it was not possible to evaluate the differences between those who participated and those who did not, which subsequently inhibits the generalisability of findings.

The small sample size in this study also reduced the number of analyses that could be conducted. For example, PBI scores were grouped rather than examined on the basis of individual quadrants. As a result, possible differential findings across the different styles of sub-optimal parenting could not be explored. Similarly, fathers were excluded because only three completed the questionnaires about their adolescent child. Different patterns of agreement between mother-adolescent and father-adolescent reports have been found (Duhig *et al.*, 2000; Hughes & Gullone, 2010; Renk *et al.*, 2007). Therefore, the inclusion of fathers may have made additional contributions to understanding reporting discrepancies, particularly as fathers often have different responses to, and expressions of, psychological distress (Adams *et al.*, 1995; Brody, 1993) as well as different relationships with their children compared with mothers (Russell & Saebel, 1997; Russell & Collins, 1991).

Two possible limitations exist as regards the measures used in this study. First, the PBI was developed to assess adults' perceptions of their parents. Adolescents' appraisals of their parents may have been more critical given their developmental stage because their perceptions of parents may continue to be biased by ongoing transient events (Cubis *et al.*, 1989). Therefore,

although the PBI has been used with adolescents in a number of studies (Cubis *et al.*, 1989; Kashani *et al.*, 1987; Russell *et al.*, 1992), there is still a risk that their responses may have been influenced by recent positive or negative interactions with parents. Second as regards measures used, the SDQ subscale scores used to obtain a measure of reporting discrepancies were not standardised. De Los Reyes and Kazdin (2004) advised that different measures of informant discrepancies are methodologically distinct and lead to different conclusions. However, as far as could be determined, the majority of previous studies have explored agreement using the Child Behaviour Checklist and Youth Self Report scales (Achenbach, 1991). Few previous studies have examined agreement on the SDQ (van der Meer *et al.*, 2008) and none have explored discrepant reports on the SDQ in relation to the interaction between parent psychological distress and parental bonding. Nevertheless, caution must be applied when making direct comparison between this research and other studies which have used standardised scores.

5.10 Clinical Implications

Difficulties understanding or failure to attend to discrepancies in informant report of adolescent symptoms has potential implications for clinical assessment and intervention. Parents, particularly mothers, are often called upon to provide reports of the emotional functioning of their children, but as this research has further demonstrated, their opinions are not always

consistent with their child. Obtaining information from multiple informants and being mindful of the possibility that parent and adolescent reports about adolescent emotional well-being may be discrepant should be part of any comprehensive assessment of a young person's difficulties. This will facilitate a more objective understanding of child difficulties and increase the likelihood that the most suitable treatment intervention can be provided.

This study provides further support for the value of considering parent psychological functioning routinely as part of any assessment of a child or adolescent in the clinic. It is common for only the combined parent and child ratings of emotional well-being to be considered clinically. However, there is substantial evidence that parent-adolescent reporting discrepancies should not be ignored. Previous research has reported that discrepancies predict future difficulties and adverse outcome including illicit substance misuse, legal problems, unwanted pregnancy, school refusal, employment difficulties and deliberate self-harm (Klaus, Mobilio, & King, 2009). Consequently, it seems vital that clinicians and researchers continue to evaluate and make sense of differences in descriptions of problems and work to resolve these differences such that families work together to support their adolescent offspring.

5.11 Future Research

Future research should continue attempts to make sense of inconsistencies in the existing literature. Further exploration of the conflicting findings regarding demographic factors and which informant is likely to report higher levels of problems would likely provide further information on how to interpret reporting discrepancies. Future studies could seek to address the limitations of this study, particularly as regards the inclusion of fathers and the assessment of discrete parental mental health diagnoses, perhaps through attainment of a larger, more representative sample. However, what seems pertinent is the need for clarity on the most effective ways to integrate different perspectives in a clinically useful way.

5.12 Conclusion

This purpose of this study was to explore relationships among parent psychological distress, parental bonding and reporting discrepancies about adolescent emotional symptoms. Previous research has suggested that informant psychopathology and aspects of the parent-child relationship including attachment security and communication play an influential role in reporting discrepancies. However, as far as could be determined, this was the first study to examine these factors in combination pertaining to ratings on the SDQ. Results confirmed that agreement between mothers and adolescents is weak for emotional symptoms and further impaired when mothers experience

psychological distress or when parent-adolescent relationships are characterised by low perceived maternal care. In contrast to previous findings, mothers' psychological distress was not associated with over-report of symptoms compared with adolescents self report. Rather, adolescents in this sample consistently self-reported more symptoms than their mothers perceived them to be experiencing.

Perceived maternal care and the interaction between this and mothers' psychological distress were significant predictors of mother-adolescent agreement. Maternal care moderated the association between psychological distress and agreement, suggesting that aspects of caring may be directly related to mothers' knowledge and interpretation of their adolescents' emotional functioning when they are experiencing their own difficulties. Consequently, this study suggests that it may not be the overall parenting style, but instead specific aspects of the relationship that contribute to agreement. When mothers suffer their own psychological distress, how caring they are perceived to be by their adolescent child appears to be a protective factor in their understanding of their adolescents' emotional functioning, enabling mothers to remain relatively in tune with their adolescent children irrespective of their own problems.

However, these results must be interpreted cautiously given the small and relatively psychologically healthy sample as these factors weaken the

generalisability of the study. It could be tentatively argued that perceived maternal care interacts with mothers' psychological difficulties to facilitate communication with their adolescent children, thus improving their awareness of how the adolescent is feeling emotionally. On the other hand, it may be that perceived parenting style, communication and psychological distress are interrelated in a different way that cannot be explained by this study. However, the lack of effects found for overall parenting style and levels of overprotection suggest that there is something specific about perceived maternal care. As only overall psychological distress was evaluated in this study, therefore, it is also possible that overall parenting style, caring and overprotection may interact with discrete psychological diagnoses to produce different patterns of agreement that could not be determined in this research.

Given the considerable clinical implications of reporting discrepancies there are obvious advantages to collecting information from multiple informants. This research confirms the need for clinicians to remain conscious of the consequences for treatment and intervention presented by discrepancies between mother and adolescent reports. It reinforces the proposition that parental psychological functioning should be routinely assessed as part of assessment of children and adolescents and further suggests that aspects of family relationships, specifically adolescents' perceptions of their parents, could be incorporated into assessment and treatment of youths who present at child and family mental health services.

CHAPTER 6

Journal Article

The impact of maternal psychological distress and parental bonding on mother-adolescent agreement on adolescent emotional problems.

Abstract

Objective. To explore the impact of mothers' psychological distress and parental bonding on mother-adolescent agreement on ratings of adolescent emotional functioning. *Methods.* This observational study involved 87 pairs of mothers and their adolescent sons/daughters aged 12-17 who completed proxy and self-ratings of the Strengths and Difficulties Questionnaire. Mothers completed the Depression, Anxiety and Stress Scale as a measure of psychological distress, and adolescents completed the Parental Bonding Instrument to measure parenting experience. Multiple linear regression and moderation analyses explored relationships among mothers' psychological distress, parental bonding and mother-adolescent agreement. *Results.* Kappa values indicated that mother-adolescent agreement was fair ($k=.39$). Adolescents self-reported more emotional problems than mothers reported of them, with a medium effect size of 0.4. Increased reporting discrepancies were associated with elevated levels of maternal psychological distress and adolescent ratings of low maternal care. Both were unique and combined predictors of reporting discrepancies, with medium to large effect sizes ($f^2=0.1-0.5$). Perceived care moderated the relationship between maternal distress and agreement: When ratings of care were low, increased maternal distress predicted poorer agreement, but when

ratings of care were high no significant relationship was found between distress and agreement. *Conclusions.* Maternal psychological distress was associated with increased reporting discrepancies whilst higher ratings of care were associated with better agreement. The relationship between psychological distress and informant agreement varied as a factor of parental bonding. Results support the need for multi-informant assessment and suggest that enquiry about mothers' psychological functioning and parental bonding are useful in understanding reporting discrepancies.

Keywords: parent-adolescent reporting discrepancies; parental bonding

Over the past twenty years it has been well established that parents and children tend not to agree with each other regarding the presence, level or severity of emotional problems in the child. An abundance of research, including two meta-analyses (Achenbach, McConaughy, & Howell, 1987; Duhig, Renk, Epstein, & Phares, 2000), has identified that different informants' ratings of social, emotional and behavioural problems in the same child tended to be discrepant. As such, it is now widely accepted that across a variety of assessment instruments, demographic factors and diverse cultural and ethnic backgrounds only low to moderate agreement exists between different informants (Barker, Bornstein, Putnick, Hendricks, & Suwalsky, 2007; Briggs-Gowan, Carter, & Schwab-Stone, 1996; Conrad & Hammen, 1989; De Los Reyes & Kazdin, 2005; Grills & Ollendick, 2002; Jensen et al., 1999; Karver, 2006; Seiffge-Krenke & Kollmar, 1998; Sourander, Helstela, & Helenius, 1999; van der Meer, Dixon, & Rose, 2008; Vassi et al., 2008; Verhulst & van der Ende, 1992; Youngstrom, Loeber, & Stouthamer-Loeber, 2000).

Impact of Discrepancies

Despite extensive research, the problem remains poorly understood and presents difficulties for clinicians attempting to make accurate assessments of young people in clinical settings. Parental views of children's functioning and well-being are a central part of any assessment within a child mental health setting. However, inconsistencies in the description and measurement of a young person's emotional state risk inaccurate identification of the problem,

misdiagnosis and inaccurate treatment (De Los Reyes & Kazdin, 2005; Martin, Ford, Dyer-Friedman, Tang, & Huffman, 2004). Low rates of agreement between parents and children regarding problem areas are associated with poor engagement in treatment (Yeh & Weisz, 2001), missed appointments and problems in the development of a therapeutic alliance (De Los Reyes & Kazdin, 2005). Evidence also suggests that poor agreement between parents and adolescents predicts adverse outcomes in the future, including increased drug use, legal problems, exclusion from school, deliberate self harm and referral to mental health services in adulthood (Ferdinand, van der Ende & Verhulst, 2004). Developmentally, adolescence is when young people are becoming increasingly separate from their parents, sharing less information and spending less time with them (Carr, 2006). As such it is a time when self-report is a natural source of information about a young person's difficulties. Yet adolescents are unlikely to initiate referrals themselves, rather it is parents or school that instigate contact with mental health services on their behalf (Flisher et al., 1997). Therefore, adolescents may be particularly vulnerable to having their emotional state misunderstood during assessments if the effects of reporting discrepancies are not clearly understood and considered.

Understanding Discrepancies and Patterns of Agreement

Accordingly, it seems important to continue to try to better understand what factors influence stronger parent-adolescent agreement on emotional problems. Research to date has examined a range of potential contributing

factors. Demographic factors such as age, gender and culture or socio-economic status, have produced widely varied and inconsistent results with some studies finding age and gender to be associated with better agreement whilst others found contradictory results (Chi & Hinshaw, 2002; Choudhury, Pimentel, & Kendall, 2003; Engel, Rodrigue, & Geffken, 1994; Grills & Ollendick, 2003; Handwerk, Larzelere, Soper, & Friman, 1999; Stanger & Lewis, 1993; Tarullo, Richardson, Radke-Yarrow, & Martinez, 1995). A consistent pattern appears to exist with regard to population studied, with parents reporting fewer problems than their children in non-clinical populations compared with clinical samples, where parents appear to report more problems than are endorsed by adolescents themselves (Seiffge-Krenke & Kollmar, 1998; Stanger & Lewis, 1993; Thurber & Snow, 1990; Verhulst & van der Ende, 1992; Waters, Stewart-Brown, & Fitzpatrick, 2003).

One of the most frequently studied characteristics related to discrepancies is the impact of informant mental health problems on agreement, and there is general consensus that this is an important factor. However, there has been little success in making sense of the variance between ratings. The 'depression-distortion hypothesis', argues that parental depression leads to exaggeration or over-reporting of emotional problems in their children (Boyle & Pickles, 1997; Chilcoat & Breslau, 1997; Fergusson, Lynskey, & Horwood, 1993; Najman et al., 2000). Similar patterns of over-reporting have, however, been associated with parental anxiety, stress and anger problems (Briggs-Gowan et

al., 1996; Frick, Silverthorn, & Evans, 1994; Kolko & Kazdin, 1993; Phares, Compas, & Howell, 1989; Renk, Roddenberry, Oliveros, & Sieger, 2007) such that cognitive distortion within the context of general psychopathology, rather than solely that observed within the context of depression only, may be the problematic issue. However, further research has suggested that there is *increased* agreement when a parent suffers from an affective illness (Tarullo et al., 1995). In light of this, it is perhaps not surprising that an early review of the literature on this issue found that there was insufficient evidence to conclude the existence of a depression-related reporting bias in parents (Richters, 1992). There is widespread agreement that numerous other examples of parent psychopathology, including substance misuse, stress, and antisocial behaviour are directly associated with increased level of child psychopathology, possibly a consequence of parent-child interactions and/or genetic vulnerabilities (Mash & Dozois, 2003). Therefore, parent psychopathology appears to play a key role in both influencing perceptions of child symptoms and on the development of childhood disorder.

Recent studies have begun to explore the role that parent-adolescent relationship factors play in differential ratings of adolescent well-being. There is some literature to suggest that attachment security, as measured by the Adult Attachment Interview (AAI; Main, Goldwyn, & Hesse, 2002; Berger, Jodl, Allen, McElhaney, & Kuperminc, 2005; Ehrlich, Cassidy, & Dykas, 2011), as well as other aspects of the mother-adolescent relationship such as communication

style and quality and quantity of interactions (Jensen, Xenakis, Davis, & Degroot, 1988a; Treutler & Epkins, 2003) are also associated with reporting discrepancies. Specifically, mother-adolescent dyads where adolescents were rated as having relatively more insecure than secure attachment organisation were more discrepant in their reports (Berger et al., 2005; Ehrlich et al., 2011). This is in line with attachment theory, in that a secure attachment relationship facilitates how well parents are attuned to their children's emotional experience (Allen et al., 2003; Allen, Moore, Kuperminc, & Bell, 1998; Bowlby, 1988). Accordingly, the parent-child relationship is considered to reflect the ways in which individuals regulate and communicate distress (Bowlby, 1988) with poor relationships being characterised by avoidance of discussion of emotion and reduced self-disclosure to parents (Becker-Stoll, Deluis, & Scheitenberger, 2001; Berger et al., 2005; Kobak, Cole, Ferenz-Gillies, Flemming, & Gamble, 1993; Mikulincer & Nachson, 1991).

Therefore, both parent mental health and the relationship between parents and children make contributions to informant reporting discrepancies. These factors are often considered to be interlinked, with a consistent association between poor relationships and psychopathology in both parents and adolescents established (Brown & Wright, 2003; Green & Goldwyn, 2002; Greenberg, 1999). Mental health difficulties are found to influence both parent-child relationships and communication and interactions between parents and children (Adam, Gunnar, & Tanaka, 2004), particularly during

adolescence which is characterised by reduced quality and quantity of communication irrespective of parental functioning. The associations between psychopathology, relationship characteristics and communication of emotional distress seem to warrant further exploration of their relative and combined impact on parent-adolescent reporting discrepancies.

To date, only two studies have explored these factors in combination. Results indicate that both relationship variables, whether measured as attachment organisation or general aspects of mother-adolescent interaction, and parent psychopathology contribute to discrepancies in parent-adolescent report of adolescent internalising symptoms (Ehrlich et al., 2011; Treutler & Epkins, 2003). However, Treutler and Epkins (2003) noted that mother symptoms explained variance over and above relationship factors, whilst Ehrlich et al. (2011) asserted the existence of a link between the two, such that more secure adolescent attachment security was associated with reduced maternal and smaller reporting discrepancies. Therefore, there may be an interaction between the parent-adolescent relationship, parent psychopathology and parent-adolescent reporting discrepancies that warrants further exploration.

The Present Study

This study explored the impact of mothers' psychological functioning, parental bonding, and the interaction between the two on mother-adolescent

ratings of adolescent emotional problems. It was hypothesised that agreement between mothers and adolescents would be poor and that elevated levels of psychological distress in mothers would be associated with greater reporting discrepancies, with mothers reporting more symptoms than adolescents endorsed in themselves. Demographic variables adolescent gender and age as well as parental bonding were also hypothesised to be associated with reporting discrepancies. Finally, it was further hypothesised that any association between mothers' psychological distress and reporting discrepancies would be moderated by parental bonding.

Methodology

Participants

Participants were male and female adolescents aged 12 to 17 years and their mothers recruited from the central region of Scotland. For inclusion in the study adolescent participants must have been eligible in terms of age and been enrolled in a local area high school at the time of recruitment. Young people with a formally diagnosed learning disability or Autistic Spectrum Disorder were excluded from the study on the basis of potential difficulties in relation to their understanding and also the validity of the self-report measures employed in the study (Bramston & Fogarty, 2000; Finlay & Lyons, 2001). Mothers were required to have been actively involved in caring for the young person during his or her early life. A total of 220 participant dyads were invited to take part in

the research resulting in complete responses from 87 mother-adolescent pairs (40% of the target sample).

Mother ages were determined in ranges: 30 per cent were between 25-40 years of age, 62 per cent were between 41-50, and eight per cent were over 50 years of age. Adolescents included 59 girls (mean age 14.64) and 28 boys (mean age 13.71) age range 12-17 years. The majority were regularly attending school at the time of the study (90 per cent, $n=78$). In terms of marital status, 61 per cent of mothers were married, 12 per cent were separated, 10 per cent were divorced, nine per cent were currently living with a partner, six per cent were single, one per cent was in a relationship but not living with their partner and one per cent was widowed. Fifty-eight per cent of adolescents lived at home with both mother and father, 26 per cent lived with mother only, one per cent lived with father only and six per cent lived with a parent and step-parent. Number of siblings ranged from zero to five, with 18 per cent having no siblings, 54 per cent having one sibling, 16 per cent having two siblings and 11 per cent having three or more siblings. Using the Carstairs and Morris index of deprivation decile ranks which range from zero (most affluent) to ten (most deprived) (Carstairs & Morris, 1991) the sample fell across deciles one to nine, and had an average deprivation rank of five.

Procedure

Recruitment.

This observational study took place between October 2011 and February 2012. Following receipt of ethical permission from academic and health care authorities, participants were recruited over four consecutive months through both community and clinical sites, comprising local high schools and National Health Service mental health services. Permission to approach high schools was sought from the relevant directors of education. Once granted, head teachers were sent information about the study, including a copy of all measures and invited to allow the participation of their pupils. If there was no response to the initial invite letter, head teachers were contacted directly by telephone approximately one month later. Participating schools chose the most convenient time and method for questionnaire distribution, either by a selected teacher (two schools) or the researcher (one school). Two schools sent mothers' questionnaires home with the child, along with a covering letter describing the study, and one school sent questionnaires directly to mothers at home by post. A total of 52 out of a possible 120 mother-adolescent dyads were recruited through high schools.

Thirty-five out of a possible 100 participants were also recruited through clinical sites in order to ensure that a portion of the sample was representative of those with psychological difficulties. These participants were accessed via the mental health clinician, who could be working with the adolescent or mother.

Mothers and their adolescent were invited to take part in the research during a routine clinical appointment where they were given questionnaires to take home for completion.

Prior to completion of the questionnaires participants were prompted to sign a consent form confirming that they had read and understood the information sheet. Mothers were also asked to provide consent for youths under 16 years of age.

Power.

A power calculation using G*Power (Faul, Erdfelder & Lang, 2007) indicated that to find a medium effect size of 0.5 with statistical power of 0.8 at an alpha level of .05 a minimum of 81 participants would be required for a hierarchical multiple linear regression with 5 predictor variables.

Measures

Demographic variables. Adolescents reported their age, gender, postcode and family and sibling information. Mothers reported their age range, marital status and relationship to the adolescent participant.

Strengths and Difficulties Questionnaire (SDQ: Goodman, 1997). The SDQ is a widely used screening questionnaire for mental health problems in children aged 4 to 17 (Goodman, 1997; Goodman, 2001). It consists of a 25-item

self-report measure, which can be completed by children aged 11-17 years, and a proxy-report version for parents. The questionnaire takes approximately five to ten minutes to complete (Goodman, 1997) and asks about both positive and negative attributes using a 3-point Likert scale comprising 'not true', 'somewhat true' and 'certainly true' to indicate the extent to which each attribute applies to the target child. The 25 items are divided into 5 problem sub-scales of 5 items each, generating scores for emotional symptoms, conduct problems, hyperactivity-inattention, peer problems and pro-social behaviour (Goodman, 2001). The focus of this research was the emotional problems scale, on which participants responded to statements such as "I get very angry and lose my temper", "I worry a lot", and "I am often unhappy, down-hearted or tearful". The scale produces a score of 0-10 which provides an indication of the child's emotional functioning in which scores of 0-5 are categorised as 'normal' and scores of 6-10 are representative of 'abnormal' functioning.

Satisfactory internal, external and predictive validity, and good test-retest reliability have been found in both clinical and non-clinical samples (Goodman, 1997; Becker, Hagenberg, Roessner, Woerner, & Rothenberger, 2004; Goodman, 2001; Muris, Meesters, Eijkelenboom, & Vincken, 2004).

Depression, Anxiety, Stress Scale – short form (DASS-21, Lovibond & Lovibond, 1996). This short form of the Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995) is a 21-item self-report questionnaire designed to

assess these three negative emotional in adults aged 18 or older. Statements relating to symptoms of depression (e.g. “I found it difficult to work up the initiative to do things”), anxiety (“I felt I was close to panic”) and stress (e.g. “I found it hard to wind down”) were rated on a four-point scale from ‘not at all’ to ‘very much or most of the time’ according to how much they were true for parent participants over the preceding week (Lovibond & Lovibond, 1995). Outcomes were calculated by doubling the sums of the scores for each scale and combining all three to generate a score for overall maternal psychological distress, which can be categorised according to severity (Henry & Crawford, 2005). Normative data for the DASS indicates that total problems scores between 0-26 are categorised as ‘normal’, scores between 27-35 are ‘mild’, scores between 36-79 are ‘moderate to severe’ and any score above this is indicative of ‘extremely severe’ difficulties.

The DASS-21 has been found to have good psychometric properties (Antony, Bieling, Cox, Enns, & Swinson, 1998; Clara, Cox, & Enns, 2001; Crawford & Henry, 2003; Henry & Crawford, 2005) and the subscales have shown high internal consistency and meaningful discriminations among the three related states of depression, anxiety and stress in both clinical and non-clinical settings. It has good construct validity, acceptable internal and external reliability (Henry & Crawford, 2005).

Parental Bonding Instrument (PBI; Parker, Tupling & Brown, 1979). This 25-item retrospective self-report measure probes subjective experience of parental behaviours and attitudes towards the subject during childhood pertaining to levels of perceived care and overprotection (Parker et al., 1979). Ratings are made of the extent to which each item relating to parental attitudes or behaviours corresponded to participants' mothers on a 4-point scale ranging from 'very like' to 'very unlike'. Scores enable mothers to be assigned to one of four quadrants reflecting variations in care and overprotection based on normative data where cut-offs are a care score of 27 and an overprotection score of 13.5. High care/low protection is considered 'optimal parenting', whilst scores of low care/high protection are termed 'affectionless control'; high care/high protection scores reflect 'affectionate constraint' and low care/low protection is considered 'neglectful parenting' (Parker et al., 1979).

In both clinical and non-clinical settings, the factorial structure of the PBI has been confirmed and good reliability, validity and internal consistency has been demonstrated (Parker, 1990; Parker, 1989; Parker et al., 1979; Plantes, Prusoff, Brennan, & Parker, 1988; Wilhelm, Niven, Parker, & Hadzi-Pavlovic, 2005). The PBI has shown excellent test-retest reliability over short and extended periods of up to 20 years in non-clinical and clinical outpatient samples, indicating excellent long-term stability (Parker, 1990; Wilhelm & Parker, 1990; Wilhelm et al., 2005) and both construct and convergent validity are considered satisfactory and independent of mood states or life experience

(Parker, 1989). Although the PBI measures perceived parental characteristics, it has also been demonstrated to accurately reflect actual parenting (Parker, 1990).

Data Analysis

Interrater reliability was determined using Cohen's Kappa (Cohen, 1960) coefficient to provide a measure of the strength of agreement in the sample and across levels of mother psychological distress and styles of parental bonding. Kappa coefficients of less than 0.2 are considered 'poor', 0.21-0.4 are 'fair', those between 0.41-0.6 are considered 'moderate', and those above 0.61 are said to reflect a 'good' strength of agreement (Landis & Koch, 1977; Viera & Garrett, 2005).

The magnitude of the discrepancies between mothers' and adolescents' ratings was calculated by generating a difference score by subtracting adolescents' scores from parents' scores (Treutler & Epkins, 2003). This was selected as the outcome measure as difference scores are considered the metric most sensitive to the level, shape and dispersion of patterns of agreement which previous studies have shown to be related to caregiver mental health symptoms (Youngstrom et al., 2000).

Independent samples t-tests were performed to examine disparity in difference scores with regards to level of psychological distress and the style of

parental bonding. Pearson's correlations were performed to determine the size and direction of any relationships amongst the variables.

Hierarchical multiple regression analyses were conducted to explore the ways in which mothers' psychological distress, parental bonding and the interaction of the two, were related to difference scores. In order to determine any effects associated with the interaction between psychological distress and parental bonding, interaction terms were created by multiplying DASS-21 and PBI variables found to be associated with difference scores in earlier analyses. Moderation analyses (Baron & Kenny, 1986) were then conducted to examine whether the nature of any relation between mothers' psychological distress and mother-adolescent reporting discrepancies varied as a function of parental bonding.

Results

Descriptive Statistics

Means and standard deviations for the sample are reported in Table 1. Mean SDQ scores for both parent-proxy and adolescent self-report were in the normal range, indicating that adolescents in the sample were relatively emotionally healthy according to both their own and their mothers' reports. Similarly, mean DASS-21 scores fell within the 'normal' range suggesting that mothers had relatively low levels of psychological distress. Due to insufficient numbers of participants to permit use of all DASS severity categories, scores

were dichotomised such that those falling within the 'normal' range were considered to reflect a 'non-clinical' group and those scoring above the cut off were grouped to represent those with 'elevated' psychological distress. DASS-21 scores showed a significant a positive skew with 69 per cent of mothers in the 'non-clinical' group and 31 per cent in the 'elevated' group, which is comparative to data from normative samples (Crawford & Henry, 2003). Distribution of mother-adolescent relationship styles indicated that 54 per cent of the dyads fell within the 'optimal parenting' group. There were an insufficient number of participants to facilitate use of all four quadrants. Therefore, the remaining three categories were grouped to form a 'sub-optimal' parenting group.

TABLE 1. Means and Standard Deviations (SD) for all variables across relevant groups

Groups -	Overall Sample Mean (SD)	Child Gender Mean (SD)		Psychological Distress Mean (SD)		Parent Child Relationship Mean (SD)	
		Girls	Boys	Non-Clinical	Elevated	Optimal	Sub-Optimal
DASS-21 Total	24.58 (26.92)	28.48 (29.49)	16.35 (18.33)	9.37 (7.60)	58.37 (23.35)	17.80 (21.39)	32.17 (30.52)
SDQ parent	2.92 (3.10)	3.36 (3.43)	2.00 (2.02)	1.93 (2.48)	5.11 (3.27)	3.00 (3.26)	2.83 (2.96)
SDQ adolescent	3.98 (3.00)	4.78 (3.07)	2.29 (2.00)	2.93 (2.44)	6.30 (2.85)	4.04 (2.98)	3.90 (3.06)
PBI-care	29.83 (4.65)	29.49 (5.02)	30.54 (3.73)	30.6 (4.09)	28.11 (5.38)	31.8 (3.10)	27.61 (5.12)
PBI-over-protection	12.01 (5.97)	12.69 (5.71)	10.57 (6.36)	10.40 (5.59)	15.59 (5.26)	8.65 (3.77)	15.78 (5.76)
Difference Score	2.16 (2.06)	1.29 (2.36)	2.58 (1.67)	1.67 (1.60)	3.26 (2.52)	1.91 (3.59)	2.44 (2.21)

Data Analysis

Hypothesis 1: Agreement between mothers and adolescents would be poor and elevated levels of psychological distress in mothers would be associated with greater reporting discrepancies and with mothers reporting more symptoms than adolescents endorsed in themselves.

Kappa values indicated that agreement between mothers and adolescents was fair ($k=.39$, $p<.001$, $95\%CI=0.21-0.57$). Agreement was also fair for mother-adolescent dyads in which the mothers' DASS-21 scores fell within the 'non-clinical' group ($k=.40$, $p<.001$, $95\% CI=0.12-0.7$) and occurred only by chance when mothers reported 'elevated' levels of psychological distress ($k=.13$, $p=.40$, $95\% CI=-0.15-0.41$). A large effect size ($d=1.2$, $CI=0.7-1.6$) was found for an independent samples t-test showing that mothers in the 'elevated' group reported significantly higher levels of emotional problems in their adolescent children than mothers in the 'non-clinical' group ($t(85)=-4.996$, $p<.001$). Similarly, the children of mothers in the 'elevated' group also reported significantly higher levels of emotional problems in themselves as compared with children of mothers in the 'non-clinical' group ($t(85)=-5.637$, $p<.001$), which had an equally large effect size ($d=1.3$, $CI=0.8-1.8$). In terms of difference scores, mothers in the 'elevated' group showed significantly greater discrepancies with their adolescent children than those in the 'non-clinical'

group ($t(85)=0.732$, $p<.001$), which was a small effect size ($d=0.2$, $CI=0.14-0.6$). Significant positive correlations were found between DASS-21 total and mother report of emotional problems ($r=.476$, $p<.001$) as well as adolescent self-report of emotional problems ($r=.548$, $p<.001$). Maternal psychological distress also correlated with difference scores ($r=.408$, $p<.001$) indicating that as mothers levels of psychological distress increased, so too did the discrepancies between mothers' and adolescents' ratings of adolescent emotional symptoms. Independent samples t-tests showed adolescents reported significantly more emotional symptoms than mothers for the overall sample ($t(172)=-2.285$, $p=.024$), with a medium effect size ($d=0.4$, $CI=0.1-0.9$) and across levels of mothers' psychological distress ($t(118)=-2.227$, $p=0.028$) with a medium effect size ($d=0.4$, $CI=0.1-0.7$).

Hypothesis 2: Demographic variables adolescent gender and age as well as parental bonding were also hypothesised to be associated with reporting discrepancies.

Mothers and daughters showed moderate agreement on emotional problems ($k=.43$, $p<.001$, 95% $CI=0.23-0.63$), whilst mothers and sons showed only chance agreement ($k=.07$, $p=.579$, 95% $CI=-0.17-0.31$). Independent samples t-tests illustrated that girls self-reported a significantly greater level of emotional problems than boys ($t(85)=-3.912$, $p<.001$) with a large effect size ($d=0.9$, $CI=0.4-1.4$), and that mother-son dyads showed significantly greater

discrepancies in their reports than mother-daughter dyads ($t(85)=-2.845$, $p=0.006$), with a medium effect size ($d=0.6$, $CI=0.2-1.1$). Pearson's correlations showed a significant positive correlation between adolescent age and difference scores ($r=.31$, $p=.003$). Correlations also showed that increasing adolescent age was associated with reports of more emotional problems by both mothers ($r=.42$, $p<.001$) and adolescents ($r=.27$, $p=.01$).

Kappa values indicated that agreement between mothers and adolescents was moderate for dyads in the 'optimal parenting' group ($k=.41$, $p=.001$, $95\% CI=0.18-0.65$), and fair for dyads in the 'sub-optimal' group ($k=.37$, $p=.001$, $95\% CI=0.1-0.66$). However, independent samples t-tests showed no significant difference in mother-adolescent difference scores between the 'optimal' and 'sub-optimal' groups ($t(85)=1.194$, $p=0.236$). Pearson's correlations demonstrated a significant negative correlation between PBI-care and difference scores ($r=-.413$, $p<.001$), but no significant relationship was found between PBI-overprotection and difference scores ($r=.073$, $p=.503$).

Hypothesis 3: Any association between mothers' psychological distress and reporting discrepancies would be moderated by parental bonding.

DASS-21 scores correlated significantly with PBI-care ($r=-.334$, $p=.002$) and PBI-overprotection ($r=.328$, $p=.002$), indicating an association between

maternal psychological distress and parental bonding. To examine the contributions of maternal psychological distress, parental bonding and the interaction between the two on difference scores, a hierarchical regression analyses was conducted. As PBI-care was found to be significantly associated with difference scores, a moderation analysis using the interaction term of combined DASS-21 and PBI-care was conducted to explore this relationship further. Adolescent age and gender also showed significant associations with difference scores in preliminary analyses. Therefore, these were included in the regression model to control for potential confounding effects. Variables were entered hierarchically into the regression model, starting with the control variables, followed by DASS-21, then PBI-care and finally the interaction term. This allowed the relative contribution of each predictor variable as well as the interaction effects to be explored.

TABLE 2. Hierarchical Regression and R2 change for difference scores

Step	Predictor Variables	β	t (sig.)	R	R ²	ΔR^2	F (Sig)	R ² change	F Change (Sig)
1	Gender/Age								
	Gender	0.297	3.014 (p=.003 [^])	0.432	0.186	0.167	(2,84)=9.61 p<0.001*	0.186	(2,84)=9.61 p<0.001**
Age	0.315	3.210 (p=.002 [^])							
2	DASS-21								
	Gender	0.231	2.411 (p=.018 [^])	0.521	0.271	0.245	(3,83)=10.31 p<0.001*	0.085	(1,83)=9.71 p=0.003**
	Age	0.249	2.590 (p=.011 [^])						
DASS-21	0.306	3.116 (p=.003 [^])							
3	PBI-Care								
	Gender	0.218	2.337 (p=.022 [^])	0.566	0.32	0.29	(4,82)=9.64 p<0.001*	0.048	(1,82)=5.83 p=0.01**
	Age	0.173	1.760 (p=.082)						
	DASS-21	0.243	2.453 (p=.016 [^])						
PBI-Care	-0.246	-2.415 (p=.018 [^])							
4	Interaction								
	Gender	0.213	2.321 (p=.023 [^])	0.595	0.36	0.32	(5,81)=8.9 p<0.001*	0.035	(1,81)=4.34 p=0.04**
	Age	0.186	1.922 (p=.06)						
	DASS-21	1.041	2.639 (p=.01 [^])						
	PBI-Care	-0.071	-.540 (p=.591)						
Interaction	-0.781	-2.087 (p=.04 [^])							

* Regression model significant at p=0.05

** Significant increase in variance at p=0.05

[^] Predictor variable significant at p=0.05

Table 2 illustrates that all four levels of the regression model were significant and explained up to 32 per cent of the variability in difference scores when all variables were included, which was a large effect size ($f^2=0.5$). All predictor variables made unique contributions to variance in difference scores. Maternal psychological distress made a unique contribution to 8.5 per cent of the variance ($\beta=.306$, $p=.003$) with an effect size of $f^2=.0.1$. As can be seen in Table 2 maternal psychological distress was a significant predictor of difference scores and made the greatest contribution to variance throughout all steps of the model. Perceived maternal caring was a significant predictor when added to the model in step three ($\beta=-.246$, $p=.018$), predicting a further 4.8 per cent of the variance with an effect size of $f^2=.0.1$. The interaction between DASS-21 and PBI-care was a significant predictor of variability in difference scores ($\beta=-.781$, $p=.04$), contributing to a further 3.5 per cent of the variance, which was a small effect size of $f^2=.0.04$. When this interaction was added in step four, it eliminated the effect of PBI-care individually ($\beta=-.071$, $p=.591$). Both PBI-care and the interaction between PBI-care and DASS-21 predicted a negative change in difference scores, suggesting that as they increased, mother-adolescent reporting discrepancies decreased.

Adolescent age and gender remained significant predictors of variance in step one and two. However, with the addition of maternal caring in step three, adolescent age was no longer a unique predictor. Adolescent gender continued to predict unique variance throughout all levels of the model.

A scatterplot of DASS-21 on difference scores controlling for levels of care was created to explore the moderating effect of PBI-care on this relationship. Linear regression lines showed that when ratings of care were low, 34.3 per cent ($R^2=.343$) of the variance in difference scores was accounted for by maternal psychological distress, whereas only 0.5 per cent ($R^2=.005$) of this variance could be explained by maternal psychological distress when ratings of care were high. Therefore, the relationship between mothers' psychological distress and mother-adolescent reporting discrepancies varied as a function of the level of perceived care such that it was stronger when PBI-care was low.

Discussion

The purpose of the current study was to explore relationships among mothers' psychological distress, parental bonding and parent-adolescent ratings of adolescent emotional problems.

Summary of principal findings

Kappa values indicated that overall agreement about adolescent emotional functioning between mothers and adolescents was fair. The first hypothesis was partially supported in that agreement was fair when mothers were in the 'non-clinical' group, but occurred only by chance when mothers

were in the 'elevated' group. Higher levels of maternal psychological distress were associated with significantly greater mother-adolescent reporting discrepancies and as distress increased so too did the discrepancies between mothers' and adolescents' ratings. Compared with mothers in the non-clinical group, those with elevated levels of distress reported significantly more symptoms in their adolescent children. However, in contrast to the hypothesis adolescents reported significantly more problems than their parents considered of them across both levels of maternal psychological distress. Interestingly, although not always significant this pattern was evident irrespective of gender or parental bonding style.

Hypothesis two was also supported in that demographic factors adolescent age and gender and parental bonding styles were associated with reporting discrepancies. Mother-daughter dyads had significantly better agreement than mother-son dyads and girls reported more emotional problems than boys. As adolescents got older, reporting discrepancies increased and adolescents' reported a higher rate of emotional problems.

Agreement was stronger for mother-adolescent dyads in the 'optimal parenting' group as compared with the 'sub-optimal' group, although the difference was not significant. Mother-adolescent dyads in which mothers were rated as more caring had smaller reporting discrepancies than those

rated as less caring. In contrast, reporting discrepancies were greater when mothers were rated as more overprotective.

Maternal psychological distress was associated with parental bonding such that as distress increased, mothers were rated as less caring and more overprotective. Maternal psychological distress, parental bonding and the interaction between them were significant predictors of variance in mother-adolescent reporting discrepancies. Perceived maternal care moderated the relationship between psychological distress and agreement such that maternal distress predicted agreement when care was low, but not when care was high. Therefore, the third hypothesis was also supported.

Maternal psychological distress and reporting discrepancies.

Consistent with previous research, findings indicated that agreement was relatively poor as regards emotional symptoms and that parent proxy-reports were biased when parents experience mental health difficulties themselves (Achenbach et al., 1987; De Los Reyes & Kazdin, 2005; van der Toorn et al., 2010). This finding is in line with what would be expected in a predominantly non-clinical sample based on previous research (Weissman et al., 1987; Karver, 2006; Martin et al., 2004) and corresponds with suggestion by Achenbach et al. (1997) that no one informant will provide the same data as any other type of informant. Reporting discrepancies were larger when mothers reported higher levels of psychological distress. Furthermore,

mothers with greater psychological distress reported more problems than mothers with fewer symptoms, supporting previous findings that maternal psychological distress was associated with mothers' perceptions and reports of adolescent emotional problems (Boyle & Pickles, 1997; Fergusson et al., 1993; Richters, 1992) and that psychopathology distorts perceptions of behaviour (Beck, 1967).

In contrast to some earlier studies, psychological distress was not associated with mothers reporting more symptoms than their adolescent offspring. On the contrary, adolescents tended to report more emotional symptoms in themselves than their mothers did. Irrespective of other factors explored in this study including adolescent gender and age, mothers' psychological distress and parental bonding, adolescents in this sample reliably reported their emotional problems to be greater than perceived by their mothers. Interestingly this is similar to previous findings using the SDQ by Van der Meer and colleagues (2008) who reported that children with mood disorders in their sample self-reported more problems than parents. This finding also follows research on non-clinical populations where parents tend to report fewer problems than their children (Seiffge-Krenke & Kollmar, 1998; Stanger & Lewis, 1993; Thurber & Snow, 1990; Verhulst & van der Ende, 1992; Waters et al., 2003). However, it is discrepant with the depression-distortion hypothesis which asserts that the cognitive bias considered to accompany psychological distress results in exaggeration or distortion in attention,

memory and interpretation of childhood disorder by parents (Chilcoat & Breslau, 1997; Najman et al., 2001).

This unexpected pattern of adolescents reporting more problems could be explained in terms of the presence of a cognitive bias associated with psychological distress, which may equally result in maternal under-report of adolescent symptoms as much as over-report, the pertinent feature being the lack of concordance. However, the present study explored a sample population in which mothers' psychological distress was relatively low. Therefore, it is possible that this finding is related to factors of a relatively psychologically healthy population. Nonetheless, although mothers reported less symptoms than their adolescent offspring, the discrepancies between mother and adolescent reports were larger when mothers reported increased psychological distress, suggesting that this remains a factor in understanding reporting discrepancies even if not the direction of these.

Demographic Variables and Agreement.

The influence of demographic variables on parent-adolescent discrepancies has been inconsistent in previous research. Therefore it is of interest that some differences were observed in relation to age and gender in this study. As found in much previous research greater discrepancies occurred between mothers and older adolescents (Achenbach et al., 1987), which seems apt given the natural endeavour of adolescents to become more independent

and separate from their parents (Collins, 1990). The increased autonomy in emotion regulation, alongside the increasing reliance on peers for support with personal problems which are natural aspects of adolescence, along with greater independence resulting in less time in the family home, likely contributes to greater discrepancies between mothers and older adolescents in whose emotional lives mothers are becoming decreasingly involved (Carr, 2006; Sourander et al., 1999).

Mother-son dyads showed greater discrepancies than mother-daughter dyads, which is a frequent finding (Duhig et al., 2000; Kiss et al., 2007), although it contradicts some existing literature which suggests male gender contributes to increased correspondence between informants (Handwerk et al., 1999; Tarullo *et al.*, 1995). Sourander et al. (1999) noted that internalising problems in girls were especially likely to go unnoticed by adults and suggested that problems which could be hidden from parents' view were particularly likely to be hidden by girls. Results of this study, then, may reflect an effect of mothers' psychological state such that psychological distress has interferes' with mothers understanding of their sons more so than their daughters. Alternatively the tendency for girls to talk more openly than boys about their emotional state whilst boys perhaps display this through overt behaviours (Adams, Kuebli, Boyle, & Fivush, 1995; Brody, 1993), may facilitate mothers' awareness of their daughters' distress even in the face of their own symptoms. It is also possible that there could be a gender of parent to gender

of child effect (Friedlander, Weiss, & Traylor, 1986; Jensen, Traylor, Xenakis, & Davis, 1988b) meaning that mothers may feel they have more understanding of the experience and expression of emotional distress in girls. Najman et al. (2001) reported that parental reports of their children's symptoms was associated with expectations of girls and boys, such that parents attributed more internalising problems to girls and expected boys to be experiencing more externalising problems. In this case, mothers' better agreement with girls may be attributed to their expectations that boys are less likely to experience emotional symptoms than girls.

Methodological differences exist amongst studies that have reported contrasting results. The use of a diverse range of measures, ranging from different questionnaires to structured interview (Stanger & Lewis, 1993; Tarullo et al., 1995), variations in the conceptualisation of child or parent diagnoses (De Los Reyes et al., 2011), and methods by which to measure reporting discrepancies may have contributed to disparity in patterns of agreement across studies.

Parental bonding and reporting discrepancies.

Of particular interest in this study was the impact of parental bonding in conjunction with psychological distress on reporting discrepancies. This was explored with regards to overall parenting style and perceived levels of caring and overprotection. Kappa values indicated that agreement was better within

dyads in the 'optimal parenting' group. The sub-optimal group reflected dyads in which adolescents' PBI scores indicated their mothers' parenting behaviour to fitted the categories of 'affectionate constraint', 'affectionless control' or 'neglectful parenting'. These were based on reports of experiences of mothers being over-intrusive, controlling or absent. Kerr and Stattin (2000) and Marshall et al. (2005) argue that parents' knowledge of their adolescents' emotions comes from adolescents' open disclosure of information (Barker et al., 2007). Since the PBI categories of parenting style that made up the 'sub-optimal' group were indicative of parental behaviour that was less caring and more overprotective, it could be argued that they made for strained relationships between adolescents and their mothers. Therefore, it seems reasonable that such relationships would not facilitate open communication, possibly explaining the existence of greater discrepancies within dyads in this group. These findings lend support to the proposal by Barker et al. (2007) that the quality of the parent-adolescent relationship may affect how information about problems is communicated and give rise to reporting discrepancies.

Relationships among maternal psychological distress, parental bonding and reporting discrepancies.

An association was found between mothers' psychological distress and discrete aspects of the mother-adolescent relationship. Mothers who reported higher levels of psychological distress were rated by their children as less caring and more overprotective. This supports research which has suggested

that parenting behaviour is affected by psychopathology such that it is characterised by reduced emotional involvement, poor communication and interaction with children, hostility and impaired responsiveness (Lovejoy, Graczyk, O'Hare & Neuman, 2000). More accurate maternal reports of adolescent emotional functioning were associated with mothers who were perceived as more caring, which may be a function of better communication allowing mothers more awareness of their adolescents' internal worlds. No relationships were found with regards to discrepancies and overprotective parenting. However, whether overprotective behaviour genuinely has little impact on interrater agreement or rather it is a fact of insufficient data in this study to demonstrate any effect is uncertain.

Both perceived maternal care and maternal psychological distress were unique and combined predictors of reporting discrepancies. Increased psychological distress was associated with greater reporting discrepancies, as was lower perceived care. However, perceived maternal care moderated the association between distress and agreement: Maternal psychological distress was a significant predictor of mother-adolescent difference scores when care was rated as low, but not when care was rated as high. Therefore, how caring mothers were perceived to be by their adolescent children appeared to change the effect of their psychological distress on agreement. In this sample, when caring was rated low, mothers who reported experiencing more psychological distress tended to more out of tune with their adolescent children.

This finding could be interpreted to suggest that mothers who are perceived as caring by their children, even when suffering psychological difficulties, are likely to be able to accurately report their adolescent's emotional state. In this study caring reflected how mothers interacted with their adolescent children as they were growing up. Adolescents' reports of caring pertained to perceived maternal warmth and affection, positive interactions and supportiveness of individuality. Berger et al. (2005) discussed that parent-child relationships which were characterised by communication difficulties are associated with parental lack of awareness and sensitivity to children's difficulties. Furthermore, poor communication has been associated with poor parent-adolescent agreement (Berger et al., 2005; Treutler & Epkins, 2003). Therefore, it may be that adolescents who experience their mothers as uncaring or rejecting in interactions are less likely to communicate openly with them. One explanation for this could be based on the idea that parents' own difficulties bias the information and behaviours that they attend to and focus on and impair their interactions with adolescent children (De Los Reyes et al., 2011). Treutler and Epkins (2003) found that quantity and quality of involvement with children affected both the emotional connection between parents and children as well as their agreement on ratings. Parental psychopathology can interfere with how well attuned parents are with their child's emotional functioning such that attempts to show affection may be out of tune with a child's willingness to share their emotional experience (Bowlby,

1978 Cassidy, 1994). Therefore, it could be argued that if parents' psychopathology prevents effective communication and positive mother-child interactions, adolescents may choose not to share their emotional state with parents thus inhibiting parents' understanding of their functioning.

Alternatively, it may be that adolescents of mothers with depressive symptoms are aware of their mothers' negative affect and, as a result, may be less likely to tell their mothers about their own symptoms because they do not want to add to her distress or because they do not find the discussion helpful (Ehlich et al., 2011). Overall, research regarding the development of parent-child bonds suggests that emotionally warm and affectionate mothers, irrespective of their own emotional state, developed better relationships with their children (Bowlby, 1978; Greenberg, 1999). Therefore, it seems likely that mothers who were able to be warm and affectionate in interactions with their children irrespective of their own emotional state may have given their adolescent children a sense that they were available to them for support and empathy and that they could cope with hearing their problems, thus facilitating open communication and maternal understanding of functioning.

Results of this research could also be understood in the context of developmental theories. For example, Bowlby asserted that a child's early experiences with caregivers lead them to develop internal working models regarding the availability of others for emotional and physical support (Bowlby, 1988). These models are considered to influence social relationships

throughout life as regards how able a person feels to seek emotional support from others. Ehlich et al. (2011) and Berger et al. (2005) described that patterns of agreement were associated with different styles of attachment relationships between parents and adolescents. Insecure attachment styles were found to be linked to poor agreement when compared with more secure relationships. Given that insecure attachment relationships are thought to develop as a result of rejection, neglect and lack of parental availability to the child (Cassidy, 1999) and often occur in the context of parental experience of mental health problems (Wan & Green, 2009), it seems possible that the moderating effect of caring found in this study could be explained in terms of the child's attachment relationship with the parental informant. Mothers whose psychological distress did not interfere with the development of a secure bond with their child potentially facilitate an ongoing open and sensitive relationship with the child as they go through adolescence. Insecure-dismissive individuals are found to have difficulty openly discussing painful feelings (Cassidy & Kobak, 1988) whilst preoccupied or unresolved individuals often become caught up in their distress and cannot give a coherent explanation of the experience (Main, Goldwyn, & Hesse, 2002). These attachment relationships would likely make it difficult for parents to understand their adolescents' emotional state, particularly if they themselves are experiencing psychological difficulties. Therefore, the development of an insecure attachment relationship may result in more difficult behaviours in

the child, a worsening of mothers' depression and further impairment of effective communication about emotional state in the teenage years.

Another perspective to consider is that of social learning theory (Bandura, 1969; Grusec, 1992), which contends that children learn new behaviours and acquire information about themselves through observation of the actions of others. In this respect the influence of perceived care and parent psychological distress could be explained by both the parent's and child's anchor points for acceptable behaviour and emotional experience. In a study of the impact of anchors on parent-child reports of behaviour problems, Carlston and Ogles (2006) suggested that variance between parent and child reports was a function of discrepancies in parent and child conceptualisations of typical child behaviour. This implies that parent and child ratings are subjective and based on what is perceived to be normal. From this standpoint when a parent conceptualises adolescent distress as normal teenage angst and the teenager experiences it as distressing, there would understandably be a discrepancy in their reports.

Limitations and Future Research

This study explored only the impact of overall psychological distress in mothers. However, it may be of interest to explore the effect of discrete diagnoses individually and co-morbidly on parent-adolescent agreement to obtain a more comprehensive picture of the impact of distinct emotional

problems. Few studies have been able to examine the effect of co-morbidity as compared to discrete diagnoses (De Los Reyes & Kazdin, 2005), perhaps due to difficulties in defining distinct independent symptoms. However, this remains an area that would likely benefit from further research.

Generalisability of findings is also reduced by the risk of bias due to the effects of attrition in that participants reflected a relatively psychologically healthy population, perhaps because level of psychological distress had an impact on individuals' decisions about whether or not to participate in this voluntary research. Furthermore, future research may benefit from the inclusion of fathers, as differences have been identified in mother-father ratings of their children (Duhig et al., 2000; Hughes & Gullone, 2010; Renk et al., 2007) and fathers often have different responses to and expressions of psychological distress (Adams et al., 1995; Brody, 1993) as well as different relationships with their children compared with mothers (Russell & Saebel, 1997; Russell & Collins, 1991).

With regards to the measures used in this study, there is a risk that adolescents' ratings on the PBI may have been more critical given their developmental stage because their perceptions of their mothers could have been biased by ongoing transient events (Cubis, Lewin, & Dawes, 1989). As such, use of a measure designed to tap into unconscious relationship processes, such as the AAI (George, Kaplan, & Main, 1996) may facilitate the

gathering of a more comprehensive picture of the impact of relationship factors on agreement. In addition, raw SDQ scores were used to obtain a measure of reporting discrepancies because no standardised scores are available for the SDQ. De Los Reyes and Kazdin (2004) advised that different measures of informant discrepancies are methodologically distinct and lead to different conclusions. Therefore, caution must be applied when making direct comparison between this research and other studies which have used standardised scores.

Future research could also continue attempts to make sense of inconsistencies in the existing literature, in terms of demographic, family and personal factors and which informants report more symptoms. This would provide further information on the interpretation of reporting discrepancies and clarity on the most effective ways to integrate different perspectives in a clinically useful way.

Clinical Implications

There are potential implications for clinical assessment and intervention of difficulties understanding discrepancies in informant report of adolescent symptoms. Mothers are often called upon to provide accurate reports of the emotional functioning of their children, but as this research has further demonstrated, their views are not always shared by their child. This study further emphasises the value of multi-dimensional assessment of

adolescent psychological functioning and the importance of involving multiple informants' reports in the conceptualisation of a young person's difficulties such that appropriate intervention is provided. The value attached to individual reports must be taken in the context of the informant's own functioning as well as in relation to aspects of that person's relationship with the child. Furthermore, discrepant reports may provide a useful means to engage families in treatment by exploring the problems that individual informants consider most pertinent. Given the associations between reporting discrepancies and future adverse outcomes, such as substance misuse, legal and employment problems and self-harm (Klaus, Mobilio, & King, 2009), it seems vital that clinicians and researchers continue to evaluate and make sense of differences in descriptions of problems and work to resolve these differences such that families work together to support their adolescent offspring.

Conclusion

Agreement between mothers and adolescents on adolescent emotional problems was relatively poor and weakened further in the context of maternal psychological distress. Adolescents consistently self-reported more symptoms than their mothers perceived them to be experiencing. Adolescent ratings of sub-optimal parenting were associated with reduced agreement and perceived maternal caring moderated the effect of maternal psychological distress on reporting discrepancies.

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APPENDICES

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APPENDIX 1: JOURNAL OF CLINICAL CHILD & ADOLESCENT PSYCHOLOGY AUTHOR GUIDELINES



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Official journal for the Society of Clinical Child and Adolescent Psychology (Division 53), APA

Aims and Scope. The *Journal of Clinical Child and Adolescent Psychology (JCCAP)* is the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53. It publishes original contributions on the following topics: (1) development and evaluation of assessment and intervention techniques for use with clinical child and adolescent populations; (2) development and maintenance of clinical child and adolescent problems; (3) cross-cultural and socio-demographic issues that have a clear bearing on clinical child and adolescent psychology theory, research, or practice; and (4) training and professional practice in clinical child and adolescent psychology as well as child advocacy. Manuscripts that discuss theoretical and/or methodological issues on topics pertinent to clinical child and adolescent psychology also are considered. Authors need not be members of Division 53 to submit articles to *JCCAP*.

There are several criteria that increase the likelihood that a manuscript will be favorably evaluated in *JCCAP* : (1) The paper reflects a substantive advance in our understanding of clinical child and adolescent psychology. (2) The paper is of such importance that it likely will influence an area of research. (3) The paper presents new ideas or creative methods. (4) The paper offers theoretically-driven hypotheses. (5) Multiple measures, informants, or procedures are used to collect data. (6) Sophisticated methodologies are carefully employed. (7) Longitudinal methods are used. (8) Data are rigorously and appropriately analyzed. (9) The implications of the findings for clinical child and adolescent psychology are well articulated.

Style of Manuscripts. Manuscripts should be prepared according to the guidelines in the *Publication Manual of the American Psychological Association* (6th edition; see www.apastyle.com). Typing instructions, including format, organization, and the preparation of figures, tables, and references appear in the Manual. Manuscripts may be submitted as Regular Articles, Brief Reports, or Future Directions. A Regular Article may not exceed 11,000 words (i.e., 35 pages), including references, footnotes, figures, and tables. Brief Reports include empirical research that is soundly designed, but may be of specialized interest or narrow focus. Brief Reports may not be submitted in part or whole to another journal of general circulation. Brief Reports may not exceed 4500 words for text and references. These limits do not include the title page, abstract, author note, footnotes, tables, and figures. Manuscripts that exceed these page limits and that are not prepared according the guidelines in the Manual will be returned to authors without review. Future Directions submissions are written by leading scholars within the field. These articles provide a brief summary of important advances that are needed within a specific research or practice area pertinent to clinical child and adolescent psychology. Future Directions submissions are by invitation only and undergo peer review.

All Regular Article and Brief Report submissions must include a title of 15 words or less that identifies the developmental level of the study participants (e.g., children, adolescents, etc.). *JCCAP* uses a structured abstract format. For studies that report randomized clinical trials or meta-analyses, the abstract also must be consistent with the guidelines set forth by CONSORT or MARS, respectively. The Abstract should include up to 250 words presented in paragraph form. The Abstract should be typed on a separate page (page 2 of the manuscript), and must include each of the following label sections: 1) Objective (i.e., a brief statement of the purpose of the study); 2) Method (i.e., a detailed summary of the participants, N, age, gender, ethnicity, as well as a summary of the study design, measures, and procedures; 3) Results (i.e., a detailed summary of the primary findings that clearly articulate comparison groups (if relevant); 4) Conclusions (i.e., a description of the research and clinical implications of the findings). Avoid abbreviations, diagrams, and reference to the text in the abstract. A list of up to five keywords that describe the central themes of the manuscript should be included below the abstract on page 2. *JCCAP* will scrutinize manuscripts for a clear theoretical framework that supports central study hypotheses.

In addition, a clear developmental rationale is required for the selection of participants at a specific age. The Journal is making diligent efforts to insure that

there is an appropriately detailed description of the sample, including a) the population from which the sample was drawn; b) the number of participants; c) age, gender, ethnicity, and SES of participants; d) location of sample, including country and community type (rural/urban), e) sample identification/selection; f) how participants were contacted; g) incentives/rewards; h) parent consent/child assent procedures and rates; i) inclusion and exclusion criteria; j) attrition rate. The Discussion section should include a comment regarding the diversity and generality (or lack thereof) of the sample. The Measures section should include details regarding item content and scoring as well as evidence of reliability and validity in similar populations.

All manuscripts must include a discussion of the clinical significance of findings, both in terms of statistical reporting and in the discussion of the meaningfulness and clinical relevance of results. Manuscripts should a) report means and standard deviations for all variables, b) report effect sizes for analyses, and c) provide confidence intervals wherever appropriate (e.g., on figures, in tables), particularly for effect sizes on primary study findings. In addition, when reporting the results of interventions, authors should include indicators of clinically significant change. Authors may use one of several approaches that have been recommended for capturing clinical significance, including (but not limited to) the reliable change index (i.e., whether the amount of change displayed by a treated individual is large enough to be meaningful, the extent to which dysfunctional individuals show movement to the functional distribution).

All manuscripts should conform to the criteria listed in Table 1 of the 2008 APA Publications and Communications Board Working Group on Journal Article Reporting Standards (published in *American Psychologist*). These reporting standards apply to all empirical papers. In addition, *JCCAP* requires that reports of randomized clinical trials conform to CONSORT reporting standards (<http://www.consort-statement.org/index.aspx?o=2965>), including the submission of a flow diagram and checklist. Nonrandomized clinical trials must conform to TREND criteria (see http://www.cdc.gov/trendstatement/docs/AJPH_Mar2004_Trendstatement.pdf) and meta-analyses should conform to MARS standards (see Table 4 in 2008 *American Psychologist* article).

A masked review procedure will be used on all submitted manuscripts. To prepare manuscripts for masked review, authors' names and affiliations should not appear on the title page or elsewhere in the manuscript file (they can be entered into the system and placed on a separate page in the cover letter file). Footnotes identifying the authors should be typed on a separate page and

submitted in the cover letter file. Authors should make every effort to ensure that the manuscript file itself contains no clues to their identities. Manuscripts that do not comply with these instructions will be returned to the authors without review.

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Submitting Manuscripts. *JCCAP* uses an online submission and review system, Editorial Manager, through which authors submit manuscripts and track their progress up until acceptance for publication. Authors will enter pertinent information into the system and submit the following files: (1) Cover letter file, containing any comments to the editor, a statement indicating that the findings reported have not been previously published and that the manuscript is not being simultaneously submitted elsewhere, and a statement that the authors have complied with the American Psychological Association's ethical standards in the treatment of their sample; (2) manuscript file, containing the entire text of the article, including abstract, all text, references, figures, tables, footnotes, and appendixes. Please log onto www.editorialmanager.com/jccap for information and instructions regarding registration and manuscript submission.

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APPENDIX 2: Ethical Approval Confirmation



Fife



Forth Valley



Tayside

East of Scotland Research Ethics Service

Tayside Committee on Medical Research Ethics B
 Research Ethics Office
 Tayside Academic Health Sciences Centre
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Miss Linda Craig
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Date: 22 April 2011
 Your Ref:
 Our Ref: LR/10/S1402/64
 Enquiries to: Mrs Lorraine Reilly
 Extension: Ninewells extension 40099
 Direct Line: 01382 740099
 Email: Lorraine.reilly@nhs.net

Dear Miss Craig

Full title of study: The influence of parental bonding relationships and parent mental health status on parent-child agreement on a measure of child emotional well-being.
REC reference number: 10/S1402/64

Thank you for your letter of 19 April 2011. I can confirm the REC has received the documents listed below as evidence of compliance with the approval conditions detailed in our letter dated 11 March 2011. Please note these documents are for information only and have not been reviewed by the committee.

Documents received

The documents received were as follows:

Document	Version	Date
Covering Letter		19 April 2011
Participant Information Sheet: Child	4	12 April 2011
Participant Information Sheet: Parent/Carer	4	12 April 2011
Participant Consent Form: Parent/Carer	4	12 April 2011
Participant Consent Form: Child	4	12 April 2011

You should ensure that the sponsor has a copy of the final documentation for the study. It is the sponsor's responsibility to ensure that the documentation is made available to R&D offices at all participating sites.



10/S1402/64 Please quote this number on all correspondence

Yours sincerely



Mrs Lorraine Reilly
Co-ordinator

Copy to: Gemma Watson, Queen's Medical Research Institute, Edinburgh
NHS Forth Valley R&D Office





Date: 8 June 2011
 Your Ref:
 Our Ref:
 Direct Line: 01324 677564
 Email: allyson.bailey@nhs.net
 R&D ref: FV 572

Miss Linda Craig
 Clinical Psychologist
 NHS Forth Valley
 Child & Adolescent Mental Health
 The Manor, Brown St
 Falkirk
 FK1 4PX

Dear Miss Craig

Study title: The influence of parental bonding relationships and parent mental health status on parent-child agreement on a measure of child emotional well-being
NRES number: 10/S1402/64

Following the favourable opinion from the Tayside Committee on Medical Research Ethics B on 11 March 2011, I am pleased to confirm that I formally gave Management Approval to the study above on 8 June 2011.

This approval is granted subject to your compliance with the following:

1. Any amendments to the protocol or research team must have Ethics Committee and R&D approval (as well as approval from any other relevant regulatory organisation) before they can be implemented. Please ensure that the R&D Office and (where appropriate) NRS are informed of any amendments as soon as you become aware of them.
2. You and any local Principal Investigator are responsible for ensuring that all members of the research team have the appropriate experience and training, including GCP training if required.
3. All those involved in the project will be required to work within accepted guidelines of health and safety and data protection principles, any other relevant statutory legislation, the Research Governance Framework for Health and Community Care and IHC-GCP guidelines. A copy of the Framework can be accessed via the Chief Scientist Office website at: <http://www.cso.scot.nhs.uk/Publications/ResGov/Framework/RGFEdTwo.pdf> and ICH-GCP guidelines may be found at <http://www.ich.org/LOB/media/MEDIA482.pdf>
4. As custodian of the information collected during this project you are responsible for ensuring the security of all personal information collected in line with NHS Scotland IT security policies, until the destruction of this data.
5. You or the local Principal Investigator will be required to provide the following reports and information during the course of your study:
 - A progress report **annually**

- Recruitment numbers on a **monthly** basis (if your study should be added to the NIHR research Portfolio you will receive a separate letter from the R&D Office detailing the steps to be taken)
- Report on SAEs and SUSARs if your study is a Clinical Trial of an Investigational Medicinal Product
- Any information required for the purpose of internal or external audit and monitoring
- Copies of any external monitoring reports
- Notification of the end of recruitment and the end of the study
- A copy of the final report, when available.
- Copies of or full citations for any publications or abstracts

The appropriate forms will be provided to you by the Research and Development office when they are needed. Other information may be required from time to time.

Yours sincerely



18 **DR. IAIN WALLACE**
Medical Director

CC: Dr. Jill Cossar
School of Health and Social Science
University of Edinburgh
Teviot Place
Edinburgh EH8 9AG

APPENDIX 3: PARTICIPANT QUESTIONNAIRES

- 1) Questionnaires - Adolescent
- 2) Questionnaires – Parent/Carer

CHILD PACK

CODE:

Factors Influencing Parent-Child Agreement on Adolescent Emotional Well-Being



Your Unique Code:

Please:

- Read the information leaflet first
- Keep these questionnaires together
- Hand over the 'PARENT/CARER' pack
- Return the questionnaires in the envelope provided **OR** complete them online at www.surveymonkey.com/s/parentchildresearch

You do not have to answer a question if you do not want to. However, it would help us if you could complete as many answers as possible!



COMPLETE THIS PAGE FIRST

Thank you for taking the time to read through the Information Sheet and for considering taking part in this study.

Please read the following sentences carefully.

If you are happy to take part in the study, please tick "yes" below. If not, please tick the 'no' box.

- I have read and understood the information about the research project.
- I know that any information used in the study will be kept private.
- I understand that by completing and returning the questionnaires I am agreeing that my answers can be used in this study.
- I understand that the answers to the questionnaires will be read and used in the study and agree to this.

I have read and understood the Information Sheet and would like to take part in this study

 Yes

 No

Selecting 'No' indicates that you do not feel able to agree to your data being used in our study. In this case, there is no requirement for you to complete or return the questionnaires.

If you have selected 'Yes', please complete the enclosed questionnaires OR go online to www.surveymonkey.com/s/parentchildresearch to complete them.



Factors Influencing Parent-Child Agreement on Adolescent Emotional Well-Being

Demographic Questionnaire

Child/Young Person

1) What is your gender?

- Male
 Female

2) What age are you?

.....

3) What is the first half of your post code? (eg. FK15)

4) What year are you in at school?

- 1st year
 2nd year
 3rd year
 4th year
 5th year
 6th year

5) Do you have any brothers or sisters?

- Yes
 No

If yes, please fill in the following:

Sibling 1: Male / Female. Age

Sibling 2: Male / Female. Age

Sibling 3: Male / Female. Age

Sibling 4: Male / Female. Age

6) Are you attending school regularly just now?

- Yes
 No

7) What adults live at home with you?

(tick as many boxes as you need to)

- Mother
 Father
 Step-mother
 Step-father
 Parent's partner
 Grandmother
 Grandfather
 Other, please specify

.....

.....

8) Do you have any problems with your emotional health and well-being? (this means problems with strong feelings such as sadness, fear, anger, worry, etc)

- Yes
 No
 Not sure

9) What would you do if you did have problems with your emotional health and well-being? (tick as many boxes as you need to)

- Tell mother
 Tell father
 Tell another relative
 Tell a teacher
 Tell a friend
 Go to the doctor alone without telling anyone
 Nothing
 Not sure
 Other, please specify

.....

.....

Code

Strengths and Difficulties Questionnaire

S¹¹⁻¹⁷

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of how things have been for you over the last six months.

Your Name

Male/Female

Date of Birth.....

	Not True	Somewhat True	Certainly True
I try to be nice to other people. I care about their feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am restless, I cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get a lot of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually share with others (food, games, pens, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get very angry and often lose my temper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am usually on my own. I generally play alone or keep to myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I usually do as I am told	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I worry a lot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have one good friend or more	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I fight a lot. I can I can make other people do what I want	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am often unhappy, down-hearted or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other people my age generally like me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am easily distracted, I find it difficult to concentrate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am nervous in new situations. I can easily lose confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am often accused of lying or cheating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other children or young people pick on or bully me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I often volunteer to help others (parents, teachers, children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I think before I do things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I take things that are not mine from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get on better with adults than with people my own age	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have many fears, I am easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I finish the work I'm doing. My attention is good	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments or concerns?

Please turn over – there are a few more questions on the next page

Strengths and Difficulties Questionnaire

Overall, do you think that you have difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No	Yes- minor difficulties	Yes- definite difficulties	Yes- severe difficulties
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

• How long have these difficulties been present?

Less than a month	1-5 months	6-12 months	Over a year
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties upset or distress you?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties interfere with your everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
HOME LIFE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FRIENDSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEISURE ACTIVITIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties make it harder for those around you (family, friends, teachers, etc.)?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Your Signature

Today's Date

Thank you very much for your help

© Robert Goodman, 2005

MOTHER / FEMALE CARER – Answer these questions about your mother/female carer

This questionnaire lists various attitudes and behaviours of parents.

*How much is each statement like your mother as you were growing up?
Tick the most appropriate box for each one.*

(If you did not have a mother/female carer as you were growing up, you do not need to complete this form)

	Very like her	Moderately like her	Moderately unlike her	Very unlike her
Spoke to me in a warm and friendly voice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did not help me as much as I needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Let me do those things I liked doing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seemed emotionally cold to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appeared to understand my problems and worries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was affectionate to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Liked me to make my own decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did not want me to grow up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tried to control everything I did	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Invaded my privacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enjoyed talking things over with me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frequently smiled at me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tended to baby me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did not seem to understand what I needed or wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Let me decide things for myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Made me feel I wasn't wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Could make me feel better when I was upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did not talk with me very much	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tried to make me feel dependent on her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Felt I could not look after myself unless she was around	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gave me as much freedom as I wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Let me go out as often as I wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was overprotective of me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did not praise me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Let me dress in any way I pleased	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PBI – mother

Factors Influencing Parent-Child Agreement on Adolescent Emotional Well-Being

CODE:

FATHER / MALE CARER – Answer these questions about your father/male carer

This questionnaire lists various attitudes and behaviours of parents.

How much is each statement like your father as you were growing up?

Tick the most appropriate box for each one.

(If you did not have a father/male carer as you were growing up, you do not need to complete this form)

	Very like him	Moderately like him	Moderately unlike him	Very unlike him
Spoke to me in a warm and friendly voice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did not help me as much as I needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Let me do those things I liked doing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seemed emotionally cold to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appeared to understand my problems and worries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was affectionate to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Liked me to make my own decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did not want me to grow up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tried to control everything I did	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Invaded my privacy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enjoyed talking things over with me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frequently smiled at me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tended to baby me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did not seem to understand what I needed or wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Let me decide things for myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Made me feel I wasn't wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Could make me feel better when I was upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did not talk with me very much	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tried to make me feel dependent on him	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Felt I could not look after myself unless he was around	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gave me as much freedom as I wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Let me go out as often as I wanted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was overprotective of me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did not praise me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Let me dress in any way I pleased	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PBI – father

Factors Influencing Parent-Child Agreement on Adolescent Emotional Well-Being

CODE:

Factors Influencing Parent-Child Agreement on Adolescent Emotional Well-Being

*Thank you for taking the time to take part in our
study.*

The End!

Please return your questionnaires in the envelope provided.



PARENT/CARER PACK

CODE:

Factors Influencing Parent-Child Agreement on Adolescent Emotional Well-Being



Your Unique Code:

Please:

- Read the information leaflet first
- Keep these questionnaires together
- Return in the envelope provided **OR** complete online at www.surveymonkey.com/s/parentchildresearch

You do not have to answer a question if you do not want to. However, it would help us if you could complete as many answers as possible!

COMPLETE THIS PAGE FIRST

Thank you for taking the time to read through the Information Sheet and for considering taking part in this study.

Please read the following sentences carefully.

If you are happy to take part in the study, please tick the "yes" below. If not, please tick the 'no' box.

- I have read and understood the information about the research project.
- I know that any information used in the study will be kept private.
- I understand that by completing and returning the questionnaires I am agreeing that my answers can be used in this study.
- I understand that the answers to the questionnaires will be read and used in the study and agree to this.

I have read and understood the Information Sheet and would like to take part in this study

Yes

No

Selecting 'No' indicates that you do not feel able to agree to your data being used in our study. In this case, there is no requirement for you to complete or return the questionnaires.

If you have selected 'Yes', please complete the enclosed questionnaires. OR go online to www.surveymonkey.com/s/parentchildresearch to complete them.

I consent to my son/daughter taking part in this research, and understand that the above conditions apply to him/her also (if child is under 16).

Yes

No



Form Parent/Carer – Version 4



CODE:

Strengths and Difficulties Questionnaire

P⁴⁻¹⁶

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of your child's behaviour over the last six months.

Your Name

Male/Female

Date of Birth.....

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children (treats, toys, pencils, etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often has temper tantrums or hot tempers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, tends to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally obedient, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries, often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, down-hearted or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often lies or cheats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often volunteers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinks things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steals from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets on better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sees tasks through to the end, good attention span	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments or concerns?

Please turn over – there are a few more questions on the next page

Strengths and Difficulties Questionnaire

Overall, do you think that your child has difficulties in one or more of the following areas: emotions, concentration, behaviour or being able to get on with other people?

No	Yes- minor difficulties	Yes- definite difficulties	Yes- severe difficulties
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

• How long have these difficulties been present?

Less than a month	1-5 months	6-12 months	Over a year
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties upset or distress your child?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties interfere with your child's everyday life in the following areas?

	Not at all	Only a little	Quite a lot	A great deal
HOME LIFE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FRIENDSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEISURE ACTIVITIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

• Do the difficulties put a burden on you or the family as a whole?

Not at all	Only a little	Quite a lot	A great deal
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature

Date

Mother/Father/Other (please specify:)

Thank you very much for your help

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DASS 21 – Please answer these questions about you, the parent/carer

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

The rating scale is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me a considerable degree, or a good part of the time
- 3 Applied to me very much, or most of the time

	0	1	2	3
I found it hard to wind down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was aware of dryness in my mouth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I couldn't seem to experience any positive feeling at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I experienced breathing difficulty (eg. Excessively rapid breathing, breathlessness in the absence of physical exertion)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I found it difficult to work up the initiative to do things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I tended to over-react to situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I experienced trembling (eg. In the hands)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt that I was using a lot of nervous energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was worried about situations in which I might panic and make a fool of myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt that I had nothing to look forward to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I found myself getting agitated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I found it difficult to relax	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt down-hearted and blue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was intolerant of anything that kept me from getting on with what I was doing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt I was close to panic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was unable to become enthusiastic about anything	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt I wasn't worth much as a person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt that I was rather touchy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I was aware of the action of my heart in the absence of physical exertion (eg. Sense of heart rate increase, heart missing a beat)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt scared without any good reason	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt that life was meaningless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DASS

Factors Influencing Parent-Child Agreement on Adolescent Emotional Well-Being

CODE:

Factors Influencing Parent-Child Agreement on Adolescent Emotional Well-Being

*Thank you for taking the time to take part in our
study.*

The End!

Please return your questionnaires in the envelope provided.



APPENDIX 4: PARTICIPANT INFORMATION SHEET

- 1) Child/Young person information leaflet
- 2) Parent/Carer information leaflet

Thank you for taking the time to read this Information Sheet and for considering taking part in this study.

If you have any questions you can contact the researchers:

Principle Researcher
Linda Craig, Trainee Clinical Psychologist
Linda.craig@nhs.net
01324 610 846

Supervisor:
Dr Jill Cossar, Clinical Psychologist
Jill.cossar@ed.ac.uk



The Small Print

Who has reviewed the study?

The Tayside Committee on Medical Research Ethics B, which is a group of people who are responsible for checking over all research on humans in Scotland, has examined the plan for this study. This committee agree that this study is safe and have no objections to it being carried out. It is a requirement that your records in this research, together with any other relevant records, be made available for checking by people from the University of Edinburgh and NHS Forth Valley, whose job it is to check that research is carried out properly and that people taking part are protected.

What if there is a problem?

If you think that you have been harmed in any way by taking part in this study, you have the right to make a complaint and ask for compensation from the University of Edinburgh, who are sponsoring this research. You can get details about this from the research team. Also, as a patient of the NHS, you have the right to make a complaint through the NHS process. To do this, you can make a complaint in writing to the NHS Forth Valley Patient Relations and Complaint Service, Falkirk Community Hospital, 01324 678 530. If you think you have been harmed because someone has not done their job properly during the study, you may have grounds for legal action against NHS Forth Valley, but you may have to pay your legal costs.



Factors Influencing Parent-Child Agreement on Adolescent Emotional Well-Being

Information Leaflet

Child/Young Person

We invite you to take part in a research project that is being done as part of a Psychology degree at the University of Edinburgh, and as part of the Forth Valley Child and Adolescent Mental Health Service (CAMHS). We believe it to be important and useful.

Before you decide if you want to take part or not, we want to be sure you understand why we are doing it and what it will involve if you agree to take part!

If you choose to take part you can complete the questionnaires in **this pack** OR

You can complete them **online** at

www.surveymonkey.com/s/parentchildresearch

Please read this information leaflet carefully before deciding if you want to take part.

What is the research about?

This project is about your emotional well-being. This means mood, feelings and emotions. We want to find out what you think of your emotional well-being and also what your parent/carer thinks of your emotional well-being.

Why is the research being done?

Previous research shows that parents and children often have different ideas about the child's emotional well-being. We want to find out about some factors that make up these differences. We hope that this will help us to better understand the children and families who come to the mental health service with emotional and behavioural problems.

What will I have to do?

Complete the questionnaires inside the 'CHILD' section of this pack and give the 'PARENT' pack to the person who you think is your main caregiver. This might be your mum, dad, a grandparent, another relative, an adoptive parent, foster parent or someone else. Then please send your completed questionnaire pack back to us in the envelope provided. There is one envelope for your pack and one for your parent/carer, or you can return them together if you wish.

If you prefer to complete the questionnaires online, go to

www.surveymonkey.com/s/parentchildresearch



Why have I been chosen to take part?

Because you are between 12 and 17 and currently attending high school in Forth Valley.

Do I have to take part?

No. Participation is completely voluntary. If you wish to take part, please complete and return the questionnaires in the envelope provided or online. If you do not wish to take part, you do not need to do anything. You can change your mind about taking part at any time.

Please note: If you return the questionnaires, this will mean you have agreed to your answers being used in our study.

Will I be asked difficult, sensitive or upsetting questions?

There are some questions about your emotional well-being. You might find some of the questions sensitive or upsetting. It is also possible that it may make you aware of areas of concern. If you have any concerns about your emotional well-being, you may find some of these resources helpful:

- Speak to your GP
- Speak to a school nurse
- Speak to your Guidance teachers
- www.moodjuice.scot.nhs.uk
- www.shapeofmind.scot.nhs.uk
- Seasons for Growth www.strathcarronhospice.org/servicesseasons.html
- Contact your school and someone there can discuss your concerns with a member of staff from the Child and Adolescent Mental Health service directly.

How long will it take?

You can take as long as you need to. Each questionnaire can take between 5 and 15 minutes to complete. Please return the completed questionnaires within 3 weeks.

Who will see my answers?

Only the researchers. However, we will not know who any of the answers belong to. We will not ask for any personal identifying information. All your answers will be anonymous. When the questionnaires arrive back at the CAMHS department, they will be stored securely and confidentially.

Can I find out the results?

Yes. If you would like feedback about the results of the study, please contact the researchers and you will be sent a summary. Contact details are on the back page of this leaflet.

IMPORTANT
 Please do not discuss your answers with your parent/carer. We want to know your opinion and his/her opinion separately. You may talk about them after you have finished, but please do not make any changes.



Thank you for taking the time to read this Information Sheet and for considering taking part in this study.

If you have any questions you can contact the researchers:

Principle Researcher
Linda Craig, Trainee Clinical Psychologist
Linda.craig@nhs.net
01324 610 846

Supervisor:
Dr Jill Cossar, Clinical Psychologist
Jill.cossar@ed.ac.uk



The Small Print

Who has reviewed the study?

The Tayside Committee on Medical Research Ethics B, which is a group of people who are responsible for checking over all research proposals on humans in Scotland, has examined the plan for this study. This committee agree that this study is safe and have no objections to it being carried out. It is a requirement that your records in this research, together with any relevant records, be made available for scrutiny by monitors from the University of Edinburgh and NHS Forth Valley, whose role is to check that research is properly conducted and the interests of those taken part are adequately protected.

What if there is a problem?

If you think that you have been harmed in any way by taking part in this study, you have the right to make a complaint and ask for compensation from the University of Edinburgh, who are sponsoring this research. You can get details about this from the research team. Also, as a patient of the NHS, you have the right to make a complaint through the NHS process. To do this, you can make a complaint in writing to the NHS Forth Valley Patient Relations and Complaint Service, Falkirk Community Hospital, 01324 678 530. If you think you have been harmed because someone has not done their job properly during the study, you may have grounds for legal action against NHS Forth Valley, but you may have to pay your legal costs.

Factors Influencing Parent-Child Agreement on Adolescent Emotional Well-Being



Information Leaflet

Parent/Carer

We invite you to take part in a research project that is being done as part of a Psychology degree at the University of Edinburgh, and as part of the Forth Valley Child and Adolescent Mental Health Service (CAMHS). We believe it to be of potential importance.

Before you decide if you want to participate or not, we want to be sure you understand why we are doing it and what it will involve if you agree to take part!

If you choose to take part you can complete the questionnaires in this pack

OR

You can complete them online at

www.surveymonkey.com/s/parentchildresearch

Please read this information leaflet carefully before deciding if you want to take part.

What is the research about?

This project is about your child's emotional well-being. This means mood, feelings and emotions. We want to find out what you think of your child's emotional well-being and also what your child thinks of his/her own emotional well-being.

Why is the research being done?

Previous research shows that parents and children often have different ideas about the child's emotional well-being. We want to find out about some factors that make up these differences. We hope that this will help us to better understand the children and families who come to the mental health service with emotional and behavioural problems.

What will I have to do?

Complete the questionnaires inside the 'PARENT' section of this pack. Your child will complete those in the 'CHILD' section. Then please send your completed questionnaire pack back to us in the envelope provided. There is one envelope for your pack and one for your child's pack, or you can return them together if you wish.

If you prefer to complete the questionnaires online, go to

www.surveymonkey.com/s/parentchildresearch



Why have I been chosen to take part?

Because you are the parent/carer of a child who is between 12 and 17 and is currently attending high school in Forth Valley.

Do I have to take part?

No. Participation is completely voluntary. If you wish to take part, please complete and return the questionnaires in the envelope provided or online. If you do not wish to take part, you do not need to do anything. You can change your mind about taking part at any time.

Please note: If you return the questionnaires, this will mean you consent to your answers being used in our study.

Will I be asked difficult, sensitive or upsetting questions?

The research involves completing questionnaires about both your and your child's emotional well-being. You might find some of the questions sensitive or upsetting. It is also possible that it may make you aware of areas of concern. If you have any concerns about your own or your child's emotional well-being, you may find some of these resources helpful:

- Speak to your GP
- Speak to a school nurse
- Speak to your Guidance teachers
- www.moodjuice.scot.nhs.uk
- www.shapeofmind.scot.nhs.uk.
- Seasons for Growth
www.strathcarronhospice.org/servicesseasons.html
- Contact your school and someone there can discuss your concerns with a member of staff from the Child and Adolescent Mental Health service directly.

How long will it take?

You can take as long as you need to. Each questionnaire can take between 5 and 15 minutes to complete. Please return the completed questionnaires within 3 weeks.

Who will see my answers?

Only the researchers. However, we will not know who any of the answers belong to. We will not ask for any personal identifying information. All your answers will be anonymous. When the questionnaires arrive back at the CAMHS department, they will be stored securely and confidentially.

Can I find out the results?

Yes. If you would like feedback about the results of the study, please contact the researchers and you will be sent a summary. Contact details are on the back page of this leaflet.

Please answer the questions in relation to the child who has brought home the questionnaire pack.

IMPORTANT
 Please do not discuss your answers with your child. We want to know your opinion and his/her opinion separately. You may discuss them afterwards if you wish, but we request that you do not make any changes.



APPENDIX 5: Permission from Directors of Education

- 1) Falkirk Council
- 2) Stirling Council

Nigel Fletcher: Acting Head of Educational Support and Improvement

Sealock House
2 Inchyra Road Grangemouth FK3 9XB
Phone:01324 506686 Fax:01324 506601 Email:nigel.fletcher@falkirk.gov.uk



Falkirk Council
Education Services

Date: 5 April 2011

Linda Craig
Trainee Clinical Psychologist
CAMHS, The Manor
Brown Street
Camelon
Falkirk
FK1 4PX

cc **Helen Stirling, Consultant Clinical Psychologist**

Dear Linda

Doctorate in Clinical Psychology Research

Thank you for your letter of 28 March 2011 which has been passed to me by Julia Swan.

We are happy for you to conduct the proposed research in Falkirk Council schools.

Yours sincerely

Nigel Fletcher
Acting Head of Educational Support and Improvement

Our Ref: NF/BHC

Director: Julia Swan

Sealock House,
2 Inchyra Road, Grangemouth FK3 9XB
LP 3 Falkirk-2.
Telephone: 01324 506600
Fax: 01324 506601
www.falkirk.gov.uk





Linda Craig
CAMHS
The Manor
Brown Street
Falkirk

Education
Stirling Council
Viewforth, Stirling FK8 2ET
Head of Education: Belinda Greer
Tel: 01786 442662
Fax: 01786 442782
Email: smythd@stirling.gov.uk

Date: 4 May 2011

Dear Linda

Request for Research

Thank you for completing the pro-forma regarding research which you intend to carry out within Stirling Council High Schools .

I have signed the pro-forma which is attached.

Final approval should be sought from the headteacher of each school. I note your Disclosure Scotland certificate details you have provided which is required when working with children and young people.

Yours sincerely

A handwritten signature in cursive script that reads "Belinda Greer".

Belinda Greer
Head of Education

cc Balfon HS
Bannockburn HS
Dunblane HS
McLaren HS
Stirling HS
St Modans HS
Wallace HS

APPENDIX 6: SHAPIRO-WILK TESTS OF NORMALITY

Shapiro Wilk Tests of Normality

	Statistic	Df	Significance
DASS-21 Total*	.814	87	P<.001*
DASS-21 Depression*	.751	87	P<.001*
DASS-21 Anxiety*	.689	87	P<.001*
DASS-21 Stress*	.882	87	P<.001*
PBI-Total	.980	87	P=.190
PBI-Care*	.944	87	P=.001*
PBI-Overprotection	.970	87	P=.042*
SDQ Parent Emotional Problems*	.839	87	P<.001*
SDQ Adolescent Emotional Problems*	.918	87	P<.001*
Emotional Problems Difference Score*	.861	87	P<.001*

*Statistically Significant Positive Skew

APPENDIX 7: COMPARISON OF PARAMETRIC AND NON-PARAMETRIC TESTS

Comparison of significance level of parametric and non-parametric correlations

	r	Sig.	Rho	Sig.
DASS-21 total with:				
-Parent SDQ emotional problems	0.476	P<0.001*	0.488	P<0.001*
-Child SDQ emotional problems	0.523	P<0.001*	0.493	P<0.001*
-Difference score.	0.408	P<0.001*	0.323	P=0.002*
-PBI care	-0.334	P=0.002*	-.0268	P=0.012*
-PBI overprotection	0.328	P=0.002*	0.384	P<0.001*
PBI care with difference score				
	-0.413	P<0.001*	-0.376	P<0.001*
PBI overprotection with difference score				
	0.073	P=0.503	P0.081	P=0.459
Child Age with:				
Parent report emotional problems	0.313	P=0.003*	0.346	P=0.001*
Adolescent report emotional prob.	0.276	P=0.01*	0.324	P=0.002*
-DASS-21 total	0.215	P=0.046*	0.321	P=0.002*
-Difference score.	0.313	P=0.003*	0.421	P<0.001*
-PBI care	-0.362	P=0.001*	-0.385	P<0.001*
-PBI overprotection	0.342	P=0.001*	0.311	P=0.003*

*significant correlation at p=0.05

Comparison of Independent samples t-test and Mann-Whitney U-test

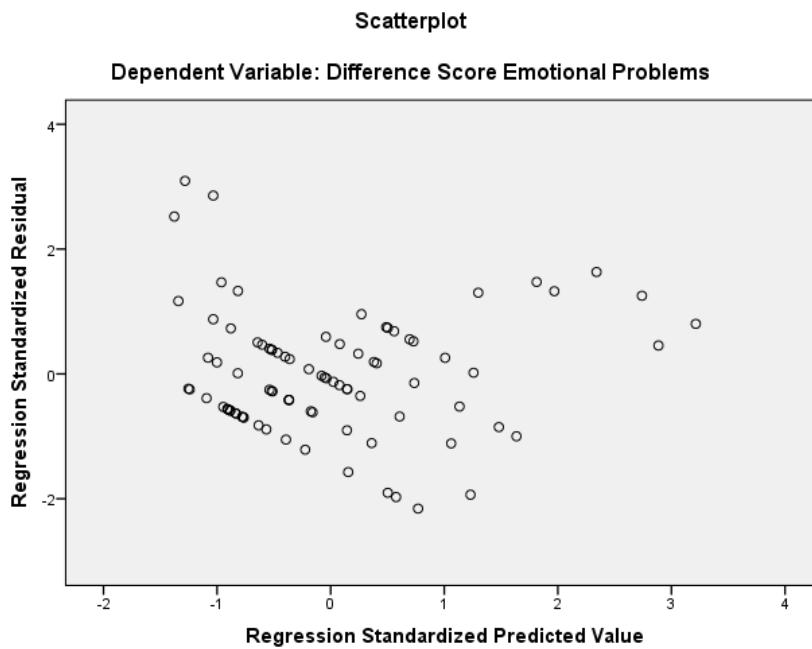
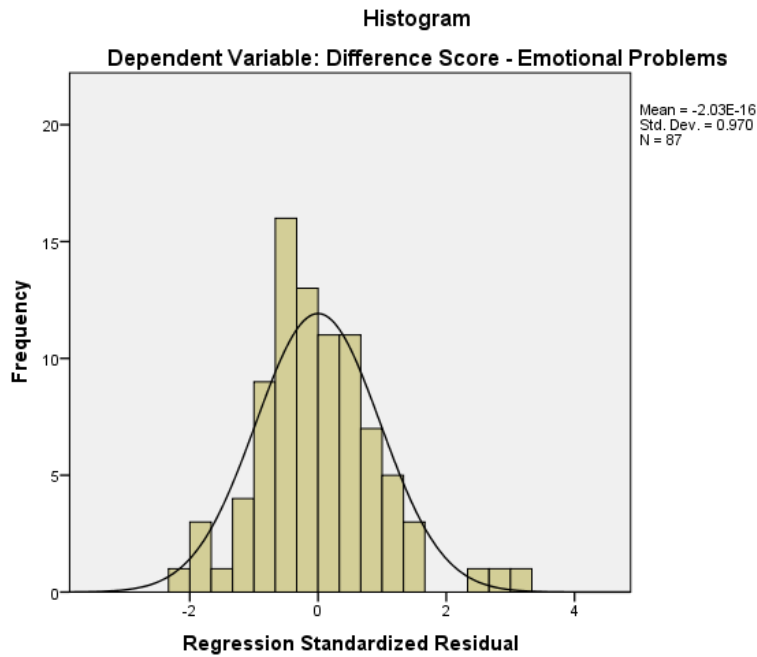
	T-test		Mann-Whitney	
	t	Sig		Sig
Child Gender				
DASS-21 total	-1.995	P=0.09*	677.5	P=0.176^
Parent SDQ emotional problems	-1.934	P=0.056	679.5	P=0.176
Child SDQ emotional prob.	-3.912	P<0.001*	422.0	P<0.001*
Absolute diff. emotional prob.	-2.845	P=0.006*	500.5	P=0.003*
PBI-care	0.979	P=0.330	743.0	P=0.450
PBI-overprotection	-1.562	P=0.122	633.0	P=0.079
Parent Mental Health				
DASS-21 total	-14.700	P<0.001*	0.000	P<0.001*
Parent SDQ emotional problems	-4.996	P<0.001	360.5	P<0.001*
Child SDQ emotional prob.	-5.637	P<0.001*	297.5	P<0.001*
Difference Score.	0.378	p=707	791.5	P=0.865
PBI-care	2.373	P=0.020*	593.0	P=0.046*
PBI-overprotection	-4.077	P<0.001*	405.5	P<0.001*
Parent-Child Relationship				
DASS-21 total	-2.564	P=0.012*	640.5	P=0.010*
Parent SDQ emotional problems	0.255	P=0.800	926.0	P=0.883
Child SDQ emotional prob.	0.218	P=0.828	910.5	P=0.781
Absolute diff. emotional prob.	0.899	P=0.371	859.0	P=0.474
PBI-care	4.688	P<0.001*	477.5	P<0.001*
PBI-overprotection	-6.898	P<0.001*	313.0	P<0.001*

*significant difference in means at p=0.05

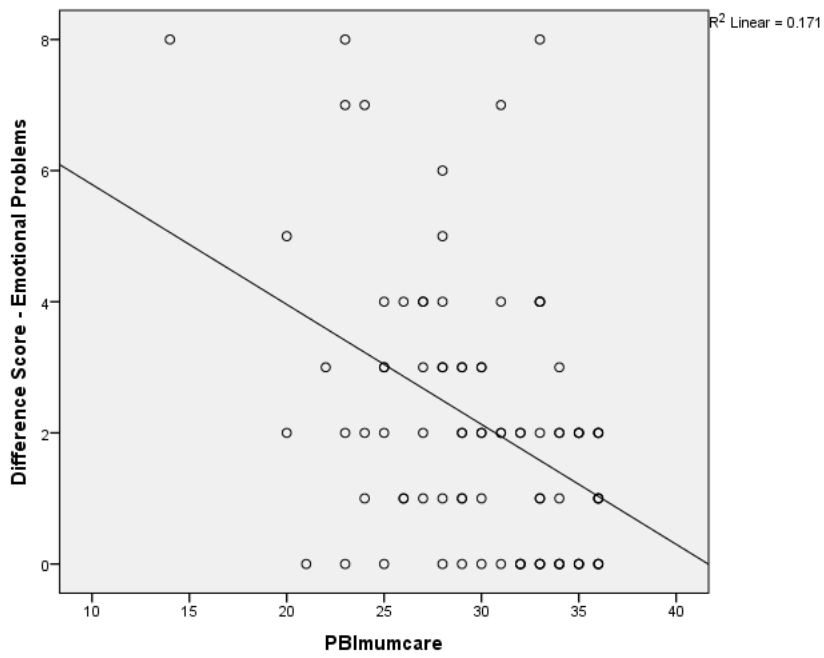
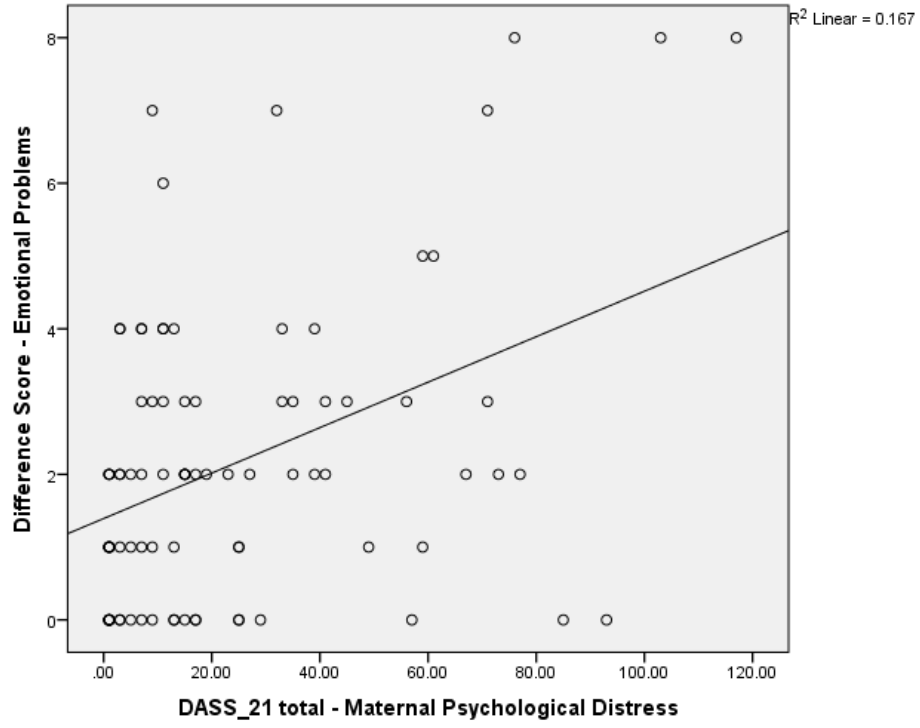
APPENDIX 8: REGRESSION ASSUMPTIONS

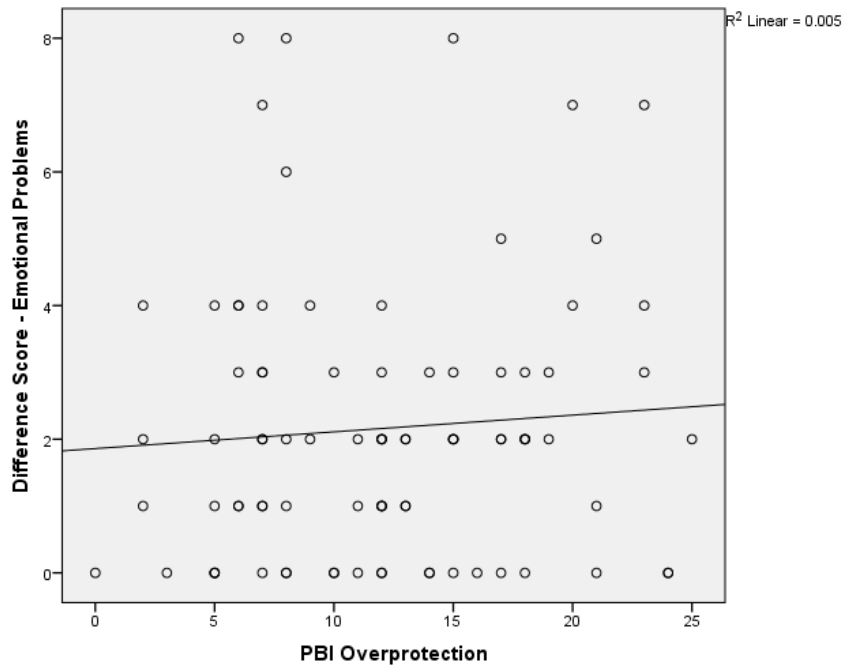
a) Assumptions of Normality and Homoscedasticity – Emotional Problems

Difference Score



b) Assumptions of Linearity – Emotional Problems Difference Score





c) Multicollinearity Diagnostics

Test Variables		Tolerance	VIF
DASS-21 Total	DASS-21 Depression	.211	4.74
	DASS-21 Anxiety	.284	3.53
	DASS-21 Stress	.248	4.03
DASS-21 Depression	DASS-21 Anxiety	.107	9.31
	DASS-21 Stress	.077	13.06
	DASS-21 Total	.033	30.34
DASS-21 Anxiety	DASS-21 Stress	.084	11.85
	DASS-21 Total	.026	38.72
	DASSo-21 Depression	.063	16.00
DASS-21 Stress	DASS-21 Total	.036	27.56
	DASS-21 Depression	.072	14.00
	DASS-21 Anxiety	.135	7.386

VIF threshold for multicollinearity = 3

APPENDIX 9: Moderation Analysis Scatterplot

