Exploring the Relationship between Borderline Personality Disorder and Epistemic Trust in Adolescents

Elise Draper

D.Clin.Psy. Thesis (Volume 1)

2017

University College London

UCL DOCTORATE IN CLINICAL PSYCHOLOGY

THESIS DECLARATION FORM

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signature [redacted]

Name: Elise Draper

Date: 22nd June 2017

Overview

Borderline personality disorder (BPD) is a complex disorder that is associated with a range of functional, emotional and inter-personal difficulties. In recent years, consensus regarding whether or not BPD should be diagnosed in childhood and adolescence has altered, moving from the view that such a diagnosis is potentially harmful, to observations that the diagnosis may in fact be beneficial, by increasing understanding about young people's difficulties and improving access to timely and formulated interventions. Developmental theories of BPD have placed difficulties in mentalizing, and more recently difficulties with epistemic trust, at the core of BPD. However the nature of these difficulties remains unclear. This thesis therefore aims to explore and clarify the relationship between mentalizing abilities, epistemic trust and BPD in adolescence.

Part one is a literature review which aimed to critically assess studies that have investigated the relationship between mentalizing and BPD symptomology in young people. The review revealed the challenges that are associated with the assessment of mentalizing in young people, due to the complexity of mentalizing as a psychological construct and the challenges associated with measuring and assessing mentalizing abilities. Although there is an overall lack of clarity among findings, a body of evidence appears to be emerging to suggest that a relationship exists between hypermentalizing and BPD symptomology in young people.

Part two is an empirical research paper which explored the relationship between epistemic trust and BPD symptomology in adolescents. It investigates whether severity of BPD symptomology is associated with performance on tasks designed to measure epistemic trust. Additionally, the relationships between psychopathology, relationship difficulties and epistemic trust were also explored. No support was found for the hypothesis that BPD symptom severity is associated with reduced epistemic trust in adolescents. However, there was mixed support for the

hypotheses that there is an association between psychopathology and lower levels of epistemic trust, and relationship difficulties and lower levels of epistemic trust. Reasons for these findings are explored and implications for future research and clinical practice are considered. This study was conducted as part of a joint project (Greisbach, 2017; Reches, 2017).

Part three presents a critical appraisal of the research project, which provides reflections on the difficulties and benefits associated with diagnosing BPD in adolescence, the difficulties associated with measuring complex psychological constructs and methodological challenges that occurred when carrying out the research project, alongside reflections on the research process as a whole.

Table of Contents

List of Tables

Part One: Literature Review

Part Two: Empirical Paper

List of figures

Part Two: Empirical Paper

Acknowledgements

Firstly, I would like to thank every young person that so generously gave up their time to participate in this study. It was a real privilege to meet such interesting and enthusiastic young people.

I would also like to dedicate thanks to my supervisor Professor Peter Fonagy, for allowing me the opportunity to carry out research in such an interesting and thought provoking area. I am grateful for Peter's vast knowledge and patience throughout this project. I would also like to thank my second supervisor, Dr Tobias Nolte, for his support and the reassuring advice he offered.

A huge thank you goes to the two other trainees working on this joint project, Tal and Jessie, who provided amazing support and were a real pleasure to work with. I would also like to thank my family and boyfriend for all of their encouragement to me throughout the research process.

Part 1: Literature Review

Examining the Relationship between Mentalizing Difficulties and Borderline Personality Disorder in Young People

Abstract

Aims

The developmental model of Borderline Personality Disorder (BPD) places difficulties with mentalizing at the centre of the problems experienced by young people with BPD. However research into the form that these mentalizing difficulties take have provided heterogeneous results. This review aims to critically assess studies which have investigated the relationship between mentalizing abilities and BPD symptomology in adolescents, in order to try and provide further clarity as to the form that these mentalizing abilities take.

Method

A literature search was carried out focusing on studies which investigated the relationship between mentalizing and BPD symptomology in young people. A quality appraisal assessment tool was used to rate the quality of these studies.

Results

An initial 540 references were identified by the search. After applying the limitations of the search and following an abstract review, 13 references were finalised to be included in the review.

Conclusions

The studies reviewed produced heterogeneous results in regards to the relationship between mentalizing abilities and BPD symptomology in young people. Some studies found that greater severity of BPD symptomology was associated with reduced mentalizing abilities, whereas others did not replicate this finding or even found enhanced abilities. It was concluded that the measures used to assess

mentalizing abilities appeared to play an important role in the findings that were produced. Additionally, it appears that recently, the use of more complex measures to assess mentalizing has led to an association being observed between severity of BPD symptomology and a specific form of mentalizing; hypermentalizing. It is recommended that future research be carried out in order to further clarify this relationship.

Introduction

Borderline personality disorder in young people

Adolescence has long been considered a time of emotional development and many of the characteristics that we associate with Borderline Personality Disorder (BPD), such as frequent changes in affect and intense relationships are, to some extent, also considered part of the usual developmental course of adolescence. BPD is a complex disorder, the features of which include a pervasive pattern of impulsivity as well as instability of affect, behaviours, self-image and interpersonal relationships over a range of contexts and situations (The Diagnostic and Statistical Manual of Mental Disorders, 5th edition, DSM-5; American Psychiatric Association, 2013). BPD is associated with negative outcomes in a range of areas including social, emotional and occupational functioning; with severity of BPD symptoms predictive of poorer outcome over time (Gunderson et al., 2006). The World Health Organisation (WHO) defines adolescence as the transitional stage of growth between childhood and adulthood (World Health Organisation; WHO, 1986). The WHO defines the age of an adolescent as being between 10 and 19 years, although they acknowledge that age is only one characteristic that is associated with this development and that other factors, such as social transitions which occur at different ages across cultures are also valuable to consider (WHO, 1986). Adolescence falls within the WHO's definition of 'young people', which refers to individuals between the age of 10 and 24 years (WHO, 1986).

Until recent years, the diagnosis of BPD in children and adolescents has been frowned upon, with reasons for this including concerns relating to the instability of symptoms over time in young people, and the proposed stigma and negative consequences that such a diagnosis may bring (Bernstein et al., 1993). The difficulty

in differentiating borderline symptomology from the usual developmental trajectory that is seen in adolescence has also been highlighted (Miller, Muehlenkamp & Jacobsen, 2008). Often, although young people may meet criteria for a diagnosis of BPD, they are only diagnosed with and offered treatment for Axis I disorders due to these aforementioned concerns, with previous research suggesting that clinicians often do not feel comfortable making a diagnosis of personality disorder in children or adolescents (Laurenssen, Hutsebaut, Feenstra, Van Busschbach, & Luyten, 2013).

More recently it has been proposed that ignoring personality disorder symptomology in adolescents may mean that subsequently young people do not receive the specific intervention they require (Miller et al., 2008). This in turn could exacerbate the serious problems that these young people may already be experiencing due to the difficulties associated with personality disorders including; academic failure, relationship and social problems and self-harm or suicidality (Kernberg, Weiner & Bardenstein, 2000). It has been suggested that being able to recognise personality disorder earlier on (i.e. in adolescence) may help young people and their families to achieve a greater understanding of their difficulties (Baverstock, & Wright, 2015). Access to earlier treatment and intervention is also thought likely to reduce some of the long-term problems associated with adult personality disorder (Chanen et al., 2008). Findings now suggest that personality disorder can be reliably diagnosed in adolescence (Chanen & McCutcheon, 2013). Reflecting this, the DSM-5 permits the diagnosis of personality disorders in adolescence, with criteria for a BPD diagnosis reflecting those used to diagnose BPD in adults. In an attempt to acknowledge the aforementioned concerns around the instability of symptoms, the DSM-5 states that a diagnosis may be made only if symptoms persistently interfere with an individual's functioning for at least a year.

Mentalizing

BPD, in both adults and adolescents, shows itself as a highly interpersonal disorder, with marked impairments in the ability to maintain stable, well-functioning relationships being a key marker (Chanen et al., 2008). Consequently, there has been much exploration into the social-cognitive processes, particularly any potential disruption to these processes, which may underlie the disorder. Fonagy's developmental model of BPD proposes that at the core of the difficulties experienced by individuals with BPD lies a dysfunction in mentalizing (Fonagy, 1991). In this context, mentalization (a multi-faceted form of social cognition) is understood as the mental process by which individuals are able to reflect implicitly and explicitly on the minds of themselves and others and to understand the ways in which mental states underpin actions and behaviours (Bateman & Fonagy, 2004).

In this developmental model, mentalization is thought to first be nurtured and developed as an infant, through the experience of 'being mentalized' by others (i.e. the caregivers) within a secure attachment relationship. Within this relationship the infant is able to make use of the marked mirroring responses of the caregiver to discover their own emotions and symbolise unlabelled internal states into understandable and recognisable experiences, learning that these internal states are able to be regulated. Therefore this early experience of mentalization by the caregiver creates the correct conditions to enable exploration of the internal worlds of both ourselves and others (Fonagy, Gergely, Jurist & Target, 2002).

So why is it that in certain individuals this process becomes disrupted, leading to a dysfunction in the ability to mentalize? Fonagy and Luyten (2009) have described that as the early attachment relationship is so crucial for the development of mentalizing abilities, that problems within this relationship (as is often see in the context of BPD) may have a knock on effect; disrupting the development of

mentalization abilities. Indeed a review of thirteen studies found a strong association between BPD and insecure attachment (Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004). Research has also previously found that secure attachment is correlated with a greater amount of care-giver marked mirroring and appropriate responding (Russell, 1940). When difficulties within the attachment relationship occur, children may find that the conditions necessary to develop this understanding of their emotional experience is not present, or they may find that they are not accurately held in the mind of the other; preventing the formation of accurate internal representations and mentalization abilities (Fonagy & Luyten, 2009).

Although there is generally a consensus that a disruption in the ability to mentalize is present in individuals with BPD, a lack of agreement has been found as to the exact form that these difficulties take. Certain theories preclude to a loss of the ability to mentalize at all, whereas others have suggested that individuals with BPD may in fact have enhanced mentalization abilities in certain areas, or alternatively that they mentalize through the use of unusual strategies (Domes, Schulze & Herpertz, 2009).

BPD and deficits in mentalizing

As mentalization is fundamental in understanding the minds of both the self and other, it is possible that some of the difficulties seen in young people with BPD, especially the observed difficulties with maintaining healthy social relationships and with emotional regulation, may be caused by a lack or absence of mentalizing abilities. Difficulties with social relationships has been well documented as being one of the most pervasive difficulties faced by those with BPD, including adolescents, and also one of the difficulties which leads to the most distress (Levy et al., 1999). Negative affective states in individuals with BPD are often precipitated by interactions within relationships that the individual with BPD perceives as difficult and individuals with BPD often have intense reactions to social encounters

(Herpertz et al., 1997). Without the ability to recognise, understand and moderate one's own affective states and the ability to reflect on the mental states of others, appropriate responding during social interactions, which is so key in maintaining healthy interpersonal relationships, is likely to be challenging. The outcomes of such interactions are also then likely to have a further negative impact on emotional regulation. These difficulties with social interactions have given weight to the theory that an absence of mentalizing may be a core mechanism involved in the development of BPD (Bateman & Fonagy, 2003).

When considering how a lack of mentalizing would present clinically, an absence in mentalizing can be understood as concrete thinking; showing an inability to consider the complexities of one's own and others' minds (Fonagy & Luyten, 2016). Therefore it is hypothesised that individuals with BPD do not have the required abilities to adequately process, appraise and reflect on emotional information; to mentalize, especially within interpersonal social contexts (Bateman & Fonagy, 2003). Research carried out with adult participants with BPD has provided support for a deficit in mentalizing abilities on tasks assessing recognition of facial expressions of emotion in others and on tasks assessing the ability to understand emotions elicited in characters using vignettes (Levine, Marziali, & Hood, 1997; Bland, Williams, Scharer, & Manning, 2004). However, other studies have found no differences in the mentalizing abilities of adults with BPD as compared to controls (Schilling et al., 2012; Ghiassi, Dimaggio, & Brune, 2010).

BPD and the use of unusual mentalizing strategies

In contrast to this concept of a deficit or inhibition of mentalization abilities in individuals with BPD, a review of the literature by Domes et al. (2009) found evidence to support the notion that adults with BPD actually have a heightened

sensitivity in the processing of emotional expressions in others. Therefore it is possible that similar mentalizing abilities may be present in adolescents with BPD. Adults with BPD have been shown to be more sensitive than controls at emotion recognition using stimuli depicting the eye region of the face (Fertuck et al., 2009). Additionally adults with BPD have been found to score more highly than controls on tasks where they have to imagine character's emotions using vignette tasks (Arntz, Bernstein, Oorschot & Schobre, 2009).These findings have led to it being questioned as to whether individuals with BPD may therefore actually have enhanced mentalization abilities of some kind. However, this hypothesis suggesting enhanced mentalization abilities in individuals with BPD is difficult to make sense of, given the clinical observations that those with BPD frequently experience difficulties with social relationships.

In trying to understand these findings, let us return now to the notion that mentalization is a multi-faceted concept. Fonagy and Luyten (2009) propose that mentalizing impairments in individuals with BPD are not global, but are found in specific domains and that these impairments may even at times look like enhanced mentalizing. Mentalization can be viewed along four polarities; controlled/automatic, cognitive/affective, external/internal and self/other focused (Fonagy & Luyten, 2009). Some aspects of mentalization are automatic and implicit, for example knowing intuitively in a conversation when it is our turn to talk and adjusting our expression to let the other know we are listening. In contrast, actively taking the time to think and reflect on how we and the other is experiencing the conversation is a very different process and relies on the more explicit and controlled type of mentalizing. It can also be differentiated as to whether we rely on external features, such as facial expressions, or internal features, such as cognitions and emotional states, of both the self and other when formulating underlying mental states. Cognitive mentalization refers to the ability to understand another's mental state i.e. being able

to recognise their thoughts, feelings and beliefs, whereas affective mentalization refers more to the emotional response that is triggered in oneself when observing emotion in another (Fonagy & Luyten, 2009). Additionally, these different aspects of mentalization have been found to be underpinned by different neurobiological systems (Allen, Fonagy & Bateman, 2008).

Fonagy and Bateman (2006) propose that for individuals with BPD, a likely history of trauma within the attachment relationship reduces the threshold at which one is able to utilise explicit, controlled and reflective mentalizing in particular. When this ability is lost, individuals instead rely more on the automatic, intuitive mentalizing processes. Additionally, due to overcompensation of this implicit mentalizing pathway, they may even demonstrate superior abilities in this dimension (Fonagy, & Luyten, 2009). Whereas individuals with BPD may find it difficult to reflect consciously on the internal experiences of themselves and others, they are more successful in inferring states of mind from external and physical cues. It also appears that cognitive mentalizing is more impacted than affective; individuals with BPD can often powerfully experience the emotional states of others without being able to fully comprehend their perspective (Fonagy & Luyten, 2009).

The result of the automatic, intuitive mentalizing pathway going into overdrive has been described as hypermentalization (Dziobek et al., 2006). Hypermentalizing, also known as an excessive theory of mind, is a social-cognitive process by which observations about others' mental states go beyond what is actually observable (Dziobek et al., 2006). Although this can look like enhanced mentalizing, as it means that individuals are often very alert and sensitive to emotional cues in others, this mentalizing strategy may lead to the over-attribution of mental states and consequently, their misinterpretation. For example, an individual who hypermentalizes, when meeting a friend for a coffee, may quickly notice that the friend is a little quieter than usual, however they may attribute this to the friend being

very angry with them for some past disagreement, consequently believing that the friendship is doomed, rather than identifying the more likely reason i.e. that the friend has had a stressful week. A situation such as the one described here shows that the individual is still using a form of mentalizing; they have not given up the strategy altogether, as they are using mental states to try and decipher the other's actions. However, the mental state underpinning the action is in some way distorted and misinterpreted, which would then have implications for the individual's interpersonal reaction to the situation.

Research carried out by Preißler et al. (2010) with adults with BPD adds support to this hypothesis. In this study two different measures were used to assess mentalizing abilities of adults with BPD as compared to controls. Results from a mentalizing measure which assessed external-focused mentalizing found that BPD participants performed no differently to controls. However on the measure of internal-focused mentalizing, BPD participants showed poorer mentalizing ability than controls. Therefore, this may add weight to the notion that it is specific aspects of mentalizing that are disrupted in individuals with BPD (Fonagy & Luyten, 2009).

A further complicating factor is related to the emotional dysregulation often associated with BPD (Linehan, 1993). This low threshold for emotional arousal of the attachment system, which is triggered by interpersonal relationships, has been shown to facilitate implicit automatic mentalization and further inhibit the more controlled and explicit mentalization which is likely to already be disrupted in individuals with BPD (Fonagy & Luyten, 2009). Therefore, when the ability to mentalize explicitly is impaired, individuals with BPD rely on the implicit system which is dominated by reflexive, impression-driven assumptions about internal states which are hard to integrate with one's own experience and which are not counterbalanced by a controlled, conscious and reflective type of mentalizing (Fonagy & Luyten, 2009).

In order to bring these ideas together Sharp (2014) produced a model to describe mentalizing in individuals with BPD. Firstly, mentalizing difficulties occur in stressful inter-personal situations which are linked to arousal of the attachment system. In situations where the attachment system is not aroused, normal mentalizing can occur. Difficulties with mentalizing occur in situations where higher-order mentalizing, that is the integration of both implicit and explicit mentalizing, is required, as opposed to situations which rely solely on implicit mentalizing. Additionally, mentalizing based on internal features is more affected than mentalizing based on external features. These resultant mentalizing deficits reflect hypermentalizing, or the over-attribution of mental states to others, with negative consequences for both interpersonal relationships and emotional regulation. This model could possibly therefore help make sense of the conflicting findings surrounding BPD and mentalizing difficulties, as it may be that the type of mentalizing which is assessed during these studies, i.e. implicit versus explicit, internal-focused versus external-focused, has important implications for the mentalizing abilities or difficulties that are observed.

Aim of review

It is important to understand the factors that may cause or contribute to a disorder; in this case whether difficulties in mentalizing underlie some of the difficulties experienced by young people with BPD, as this can then provide a focus for intervention. In order to do this efficiently, it is necessary to understand exactly what form these difficulties take. The downward extension from initial research, which mainly focused on the mentalization strategies of adults with BPD, has begun. It is not yet evident as to whether BPD related mentalization characteristics found in children and adolescents share the same etiological features as those found in

adults. Instead it may be that mentalization difficulties in childhood or adolescence take a different form, or that mentalizing difficulties develop during adulthood or later on in the course of the disorder. Due to the developmental nature of the mentalization theory of BPD and the growing evidence that BPD in young people is a valid and potentially helpful diagnosis, targeting any known difficulties in mentalization during adolescence is likely to be important in terms of prevention, formulation and intervention (Sharp et al., 2011). The aim of this review is to critically evaluate current evidence regarding the specific nature of the relationship between mentalizing difficulties and BPD in young people.

Method

In order to explore the review question, a literature search was carried out using the following method:

Search Strategy

A systematic review of the literature was conducted in August 2016. Relevant papers were identified initially by searching three electronic databases; PsycINFO, MEDLINE and EMBASE. The following terms were used to search headings and keywords in abstracts and titles: ('Borderline Personality Disorder' OR BPD OR borderline OR 'emerging borderline*') AND (mentali* OR 'reflective function' OR 'theory of mind' OR 'social cognition' OR hypermentali* OR empath* OR 'social understanding') AND (Teenager* OR 'young person' OR 'young people' OR adolescen* OR child* OR youth).

Screening and Study Selection

All resulting papers were screened and for those that appeared relevant, the abstracts were read. Any studies that referred to mentalization (including any of the previously noted terms) and BPD in adolescence were included for further detailed screening. The full articles were obtained and reviewed before being compared to the inclusion and exclusion criteria.

Table 1. Inclusion and Exclusion Criteria

Inclusion Criteria
Published in a peer reviewed journal
Participants were aged 10-24 years old (based on the WHO's definition of 'young people').
Participants had a diagnosis of BPD or BPD traits were assessed
Mentalization or some form of social cognition was assessed
Exclusion Criteria
Case Series Studies
Studies not in English

Method of appraising studies

In order to assess the quality of studies methodologically, Kmet, Lee and Cook's (2004) Quality Assurance Checklist (Appendix A) was used. The quality checklist is able to evaluate studies which use varying research designs and quality is determined by the extent of the internal validity of the studies. The tool contains 14 items which assess internal validity of the studies, mainly focusing on factors relating to study design and analysis. On each of the 14 items a score of two is

awarded when all specified criteria are met, a score of one when the specified criteria are partially met and a score of zero when none of the specified criteria are met. A total quality percentage can then be calculated for each paper. In this review items five, six and seven were excluded, due to these items being related to the quality of intervention studies, which was not the focus of this review. The checklist has been found to have high internal consistency and good test-retest and inter-rater reliability (Kmet et al., 2004).

Results

Prior to the limitations being imposed and duplications being removed, the database search resulted in a total of 540 references. Once the limitations were imposed and duplications were removed, the database search resulted in 33 references. These 33 remaining references were then reviewed using the inclusion and exclusion criteria which resulted in a further 21 references being excluded. Finally 12 studies were selected to be included in this review. One further study that fit the inclusion criteria was identified through a search of the reference lists of the initially included studies and was therefore added, giving an end total of 13 papers for review.

The 13 papers reviewed were published between the years of 2011 and 2016. They consisted of 12 cross-sectional studies and one randomised control trial (RCT). Sample sizes ranged from 41 participants to 501 participants. Three of the studies utilised community samples, where associations between mentalizing and BPD traits were investigated and 10 studies used clinical samples. In studies where a clinical sample was used, some chose to use community controls, whereas others additionally included psychiatric controls. Two studies used an entirely female sample, ten studies used a mixed sample and one study did not specify gender (Ha, Sharp, Ensink, Fonagy & Cirino 2013). Studies were conducted in a range of

countries including the USA, the UK, the Netherlands, Italy and Australia. Additionally, one study used a multi-site format across three European countries. The studies are summarised in Table 2.

Table 2. Summary description of included studies

Author, year & country	Sample type & age range if specified	Experimental & Comparison groups	IV - BPD			DV – Mentalization			Findings related to this review	Effect Size
			Measure	Type of Measure	Quality of measure	Aspects of mentalization assessed	Mentalization measure	Quality of measure		
Fossati, Feeney, Maffei & Borroni (2014) Italy	Non-clinical Age: mean age 16.7 years, SD =1.71	High-BPD n=29 (16 females, 13 males) Average- BPD n = 31 (11 females, 20 males) Low-BPD n=29 (11 females, 18 males)	BPI	Self-report questionnaire	Cronbach's α = 0.97	Other External Explicit Cognitive	RET	N/A	No significant differences in RET scores between the 3 groups. Although insignificant, a moderate observed effect for mean difference on RET total score between high-BPD group & low-BPD group.	d = - 0.66
Scott, Levy, Adams & Stevenson (2011) UK	Non-clinical Age: High BPD mean age 19.63 years, SD = 2.82 Low-BPD group mean age 18.85 years, SD = 1.26	High BPD group n =38 (25 females, 13 males) Low BPD group n=46 (31 females, 15 males)	MSI-BPD (modified version)	Self-report questionnaire	Cronbach's α = 0.93	Other External Explicit Cognitive	RME	N/A	High-BPD group significantly better at recognising negative stimuli than low-BPD group. No significant differences between groups for neutral/ positive stimuli. High-BPD group showed response bias for attributing negative mental states to neutral stimuli	d = 0.47 Neutral: d=0.19 Positive: d=0.24

Author, year & country	Sample type & age range if specified	Experimental & Comparison groups	IV - BPD			DV – Mentalization			Findings related to this review	Effect Size
			Measure	Type of Measure	Quality of measure	Aspects of mentalization assessed	Mentalization measure	Quality of measure		
Berenschot et al. (2014) Netherlands	Clinical Age: Age range 12-18 years for all groups	Personality pathology group n=42 (34 females, 8 males) Psych control group n=28 (13 females, 15 males) Community control group n= 111 (57 females, 54 males)	N/A – MDT decision making	Clinical interview.		Other External Explicit Cognitive	Face morphing task	N/A	Personality pathology group significantly more accurate at emotion recognition than either control group. Personality pathology group significantly more sensitive at emotion recognition than psychiatric controls but not community controls. Personality pathology group not significantly more accurate at recognising negative emotions.	The main Group effect partial $\eta 2 = 0.06$
Jovev et al. (2011) Australia	Clinical Age: BPD group mean age 18.9 years, SD = 3.1. Community group mean age 20.40, SD=2.72	BPD group n=21 (18 females,3 males Community control group n=20 (13 females, 7 males)	SCID – I/P	Semi-structured interview	Good psychometric properties reported	Other External Explicit Cognitive	Modified face morph task	N/A	No significant differences found between groups for either accuracy or sensitivity.	Effect sizes ranging from d= 0 to d=0.6

Author, year & country	Sample type & age range if specified	Experimental & Comparison groups	IV - BPD			DV – Mentalization			Findings related to this review	Effect Size
			Measure	Type of Measure	Quality of measure	Aspects of mentalization assessed	Mentalization measure	Quality of measure		
Robin et al. (2012) France, Belgium & Switzerland (multi-site)	Clinical Age: age range 15 to 19 years.	BPD group n=22 (all females) Community control group n=22 (all females)	SIDP-IV	Semi-structured interview	Not reported	Other External Explicit Cognitive	Face Morph Task	N/A	No significant differences between groups in recognition of fully expressed emotions. BPD group significantly less sensitive to facial expressions of happiness & anger than control group.	Not reported
Fossati, Feeney, Maffei & Borroni (2011) Italy	Non-clinical Age: mean age 17.22 years (SD = 0.88)	N= 501 (255 females, 246 males)	PDQ-4 þ	Self-report questionnaire	Cronbach's α = 0.58	Self Internal Explicit Affective	MAAS	Cronbach's α = 0.81	Mindfulness scores significantly negatively associated with number of BPD features.	r2 = 0.15
Kalpakci, Vanwoerden, Elhai & Sharp (2016) USA	Clinical Age: age range 12-17 years	BPD group (n=107) (all female) Psychiatric control group (n=145) (all female)	CI-BPD	Semi-structured interview	Interrater agreements: Kappa's cohen= 0.77-0.89	Other Internal Explicit Cognitive & affective empathy	MASC BES	Not reported Cronbach's α for cognitive empathy = 0.75 Cronbach's α for affective empathy = 0.83	BPD group significantly higher affective empathy than control. No significant differences in cognitive empathy between groups. BPD group: hypermentalizing related to decreased cognitive empathy; non-BPD: group hypermentalizing not related to either empathy type.	*r* = −0.23

Author, year & country	Sample type & age range if specified	Experimental & Comparison groups	IV - BPD			DV – Mentalization			Findings related to this review	Effect Size
			Measure	Type of Measure	Quality of measure	Aspects of mentalization assessed	Mentalization measure	Quality of measure		
Sharp et al. (2011) USA	Clinical Age: age range 12-17 years	N = 111 (62 females, 49 males)	BPFSC CI-BPD	Self-report questionnaire Semi-structured interview.	Cronbach's α = 0.9 Cronbach's α = 0.82.	Other Internal Explicit Cognitive	MASC	N/A	Significant relationship between BPD traits & hypermentalizing. No significant relationship between BPD & absence of mentalizing/ undermentalizing.	r=0.41
Sharp at al. (2016) USA	Clinical Age: mean age 15.42 years, SD = 1.43	N=259 (158 females, 101 males)	BPFSC	Self-report questionnaire	Cronbach's α = 0.88	Other Internal Explicit Cognitive	MASC	N/A	More severe BPD features significantly associated with elevated hypermentalizing	r=0.24
Sharp et al. (2013) USA	Clinical Age: mean age 15.5 years, SD 1.44	BPD group n=68 (46 females, 22males) Psychiatric control group n=96 (55 females, 41 males)	CI-BPD BPFSC	Semi-structured interview Self-report questionnaire.	Cronbach's α = 0.82 Cronbach's α = 0.88	Other Explicit Internal Other Explicit External Other, implicit Self, explicit, Affective	MASC CET MSTA BES	N/A N/A Cronbach's α = 0.76 Cronbach's α = 0.86	BPD group showed greater hypermentalization than controls at admission. Hypermentalizing significantly reduced between admission & discharge for both groups; reduction was more pronounced for BPD group. Other forms of mentalization were not changed by treatment.	r = 0.29 interaction effect for BPD and hypermentalising: partial η2 = 0.03

Author, year & country	Sample type & age range if specified	Experimental & Comparison groups	IV - BPD			DV – Mentalization			Findings related to this review	Effect Size
			Measure	Type of Measure	Quality of measure	Aspects of mentalization assessed	Mentalization measure	Quality of measure		
Hessels et al. (2016) Netherlands	Clinical Age: Age range 12-18 years	N= 96 (52 females, 38 males)	DSM-IV checklist	MDT consensus	Not reported	Other & Self Explicit Internal Cognitive	The SIP interview in adolescents	Inter-rater agreement κ reported for some subscales	Significant relationship between BPD pathology & 2 SIP variables; inadequate coping and frustrating past memories. No significant relationship between BPD pathology & 6 SIP variables, including 'reflecting upon other's motives' (i.e. mentalizing)	Coping: r= 0.21 Memories: r= 0.34
Ha, Sharp, Ensink, Fonagy & Cirino (2013)	Clinical Age: mean age 15.57 years, SD = 1.39	N = 146	BPFSC BPFSP	Self-report questionnaire Parent-report questionnaire	Cronbach's α = 0.89 Cronbach's α = 0.91	Self Explicit Internal	RFQY	Cronbach's α = 0.71	Significant difference in reflective function between participants above & below BPD cut-off on both self and parent reported BPD symptoms.	BPFSC: r = - 0.34 BPFSP: r= - 0.16
Jennings, Hulbert, Jackson & Chanen (2012) Australia	Clinical Age: Age range 15-24 years	BPD group n=30 (24 females, 6 males) MDD control group n=30 (22 females, 8 males)	SCID-II	Structured Clinical Interview	Not reported	Self Explicit Internal Cognitive	INS	Cronbach's α = 0.77 - 0.83	BPD group responded to all vignettes with significantly lower social perspective coordination scores than the control group	partial eta squared = 0.48

Key: BES: Basic Empathy Scale ; BPFSC: The Borderline Personality Features Scale for Children; BPD: Borderline Personality Disorder Scale; BPFSP: The Borderline Personality Features Scale for Parents; BPI: Borderline Personality Inventory; CET: Childs Eye Test; CI-BPD: Childhood Interview for DSM-IV Borderline Personality Disorder; CFRS: Child Reflective Function Scale; DERS: Difficulties in Emotion Regulation Scale; INS: Interpersonal Negotiation Strategies Interview; MAAS: Mindful Attention Awareness Scale; MASC: Movie Assessment of Social Cognition; MSI-BPD: McLean Screening Instrument for BPD; PDQ-4 þ: Personality Diagnostic Questionnaire-4 þ; MSTA: Mentalizing Stories Test for Adolescents ; RET: Reading the Mind in the Eyes test revised version; RFQY: Reflective Function Questionnaire for Youths; RME: Reading the Mind in the Eyes Test; SCID-II: Structured clinical interview for DSM-IV personality disorders; SIDP-IV: The Structured Interview for DSM-IV Personality

Quality of studies

The overall quality of the included studies was satisfactory. The ratings of the studies are shown in Table 3. All studies scored highly on the 'objective sufficiently described' and 'study design evident and appropriate' scales, suggesting studies were fairly well designed and clearly described. However, there were some general limitations that applied to many of the studies reviewed.

Firstly, all but one of the studies (Sharp et al., 2013) reviewed were of a cross-sectional design. Cross-sectional surveys can be an extremely useful way to investigate whether BPD and mentalization are correlated. However, given the cross-sectional nature of these studies, it must always be held in mind that alternative causal relations may apply and that the direction of causality cannot be determined.

As the study of the association between mentalization and BPD in young people is an emerging area, this is reflected by the relatively small sample sizes that were found throughout some of the studies (those scoring a 1 on item 9). Overall, in the majority of the studies reviewed, the sample sizes lacked power to determine small effects. None of the reviewed studies reported power analyses in order to determine sample sizes. Additionally, when looking at the samples used, it is noted that several of the studies showed a selection bias due to not having a clinical control group, making it difficult to determine how much of the relationship between BPD and mentalization is due to BPD and how much is due to psychopathology more generally. The samples of most studies which used clinical populations were skewed towards female participants. The reasons most commonly cited for excluding participants from the samples were psychotic symptoms, learning disability or other neuropsychological conditions.

Another issue across studies related to the wide range of mentalizing measures used, making comparisons across results challenging, as well as the varying reliability and validity of mentalization measures used. Due to the wide range of different measures across the studies, this issue will be addressed in the following section of the review.

Table 3. Quality rating of studies included in review

Kmet Quality Criterion	**Study**												
	Fossati et al. (2014)	Scott et al. (2011).	Fossati et al. (2011)	Berenschot et al. (2014)	Jovev et al. (2011)	Robin et al. (2012)	Kalpakci et al. (2016)	Sharp et al. (2011)	Sharp et al. (2016)	Sharp et al. (2013)	Hessels et al. (2016)	Ha et al. (2013)	Jennings et al. (2012)
1. Question / objective sufficiently described?	2	2	2	2	2	2	2	2	2	2	2	2	2
2. Study design evident and appropriate?	2	2	2	2	2	2	2	2	2	2	2	2	2
3. Method of subject/comparison group selection or source of information/input variables described and appropriate?	2	2	1[b]	2	2	2	2	2	2	2	2	2	1[k]
4. Subject (and comparison group, if applicable) characteristics sufficiently described?	2	2	2	2	2	2	2	2	2	2	2	2	2
5. If interventional and random allocation was possible, was it described?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6. If interventional and blinding of investigators was possible, was it reported?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7. If interventional and blinding of subjects was possible, was it reported?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8. Outcome (if applicable) exposure measure(s) well	2	1[a]	1[c]	1[d]	1[e]	2	2	2	2	2	1[h]	2	1[l]

defined and robust to measurement / misclassification bias? means of assessment reported?													
9. Sample size appropriate?	1	2	2	2	1	1	2	2	2	2	2	2	1
10. Analytic methods described/justified and appropriate?	2	2	2	2	2	1	2	2	2	2	2	1[j]	2
11. Controlled for confounding?	2	2	N/A	2	1[f]	2	2	2	2	2	N/A	2	2
12. Results reported in sufficient detail?	2	2	2	2	2	1	2	2	2	2	2	2	2
13. Conclusions supported by the results?	2	2	2	2	2	1[g]	2	2	2	2	1[i]	2	2
14. Total score	95%	95%	90%	95%	90%	80%	100%	100%	100%	100%	90%	95%	85%

Note: **Coding: 2= all specified criteria are met, 1= specified criteria are partially met, 0 = none of the criteria met.**

Key:

a- Made own changes to a standardised measure (created a 21-item modified version of the MSI-BPD).

b- No inclusion/exclusion criteria or sampling method reported.

c- Participants were administered only the nine-item BPD scale of the PDQ-4 þ. The internal consistency reliability of the BPD scale was Cronbach's alpha = 0.58.

d- Emotion recognition task not standardised and no information given about Cronbach's alpha.

e- Outcome measure (face morph task) was adapted for the study, but no information about the validity/reliability of the measure is provided.

f- Significantly higher levels of education in the healthy control group were not controlled for in the analysis.

g- The authors conclude that BPD adolescents are more sensitive at identifying emotions. This was on found for 2/6 emotional expressions; meaning that for 4/6 emotions there were no differences in sensitivity.

h- Outcome measure (SIP interview) described as being based upon previous interviews published in the literature; it is not clear as to how it is based on previous interviews.

i- Not enough acknowledgements given to all the SIP factors which did not have a significant correlation with BPD when drawing conclusions.

j- As the main aim of the study was to investigate the construct validity of the RFQY; only limited information given about the statistical analysis used to look at the relationship between BPD and mentalizing.
k- Sampling strategy unclear
l- Standardised outcome measure adapted and three vignettes constructed by the researchers; validity of these was not investigated.

Measuring Mentalization

One of the major challenges that became apparent in comparing findings across studies in this review was related to the wide range of measures used to assess mentalizing. This seems to be partly related to the difficulty in the defining and operationalising of 'mentalizing', and then in its measurement. Mentalizing is a multi-dimensional and heterogeneous construct (Fonagy & Luyten, 2009). Theory of mind, empathy, reflective function, affective cognition and social cognition are all areas that over-lap somewhat with the broad concept of mentalizing. Mentalization and theory of mind are often used interchangeably in the literature, however these concepts stem from different models, with mentalization being rooted in attachment theory and theory of mind being rooted in cognitive theory (Hessells, van Aken, Orobio de Castro, Laceulle & van Voorst, 2016). Due to the similarities across these concepts, research into each of these areas is likely to provide important information related to mentalization in young people with BPD and have been included in this literature review. However it must be held in mind that the aspects of social cognition that are being targeted and measured may have important implications for the results found and for the generalisability of findings.

Furthermore, investigation into the mentalizing abilities of young people with BPD has been hampered by the lack of mentalizing measures available for this population (Sharp et. al., 2011). Most tasks used to measure mentalizing are actually theory of mind tasks and have been developed for use with autistic spectrum disorders and therefore it can be questioned as to how valid the use of such measures with young people with personality disorder actually is. Additionally, as previously described; mentalizing can be viewed along four different polarities; implicit/explicit controlled, self/other focused, internal/external based and cognitive/affective (Fonagy & Luyten, 2009). Different mentalization tasks assess these different aspects of mentalization to different extents and following from this,

are likely to identify different deficits or abilities dependent on the type of mentalization being assessed by the measure, especially given the hypothesis that different aspects of mentalizing are affected to different degrees in individuals with BPD (Fonagy & Luyten, 2009).

Although it is unlikely that measures will ever purely assess one single dimension of mentalizing, due to the complexities of human cognition, it appears that certain tasks require more explicit-controlled mentalizing whereas others rely on more implicit-controlled mentalizing. Therefore, for the sake of this review, mentalization measures have been divided broadly into these two groups. The following measures were used by studies included in this review:

External-focused mentalization measures:

Measures which assess external-focused mentalization involve the assessment of emotions and mental states using external cues, usually facial expressions of emotion. Two of the studies reviewed assessed mentalization using versions of the Reading the Mind in the Eyes Test. Scott, Levy, Adams and Stevenson (2011) used the original version of the measure (Reading the Mind in the Eyes Test; RME; Baron-Cohen, Jolliffe, Mortimore, & Robertson, 1997), and Fossati, Feeney, Maffei, and Borroni (2014) used the revised version (Reading the Mind in the Eyes Test, revised; RET; Baron-Cohen, Wheelwright, Hill, Raste & Plumb, 2001). This task was initially developed as a measure of Theory of Mind and involves the identification of the emotional states of others from images of the eye region of the face, which depict various emotions, both emotionally charged and neutral. Participants are then asked to make a choice from provided responses as to which semantic definition of a mental state e.g. ‘angry’ or ‘worried’ matches the emotion being depicted.
Both versions of the measure are similar, although the revised version has an increased number of items in the test and the number of mental state responses that

participants are able to choose from for each image was increased from two to three. Adequate psychometrics including reliability and validity have been reported for these measures (Baron-Cohen et al., 2001).

Three studies made use of Face Morph tasks to assess emotion recognition (Jovev et al., 2011; Robin et al., 2012 & Berenschot et al., 2012). These tasks involve participants having to identify as quickly and accurately as possible various emotions from videos of facial stimuli which progressively morph over time from an initially neutral expression to a fully expressed emotion. Such tasks have the benefit of allowing exploration of differences in recognition between fully expressed emotions and low level expressions of emotions, which hypothetically require a greater sensitivity to recognise and deduce. Jovev et al., (2011) and Robin et al., (2012) both used stimuli taken from the empirically reliable and valid 'pictures of facial affect' series by Ekman and Friesen (1976), whereas Berenschot et al., (2012) used a similar Face Morph Task that was developed by Montagne, Kessels, De Haan and Perrett (2007). However, Jovev et al., (2011) modified their images for use in the study, which would therefore impact the validity and reliability of the measure. Confounding factors which may have an impact on reaction-time tasks such as these include participant's visual-perceptual awareness, attention and impulse control.

There are some general limitations that apply to both the RET and face morph paradigms. Both types of task use faces that are unfamiliar to the participants and therefore the tasks are unable to examine some of the more relational and social aspects of emotion recognition. Both tasks also lack real-life validity, although it has been argued that face morph tasks are a more life-like measure of mentalization than the RET, due to the use of videos of whole faces rather than pictures of just the eye region and due to the images being dynamic (Jovev et al., 2011).

Internal-focused mentalization measures

Measures which tap into internal-focused mentalization involve the assessment of emotions and mental states by reflecting consciously on the internal experiences of self or others. One study (Fossati, Feeney, Maffei, & Borroni, 2011) used the Mindful Attention Awareness Scale Mindful Attention (MAAS; Brown & Ryan, 2003) to assess self-focused internal mentalizing. The MAAS is a 15-item self-report Mindfulness measure which assesses an individual's ability to attend to and reflect on their on-going experiences. The reliability and validity of the measure has been demonstrated (Brown & Ryan, 2003).

One of the studies (Sharp et al., 2013) used the Mentalizing Stories Test for Adolescents (MSTA; Vrouva & Fonagy, 2009) to assess mentalizing. The MSTA involves participants being provided with a narration about a teenager's behaviour, before then being given three different interpretations as to the mental states driving the behaviour. These three interpretations make conclusions that suggest either non-mentalizing, appropriate mentalizing or hypermentalizing; therefore producing a more sophisticated assessment of mentalizing than just simply its presence or absence. Good psychometric properties have been reported for the MSTA (Vrouva, Target, & Ensink, 2012).

Jennings, Hulbert, Jackson and Chanen (2012) used the Interpersonal Negotiation Strategies Interview (INS; Schultz, Yeates & Selman, 1998) to assess mentalization. This measure uses vignettes describing interpersonal conflicts which participants are then asked perspective-taking questions about, in order to give an indication of mentalizing ability. In this study a total of six vignettes were used; three from the standardised measure and three that were constructed by the investigators, as they wanted the vignettes to specifically reflect BPD-relevant themes of abandonment, mistrust/abuse, and deprivation. However the validity of these extra vignettes was

not established and the inclusion of these may have implications for the validity and reliability of the measure.

Two studies (Sharp et al., 2013; Kalpakci, Vanwoerden, Elhai &Sharp, 2016) used the Basic Empathy Scale (BES; Jolliffe & Farrington, 2006), which is a valid multidimensional measure of empathy, to assess mentalization abilities. The BES is a 20-item self-report scale which assesses both cognitive and affective empathy by asking participants to identify their abilities to empathise with others based on identifying and reflecting on their internal states. Good divergent and convergent validity have been demonstrated for the BES (Jolliffe &Farrington, 2006).

The Reflective Function Questionnaire for Youths (RFQY; Sharp et al., 2009) was the mentalization measure used by one of the studies (Ha et al., 2013). The RFQY is a self-report questionnaire developed specifically for use with young people which assesses the capacity to reflect on both the mind of the self and other by asking young people to rate how much they agree or disagree with statements of reflective function. Adequate internal reliability and validity have been demonstrated (Ha et al., 2013).

One study (Hessels et al., 2016) measured mentalizing using a measure based on Social Information Processing theory (SIP; Crick & Dodge, 1994). In the interview participants were read six vignettes about conflict situations among adolescents and then asked questions relating to the mental states of the characters involved. Although the study provides information about the model that the interview was based on and it is reported that the interview was based on others used in previous literature, it is not made clear as to whether there is a standardised form of the SIP interview and no reference to this was provided. Although detailed information is given as to the nature of the questions asked, as this interview appears to be non-standardised this has implications for the validity of the measure.

The Movie Assessment of Social Cognition (MASC; Dziobek et al., 2006) was the mentalization measure of choice in four of the studies reviewed (Kalpakci et al., 2016; Sharp et al., 2011; Sharp et al., 2013; Sharp et al., 2016). The MASC involves participants watching a 15 minute film which depicts four people at a dinner party and shows different social interactions that elicit different mental and emotional states in the characters. The film is paused at 45 points throughout and participants are asked various questions relating to the character's internal mental states. It has been suggested that the MASC is able to produce a fairly refined understanding of participant's mentalizing style; rather than a presence or absence of mentalizing, deficits are broken down into three categories; 1) less theory of mind (undermentalizing), 2) no theory of mind (no mentalizing) and 3) excessive theory of mind (hypermentalizing) (Sharp et al., 2011). Psychometrics have shown the MASC to be a valid and reliable measure (Dziobek et al., 2006) and it has been shown to be sensitive in its ability to discriminate adolescents with BPD from those without (Sharp et al., 2011; Sharp et al., 2013).

Measuring BPD

Additionally, measuring and assessing BPD in young people is not without its difficulties. There are questions that arise related to several factors in assessing BPD symptomology that were found to differ across the studies reviewed and which may affect the quality of the assessment; whether standardised measures are used, where to place cut-offs when deciding someone's BPD status, the suitability of self-report measures for BPD and the validity of standardised measures as compared to more clinical-led MDT decisions. Therefore, all of these factors relating to the assessment of BPD need to be taken into consideration when assessing the quality of the studies reviewed.

Summary of studies assessing external-focused mentalizing

One of the foundation stones of mentalizing is the ability to use external and physical cues, such as facial expressions of emotion, in order to correctly identify mental states in others. From here it is possible to deduce intentions, predict actions, respond appropriately and to regulate our own emotional responses, all of which are crucial for adequate social functioning (Bateman & Fonagy, 2003). Five studies were identified which focused on the relationship between mentalizing and BPD symptomology in young people using paradigms related to recognition of facial emotional expressions. However these studies have produced heterogeneous results in the relationship between BPD symptomology and mentalizing, ranging from deficits to heightened sensitivity in emotion recognition.

Summary of studies using community samples

Two of the studies investigating the relationship between BPD and recognition of facial expressions of emotion did so using community samples (Fossati et al., 2014; Scott et al., 2011). Both studies used the RET to assess mentalization abilities.

Fossati et al. (2012) found that there were no significant differences in the accuracy or sensitivity of emotion recognition in Italian high school students allocated to either a high BPD group (n=29), an average BPD group (n=31) or a low BPD group (n=29) when attachment was controlled for. However, despite this insignificant result, an effect size in the moderate to large range (Cohen d= - 0.66) was found when looking at the difference in emotion recognition between the high BPD group (n=29) and the low BPD group (n=31), with the high BPD group performing more poorly on the emotion recognition task. The authors felt that such an effect size should not be overlooked clinically and may point to a deficit in mentalizing abilities in individuals

with BPD. However, caution needs to be made when making conclusions from findings which have been found non-significant.

Turning to the Scott et al. (2011) study, it was found that a high BPD group (n =38), although no different to the low BPD group (n=46) in the recognition of neutral or positive stimuli, were significantly more accurate at recognising stimuli of a negative emotional valence. This finding of an enhanced ability to identify negative emotions fits with findings with adults; a review by Domes, Schulze and Herpertz (2009) found that adults with BPD actually performed particularly well at recognising negative emotional expressions. Additionally, Scott et al. (2011) found that the high BPD group showed a response bias for attributing negative mental states to stimuli; they reported a more negative emotion than that which was actually depicted. These findings may be understood by hypotheses that individuals with BPD have a bias towards negative emotional attributions; ascribing negative emotions to facial stimuli which are actually benign or neutral, possibly due to previous negative interpersonal experiences (McClure, 2000). Therefore, this may indicate subtle impairments in labelling accuracy accompanied by a negative attribution bias in young people with BPD. The enhanced ability to detect negative emotions may make sense developmentally; it is advantageous for a child who experienced abusive or neglectful incidents in childhood, as is often the case in BPD, to become adept at recognising negative emotions in others in order to potentially avoid associated negative consequences (Harkness et al., 2005). However such a response may become maladaptive when benign expressions are misinterpreted, leading to social difficulties.

When considering the results from both studies, it is important to hold in mind that they utilised a homogenous (student based), non-clinical sample. Therefore these results have limited generalisability to clinical populations with BPD. Additionally, as

the samples were made up of students, questions may also be raised about the generalisability of these findings to samples with different educational levels.

Summary of studies using clinical samples

Three of the studies reviewed investigated the relationship between BPD and recognition of facial expressions of emotion using clinical samples. Research conducted by Jovev et al., (2011) found no significant differences in either accuracy or sensitivity in emotion recognition between BPD adolescents (n=21) as compared to community controls (n=20). Similarly, Robin et al., (2012) found that BPD female adolescents (n=22) showed no difference in the accuracy of recognising fully expressed emotions than matched controls (n=22); however the BPD group were found to be significantly less sensitive at identifying 2 particular emotions; anger and happiness.

In contrast, Berenschot et al., (2012) found that young people with personality pathology (n=42) showed an enhanced emotion recognition accuracy compared to both community controls (n=111) and psychiatric controls (n=28), which they hypothesised may suggest enhanced mentalizing. Additionally, the personality pathology group were more sensitive at recognising emotions than the psychiatric controls, although not more so than the community controls. It had been hypothesised that when emotional valence was considered, BPD adolescents would be more accurate at recognising negative as opposed to positive emotions, presenting a similar finding as to that of Scott et al. (2011). However it was found that contrary to this, that the personality pathology group were no better at recognising negative emotions than neutral or positive emotions.

How is it possible to understand the varied findings produced by these three studies, with one study finding no mentalizing differences between BPD and controls, one

study finding reduced sensitivity in emotion recognition in BPD adolescents and one study finding enhanced emotion recognition? Let us consider the samples used in these studies. In the Jovev et al. (2011) study, criteria for inclusion in the BPD group was meeting 3 or more DSM-IV BPD diagnostic criteria. This threshold meant that only 57.1% of participants in the BPD group would have met full criteria for DSM-IV BPD diagnosis (meeting 5 or more criteria). Comparatively, in the Robin et al. (2012) study, BPD participants all reached diagnostic threshold for BPD using the DSM-IV criteria. Additionally, 64% of the BPD group were inpatients; possibly suggestive of young people with more severe BPD symptomology than those in the Jovev et al. (2011) sample. Jovev et al. (2011) hypothesised that difficulties in emotion recognition may only be present in young people with severe BPD. It may be that the inclusion of sub-syndromic patients in the BPD sample in their study may have reduced the contrast between groups and may explain the lack of significant difference between BPD participants and controls.

Let us turn now to consider the finding that BPD adolescents differ in their sensitivity of emotion recognition as compared to controls (Robin et al., 2012; Berenschot et al., 2012). Robin et al. (2012) hypothesised that their finding that BPD adolescents were less sensitive, but not overall less accurate, at recognising certain emotions than controls, may lead to individuals with BPD experiencing difficulties when entering into emotionally ambiguous situations, as they require more intense emotional depictions to be displayed before recognising these. This hypothesis could explain some of the difficulties that young people with BPD have in social situations, where it is often necessary to deduce subtle emotions in others. However, caution needs to be used when interpreting these findings, as although there were differences between the groups for the recognition of two emotions at low levels of intensity, there were four other facial expressions of emotion where there were found to be no differences between groups.

How can we make sense of the opposite finding by Berenschot et al. (2012), that young people with personality pathology have enhanced emotion recognition? The authors hypothesised that this enhanced recognition may make sense clinically; young people with BPD may experience a hypersensitivity to emotion, potentially due to previous negative experiences due to potential attachment difficulties. This hypervigilance would then help in defending against the psychic pain that such experiences could bring. However, this hypervigilance may in turn trigger the individual to experience negative emotions and cognitions, which when combined with the emotional dysregulation seen in BPD, may lead to extreme social reactions (Berenschot et al., 2012). Therefore, this would fit with the hypothesis that mentalizing difficulties in young people take the form of hypermentalizing (Fonagy & Luyten, 2009). Alternatively, enhanced recognition may fit with the theory that due to deficits in the internal mentalizing modality, that individual's with BPD actually become adept at mentalizing using external cues and therefore may actually have enhanced abilities in this area (Fonagy & Luyten, 2009). However, it is important to consider that although the authors professed an interest in mentalizing in young people with BPD, they decided to focus on broader personality pathology in this study. The justification for this was that in young people there is high overlap in different personality disorders features, with interest recently moving towards a more dimensional approach to personality disorders. However, this has obvious implications for the generalisability of these results beyond personality pathology generally and to BPD more specifically. Additionally, MDT decision making was utilised to inform group allocation as opposed to any standardised diagnostic instrument, possibly affecting the validity and reliability of the group allocation procedure.

Summary of studies assessing internal-focused mentalizing

Although logically the identification of others' emotions using external features, such as emotional expressions, is a key component of mentalizing, this is not the full picture. Mentalizing using internal structures, through the identification of thoughts, feelings and mental states in both the self and other is also hugely important. It has been hypothesised that it is this internal-focused aspect of mentalizing that may be particularly impaired in young people with BPD (Fonagy & Luyten, 2009).

Summary of studies using community samples

One of the reviewed studies (Fossati et al., 2011) used a community sample to investigate mentalizing using internal-focused processes however, unlike many of the other studies reviewed, chose to investigate the self-focused aspects of mentalization. The researchers proposed that the ability to identify and reflect on one's own internal states is an equally important aspect of mentalization that is often overlooked in research. It was proposed, due to the over-lap between the two constructs, that self-report measures of mindfulness would provide an indirect measure of internal-focused mentalization, as both mentalization and mindfulness involve the direction of attention onto the self in a way that involves reflection and reduces reactivity. In a non-clinical sample of Italian young people (n= 501), BPD features were found to be significantly negatively correlated with mindfulness; with higher number of BPD symptoms associated with lower mindfulness scores. Therefore, it was concluded that young people with BPD have deficits in the ability to direct attention to one's own experiences, necessary to understand and reflect on one's own internal states, suggesting a deficit in internal-focused mentalization. These findings support the hypothesis that in young people with BPD; the internal and explicit pathway to mentalizing (which is likely to be involved in the self-reflection of one's own mental states) is disrupted (Fonagy & Luyten, 2009).

However, caution needs to be taken when generalising from these findings; it has not been established as to exactly what extent the constructs of mindfulness and mentalization do overlap and therefore how adequate such a measure would be in determining mentalizing ability. Along with the fact that this study used a community sample, reducing generalisability of results to clinical populations, it should also be noted that the internal consistency of the BPD measure in this study, the PDQ-4 þ BPD scale, was fairly low (Cronbach's alpha = 0.58), possibly due to only a 9-item subscale of the measure being used, bringing the reliability of the measure into question.

Summary of studies using clinical samples

Turning next to studies using clinical samples, Jennings et al. (2012) used social perspective coordination to operationalise and assess internal-focused mentalizing. Social perspective coordination has been defined as the ability to both differentiate and assimilate one's own perspective with the perspective of the other, creating an understanding of underlying mental states (Selman et al., 1986). A BPD group (n=30) were found to have significantly lower social perspective coordination scores, measured using the INS, than a major depression control group (n=30). This was taken as evidence that young people with BPD have deficits in social cognition and were functioning at a lower than expected developmental level of social perspective coordination, unable to integrate that the other may have a perspective different to one's own.

This research adds support to the theory that young people with BPD have deficits in the ability to mentalize using internal structures. The lack of ability to differentiate one's own perspective from those of others would understandably impact on the ability to form and maintain stable relationships. However, these findings need to be considered tentatively as, as previously described, the INS vignettes used were

adapted specifically for this study, impacting on reliability and validity. Additionally, as one of the authors scored all of the vignettes without any assessment of inter-rater reliability, there was no established reliability for the vignettes overall. However, the inclusion of a clinical control group helps to support the findings as being specific to BPD, rather than characteristic of psychopathology in general, which has been a critique of previous research.

Hessels et al. (2016) used SIP as a way to conceptualise and measure mentalization. SIP suggests that individuals enter social situations with a 'database' made up of past experiences and innate capabilities, which they are able to access during social encounters and which allow the processing of social information (Crick & Dodge, 1994). SIP is made up of eight different variables and the variable which most resembles mentalizing relates to the use of social cues to interpret other's feelings and intentions. In a clinical sample (n=96) there was found to be a significant relationship between BPD symptomology and two of the SIP variables; inadequate coping and frustrating past memories. Therefore the more severe BPD symptomology participants had, the higher their reported intensity of emotions to past memories and the more likely they were to rely on inadequate coping strategies in inter-personal situations, such as avoidant interactions.

However, no significant relationship between BPD pathology and the other six SIP variables, including the ability to interpret other's actions as being based on internal states or emotions, was found. As this is the SIP factor that most resembles mentalizing these results suggest that BPD adolescents do not show mentalizing deficits. The problems relating to the reliability and validity of the SIP interview have already been commented on. Additionally, the researchers determined BPD status using a checklist and MDT consensus. The lack of use of a semi-structured interview or other standardised measure may affect the reliability of determining BPD symptomology.

The use of unusual mentalizing strategies

Four of the studies reviewed used the MASC as the internal-focused mentalization measure of choice. Rather than just the identification of mentalizing deficits or abilities, the MASC provides more specific information as to the nature of mentalizing strategies used, including allowing hypermentalizing to be identified. This is important given the hypothesis that hypermentalizing is the main mentalizing strategy used by individuals with BPD (Fonagy & Luyten, 2009).

Two of the reviewed studies demonstrated that mentalizing in young people with BPD does indeed seem to reflect the use of unusual mentalizing strategies, rather than the loss of mentalizing per se (Sharp et al., 2011; Sharp et al., 2016). Sharp et al. (2011) found that in an inpatient sample, BPD traits were negatively correlated with total mentalizing score and that the correlation was clearly driven by mentalizing errors of the hypermentalizing type, with no other mentalizing errors (no mentalizing or undermentalizing) correlating with borderline traits. Sharp et al. (2016) provided further support for the link between BPD and hypermentalizing with a sample of adolescent inpatients (n=259). Pearson's correlations showed that more severe borderline features were significantly associated with elevated hypermentalizing.

Further support for the notion that a mentalizing dysfunction, neither in the form of absence or suppression of mentalizing, but instead in the form of excess mentalizing, is present in young people with BPD comes from research by Sharp et al. (2013). It was found that BPD inpatient adolescents (n=66) displayed significantly greater hypermentalizing than psychiatric controls (n=98) at admission, suggesting hypermentalizing is specific to BPD, rather than to psychopathology in general. Throughout the course of a mentalization-based treatment, hypermentalizing was found to reduce significantly for both BPD and non-BPD patients, however this

reduction was more pronounced in the BPD group. The correlation between the reduction in hypermentalization and BPD symptomology was highly significant and in a negative direction; a reduction in hypermentalizing was associated with a reduction in BPD symptoms. It was assessed as to whether other aspects of mentalizing including explicit-focused mentalizing, external-focused mentalizing and empathy were also affected by the inpatient admission; however no improvements were found in these domains. It is of interest that hypermentalizing was found to be 'treatable' through an inpatient treatment, whereas other more explicit-controlled and external-focused forms of mentalizing were not similarly affected, as this may have important implications clinically for treatment and intervention. These findings are given weight due to the good quality of the research, in particular the use of a psychiatric control group, large sample size and the use of measures previously found to be reliable and valid. The researchers were also thorough in their assessment of BPD, using both a semi-structured interview (CI-BPD) and a self-report measure (BPFSC), both with good internal consistency as shown by the Cronbach's alpha levels. Although the pre-post design of this study allows greater conclusions to be drawn than the cross-sectional design of the other studies reviewed, a more controlled study would still be required that includes a wait-list control, in order to fully consider the impact of the mentalization-based treatment on hypermentalization.

The main research aim of Ha et al. (2013) was to examine the construct validity of the RFQY. Investigating the relationship between BPD and mentalizing as measured by performance on the RFQY was a secondary aim of the study. Of 146 inpatient participants, it was found that adolescents who scored above clinical cut off for BPD, on both self-report and parent-report measures, demonstrated significantly poorer reflective function than patients below cut-off. Due to a significant inverse relationship between the RFQY and the MASC hypermentalizing sub-scale, it was

shown that the poorer reflective functioning of the BPD participants was related to mentalizing errors of the hypermentalizing type. This provides further evidence for mentalization difficulties in young people, especially on a task which assesses internal-focused mentalization. However, as the main aim of the study was to examine the construct validity of the RFQY, only basic statistical analysis was used to investigate this relationship.

Kalpakci et al. (2016) investigated the differences between implicit and explicit internal-focused mentalization in young people with BPD. They hypothesised that young people with BPD would have higher affective empathy, which is related to more implicit mentalizing, and reduced cognitive empathy, which is associated with explicit mentalizing, due to the hypothesis that young people with BPD have more difficulties in the domain of explicit mentalizing (Fonagy & Luyten, 2009). In an inpatient sample, BPD adolescents (n=107) had significantly higher affective empathy than non-BPD adolescents (n=145), supporting the theory that young people with BPD may have greater levels of affective empathy than those without BPD (Fonagy & Luyten, 2009). Additionally, hypermentalizing was found to be related to reduced cognitive empathy in BPD patients, but not in non-BPD patients. However, within the BPD group, adolescents were found to in fact have higher levels overall of cognitive than affective empathy. How can we make sense of this finding, given the previous hypothesis that BPD adolescents would have deficits in cognitive empathy? The quality of the study was good; with adequate power and the use of standardised assessments of BPD and mentalization measures that have been proven reliable and valid. One possibility is that if there are cognitive empathy mentalizing deficits in individuals with BPD, that these only become apparent in the context of intense emotional arousal such as is seen within intimate relationships (Fonagy et al., 2002). Therefore activation of the attachment system and the ensuing emotional dysregulation may be required to cause individuals with BPD to

drop the more effortful cognitive mentalization and rely upon affective mentalization (Sharp, 2014). It is possible that a research setting does not provide a sufficiently emotionally arousing environment to disrupt cognitive mentalizing in young people with BPD.

Therefore these findings using measures which assess internal-focused mentalizing add support to the theory that young people with BPD utilise unusual mentalizing strategies, such as hypermentalizing, rather than no mentalizing at all or the suppression of mentalizing. Across these studies, BPD participants were found to make errors with mentalizing that were associated with making overly complex inferences as to others' mental states.

Discussion

The aim of the current review was to investigate the relationship between BPD in young people and mentalizing. It was hoped that this review would provide some clarity on the fairly heterogeneous results which have materialised from studies within this relatively new area of research. Despite increasing evidence for the disruption of mentalizing abilities in young people with BPD, reflecting the findings with adults with BPD, the exact nature of these difficulties remains unclear. The multi-faceted nature of mentalizing, with differing hypotheses as to the aspects which are most affected in BPD, alongside the wide range of various mentalizing measures used by the studies, have contributed to the challenges involved in reviewing findings in this area. However, the increasing amount of research being carried out into mentalizing difficulties in young people with BPD illustrates the growing interest in this topic, particularly given the potential clinical implications that the research has for the treatment of BPD in adolescence.

Summary of Findings

There were mixed results from studies which investigated mentalizing using measures which assess the external-focused aspects of mentalizing. In community studies, one study found no differences in emotion recognition between high-BPD and low-BPD groups (Fossati et al., 2012). Another study found that although high-BPD participants were no different than low-BPD participants at recognising neutral or positive stimuli, that they were more accurate at recognising stimuli of a negative emotional valence (Scott et al., 2011).

In clinical samples, one study found no significant differences in either accuracy or sensitivity in emotion recognition between BPD adolescents and controls (Jovev et al., 2011). Similarly, Robin et al. (2012) found showed no differences between BPD participants and controls in the accuracy of recognising fully expressed emotions, however the BPD group were found to be significantly less sensitive at identifying certain emotions. In contrast, Berenschot et al. (2012) found that young people with personality pathology showed an enhanced emotion accuracy and sensitivity over controls, however, no impact of emotional valence was found.

Again, mixed results were found when reviewing studies which assessed internal-focused mentalizing. In a study which assessed internal and self-focused aspects of mentalizing in a community sample, Fossati et al. (2011) found that higher number of BPD symptoms was significantly associated with lower mentalizing.

Turning to internal-focused mentalizing in clinical samples, Jennings et al. (2012) found that BPD participants had significantly lower social perspective coordination scores, which was used to operationalise internal-focused mentalization, than the control group. However, Hessels et al. (2016) found no significant correlations between severity of BPD pathology and the SIP factor that most resembles mentalizing. Kalpakci et al. (2016) looked specifically at the differences in cognitive

and affective empathy in adolescents with BPD. It was found BPD participants had significantly higher levels of affective empathy than controls, however that within the BPD group, adolescents were in fact found to have higher levels overall of cognitive than affective empathy.

Some of the studies reviewed used measures of mentalization (e.g. the MASC), which provide a more detailed description of the different types of mentalizing difficulties; rather than just identifying the absence or presence of mentalizing, the measure is able to identify the use of specific mentalizing strategies, such as hypermentalizing. Ha et al. (2013) found that greater number of BPD symptoms was associated with poorer reflective functioning and that this poorer reflective function suggested mentalizing errors of the hypermentalizing type. Two studies further demonstrated that mentalizing in adolescents with BPD seems to reflect hypermentalizing (Sharp et al., 2011; Sharp et al., 2016). Additionally, Sharp et al. (2013) found that BPD inpatient adolescents (n=66) displayed significantly greater hypermentalizing than psychiatric controls (n=98) at admission and that following a mentalization-based treatment; hypermentalizing reduction was most pronounced in the BPD group.

Conclusions relating to findings

The findings of this review seem to reflect similar findings to those which have previously been observed with adults; that research into the relationship between mentalizing and BPD symptomology produces varied results. However, in order to make meaning from these results, it is necessary for the quality of the studies to be reviewed and the mentalizing measures to be inspected. This allows the specific aspects of mentalization that are being assessed by these measures to be identified, as this seems to have an important effect on findings.

Turning back to Sharp's (2014) model of mentalizing difficulties in BPD, it is proposed that difficulties in mentalizing occur in the context of inter-personal situations which lead to arousal of the attachment system. Also, difficulties with mentalizing occur in situations where higher-order mentalizing, that is the integration of both implicit and explicit mentalizing, is required, as opposed to situations which rely solely on implicit mentalizing. Additionally, mentalizing difficulties that do occur are of the hypermentalizing type.

In support of this model, this review found that the majority of mentalizing difficulties associated with BPD symptomology in young people were found on tasks which assessed explicit and internal-focused mentalizing, as opposed to implicit and external-focused mentalizing. This would therefore support the theory that in young people with BPD, it is the more explicit and internal-focused aspects of mentalizing which are most disrupted (Fonagy & Luyten, 2009). Studies which assessed explicit aspects of mentalizing had more varied results and this may help us to understand why some of these studies failed to find any relationship between BPD symptomology and mentalizing difficulties. Additionally, studies which used measures such as the MASC and RFQY, which are able to identify the use of unusual mentalizing strategies, such as hypermentalizing, as opposed to simply measuring the degree of mentalizing, were able to identify that the main type of mentalizing errors associated in BPD with adolescence was hypermentalizing. Again, this provides support for the theory that young people with BPD resort to the use of the implicit, impression-driven mentalizing pathway which is dominated by reflexive assumptions about internal states and leads to errors of the hypermentalizing type (Fonagy & Luyten, 2009; Sharp, 2014). Such errors are likely to only become apparent on tasks such as the MASC, where participants are asked to reflect consciously on the internal experiences of themselves and others. Findings in support of this hypothesis appear clinically valid; many of the traits associated

with BPD, such as hypersensitivity, hypervigilance and a focus on negative stimuli can be understood in line with this view of hypermentalizing.

Additionally, some of the variance between findings may be due to the suggestion that in BPD, it is the activation of the attachment system that inhibits explicit mentalizing and leads to hypermentalizing (Sharp, 2014). It may be that certain mentalizing tasks are more inter-personally stressful in nature and therefore more likely to lead to activation of the attachment system, contributing to the ensuing difficulties in mentalizing. This relationship between emotional arousal and inhibition of explicit mentalizing in individuals with BPD may explain the ability to perform certain experimental mentalizing tasks, due to not being highly emotionally aroused in such a situation (Arntz et al., 2009). It would be helpful in future research to potentially assess the extent to which mentalizing tasks activate the attachment system.

Summary of limitations and further recommendations

Defining and measuring mentalizing

When considering the findings of the studies reviewed, it is important to examine and appraise the limitations of the research. Firstly, the complexities involved in the definition and measurement of a multi-faceted and complex concept such as mentalizing have become apparent over the course of this review. Of importance, it has been observed that the aspect of mentalizing that is assessed by a measure has important implications relating to the findings. This differentiation as to which aspect of mentalization was being assessed by tasks was not always clear across studies.

A limitation relating to the assessment of mentalizing in the studies reviewed, concerns the lack of ecological validity of the measures; the measures used are unable to fully resemble real-life situations. Sharp et al. (2011) concluded that even the more advanced tests of mentalization, such as the MASC, still tend to measure only singular aspects of mentalization and cannot completely assess the complexity of different types of mentalization which fully resemble the demands and characteristics of social cognition in everyday life. An issue related to this lack of ecological validity is that the mentalization tasks do not account for emotional arousal, which it seems may play a key role in the disruption of mentalization abilities in adolescents with BPD (Sharp, 2014). It is likely that such highly structured research tasks, where participants are asked to explicitly reflect on a hypothetical situation, may not activate their attachment system. This provides an obstacle in the assessment on mentalizing in young people with BPD.

Study design and sample

Methodological issues have also limited the conclusions that can be drawn from these studies. When considering study design, it must be noted that the majority of research has been cross-sectional, which although provides a cost effective and relatively straightforward method of investigating associations between BPD and mentalizing in young people, means that conclusions about causation cannot be drawn. Samples have often been small and in some of the studies were made up of non-clinical groups of students, reducing generalisability. None of the studies reported power analyses as a statistical method in order to determine sample size. Future studies would benefit from larger sample sizes, as this would increase the ability to detect small associations. Additionally, not all of the studies utilised a clinical comparison group, which is important in this area of research, due to the high levels of co-morbidity typical in young people with BPD (Chanen et al., 2008).

The review found that the assessment of BPD symptomology varied across studies, with different studies using different methods to assess BPD. The validity of self-report questionnaires, versus the use of semi-structured clinical interviews, versus non-standardised clinical decision making has been questioned. The use of semi-structured interviews to assess BPD symptomology may be helpful in tracking the stability of features over time and may further clarify and evaluate the level of difficulties the young person is experiencing, however although such interviews may assist in increasing inter-rater reliability, they often show poor convergent validity and test-retest reliability (Zimmerman, 1994). Additionally, across studies the criteria and cut-offs used to define BPD status varied. This meant that the severity of BPD symptomology was found to vary across studies. This has implications for the findings, as it is likely that BPD severity may play a role in mentalization abilities (Jovev et al., 2011).

Clinical Implications

There are important clinical implications associated with research into the relationship between mentalizing and BPD symptomology in young people. The developmental nature of BPD means that identifying difficulties that may contribute to or maintain BPD, such as mentalizing difficulties, is crucial in both the formulation and treatment of BPD. Additionally understanding the nature of the mentalizing difficulties experienced is important. As it appears that the findings of this review at least partially support Sharp's (2014) model of mentalizing difficulties in individuals with BPD, this could help to provide direction for intervention with young people with BPD. This may include interventions relating to managing arousal of the attachment system and formulating specific strategies to recognise and target hypermentalizing. Indeed Bateman & Fonagy's Mentalization Based Therapy (MBT) aims to reinstate

mentalizing when it goes offline and uses strategies to maintain healthy mentalizing in circumstances that may lead to the use of unusual mentalizing strategies such as hypermentalizing (Bateman & Fonagy, 2004). It is also the case that in MBT some interventions are specifically designed to create arousal of the attachment system and then within this controlled environment, to help patient maintain healthy mentalizing strategies, as opposed to moving towards hypermentalizing, for example by the therapist and patient together 'mentalizing the transference' (Bateman & Fonagy, 2004).

Additionally, when considering the therapeutic relationship, if young people with BPD tend to make mentalizing errors of the hypermentalizing type, it is important to acknowledge this high sensitivity to social cues. This for example would have important implications for therapists when undertaking psychotherapy with young people with BPD, not only in recognising that this is a potential area for therapeutic intervention, but also when considering how the adolescent with BPD is likely to experience the therapeutic relationship.

Conclusions

Although initial research seemed to provide evidence for a relationship between BPD symptomology and deficits in mentalizing in young people, more recently, as more complex measures of mentalizing such as the MASC have been developed, the relationship between BPD and the use of unusual mentalizing strategies, such as hypermentalizing have been found. Hypermentalizing appears to be the result of an over-reliance of the automatic and implicit route to mentalizing, when more explicit and internal-focused routes to mentalizing are disrupted due to the activation of the attachment system (Sharp, 2014). The resultant hypermentalizing and over-

interpretation of mental states can help us to understand some of the difficulties that have been observed clinically in the social relationships of young people with BPD.

However, further research is needed in order to further clarify these findings and hypotheses. Research findings are not consistent and it needs to be clarified as to whether these inconsistencies are due to methodological limitations or due to theories needing to be further developed. The complex nature of mentalization and its multi-faceted structure needs to be acknowledged, as the aspects of mentalization assessed during a study are likely to impact on findings. Additionally, the challenges associated with measuring such a complex construct should be considered. Future research should aim to develop further standardised and ecologically valid mentalization tasks, designed to measure different aspects of mentalization. It would be beneficial if measures were able to assess activation of the attachment system, as this is likely to have an impact on mentalization abilities (Fonagy & Bateman, 2008). Additionally, future research should also address the methodological limitations highlighted in this review and include larger samples, clearer definition of BPD status in young people and the use of clinical control groups.

Currently there is insufficient evidence to determine the precise nature of mentalizing deficits in young people with BPD. However, there is a need to achieve a greater understanding as to how these difficulties in mentalizing impact on young peoples' everyday lived experiences. This research has crucial implications clinically, in helping to understand the developmental trajectory of BPD and determining areas for intervention in the treatment of young people with BPD. Early intervention in these areas might be particularly important in determining the developmental trajectory of BPD and directing interventions in order to prevent the interpersonal difficulties which can become engrained in adult borderline personality disorder.

References

Agrawal, H.R., Gunderson, J., Holmes, B.M., Lyons-Ruth, K. (2004). Attachment studies with borderline patients: A review. *Harvard Review of Psychiatry, 12* (2), 94-104.

Allen, J., Fonagy, P. & Bateman, A. (2008). Mentalizing in clinical practice. Washington, DC: American Psychiatric Press.

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorder s* (5th edition). Arlington, VA: American Psychiatric Publishing.

Arntz, A., Bernstein, D., Oorschot, M., Schobre, P. (2009). Theory of mind in borderline and cluster-C personality disorder. *The journal of nervous and mental disease, 197*(11), 801-807.

Baron-Cohen, S., Jolliffe, T., Mortimore, C., & Robertson, M. (1997). Another advanced test of theory of mind: Evidence from very high functioning adults with autism or Asperger syndrome. *Journal of Child Psychology and Psychiatry, 38,* 813-822.

Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y. & Plumb, I. (2001). The 'Reading the Mind in the Eyes' Test revised version: A study with normal adults, and adults with Asperger syndrome or high-functioning autism. *Journal of Child Psychology and Psychiatry, 42* (2), 241-251.

Bateman, A. & Fonagy, P. (2003). The development of an attachment-based treatment program for borderline personality disorder. *Bulletin of the Menninger Clinic, 67,* 187-211.

Bateman & Fonagy (2004). Mentalization-based treatment of BPD. *Journal of Personality Disorders,18*, 36-51.

Baverstock, S. & Wright, K. (2015). Borderline personality disorder in young people: the perspective of frontline professionals in child and adolescent mental health. *Mental Health Nursing,35* (4), 14-19.

Berenschot, F., Van Aken, M., Hessels, C., Orobio de Castro, B., Pijl, Y., Montagne, B. & Van Voorst, G. (2014). Facial emotion recognition in adolescents with personality pathology. *European Child & Adolescent Psychiatry*, *23,* 563-570

Bernstein, D. P., Cohen, P., Velez, C. N., Schwab-Stone, M., Siever, L. J., & Shinsato, L. (1993). Prevalence and stability of the DSM-III-R personality disorders in a community-based survey of adolescents. *American Journal of Psychiatry*, *150*, 1237−1243.

Bland, A.R., Williams, C.A., Scharer, K., & Manning, S. (2004). Emotion processing in borderline personality disorders. *Issues in Mental Health Nursing, 25,* 655 – 672.

Brown, K.W., & Ryan, R.M. (2004). Perils and promise in defining and measuring mindfulness: Observations from experience. *Clinical Psychology: Science and Practice, 11,* 242–248

Chanen, A.M., Jovev, M., McCutcheon, L.K., Jackson, H.J. & McGorry, P.D. (2008) Borderline personality disorder in young people and the prospects for prevention and early intervention. *Current Psychiatry Reviews, 4,* 48-57.

Chanen, A.M., & McCutcheon, L. (2013). Prevention and early intervention for borderline personality disorder: Current status and recent evidence. *British Journal of Psychiatry Supplement*, 54, 24–29.

Crick, N.R. & Dodge, K.A. (1994). A review and reformulation of social information processing mechanisms in children's social adjustment. *Psychological Bulletin, 115,* 74–101.

Crick, N.R, Murray-Close, D. & Woods, K. (2005) Borderline personality features in childhood: a short-term longitudinal study. *Developmental Psychopathology, 17* (4), 1051-70.

Daros A.R., Zakzanis, K.K. & Ruocco, A.C. (2013) Facial emotion recognition in borderline personality disorder. *Psychological Medicine*, *43*,1953–63.

Domes, G., Czieschnek, D., Weidler, F., Berger, C., Fast, K. & Herpertz, S.C. (2008). Recognition of facial affect in borderline personality disorder. *Journal of Personality Disorders, 22*, 135-147.

Domes, G., Schulze, L. & Herpertz, S.C. (2009). Emotion recognition in borderline personality disorder: A review of the literature. *Journal of Personality Disorder, 23,* 6-19.

Dziobek, I., Fleck, S., Kalbe, E., Rogers, K., Hassenstab, J., Brand, M., Kessler, J., Woike, J.K., Wolf, O.T. & Konvit, A. (2006). Introducing MASC: A movie for the assessment of social cognition. *Journal of Autism and Development Disorders*, *36* (5), 623-636.

Ekman, P., Friesen, W.V. (1976). Pictures of Facial Affect. Available from http://www.pauleckman.com/research_cds.php.

Fertuck, E.A., Jekal, A., Song, I., Wyman, B., Morris, M.C., Wilson, S.T.,…Stanley, B. (2009). Enhanced 'reading the mind in the eyes' in borderline personality disorder compared to healthy controls. *Psychological Medicine, 39,* 1979 – 1988.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. (1997a). *Structured clinical interview for DSM-IV personality disorders*, (SCID-II). Washington, DC: American Psychiatric Press, Inc.

First, M.B., Spitzer, R.L., Gibbon, M., Williams, J.B., (1997b). *Structured Clinical Interview for DSM-IV Axis I Disorders, Research Version, Patient Edition, (SCID-I/P).* Washington, DC: American Psychiatric Press, Inc.

Fonagy, P. (1991). Thinking about thinking: Some clinical and theoretical considerations in the treatment of the borderline patient. *International Journal of Psychoanalysis, 72,* 639-656.

Fonagy, P. & Bateman, A. (2008). Mechanisms of change in mentalization-based treatment of BPD. *Journal of Clinical Psychology, 62* (4), 411-430.

Fonagy, P., Gergely, G., Jurist, E., & Target, M. (2002). *Affect regulation, mentalization and the development of the self.* New York, NY: Other Press.

Fonagy, P. & Luyten, P. (2009). A developmental, mentalization-based approach to the understanding and treatment of borderline personality disorder. *Development and Psychopathology, 21* (4), 1355-1381.

Fonagy. P. & Luyten, P. A. (2016). Multilevel perspective on the development of borderline personality disorder In: Cicchetti, D., editor. Developmental psychopathology. Vol 3: Maladaptation and psychopathology. 3rd edition New York, NY: John Wiley & Sons, p. 726–92.

Fonagy, P., Steele, H., Moran, G., Steele, M. & Higgitt, A. (1991). The capacity for understanding mental states: the reflective self in parent and child its significance for security of attachment. *Infant Mental Health Journal, 13,* 200-217.

Fossati, A., Feeney, J., Maffei, C. & Borroni, S. (2011). Does mindfulness mediate the association between attachment dimensions and Borderline Personality Disorder features? A study if Italian non-clinical adolescents. *Attachment & Human Development, 13* (6), 563-578.

Fossati, A., Feeney, J., Maffei, C. & Borroni, S. (2014). Thinking about Feelings: Affective state mentalization, attachment styles, and borderline personality disorder features among Italian nonclinical adolescents. *Psychoanalytic Psychology,31* (1), 41-67.

Ghiassi, V., Dimaggio, G., & Brune, M. (2010). Dysfunctions in understanding other minds in borderline personality disorder: A study using cartoon picture stories. *Psychotherapy Research: Journal of the Society for Psychotherapy Research*, *20*(6), 657-67.

Gratz, K.L. & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure and initial validation of Difficulties in Emotion Regulation Scale. *Journal of Psychology and Behavioural Assessment, 26*, 41-54.

Gunderson, J.G., Daversa, M.T., Grilo, C.M., McGlashan, T.H., Zanarini, M.C., Shea, M.T., (2006)Predictors of 2-year outcome for patients with borderline personality disorder. *American Journal of Psychiatry, 163, 822–6*

Ha, C., Sharp, C., Ensink, K., Fonagy, P. & Cirino, P. (2013). The measurement of reflective function in adolescents with and without borderline traits. *Journal of adolescence, 36*, 1215-1223.

Harkness, K. L., Sabbagh, M. A., Jacobson, J. A., Chowdrey, N. K., & Chen, T. (2005). Enhanced accuracy of mental state decoding in dysphoric college students. *Cognition and Emotion, 19,*999–
1025.

Hessels, C., Marcel A.G. van Aken, M.A.G., de Castro, B.O., Laceulle, O.M. & van Voorst, G. (2016). Social Information Processing and Cluster B Personality Pathology among Clinic-Referred Adolescents. *Psychopathology, 49,* 13–23

Hyler, S.E. (1994). PDQ-4 þ Personality Questionnaire. New York, NY: New York State Psychiatric Institute.

Jennings, T.C., Hulbert, C.A., Jackson, H.J. & Chanen, A.M. (2012). Social perspective coordination in youth with borderline personality pathology. *Journal of Personality Disorders, 26* (1), 126-140.

Jolliffe, D. & Farrington, D.P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence*, *29* (4), 589-611.

Jovev, M., Chanen, A., Green, M., Cotton, S., Proffitt, T., Coltheart, M. & Jackson, H. (2011). Emotional sensitivity in youth with borderline personality pathology. *Psychiatry Research, 187,* 234-240.

Kalpakci, A., Vanwoerden, S., Elhai, D. & Sharp, C. (2016). The Independent contributions of emotion dysregulation and hypermentalization to the 'double dissociation' of affective and cognitive empathy in female adolescent inpatients with BPD. *Journal of Personality Disorders, 30* (2), 242-260.

Kernberg, P. F., Weiner, A. S., & Bardenstein, K. K. (2000). *Personality Disorders in Children and Adolescents*. New York: Basic Books.

Kmet, L., Lee, R., & Cook, L. (2004). Standard quality assessment criteria for evaluating primary research papers from a variety of fields. *Alberta Heritage Foundation for Medical Research*.

Laurenssen, E.M., Hutsebaut, J., Feenstra, D.J., Van Busschbach, J.J., & Luyten, P. (2013). Diagnosis of personality disorders in adolescents: A study among psychologists. Child and Adolescent Psychiatry and Mental Health, 7, 3.

Leichsenring, F. (1999). Development and first results of the Borderline Personality Inventory: A self-report instrument for assessing borderline personality organization. *Journal of Personality Assessment, 73*, 45-63.

Lenzenweger, M.F. (2008). Epidemiology of personality disorders. *Psychiatric Clinics of North America, 31,* 395-403.

Levine, D., Marziali, E., & Hood, J. (1997). Emotion processing in borderline personality disorders. *The Journal of Nervous and Mental Disease, 185,* 240 – 246.

Levy, K.N., Becker, D.F., Grilo, C.M., Mattanah, J.J., Garnet, K.E., Quinlan, D.M., Edell, W.S., McGlashan, T.H., (1999). Concurrent and predictive validity of the personality disorder diagnosis in adolescent inpatients. *American Journal of Psychiatry,156*, 1522–1528.

Linehan, M.M. (1993). *Cognitive-behavioural treatment of borderline personality disorder.* New York: Guildford Press.

McClure, E.B. (2000). A meta-analytic review of sex differences in facial expression processing and their development in infants, children and adolescents. *Psychological Bulletin*, *126*, 424-453

Miller, A.L., Muehlenkamp, J.J. & Jacobson, C.M. (2008). Fact or fiction: Diagnosing borderline personality disorder in adolescents. *Clinical Psychology Review, 28*, 969-981.

Montagne, B., Kessels, R.P.C., De Haan, E.H.F. & Perrett, D.I. (2007). The emotion recognition task: a new paradigm to study the perception of facial emotional expressions at different intensities. *Perceptual motor skills, 104*, 589-598.

Pfohl, B., Blum, N. & Zimmerman, M. (1995). Structured Interview for DSM-IV Personality Disorders (SIDP-IV). University of Iowa, Iowa City.

Preißler, S., Dziobek, I., Ritter, K., Heekeren, H.R., & Roepke, S. (2010). Social cognition in borderline personality disorder: Evidence for disturbed recognition of the emotions, thoughts, and intentions of others. *Frontiers in Behavioral Neuroscience, 4,* 182. doi: 10.3389/fnbeh.2010.00182

Robin, M., Pham-Scottez, A., Curt, F., Dugre-Le Bigre, C., Speranza, M., Sapinho, D., Corcos, A., Berthoz, S. & Kedia, G. (2012). Decreased sensitivity to facial emotions in adolescents with Borderline Personality Disorder. *Psychiatry Research, 200,* 417-421.

Russell, B. (1940). *An inquiry into meaning and truth*. London, UK: Allen & Unwin.

Schilling, L., Wingenfeld, K., Löwe, B., Moritz, S., Terfehr, K., Köther, U., & Spitzer, C. (2012). Normal mind-reading capacity but higher response confidence in borderline personality disorder patients. *Psychiatry and Clinical Neurosciences*, *66*(4), 322-7.

Schultz, L. H., Yeates, K. O., & Selman, R. L. (1989). *The interpersonal negotiation strategies* (*INS*) *Interview: A scoring manual.* Cambridge, MA: Harvard Graduate School of Education, The Group for the Study of Interpersonal Development.

Scott, L.N., Levy, K.N., Adams, R.B. & Stevenson, M. (2011). Mental State Decoding Abilities in Young Adults With Borderline Personality Disorder Traits. *Personality Disorders: Theory, Research, and Treatment, 2* (2), 98–112

Selman, R. L., Beardslee, W., Schultz, L. H., Krupa, M. & Podorefsky, D. (1986). Assessing adolescent interpersonal negotiation strategies: Toward the integration of structural and functional models. *Developmental Psychology*,22, 450–459.

Sharp, C. (2014). The social-cognitive basis of BPD: A theory of hypermentalizing. In C. Sharp & J. L. Tackett (Eds.), *Handbook of borderline personality disorder in children and adolescents* (1 ed., Vol. 1, pp. 211-225). New York: Springer.

Sharp, C., Ha, C., Carbone, C., Kim, S., Perry, K., Williams, L. & Fonagy, P. (2013). Hypermentalizing in adolescent inpatients: treatment effects and association with borderline traits. *Journal of Personality Disorders, 27* (1), 3-18.

Sharp, C., Mosko, O., Chang, B., & Ha, C. (2010). The cross-informant concordance and construct validity of the Borderline Personality Features Scale for Children in a sample of male youth*. Clinical Child Psychology and Psychiatry*, *16,* 1–15.

Sharp, C., Pane, H., Ha, C., Venta, A;, Patel, A.B. & Fonagy, P. (2011). Theory of mind and emotion regulation difficulties in adolescents with borderline traits. *Journal of American Academy of Child and Adolescent Psychiatry, 50* (6), 563-571.

Sharp, C., Venta, A., Vanwoerden, S., Schramm, A., Ha, C., Newlin, E., Redd, R. & Fongagy, P. (2016). First empirical evaluation of the link between attachment, social cognition and borderline features in adolescents. *Comprehensive Psychiatry, 64*, 4-11.

Target, M., Oandasan, C., & Ensink, K. (2001). Child Reflective Functioning Scale scoring manual: For application to the child attachment Interview. Unpublished manuscript. UK: Anna Freud Centre/University College London.

Vrouva, I. & Fonagy, P. (2009). The development of the Mentalizing Stories for Adolescents. *Journal of the American Psychoanalytic Association, 57,* 1174-1179.

Vrouva, I., Target, M., & Ensink, K. (2012). Measuring mentalizing in children and young people. In N. Midgley & I. Vrouva (Eds.), *Minding the child: Mentalization-based interventions with children, young people and their families* (pp. 54–76). London: Routledge.

World Health Organization (1986). Young people's health – a challenge for society Report of a Study Group on Young People and Health for All by the Year 2000, Technical Report Series, No 731. Geneva. Available from: http://whqlibdoc.who.int/trs/WHO_TRS_731.pdf

Zanarini, M. C. (2003). *The child interview for DSM-IV borderline personality disorder*. Belmont, MA: McLean Hospital.

Zanarini, M.C., Frankenburg, F.R., Sickel, A.E., Yong, L., 1996. The Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV). McLean Hospital, Belmont, Massachusetts.

Zanarini, M.C., Vujanovic, A.A., Parachini, E.A., Boulanger, J.L., Frankenburg, F.R. & Hennen, J. (2003). A screening measure for BPD: The McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD). *Journal of Personality Disorders*, *17,* 568-573.

Zimmerman, D.W. (1994). Simplified interaction tests for non-normal data in psychological research. *British Journal of Mathematical and Statistical Psychology*, *47* (2), 327–335.

Part 2: Empirical Paper

Exploring the Relationship between Epistemic Trust and Borderline Personality Disorder Symptoms in Adolescents

Abstract

Aims

It has been proposed that at the core of the problems experienced by adolescents with BPD lies reduced levels of epistemic trust and a stance of epistemic hypervigilance. The aim of this study was to explore the relationship between BPD symptomology and epistemic trust in adolescents. Additionally, associations between epistemic trust, psychopathology and relationship difficulties were also investigated.

Method

A sample of 79 adolescents completed a battery of measures in order to assess BPD symptomology, psychopathology and relationship difficulties. Participants also completed two trust tasks in order to assess epistemic trust.

Results

Correlational analyses found contrary to prediction, that there was no significant relationship between BPD symptomology and epistemic trust. Regression analyses provided support for inverse associations between psychopathology and epistemic trust and relationship difficulties and epistemic trust. However, these associations were only found on one of the two epistemic trust measures used.

Conclusions

In contrast to hypotheses, no support was found to support the relationship between greater levels of BPD symptomology being related to lower levels of epistemic trust. Psychopathology and relationship difficulties may be associated with reduced levels of epistemic trust; however this association needs to be further investigated due to

this finding only being apparent on one of the measures used. Additionally, further research is recommended in order to develop standardised measures to assess epistemic trust.

Introduction

Borderline Personality Disorder in adolescents

The long-debated question as to whether Borderline Personality Disorder (BPD) should be diagnosed in childhood and adolescence is a controversial one. Traditionally, critics have felt that the negative consequences of making such a diagnosis, including the associated stigma and concerns relating to the instability of symptoms over time, suggested that a BPD diagnosis in childhood was contraindicated (Bernstein et al., 1993). However, more recently it has been proposed that the features of BPD; which include difficulties with interpersonal relationships, emotional dysregulation, behavioural impulsivity and identity disturbances can be adequately assessed during childhood and that such a diagnosis along with the correct targeted intervention, may help to reduce the occurrence of the long-term difficulties associated with adult personality disorder (Chanen et al., 2008).

Mentalizing difficulties, epistemic trust and BPD

Fonagy's developmental model of BPD suggests that underlying the symptomology observed in BPD are difficulties with mentalizing (Fonagy, 1991). It has additionally been proposed that the development of mentalizing abilities, which appears to be disrupted in some way in individuals with BPD, may be contingent on epistemic trust (Fonagy & Allison, 2014).

Mentalizing refers to the process by which we are able to identify and reflect on the internal mental states, such as beliefs, wishes and emotions, of both oneself and others in order to give meaning to and understand the drivers behind behaviour

(Bateman & Fonagy, 2004). Mentalizing abilities are first developed within the attachment relationship through the process of the care-giver accurately mirroring the mental states of the child. This experience allows the child to form and internalise this second-order representation of the caregiver's representation of the child's mind, allowing the child to start to develop a coherent sense of self, based on this marked and contingent mirroring from the caregiver (Fonagy, Gergely, Jurist, & Target, 2002).

Mentalizing helps us to make meaning of human behaviour and consequently is important in allowing us to perceive and interpret the behaviour of both ourselves and others; which is essential for conducting appropriate social interactions and developing interpersonal relationships, as well as moderating our emotional responses to such situations; all of which are so often observed to cause difficulties for individuals with BPD (Bateman & Fonagy, 2003). Additionally, alongside allowing us to be able to understand and tolerate social interaction, mentalizing allows us to benefit from these interactions in a meaningful way, through the development of rewarding social relationships (Fonagy, Luyten & Allison, 2015).

Mentalizing is a broad and multi-faceted construct (Fonagy &Luyten, 2009). Research into the mentalizing abilities of adolescents with BPD has produced varied results, with some studies suggesting reduced mentalizing abilities in adolescents with BPD (Robin et al., 2012; Jennings, Hulbert, Jackson & Chanen, 2012), whilst others showed enhanced mentalizing abilities (Scott, Levy, Adams & Stevenson, 2011) . However, most recently it has been suggested that mentalizing difficulties in adolescents with BPD seem to be due to the use of unusual mentalizing strategies, rather than the loss of mentalizing abilities per se, namely the use of hypermentalizing (Dziobek et al., 2006). Hypermentalizing, also known as an excessive theory of mind, is a social-cognitive process by which observations about other's mental states go beyond what is actually observable; leading to the over-

attribution of mental states and consequently, their misinterpretation, which then negatively impacts the individual and contributes to emotional dysregulation (Dziobek et al., 2006). Several studies have now shown this link between hypermentalizing and BPD symptomology in adolescents (Sharp et al., 2011; Sharp et al., 2013; Sharp et al., 2016). Sharp (2014) produced a model to explain mentalizing in individuals with BPD. The model proposes that for individuals with BPD, stressful interpersonal interactions lead to activation of the attachment system and ensuing emotional arousal, which causes the individual to drop explicit and controlled mentalizing and to rely instead on implicit and automatic mentalizing, which results in hypermentalizing. Hypermentalizing causes misinterpretation of the mental states of others, which in turn can lead to further difficult inter-personal and social interactions.

As described previously, it is hypothesised that the mentalizing difficulties observed in BPD may be related to problems with epistemic trust, as epistemic trust is likely to be important for the development of mentalizing abilities (Fonagy & Allison, 2014).Epistemic trust refers to the trust that one has that information being relayed to them from others is trustworthy, reliable and should be incorporated (Fonagy & Allison, 2014). On the opposite end of the spectrum, ‘epistemic vigilance’ is a naturally selected stance that individuals may take to protect themselves from being misled by unreliable information.

The development of epistemic trust within the attachment relationship

Attachment is defined as a strong and enduring bond between a child and their primary caregiver which starts in infancy and continues to shape interpersonal relationships throughout life (Bowlby, 1973). Epistemic trust is first developed within the attachment relationship where, with the assistance of the caregiver, the child first

starts to discover their own identity and form an understanding of the self, the other and the world. Part of this process also involves the development of the ability to mentalize.

The strength and richness of human cognitive abilities makes humans exceptional among animals and the greatness of these abilities is partly due to the extent to which humans are able to learn from social information which is communicated to them directly by others, as opposed to having to learn every new skill or piece of knowledge through direct experience (Sperber et al., 2010). In a world where there is a constant stream of novel information, epistemic trust permits the recipient to know that the information being communicated is reliable, relevant and useful to them and therefore is worth integrating into their lives (Sperber et al., 2010). Therefore, epistemic trust is requisite for social learning to take place; to allow the transmission of knowledge and cultural skills that are passed on between the generations, including the development of mentalizing abilities (Fonagy & Allison, 2014). Fonagy and Allison (2014) propose that it is the attachment relationship that is extremely important in creating the appropriate conditions under which epistemic trust is able to flourish; optimizing social learning and the transmission of generalizable and relevant cultural knowledge.

Csibra and Gergely (2009) put forward a theory to describe these appropriate conditions under which social learning occurs; natural pedagogy. In terms of survival, humans are driven to communicate and pass on information that is culturally and personally relevant. Csibra and Gergely (2009) suggest that humans use cues called ostensive cues (first described by Russell, 1940) to let the addressee know when they are about to be passed such culturally relevant information, which needs to be attended to. Ostensive cues may include eye contact, mirroring, reactivity or a particular tone of voice. In the attachment relationship, this type of communication allows the child to know that the parent is attending to them, has the child's mind in mind and is acting in their best interest.

Therefore ostensive cues, which are an important component of the attachment relationship, trigger epistemic trust, which allows the individual to know that the forthcoming information should be attended to and incorporated (Fonagy & Allison, 2014).

The quality of the attachment relationship is therefore important in the development of epistemic trust and thus social learning. Much research has previously looked at the relationship between secure attachment and the marked mirroring and appropriate responding of care givers to their children, with more secure attachment being correlated with a greater amount of marked mirroring and responding (Fonagy, Gergely, & Target, 2007). Therefore, when mirroring and the use of ostensive cues are in place, which is more likely to occur within a secure attachment relationship, epistemic trust ensures that we can open what is referred to as an 'epistemic superhighway' of learning, which signals readiness for new knowledge to be acquired through social learning and reduces epistemic vigilance, therefore allowing for information to be passed on from generation to generation (Fonagy & Allison, 2014).

However, it may be that in the context of abusive, neglectful or mistuned attachment relationships that the child learns that actually the care-giver is not acting in their best interests. In such a context, the misuse of ostensive cueing may lead the child to expect the transfer of information or knowledge that is personally relevant to them, which is then followed instead by the transmission of knowledge that it disruptive or even destructive (Fonagy, Luyten & Allison, 2013). It makes sense that in such a situation that the epistemic trust mechanism be switched off, and for the child to become mistrustful. Indeed, developmental adversity and trauma within the attachment relationship have been found to lead to a loss of trust (Allen, 2013). Consequently, when an individual is in a state of epistemic mistrust, they are likely to view new information with a stance of suspicion and are unlikely to take on this

new information (Fonagy & Allison, 2014). Although serving a protective function, this epistemic mistrust is likely to also bring with it implications for the individual's social learning, including the development of mentalizing abilities, in turn having far-reaching implications for many aspects of life and later relationships. Research by Corriveau et al. (2009) demonstrated this link between attachment security and epistemic trust, with the more insecure/disorganised the attachment relationship, the less likely the child was to trust in information from others. In this longitudinal study, which investigated children's trust in naming novel stimuli based on guidance relayed to them from both their mother and a stranger, it was found that children who had been securely attached infants were most likely to trust their mothers, as long as their claims were reasonably credible, but also felt able to agree with the stranger (and their own perception) when the guidance from their mother was counterintuitive. In contrast, children with a disorganised attachment tended to mistrust information both from their own experience as well as from the mother's and the stranger's views. This may suggest a lack of trust towards all sources, which would be characteristic of a state of epistemic hypervigilance, while at the same time having little faith in their own judgements.

Therefore, in summary, attachment is the condition under which epistemic trust is first developed. Ostensive cues are used to trigger epistemic trust, which in turn elicits a special kind of attention to social information from the child, allowing social learning to occur (Fonagy et al., 2015). Epistemic trust refers to the trust that the child has that information relayed to them from the adult is trustworthy (Fonagy & Allison, 2014). On the opposite end of the spectrum, 'epistemic vigilance' is a naturally selected stance that individuals may take to protect themselves from being misled by unreliable information. It may be advantageous under many circumstances to develop mistrust as to the reliability and trustworthiness of the information being passed to one, but such an attitude would reduce the likelihood of

incorporating new information into semantic or procedural memory (Fonagy & Allison, 2014).

Epistemic Mistrust and BPD

It has been suggested that the psychopathology seen in BPD may be due to problems with attachment, mentalizing and epistemic trust (Fonagy et al., 2015). There has been considerable research into the attachment difficulties associated with BPD and the difficulties observed in mentalizing, however recently it has been suggested that epistemic trust may also play an important role in this relationship (Fonagy & Allison, 2014). It has been shown that trust may be undermined or extinguished by trauma within the attachment relationship (Allen, 2013). Indeed, disturbed attachments are central to BPD, with a strong association between BPD and insecure and disorganised internal working models of attachment (Agrawal, Gunderson, Holmes & Lyons-Ruth, 2004).

Fonagy et al. (2015) proposed that impairments in epistemic trust, potentially due to difficulties with the early attachment relationship, mean that individuals with BPD are in a state of epistemic mistrust, which in turn means that the epistemic super-highway, which is needed for social learning, is closed. This means that individuals are less able to benefit and learn from the social environment, including being able to develop mentalizing abilities, leading to the instability and rigidity that is frequently associated with BPD (Fonagy et al., 2015). Reliance on insufficiently developed mentalizing strategies, such as hypermentalizing, can lead to misinterpretations of the actions of others as being harmful or malevolent (Fonagy & Luyten, 2009). These social cognitive impairments and the resultant impact on inter-personal interactions further exacerbate mistrust in individuals with BPD (Fonagy et al., 2015). BPD can therefore be understood as a failure of communication and learning

within relationships, with BPD being representative of a state of necessitated social isolation, created by epistemic mistrust (Fonagy & Allison, 2014).

There is a lack of research specifically investigating the association between epistemic trust and BPD symptomology in adolescents. A small amount of research has been carried out in this area using adult participants, however this has tended to focus more on the relationship between BPD symptomology and trust and cooperation more generally, rather than epistemic trust specifically. However, these findings are still likely to provide us with useful information, due to the overlap between the constructs of trust and epistemic trust. Research by Nicol, Pope, Sprengelmeyer, Young, and Hall (2013) used a facial stimuli task to assess trust, asking adult BPD participants and control participants to rate the trustworthiness of facial stimuli. It was found that BPD participants viewed faces as being less trustworthy than the healthy controls did.

Other studies have used monetary trust game paradigms to assess trust. The Trust Game (TG; King-Cassas et al., 2008) is a neuro-economics based task with the aim of making as much virtual money as possible through interactions with a partner. In the game an investor (the participant) plays several rounds of a task in which on each round they are able to give away up to £20 to a trustee partner. The trustee can either be played by another participant or computer generated responses can be used. On the trustee receiving the money, the amount is tripled, before the trustee then decides how much to send back to the investor. The more trusting and cooperative the investor is, that is the greater the amount of money they choose to send over to the trustee, the greater the monetary gains on both sides. At a point during the game, the trustee defects and does not pay back at least the amount of money invested by the investor, meaning there has been no benefit for the investor in this transaction. It is of interest, once this has occurred, to see whether participants attempt to repair the relationship by maintaining high investments, or

whether they then become mistrustful, with reduced investments. Using this paradigm, King-Casas et al. (2008) investigated the amount of trust that BPD participants had in their partners, by examining the amount of money they chose to invest, as well as examining the abilities of BPD participants to maintain stable relationships throughout the task. It was found that throughout the game, BPD participants repeatedly showed a tendency to invest less money than controls. Participants with BPD were also observed to be less inclined to repair the broken relationship following a defecting experience than controls. Similar findings were found by Unoka et al. (2009), also using the Trust Game paradigm, where it was found that adults with BPD gave away smaller amounts of money across the game when compared to both healthy controls and to a depression control group. Additionally, it was found that whereas controls increased their investments over the course of the game, that BPD participants failed to develop this trust and investments were not found to increase. Again, BPD participants were less likely to try and develop and maintain the trusting relationship over the duration of the game. These findings were taken to support the theory that patients with BPD exhibit less trust during interpersonal interactions than both healthy controls and controls with other psychiatric difficulties.

Bartz et al. (2010) carried out research investigating the effects of oxytocin, a neuropeptide which is associated with attachment and trust, as compared to a placebo, on trust using the Assurance Game (AG; Kollock, 1998) which is a task similar to the Trust Game described previously. It was found that BPD participants in the oxytocin condition had significantly lower trust in their partner and were more likely to defect and disrupt cooperation as compared to BPD participants in the placebo condition. Interestingly, healthy controls showed the opposite effect and were more trusting and cooperative in the oxytocin condition. It was also found that BPD patients defected less frequently than controls when they were playing with a

partner who they believed was likely to defect, whilst not using the same strategy with partners they believe not likely to defect. This may suggest that BPD participants attempt to appease potentially threatening partners (those likely to defect). This finding, along with the converse relationship between trust and oxytocin to that seen in healthy controls, may reflect the disorganised attachment and relationship patterns and the use of unusual relational strategies found in individuals with BPD (Holmes, 2004).

The results from these studies, which were the first to use trust game paradigms in order to assess trust in BPD, suggest that mistrust is a typical characteristic of patients with BPD. Due to the limited amount of research in this area, it is necessary to further test these hypotheses in order to replicate findings in future research.

Measuring epistemic trust

As epistemic trust is a relatively new and not well researched concept in research with adolescents and adults (although there is considerable literature on the concept in young children), there are no standardised measures of epistemic trust. Recently, a measure designed specifically to assess epistemic trust was developed; the Epistemic Trust Instrument (ETI; O'Connell, 2014). The ETI is a questionnaire based measure which provides participants with dilemma situations. In response to these dilemmas, the participant is given two conflicting pieces of advice; one from their mother, in order to represent the attachment relationships, and one from a stranger who is a professional in a job unrelated to the dilemma situation (e.g. a carpenter in a medical dilemma). Participants are asked whose advice they are most likely to follow, how strongly they trust this person's advice and how likely they are to change their mind. Therefore this measure provides on overall epistemic trust score in a context in which the participant has to learn and make decisions based on advice

from others. The ETI has been used to investigate the relationship between epistemic trust and attachment in healthy adults, where it was found that individuals with a secure attachment were more likely to choose to follow their mother's advice than the advice of the stranger (O'Connell, 2014). Additionally, it was also found that those with a secure attachment showed greater trust in their mother's advice than participants with an insecure attachment. Although the ETI has been used with adults and appears to have good face validity as a measure of epistemic trust, it needs to be held in mind that the psychometric properties for this measure have not yet been formally assessed.

Additionally, although not specifically designed to assess epistemic trust, due to the overlap between the constructs of trust and epistemic trust, it is likely that the Trust Game paradigms previously described would provide a good indicator of epistemic trust. The Trust Game (King-Casas et al., 2008) has good face validity to act as a measure of epistemic trust and has previously been proven to be a reliable and valid measure (King-Casas et al., 2008).

Implications

It is of interest to investigate whether the findings suggesting reduced trust in adults with BPD (Nicol et al., 2013; King-Cassas et al., 2008; Unoka et al., 2009) can also be extended to adolescents with BPD symptomology. Clinical observations would suggest that such a finding may be likely, as trust and cooperation are essential in the maintenance of healthy interpersonal relationships, which are so frequently disrupted in adolescents with BPD (Miller, Muehlenkamp, & Jacobson, 2008). However it is possible that due to the developmental nature of BPD, that difficulties in trust may take on a different form in adolescence or may develop later on in the course of BPD. Therefore it is important to provide psychological research in order

to support such clinical observations and to fully understand the nature of such difficulties. It is important to understand the factors that may cause or contribute to a disorder; in this case whether epistemic mistrust underlies some of the difficulties experienced by adolescents with BPD,in part by limiting the development of appropriate mentalizing skills and leading instead to a reliance on hypermentalizing (Sharp et al., 2013). Once this has been established, a focus for intervention can then start to be developed, for example through targeting epistemic mistrust in treatment and intervention.

Epistemic mistrust also has important implications for the formulation and treatment of BPD using psychological therapy. If within a therapeutic environment a client is in a state of epistemic mistrust, then social learning through attending to and incorporating new information, which is an important component of psychological therapy, is unlikely to occur. This increases the likelihood of an unsatisfactory therapeutic outcome for the individual, as they are unlikely to be able to incorporate the new information and experiences learnt in therapy (Fonagy & Allison, 2014). However, if through the experience of being mentalized by the therapist, the client is able to feel understood in therapy, this may restore epistemic trust; allowing learning about both the self and others from social experience and also regenerating the ability to mentalize (Fonagy & Allison, 2014). It has been described that '*the experience of feeling thought about in therapy makes us feel safe enough to think about ourselves in relation to our world, and to learn something new about that world and how we operate in it*' (Fonagy & Allison, 2014, p.375).

Aims and Objectives

In summary, it has been hypothesised that epistemic trust develops within the context of a secure attachment relationship and allows the child to adopt a flexible

approach to new information and knowledge. In turn this allows social learning to occur, including the passing on and development of mentalizing skills and other cultural knowledge. Conversely, an insecure attachment or trauma within the attachment relationship, as is often seen in individuals with BPD, is more likely to lead to the child developing a stance of epistemic vigilance. Due to this mistrustful stance, the child is less likely to take in and incorporate new information during social learning, including the development of mentalizing abilities and is likely to continue to take on this mistrustful stance in future relationships.

The present study aims to conduct research for the first time into the relationship between BPD symptomology and epistemic trust in adolescents. The World Health Organisation (WHO) defines adolescence as the transitional stage of growth between childhood and adulthood, and as being between the age of 10 and 19 years (World Health Organisation; WHO, 1986). This study will use an adolescent sample rather than a 'young people' sample, which refers to individuals between the age of 10 and 24 years (WHO, 1986), due to wishing to focus specifically on adolescents and due to the age parameters of participants at the participating clinical sites.

This study will build on the previous research which has been conducted into the relationship between BPD and trust in adults, which has highlighted a relationship between BPD and difficulites with trust. Clinically, it is often observed that adolescents with BPD have difficulty trusting others, including their therapists in clinical settings, with implications for a wide range of relationships, including the therapuetic relationship. It is important to investigate whether these clinical observations translate into research findings. The use of tasks such as the Trust Game can help this to be achieved and the development of a task specifically designed to investigate epistemic trust; the ETI, is likely to be particularly helpful in moving research in this area forwards.

Based on the hypotheses by Fonagy et al. (2015) that adults with BPD have impairments in epistemic trust, as well as findings that adults with BPD have lower levels of trust than healthy controls (King-Casas et al., 2008; Unoka et al., 2009) it is hypothesised that similar epistemic trust impairments will be related to severity of BPD symptomology in adolescents. That is, that greater severity of BPD symptomology will be associated with lower levels of epistemic trust. Following on from the findings by Unoka et al. (2009), that trust impairements were found in individuals with BPD but not in healthy or depressed controls, it is hypothesised that any impaiments in epistmic trust will be specifically due to BPD symptomology and not to psychopathology in general. Lastly, it appears that it is interpersonal relationships that are key when observing these impairments in trust, as all of the studies reviewed used a relational paradigm to assessing trust. This coincides with clinical observations that individuals with BPD often have difficulties with trust in interpersonal relationships. Therefore, it is hypothesised that there will be an association between relationship difficulties and impairments in epistemic trust .

Hypotheses

1. There will be an inverse correlational relationship between BPD symptomology and epistemic trust; more severe BPD symptomology will be associated with lower levels of epistemic trust.
2. The relationship between BPD symptomology and epistemic trust will be specific to BPD and not due to psychopathology more generally.
3. There will be an inverse correlational relationship between relationship difficulties and epistemic trust; greater relationship difficulties will be associated with lower levels of epistemic trust.

Method

Research Design

This study employed a cross-sectional design to assess the relationship between epistemic trust and severity of BPD symptoms, psychopathology and extent of relationship difficulties in adolescents. Participants completed a battery of self-report measures and epistemic trust tasks and correlational and regression analyses were used to examine the association between these variables.

Participants

This study included 79 adolescent participants with an age range of 12-19 years. In order to attempt to ensure that participants with a wide range of BPD symptomology were included in the study, adolescents were recruited from both clinical and community settings.

The community recruitment was carried out using opportunity sampling and snowballing. Although recruitment was advertised through schools associated with the Anna Freud Centre, response to these adverts were poor and initial participants were recruited through opportunity sampling as acquaintances of the researchers who were interested in participating in the study. Further participants were then recruited by snowballing and through word of mouth from volunteers who had already agreed to participate in the study. Recruitment occurred across a range of areas in the South of England.

The sample recruited from clinical settings were recruited through two NHS specialist adolescent services in England. Young people at both services were receiving treatment for a range of mental health difficulties.

Inclusion and exclusion criteria

Eligibility criteria included the following; all participants were to be aged 12-19 years old, be fluent in written and spoken English and were to be able to attend the scheduled assessment sessions. Exclusion criteria included previous diagnosis of learning disability, psychotic episode or head injury.

Sample Size and Statistical Power

Power analysis for this study was informed by prior work by Sharp et al., (2011). In this study the authors investigated mentalizing abilities in adolescents with borderline traits. This study was used to inform the power analysis as at this stage there is no previous research investigating the relationship between epistemic trust and BPD in adolescents. However, as the constructs of epistemic trust and mentalizing are closely related, it was expected that similar trends would occur in the findings. Sharp et al., (2011) used a correlational design to investigate the relationship between BPD traits and hypermentalizing in adolescents. A significant relationship was found with an effect size of d = 0.41 (medium). A power calculation was carried out using the “G*Power 3” computer program (Faul, Erdfelder, Lang & Buchner, 2007), for a multiple regression analysis examining predictors of epistemic trust with 2 predictor variables, which were hypothesised to be BPD symptomology & relationship difficulties. With a multiple regression model with an alpha of 0.5, a power of 0.8 and specifying a medium effect size of 0.15, the required sample size was estimated at 74 participants.

Measures

Epistemic Trust

*The Epistemic Trust Instrument (ETI; O'Connell, 2014).*The ETI (Appendix B) is a new measure, which has been used for research purposes once previously, investigating the relationship between epistemic trust and attachment (O'Connell, 2014). The ETI assesses the amount of trust that the participant places in advice from either their mother or a stranger in a dilemma situation. The ETI is made up of 20 dilemma situations, related to various different topics. Following each dilemma, participants are provided with two opposing pieces of advice, one from their mother and one from a non-informed professional (e.g., a butcher in a medical dilemma (see figure 1). Following this information, participants are told to ignore any of their own judgements about the situation and to choose to follow one of the two pieces of advice by being asked "*Which advice do you trust in this situation*?" The participant is required to decide the person whose advice they would trust and through marking the visual analogue scale, to indicate the extent to which they trust this advice, ranging from *Mildly Trust* to S*trongly Trust*. Participants then move on to another question; "*How likely are you to change your mind regarding this decision?"* This question refers to the likelihood of the participant selecting the other individual's advice if they were to complete the task again. Therefore from the ETI it can be inferred how often the participant chooses to follow their mothers advice versus that of the stranger, how great their overall trust is for both their mother and the stranger and how likely it is that their trust in the individual's advice would change.

Figure 1. An example of a dilemma on the ETI Instrument

Item 1
While on vacation, a couple of tourists select out a small speedboat from a variety of options. An hour after they set off, a sales assistant in the rental shop says that

there is a chance that the boat they are in is prone to mild leaking. Alternatively, there is a chance that they are in a different boat that does not leak. The owners are unsure whether to spend a lot of money sending out a search team or not.

A butcher advises that they should not send out a search team because in his opinion, the boat may hold together until they get back.

Your mother advises that they should send out a search team because in her opinion, the boat may not hold together until they get back.

Which advice do you trust in this situation?

Butcher Mother

|----------|----------|

Mildly Trust Strongly Trust Mildly Trust Strongly Trust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Trust Game (TG; King-Casas et al., 2008). A ten round version of the Trust Game (Appendix C) was used to assess epistemic trust. In this game, participants played the role of the investor and were told to imagine that there was an adult in another room playing the role of the trustee. All of the rules and instructions of the game were made transparent to the participants. The response of the trustee (which was primed via an adaptive computer agent) used the 'nearest neighbour' paradigm as described by King-Casas et al., (2008). These responses reflect actual average

responses of healthy human participants who have previously played the game in the trustee role. The participant (investor) can choose to send up to £20 to the trustee per round. This amount is then tripled, before the trustee chooses how much to give back to the investor. The greater the amount of money the investor gives to the trustee, the more they can potentially earn as long as the trustee reciprocates, however there is a risk that the trustee will defect and keep more money for themselves. This may to lead to the investor giving away smaller amounts. Trust and trustworthiness therefore underlie successful cooperative interactions; increased cooperation and trust is associated with increased money exchanged across the course of the game.

BPD Symptomology

The borderline personality disorder features scale for children (BPFSC; Crick, Murray-Close & Woods, 2005)**.** The BPFSC (Appendix D)is the only dimensional measure to date which was specifically designed to assess borderline personality features in children and adolescents, aged 9 and older, and was used to assess severity of BPD symptoms. The BPFSC is a 24-item self-report questionnaire with responses scored on a five-point Likert scale, ranging from 1 (not at all true) to 5 (always true) with higher total scores indicating greater severity of BPD symptoms. The measure gives an overall BPD symptomology score, as well as containing 4 sub-scales; negative relationships, affective instability, self-harm and identity problems. Prior research examining the BPFSC with a large community sample (*n* = 400) showed high internal consistency (Cronbach α > .76) across 12 months, additionally construct validity has been reported (Chang, Sharp & Ha, 2011). In the present sample, internal consistency of this measure was good, with a Cronbach's alpha of .87 for BPFSC total score. Cronbach's alpha was also calculated for the

subscales; affective instability subscale (α =.76), identity problems (α=.49), negative relationships subscale: (α =.73) and self-harm (α =.8).

Psychopathology

Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ (Appendix E)is a 25-item brief emotional and behavioural questionnaire for children and young people. The SDQ has five behavioural problem sub-scales; emotional symptoms, hyperactivity-inattention, conduct problems, peer relationship problems and prosocial behaviour. These sub-scales (with prosocial behaviour reversed) can then be combined to give a 'total difficulties' score. The SDQ is a well-established measure of psychopathology and has been normed on more than 10,000 subjects, with well-constructed norms for both age and gender (Goodman et al., 2003). The SDQ has been validated and extensively tested for psychometric properties and diagnostic power (Hoelling, Erhart, Ravens-Sieberer & Schlack, 2007). In the present sample, internal consistency for the total SDQ score was good with a Cronbach's alpha of .81. Cronbach's alpha was also calculated for the subscales; emotional symptoms (α =.65), conduct problems (α=.57), hyperactivity (α =.50), peer problematic relationships (α =.69) and prosocial behaviour (α =.65).

Intellectual Ability

Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999). The WASI produces an estimate of general intellectual ability based on two subtests; matrix reasoning and vocabulary. The vocabulary subtest consists of 42 items and requires individuals to verbally define 4 images and 37 words that are presented to them. The Matrix Reasoning subscale consists of 35 items in which the individual is presented with an incomplete grid pattern and is asked to choose the correct

response to complete the grid from 5 different visual options. The WASI is a tool that can provide a quick estimate of an individual's level of intellectual functioning, with higher scores indicating higher intellectual ability. The WASI has been normed for individuals aged 6 to 89 years. With children, the WASI has shown good reliability for the full scale IQ, with α ranging from .95 to .97 (Wechsler, 1999). The WASI has also shown good validity; the correlation between the WASI and the Wechsler Intelligence Scale for Children (WISC-III) is .81 for full scale IQ.

Socio-Economic Status

Socio-economic status (SES) was assessed based on parental income. SES was classified as high or low based on the National Statistics Socio-economic Classification (NS-SEC; David & David, 2003).

Procedure

The recruitment of participants from community settings was granted ethical approval by UCL Ethics Committee (Appendix F) and the recruitment of participants from clinical settings was granted ethical approval by The National Research Ethics Service Committee London - Bloomsbury (Appendix G). Multi-site ethical permission to recruit across sites was obtained and local R&D procedures were completed and followed.

Potential participants were identified either by their treating clinician (for participants recruited from clinical settings) or through opportunity sampling (for participants recruited from community settings). Once a potential participant had expressed an interest in taking part in the study, the researchers provided the participant and their parents, if the participant was under16 years old, with an information sheet detailing

the study aims and procedures (Appendix H). Potential participants were given at least 48 hours to consider whether they would like to participate and the researchers were contactable in order to discuss this information and to answer any further questions or queries. If, having considered the information, the young person still wished to participate, the consent procedure was followed. For participants aged over 16 years, full informed consent was obtained from the young person (Appendix I). For participants younger than 16 years, parental consent (Appendix J) and assent from the adolescent (Appendix K) were obtained.

Testing sessions were conducted either in the participant's home (for participants from community settings) or within the NHS site in which they were receiving treatment (for participants from clinical settings). After meeting the researcher and having a chance to ask any further questions, participants completed the battery of measures. The testing session took between two and three hours on average, including breaks. Participants received a £30 voucher for their time.

Joint project

In order to maximise recruitment, this study was conducted alongside projects conducted by two other trainees investigating the relationship between epistemic trust and trauma (Greisbach, 2017) and the relationship between epistemic trust and therapy expectations (Reches, 2017). Participants therefore also completed questionnaires related to traumatic experiences in childhood and therapy expectations as part of the battery of measures.

Data Analysis

Participants' scores on the BPFSC, SDQ, WASI and ETI were entered manually into an SPSS 22 database along with the participant demographic information that had been collected. Data from the Trust Game was automatically collated on MatLab and then transferred onto the SPSS database by hand.

Missing data were identified on the following measures: Trust Game (three corrupted files) and SDQ (3 missing data scores). Little's MCAR test confirmed that all missing values were missing at random (Little, 1988). Therefore, missing values were replaced using the expectation maximisation method for the SDQ (Schafer & Olson, 1998). Data missing on the Trust Game due to the corrupted files were excluded from the analysis.

Outliers were identified on the following measures: SDQ (1 outlier) and BPFSC (1outlier), by examining z-scores and identifying those which were greater than three standard deviations from the mean. Outliers were then replaced using Winsorizing (Dixon, 196).

All variables were checked for normality using the Kolmogorov-Smirnov test, as well as by visually inspecting histograms and looking at skewness and kurtosis statistics. Although the majority of the data was found to be normally distributed, total scores on the SDQ and on one of the SDQ subscales; SDQ peer relationships, were found to violate the assumptions of normality: SDQ total ($z=.109$, $p=.025$) and SDQ peer relationships ($z=.144$, $p=0.001$). Due to the non-linear nature of this data, it was decided that a transformation of the data would not be the most appropriate option, as this would prevent comparison with the original scale. However, the non-normality of the data was considered when carrying out later analyses.

Factor analyses was carried out for both of the epistemic trust measures used in order to establish underlying dimensions between measured variables and to reduce the number of outcome variables.

Correlational and regression analyses were used to test the study hypotheses in the following steps:

Step 1: A bivariate correlation analysis was conducted between BPD symptomology, as measured by BPFSC scores, and epistemic trust, as measured by scores on both of the epistemic trust measures.

Step 2: Significant associations between BPD symptomology and epistemic trust were reconsidered whilst controlling for the possible influence of psychopathology, as measured by SDQ scores.

Step 3: A bivariate correlation was carried out between relationship difficulties, as assessed by the relationships scores, and epistemic trust, as measured by scores on both epistemic trust measures.

Step 4: With all the above analyses, significant associations were reconsidered whilst controlling for possible influence from variables such as age, IQ, SES, gender and ethnic origin.

Step 5: A Multiple hierarchical regression was then carried out to consider the unique contributions that both BPFSC relationships difficulty scores and the SDQ negative peer relationships scores contributed to epistemic trust as measured by the ETI factor.

Results

Demographic characteristics

Table 1 presents demographic information about the participants. The participants had a mean age of 15.87 years (SD = 1.95). There were slightly more female participants (53%) than male (47%) and the majority of participants were White British (85%). More participants were recruited from community (81%) than from clinical settings (19%). There were more participants of low SES (73%) than high SES (27%). The average IQ of participants was 106.46 (SD = 14.23).

Table 1. Participant demographic information

	N (N=79)	%
Gender		
Female	42	53
Male	37	47
Ethnicity		
Minority	12	15
Majority	67	85
SES		
Low	58	73
High	21	27
Recruitment Setting		
Community	64	81
Clinical	15	19

Factor Analysis

Trust Game

A factor analysis was carried out on the variables produced by the Trust Game. Four variables relating to trust were analysed using principal component analysis (see Table 2). The analysis yielded one factor explaining a total of 59.89% of the variance for the entire set of variables. The Trust Game factor had high loadings of the following items; initial investment, second round investment, total investment and total earnings. The communalities of the variables included are moderate; initial investment (55.9%), second round investment (42.4%), total investment (79.9%) and total earnings (61.3%). The KMO measure of sampling adequacy (.688) and the Bartlett's Test of Sphericity ($p<0.01$) both indicate that the set of variables are at least adequately related for factor analysis.

Table 2. Factor Analysis for Trust Game

	Loadings	**Communality**
Initial investment	.748	.559
Second round investment	.651	.424
Total investment	.894	.799
Total earnings	.783	.613
Eigenvalue	2.396	
Total variance	59.891%	

The Trust Game Factor was checked for normality using the Kolmogorov-Smirnov test, as well as by visually inspecting histograms and looking at skewness and kurtosis statistics. The trust Game factor was found to violate assumptions of normality on the Kolmogorov-Smirnov test ($z=.148$, $p=<0.01$) and inspection of the

histogram found the data to be slightly negatively skewed. Due to the nature of this data, it was decided that a transformation of the data would not be suitable; however, the non-normality of the data would be taken into consideration when carrying out later analysis.

ETI

A factor analysis was carried out on the outcome variables produced by the ETI. Three scores relating to trust were analysed using principal component analysis (see Table 3). The analysis yielded one factor explaining a total of 71.29% of the variance for the entire set of variables. The ETI factor had high loadings by the following items; mean maternal trust, mean stranger trust and frequency mother chosen. The communalities of the variables included are at least moderate; mean maternal trust (59%), mean stranger trust (62%) and frequency mother chosen (93%). This indicates that the variables chosen for this analysis are at least moderately related to each other. Although the KMO measure of sampling adequacy is slightly lower than the recommended 0.6 at 0.439, the Bartlett's Test of Sphericity ($p<0.01$) and the high total variance explained by the factor (71.29%) indicates that the set of variables are at least adequately related for factor analysis. The ETI factor data was found to be normally distributed.

Table 3. Factor Analysis for ETI

	Loadings	**Communality**
Mean maternal trust	769	.591
Mean stranger trust	-.786	.617
Frequency mother chosen	.963	.928
Eigenvalue	2.137	
Total variance	71.229%	

Relationships score

As one of the study hypotheses concerned the capacity to develop trust in the context of social relationships and whether relationship difficulties are related to lower levels of epistemic trust, two questionnaire subscales, BPFSC negative relationships and SDQ problematic peer relationships were combined in order to give an overall index of the capacity to create relationships, or a quality relationships score. As these two questionnaire subscales used different scales, this was achieved by standardizing both variables prior to combining them. These combined scales gave an overall relationships score, scores on which were found to be normally distributed.

Initial Correlations

Pearson's correlations were run to examine the bivariate correlations between the dependent variables; scores on the ETI factor and Trust Game factor and independent variables; scores on the BPFSC, SDQ and relationships score (Appendix L). Bivariate correlations were also performed to examine the associations between the dependent variables and demographic variables; gender, age, IQ and SES, in order to determine covariates that would need to be controlled for in later multiple regressions (Appendix M).

No significant correlations were found between the Trust Game factor and any of the independent variables. A significant correlation was found between Trust Game scores and age ($r = .26$, $p = .022$) and a significant correlation was found between Trust Game scores and SES ($r = -.235$, $p = .041$). Due to the lack of correlation with any of the clinical variables, no further analyses were carried out with the trust game factor. If there had of been any significant correlations, it would have been important to control for these two variables in any further analyses.

The correlation matrix identified significant correlations between the ETI factor and some of the clinical variables. The ETI factor was found to be significantly negatively correlated with the BPFSC relationship problems subscale (r = -.251, p =.026), significantly negatively correlated with SDQ emotional problems subscale (r = -.262, p =.020), significantly negatively correlated with SDQ peer problematic relationships (r = -.438, p< 0.01), significantly negatively correlated with SDQ total (r= .251, p = .026) and significantly negatively correlated with the relationships score (r=-.317, p=.004). These correlations were further investigated in relation to the study hypotheses. The ETI was not found to be correlated with any of the demographic variables and therefore it was not necessary to control for any demographic variables in later analyses.

Hypothesis testing

Hypothesis 1*:* There will be an inverse correlational relationship between BPD symptomology and epistemic trust; more severe BPD symptomology will be associated with lower levels of epistemic trust.

A bivariate correlational analysis was conducted between BPD symptomology and epistemic trust, once preliminary analyses had been performed to ensure that the data did not violate the test's assumptions of normality, linearity, and homoscedasticity. The results from the correlational analysis can be found in Table 4. There was no significant correlation between BPFSC total scores and the Trust Game (r=-.041, p=.727), or between the Trust Game and any of the BPFSC subscales. There was also no significant correlation between total BPFSC scores and ETI scores (r=-.164, p=.149), or with the three of the BPFSC subscales; affective instability, self-control difficulties and self-harm. However, there was found

to be a significant and negative correlation between scores on the BPFSC relationship difficulties subscale and ETI scores (r = -.251, p= 0.026).

Therefore, overall, there was found to be no association between BPD symptomology as assessed by the BPFSC total score, and epistemic trust. It was only on the BPFSC relationships subscale that a finding of any significance was found and this was only on one of the of the epistemic trust measures; the ETI. This inverse correlation on the BPFSC relationship difficulties subscale suggested that as relationships difficulties increase, epistemic trust decreases. This finding was further explored in relation to hypothesis 3.

Table 4. Correlations between BPFSC scores and epistemic trust scores.

		Trust Game	**ETI**
BPFSC	Correlation	-.041	-.164
Total	Sig. (2-tailed)	.727	.149
	N	76	79
Affective	Correlation	.106	-.109
Instability	Sig. (2-tailed)	.363	.338
	N	76	79
Self-control	Correlation	-.069	-.071
Difficulties	Sig. (2-tailed)	.554	.533
	N	76	79
Negative	Correlation	-.143	-.251*
Relationships	Sig. (2-tailed)	.219	.026
	N	76	79
Identity	Correlation	-.024	-.090
Problems	Sig. (2-tailed)	.838	.430
	N	76	79

* Correlation is significant at the 0.05 level (2-tailed)

Pearson's Correlation was used for all variables.

Hypothesis 2:The relationship between BPD symptomology and epistemic trust will be specific to BPD and not due to psychopathology more generally.

As no association had been found between BPD symptomology and epistemic trust, other than on the relationships subscale of the BPFSC, this hypothesis was changed slightly in order to assess the relationship between psychopathology and epistemic trust more generally and not just in the context of BPD symptomology. In order to investigate this hypothesis, SDQ scores were used as a measure of general psychopathology. A bivariate correlation was carried out to look at the relationship between SDQ scores and performance on the Trust Game and the ETI (Table 5). There was no significant correlation between SDQ scores and Trust Game scores. However, there was a significant inverse correlation between SDQ total scores and ETI scores ($r = -.251$, $p = .026$). This finding suggests that as psychopathology increases, epistemic trust decreases.

Significant inverse correlations were also found between ETI scores and the following SDQ subscales; emotional symptoms ($r=-.262$, $p = .020$) and peer relationship problems ($r= -.438$, $p<0.001$). However to control for inflation of Type 1 error, due to multiple comparisons, Bonferroni adjusted alpha levels were used. Alpha was adjusted by the number of comparisons (5) and therefore the adjusted alpha level was 0.01, meaning that the correlation between ETI score and emotional symptoms was not significant ($r= -.438$, $p>0.01$). However, the significant inverse correlation between peer relationship problems was of interest due to hypotheses made regarding an association between relationship problems being associated with epistemic trust. Therefore, these findings were further investigated in relation to hypothesis 3.

Table 5: Correlations between SDQ scores and epistemic trust task scores.

		Trust Game Scores	ETI Scores
SDQ Total	Correlation Sig. (2-tailed) N	-.056 .633 76	-.251* .026 79
Emotional Symptoms	Correlation Sig. (2-tailed) N	-.052 .655 76	-.262* .020 79
Conduct Problems	Correlation Sig. (2-tailed) N	.037 .751 76	-.004 .969 79
Hyperactivity	Correlation Sig. (2-tailed) N	-.016 .889 76	.023 .843 79
Peer relationships Problems	Correlation Sig. (2-tailed) N	-.109 .351 76	-.438** .000 79
Prosocial Behaviour	Correlation Sig. (2-tailed) N	-.036 .755 76	.092 .420 79

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed).

Pearson's Correlation was used for all variables.

In order to determine the extent of the relationship between psychopathology and trust, a linear regression was then carried out to examine the effect of SDQ total scores on ETI trust scores (Table 6). It was found that for every 1 point increase on the SDQ, trust decreased by .063,$F(1,77) = 5.157$, $p = .026$.

Table 6: Linear regression for SDQ total and ETI scores.

Outcome Variable	Predictor	B	Seβ	β	*t*	*p*
ETI Score	SDQ Total	-.042	.018	-.251	-2.271	.026

***Hypothesis 3*:** There will be an inverse relationship between relationship difficulties and epistemic trust; greater relationship difficulties will be associated with lower levels of epistemic trust.

In order to explore the relationship between relationship difficulties and epistemic trust, a correlation was carried out between the composite relationships score and epistemic trust as measured by scores on the two epistemic trust tasks (Table 7). There was no significant correlation between the relationships score and the Trust Game scores (r=-.110, p <.05). However, there was found to be a significant inverse correlation between the relationships factor and ETI scores (r = -.327, p = .004), suggesting that as relationship difficulties increase, epistemic trust decreases.

Table 7. Correlation between relationship score and ETI scores

		Trust Game Scores	ETI Scores
Relationship Score	Correlation	-.110	-.317**
	Sig. (2-tailed)	.343	.004
	N	76	79

** Correlation is significant at the 0.01 level (2-tailed).

Pearson's Correlation was used for all variables.

In order to examine the relationship between relationship difficulties and epistemic trust on the ETI measure, a linear regression was carried out between relationships score and ETI scores. In this model, ETI score was the outcome variable and relationships score was the predictor variable. Table 8 shows the results of the linear regression. The prediction model was statistically significant F (1,77) = 8.586, p = .004, and accounted for 8.9 % of the variance of trust score (R^2 =.100, Adjusted R^2 = .089).

Table 8: Linear regression for relationships score and ETI scores.

Outcome Variable	**Predictors**	**B**	**SEβ**	**B**	***t***	***p***
ETI Factor	Relationships score	-.394	.135	-.317	-2.930	.004

A Multiple hierarchical regression were then carried out to consider the unique contributions that both the BPFSC relationship difficulties variable and the SDQ negative peer relationships variable contributed to epistemic trust as measured by the ETI factor. In this model, ETI score was the outcome variable and the BPFSC relationship difficulties variable and the SDQ negative peer relationships variable were the predictor variables.

As previously described, the SDQ negative peer relationships data was slightly skewed and therefore not normally distributed. Therefore, it was important to ensure that the assumptions of the multiple hierarchical regression would not be violated due to the use of such data. The residuals were plotted in order to check for the regression model's assumptions of independence and constant variance; examination of the scatter plot confirmed that these assumptions was met. The

assumptions of normality of residuals and multi-colinearity were sufficiently met in order not to contradict the use of the regression model in this case.

A hierarchical multiple regression was carried out to assess the contributions that BPFSC relationship difficulties and SDQ peer relationship problems made to epistemic trust as measured by the ETI. The prediction model was statistically significant F (2, 76) = 9.007, p = <0.001, and accounted for 17% of the variance of trust (R^2 =.192, Adjusted R^2 = .170). Trust scores were primarily predicted by SDQ peer relationship problem scores, which received the strongest weight in the model and no other predictors made a significant contribution to the model (see Table 9). Table 9 lists the raw and standardised regression coefficients of the predictors, alongside their correlations with trust, their t-score and their effect sizes. The overall contribution of SDQ relationships to the prediction of trust accounted for a small variance, but was nevertheless significant.

Table 9: Multiple hierarchical regression for ETI scores as predicted by SDQ peer relationship scores and BPFSC difficult relationship scores.

Outcome Variable	**Predictors**	**B**	**Seβ**	**β**	***T***	***p***
ETI Trust Score	SDQ relationships	-.204	.059	-.431	-3.478	.001
	BPFSC relationships	-.003	.029	-.001	-.093	.926

Discussion

This study aimed to explore the relationship between epistemic trust and BPD symptomology, psychopathology and relationship difficulties in adolescents. Based on previous research with adults (King-Casas et al., 2008; Unoka et al., 2009) it was hypothesised that in adolescent participants, greater severity of BPD symptomology would be associated with reduced levels of epistemic trust. It was also hypothesised that this relationship would be specific to BPD and not to psychopathology more generally. Finally it was hypothesised that due to the relational context in which epistemic trust exists, that relationship difficulties would have an inverse relationship with epistemic trust, with greater number of relationship difficulties associated with lower levels of epistemic trust. Contrary to prediction, no correlation was found between BPD symptomology and epistemic trust on either of the trust measures used. Due to this finding, the second hypothesis became redundant, although when the relationship between psychopathology and epistemic trust was explored, psychopathology was found to be negatively correlated with epistemic trust on one of the measures; the ETI, although similar findings were not found for the Trust Game. Lastly, relationship difficulties were found to be significantly correlated with epistemic trust on one of the measures; the ETI, although similar findings were not replicated for the Trust Game. Before making any conclusions related to these results, it must be highlighted that the analysis used was of a correlational nature and that therefore causality cannot be inferred.

Epistemic trust and BPD symptomology

Firstly, it was hypothesised that there would be an inverse correlational relationship between BPD symptomology and epistemic trust. This hypothesis had been based on the findings of King-Casas et al. (2008) and Unoka et al. (2009) that had found significant relationships between BPD symptomology and trust in adults using the

Trust Game paradigm. This finding was not replicated in the current sample on either the Trust Game or the ETI, as trust scores and BPD total symptomology were not found to be significantly correlated. This finding was somewhat surprising, given the previous association found between BPD and trust difficulties in adults. There could be several explanations that may help us to understand why the findings of the present study varied from those on which the hypothesis was based which are explored below.

Study samples

One possible area of speculation is that the difference in samples across studies may have contributed to these varying findings. Firstly it should be noted that both King-Casas et al. (2008) and Unoka et al. (2009) used an adult sample to investigate the relationship between BPD and trust, whereas the aim of this study was to examine trust in adolescents and therefore an adolescent sample was employed. Due to the developmental nature of BPD, it may be that any difficulties in trust, as demonstrated in these previous studies, may only become apparent later on in the developmental course of BPD or take on a different form in adolescents which is not captured by the trust measures used, and were therefore not found in the present adolescent sample. However, longitudinal data has previously been found to support the notion that the difficulties and symptoms of BPD in adulthood can usually be traced back to childhood and adolescence (Chanen & Kaess, 2012). Therefore it is not unreasonable to expect that similar findings related to trust and BPD would occur across both adult and adolescent samples.

It is possible that there are other contributory factors related to the sample which may have impacted on the findings. Both King-Casas et al. (2008) and Unoka et al. (2009) used a between-participants design, comparing the performance of adults with BPD as compared to healthy controls on the Trust Game. The studies vary in the methods used to assess BPD symptomology. The BPD participants in the King-

Casas et al. (2008) study already had a BPD diagnosis at the point of recruitment and BPD symptomology was then further assessed using a structured clinical interview. Similarly, in the Unoka et al. (2009) study, BPD status was assessed based on the DSM-IV criteria for BPD as revealed by the Structured Clinical Interview for DSM-IV axis I and II disorders (First, Spitzer, Gibbon, & Williams, 1997). In comparison, this study used a self-report questionnaire, the BPFSC, to assess BPD symptomology. Although self-report measures are generally felt to be less-intrusive to participants, as well as being economically attractive and easy to administer, it is also acknowledged that self-report measures tend to be over-inclusive and are dependent upon respondent's awareness and comprehension of the items, as well as being reliant on the ability to self-reflect (Sanson, Wiederman, & Sandsone, 1998). These requirements create a limitation regarding the use of self-report measures, as not all individuals possess such skills. This seems particularly important within this research context, due to the hypothesis that individuals with BPD have disrupted reflective function and mentalizing abilities (Fonagy, 1991). Therefore, disrupted reflective abilities may further reduce the reliability of a self-report measure to accurately and reliably assess BPD symptomology.

Trust Measures

Methodological differences between the studies may also help us to understand the differences in results. Slightly different versions of the Trust Game paradigm were used in both the King-Casas et al. (2008) and Unoka et al. (2009) studies, as well as in the current study. An interesting difference between the paradigms used relates to whether or not participants were playing against other real people, or were on the receiving end of a computer-generated response. In the King-Casas et al. (2008) study, participants were partnered to play against healthy controls who took on the trustee role. In the Unoka et al. (2009) study, participants believed that they were

playing against real people over the internet, however this was actually a deception and they were playing against a computer-generated response. Therefore in both of these studies participants believed that they were taking part in a real-life human interaction. In the current study, due to the constraints of the research methodology, participants were explicitly informed that they were playing against a computer, although were asked to imagine that they were playing against a real person. It was hypothesised that asking participants to imagine they were playing against a real person would increase the inter-personal experience of the game, although it must be acknowledged that imagining a situation and actually experiencing a situation are two very different things. As has previously been described, BPD is associated with difficulties in relationships and interpersonal interactions (Lieb et al., 2004). It has also been hypothesised that individuals with BPD experience difficulties in mentalizing, a construct closely related to epistemic trust, only when the attachment system is activated, which usually occurs in the context of inter-personal interactions (Fonagy & Luyten, 2009). Therefore, it is possible that epistemic trust may be affected in a similar way. It may be that individuals only take on a stance of epistemic vigilance when they are in an interpersonal context that activates the attachment system. Therefore it could be hypothesised that the current experimental paradigm utilised in this study, in which participants knew they were playing against a computer, may not have been the most appropriate to trigger the epistemic mistrust associated with BPD.

Epistemic trust and psychopathology

Secondly, it was hypothesised that the relationship between BPD symptomology and epistemic trust would be specific to BPD and not mediated by other psychopathology. As there was found to be no initial significant correlation between BPD symptomology and epistemic trust, it was not possible to explore this hypothesis further. However, when examining the relationship between

psychopathology and epistemic trust, an inverse negative relationship was found when examining the relationship between SDQ total scores and scores on the ETI, as well as inverse relationship between difficult peer relationships subscale and ETI scores. The association between peer relationship difficulties and epistemic trust is considered in relation to the next hypothesis. Additionally, it should be noted that similar findings were not replicated on the Trust Game.

There are many potential reasons that may help us to understand this correlational finding that increased psychopathology is related to lower levels of epistemic trust in adolescents. It may be that the measurement of psychopathology assesses a wide range of constructs which have been found to be associated with reduced levels of epistemic trust. For example, high levels of anxiety and depression in adolescents have previously been shown to be significantly related to lower levels of trust (Muris, Meesters, van Melick & Zwambag, 2001). Therefore, it may be that is it this relationship between anxiety, depression and trust that the psychopathology measure is assessing. Additionally, the relationship between psychopathology and attachment security is well defined, with greater levels of psychopathology inversely associated with attachment security (Allen, Hauser and B*orman*-Spurrell, 1996). As Corriveau et al. (2009) have previously demonstrated the link between attachment security and epistemic trust, it is possible that the observed relationship between psychopathology and reduced epistemic trust is reflective of the inverse relationship between attachment security and trust.

It is also possible that epistemic mistrust is a general problem in psychopathology. For example, Caspi et al.'s (2013) theory posits that there is a 'general psychopathology factor', also known as the p-factor, in the structure of all psychiatric disorders. This theory was developed from the hypothesis by Caspi et al. (2013) that the symptom-defined diagnostic categories of psychiatric conditions are not helpful when trying to understand individual variations amongst mental health problems, including co-morbidities, the movement between recurrent or chronic difficulties and

those which exist on a continuum. Therefore it was proposed that psychiatric disorders are better explained instead by one 'general psychopathology factor' which is dimensional. Therefore the p-factor is an overall dimensional measure of psychopathology. Higher p-scores are associated with more difficulties in individual's development history, greater biological risk and greater life impairment (Caspi et al., 2013). Fonagy, Luyten, Campbell & Allison (2014) proposed that the p-factor may in fact be a proxy for impairments in epistemic trust. They suggested that an individual who has a high p-score, due to some type of developmental adversity (which could have either social or biological roots or a combination of both) is in a state of epistemic mis-trust. Therefore this model may help us to make sense of the findings in the study, suggesting that increased levels of psychopathology could potentially be associated with decreased levels of epistemic trust.

Epistemic trust and relationship difficulties

Lastly, it was hypothesised that there would be an inverse correlational relationship between relationship difficulties and impairments in epistemic trust, with greater relationship difficulties associated with lower epistemic trust in adolescents. This hypothesis was based on the previous findings of Unoka et al. (2009) and King-Casas et al. (2008), that the difficulties with trust that individuals with BPD exhibited occurred in the context of inter-personal relationships (i.e. during the Trust Game). BPD participants had also been shown to be less inclined to try and repair broken relationships following a defecting experience on the Trust Game, than were healthy controls (King-Casas et al., 2008). This suggests that once a difficult experience occurs within the relationship that individuals with BPD struggle to regain trust, resulting in further difficulties within the relationship. Additionally, the hypothesis was based on clinical observations that adults and adolescents with BPD often report

experiencing relationship difficulties and difficulty developing trust in the context of relationships.

In the current study, this hypothesis was supported by the finding that relationship difficulties were associated with reduced levels of trust on the ETI, although similar findings were not replicated on the Trust Game. This finding adds support to the hypothesis that adolescents who have problematic relationships, have lower levels of epistemic trust. Although due to the correlational nature of this research, causality cannot be inferred, it could be hypothesised that it is likely that these difficulties with trust may then in turn contribute to the maintenance of relationship difficulties. The relationships score used in the analysis was created using subscales which assessed both peer relationship difficulties (SDQ) and general relationship difficulties (BPFSC), in order to assess functioning across a range of relationships. The results from the multiple hierarchical regression suggested that difficulties in peer relationships seemed to make the greatest contribution to the model. The difficult peer relationships subscale of the SDQ is a separately scored scale from the SDQ total score, and is a subscale that is important in assessing social adjustment. Statements that make up the SDQ subscale include items such as; 'I am normally on my own', 'other people my age generally don't like me' and 'other people my age generally pick on me or bully me'. Therefore it appears that such a scale assesses difficult interpersonal peer experiences that have occurred, such as bullying, and feelings of being excluded or disliked by others. It could therefore make sense that if these are a young person's experiences of the world and others that they become lacking in trust as a form of self-protection. As described previously, if the information or knowledge that is transmitted from another is harmful to one's sense of self, it makes sense to become mistrustful in such a situation and to adopt a stance of epistemic vigilance, in order to protect oneself from potential harm (Fonagy, Luyten & Allison, 2013). It is also understandable that the peer relationships subscale made the greatest contribution to the model, as the

importance of peer relationships during adolescence has long been recognised. Therefore, it appears that there is an association between relationship difficulties and epistemic mistrust in adolescents.

Limitations

This study has several limitations. Firstly, it needs to be acknowledged that the significant relationships found between epistemic trust, psychopathology and relationship difficulties only occurred on one of the two trust measures used; the ETI. None of these findings were replicated on the Trust Game. As significant relationships have been found between BPD and trust on the Trust Game in adults (King-Casas et al., 2008; Unoka et al., 2009), similar findings were expected to be found in adolescents. Some of the methodological issues relating to the Trust Game paradigm used in this study have already been detailed above.

However, the lack of any correlation between performance on the ETI and performance on the Trust Game may show that the two tasks are examining different constructs; it may be that the Trust Game and the ETI actually assess different aspects of trust, especially given that the Trust Game was developed to measure trust and cooperation and was not developed specifically to measure epistemic trust. Therefore it is possible that the ETI picked up on epistemic trust deficits that are not assessed by the Trust Game. Additionally, it may be that the Trust Game, which has previously been used to measure trust in adults, assesses certain aspects of trust that only become of significant in adulthood and are not yet developed in adolescence.

Continuing to examine the methodology of this study, the quality of the ETI as a measure needs to be considered. The ETI has only previously been used in one previous study with adults and therefore this was the first time that the measure had been used with adolescents. Although the ETI has good face validity as a measure of epistemic trust, and feedback from participants about their experience of using

the measure was generally positive, the psychometric properties of the ETI have not yet been established, which means that the reliability and validity of the measure has not yet been formally assessed. Future research into developing valid and reliable tools to assess epistemic trust would be extremely valuable in allowing us to understand further the association between epistemic trust and BPD symptomology in adolescents.

Another potential limitation corresponds to the recruitment method that was utilised in this study which may have contributed to a sample bias. Participant recruitment was carried out by providing young people with information about the study, either through word of mouth in the community settings, or through key workers in clinical settings, and then waiting for them to seek further information and volunteer their interest in regards to participating in the study. It is acknowledged that the gold-standard sampling method of random sampling is not always achievable within research, however it can be hypothesised that in a study such as this, where the construct under investigation (i.e. trust) is likely to impact on participants even volunteering to participate, that the sampling procedure needs to be given some consideration. It is likely that from the outset, young people with the greatest difficulties with epistemic trust are unlikely to wish to participate, immediately creating a sampling bias. It is difficult to know the best way to overcome this difficulty, however, it is important to hold this potential sampling bias in mind when reflecting on the sample used and considering the meaning of the results found in the study.

Additionally as previously mentioned, when examining the assessment of BPD symptomology in this study as compared to previous studies, the current study relied solely on self-report measures in the assessment of BPD symptomology. Although the BPFSC is known to be an acceptable measure of BPD symptomology in adolescents, self-report questionnaires have been criticised as being unreliable, due to potential difficulties with participants responding in a socially desirable way or

being unable to accurately reflect on their experiences (Austin, Gibson, Deary, McGregor & Dent, 1998). It may have been that the inclusion of a semi-structured interview to assess BPD symptomology would have allowed a more balanced assessment of BPD. However if in future this was not possible due to practical limitations, it may be worth considering the use of the parent-report version of the BPFS-C as an additional measure (Sharp, Mosko, Chang, & Ha, 2010). This may help to gather a more holistic assessment of the young person's BPD symptomology.

A final methodological limitation relates to the potential lack of ecological validity of the measures utilised to assess epistemic trust. Epistemic trust is such a complex construct that it is unlikely that a computer or paper based task would be able to fully capture these complexities. Additionally, it may be that adolescents perform differently in a research setting than they would in the context of a real-life interpersonal relationship. It has been suggested that most social-cognitive tasks are characterised by participants eliciting socially desirable responses and that they do not reflect actual social interactions and are therefore not likely to lead to complete emotional or behavioural engagement (Mize & Pettit, 2008). Therefore, the development of measures which can more greatly reflect these real-life situations would be helpful in contributing to the assessment of epistemic trust.

Research and clinical implications

Despite the limitations outlined above, the current study has been one of the first to investigate the relationship between BPD symptomology, psychopathology, relationship difficulties and epistemic trust in adolescents. Future research that addresses these limitations is likely to help further clarify the relationship between these constructs. A more thorough assessment of BPD symptomology in adolescents as well as the use of standardised measure of epistemic trust, in order to increase the validity and reliability when measuring this complex construct, would

be important in furthering research into the relationship between BPD and epistemic trust in adolescents. Additionally, further research into how psychopathology and relationship difficulties are related to epistemic trust is required, in order to corroborate the results found in this study.

In terms of clinical implications, the current findings at least partially support the notion that relationship difficulties and psychopathology are associated with reduced epistemic trust in adolescents. The correlational design cannot infer the direction of relationships and therefore conclusions about causality are unable to be made, however, it makes sense clinically that young people who experience difficulties in relationships are likely to be less trusting and also that those who are less trusting, may experience greater relationship difficulties. This can be linked to clinical observations with adolescents with BPD, whom have been hypothesised as being 'hard to reach' due to hypervigilance and epistemic mistrust (Fonagy & Allison, 2014). Although this study was unable to find a significant relationship between BPD symptomology and epistemic trust, clinical observations and findings with adults should not be overlooked and this hypothesis should be re-tested, given the limitations of this study.

Additionally, it makes sense that adolescents who have greater levels of psychopathology are likely to find it more difficult to trust in others. This appears to be an interesting preliminary finding, as it is likely that young people with greater relationship difficulties and greater levels of psychopathology are more likely to require psychological therapy than those with fewer relationship difficulties or less psychopathology. Therefore this has important implications for formulation and treatment. If, within a therapeutic environment, a client is in a state of epistemic mistrust, possibly due to previous difficulties forming trusting relationships; social learning and the taking in and incorporating of new information is unlikely to occur (Fonagy & Allison, 2014). This therefore is likely to affect the therapeutic outcome for the individual, as they are unlikely to be able to incorporate the new information

and experiences learnt during therapy (Fonagy & Allison, 2014). However if the relationship is able to be developed and a trusting therapeutic relationship is able to be formed, then through the experience of being mentalized by the therapist, the client is able to feel understood. This may restore epistemic trust, allowing learning about both the self and others from social experience to occur (Fonagy & Allison, 2014). It may be that for adolescents with relationship difficulties, the experience of a trusting therapeutic relationship may be an important step towards recovery.

Conclusions

In conclusion this study used a battery of epistemic trust measures to explore the relationship between epistemic trust, BPD symptomology, psychopathology and relationship difficulties in a sample of adolescents. No association between epistemic trust and severity of BPD symptomology in adolescents was found. However, the results did suggest that there was an association between psychopathology and epistemic trust; with greater levels of psychopathology related to decreased levels of trust. Additionally an association was found between relationship difficulties and epistemic trust; with greater degree of relationship difficulties related to lower levels of epistemic trust. However, given the limitations described these findings should be viewed only as preliminary findings. Future research is required to develop standardised measures of epistemic trust and once this has been achieved, it is necessary for the research to be replicated in order to corroborate and extend these findings.

References

Agrawal, H.R., Gunderson, J., Holmes, B.M. & Lyons-Ruth, K. (2004) Attachment studies with borderline patients: A review. *Harvard Review of Psychiatry*,12, 94–104.

Allen, J. G. (2013). *Mentalizing in the development and treatment of attachment trauma*. London, UK: Karnac Books.

*Allen,*J.P., Hauser, S.T. &*Borman*-Spurrell, E (1996). Attachment *Theory as a Framework for Understanding Sequelae* of *Severe Adolescent Psychopathology*: An 11-Year Follow-Up Study. *Journal of Consulting and Clinical Psychology, 64* (2), 254-63.

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorder s* (5th edition). Arlington, VA: American Psychiatric Publishing.

Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual difference and their relationship to psychological well-being in adolescents. *Journal of Youth and Adolescence, 16* (5), 427-454.

Austin, E.J., Gibson, G.J., Deary, I.J., McGregor, M.J., Dent, B. (1998). Individual response spread in self-report scales: personality correlations and consequences. *Personality and Individual Differences, 24,* 421-438.

Bartz, J. A., Zaki, J., Bolger, N., Hollander, E., Ludwig, N. N., Kolevzon, A., & Ochsner, K. N. (2010). Oxytocin selectively improves empathic accuracy. *Psychological Science, 21*(10), 1426–1428.

Bateman, A. & Fonagy, P. (2003). The development of an attachment-based treatment program for borderline personality disorder. *Bulletin of the Menninger Clinic,67*, 187-211.

Bateman & Fonagy (2004). Mentalization-based treatment of BPD. *Journal of Personality Disorders,18*, 36-51.

Bernstein, D. P., Cohen, P., Velez, C. N., Schwab-Stone, M., Siever, L. J., & Shinsato, L. (1993). Prevalence and stability of the DSM-III-R personality disorders in a community-based survey of adolescents. *American Journal of Psychiatry, 150*, 1237−1243.

Bowlby, J. (1973). *Attachment and loss. Vol. II. Separation: anxiety and anger.* London: Penguin Books.

Caspi, A., Houts, R.M., Belsky, D.W, Goldman-Mellor, S.J., Harrington, H., Israel, S., Meier, M.H., Ramrakha, S., Shalev, I., Poulton, R., and Moffitt, T.E. (2013) The p Factor: One General Psychopathology Factor in the Structure of Psychiatric Disorders? *Clinical Psychological Science 2,* (2), 119-137.

Chanen, A.M., Jovev, M., McCutcheon, L.K., Jackson, H.J. & McGorry, P.D. (2008) Borderline personality disorder in young people and the prospects for prevention and early intervention. *Current Psychiatry Reviews*, *4,* 48-57.

Chanen, A. & Kaess, M. (2012). Developmental Pathways in Borderline Personality Disorder. *Current Psychiatry Reports, 14,* 45-53.

Chang, B., Sharp, C., & Ha, C. (2011). The criterion validity of the Borderline Personality Features Scale for Children in an adolescent inpatient setting. *Journal of Personality Disorders*, *25*(4), 492–503.

Corriveau, K. H., Harris, P. L., Meins, E., Fernyhough, C., Arnott, B., Elliott, L. & 'De Rosnay, M. (2009). Young children's trust in their mother's claims: Longitudinal links with attachment security in infancy. *Child Development, 80,* 750-761.

Csibra, G., & Gergely, G. (2009). Natural pedagogy. *Trends in cognitive sciences*, *13*, 148-153.

David, R. & David, P. (2003). *A Researcher's Guide to the National Statistics Socio-economic Classification.* London: Sage.

Dixon, W.J (1960). Simplified Estimation from Censored Normal Samples. *The Annals of Mathematical Statistics, 31,* 385–391.

Dziobek, I., Fleck, S., Kalbe, E., Rogers, K., Hassenstab, J., Brand, M., & Convit, A. (2006). Introducing MASC: A movie for the assessment of social cognition. *Journal of autism and developmental disorders*, *36*(5), 623-636.

Ebert, A., Kolb, M., Heller, J., Edel, M., Roser, P. & Brüne, M. (2013). Modulation of interpersonal trust in borderline personality disorder by intranasal oxytocin and childhood trauma. *Social Neuroscience*, *8* (4), 305-313,

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191.

First, M. B., Spitzer, R. L, Gibbon, M. and Williams, J.B.W. (2002). *Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Patient Edition. (SCID-I/P)* New York: Biometrics Research, New York State Psychiatric Institute.

Fonagy, P. (1991). Thinking about thinking: Some clinical and theoretical considerations in the treatment of the borderline patient. *International Journal of Psychoanalysis*, *72,* 639-656.

Fonagy, P. & Allison, E. (2014). The role of mentalizing and epistemic trust in the therapeutic relationship. *Psychotherapy, 51*(3), 372-380.

Fonagy, P., Gergely, G., Jurist, E., & Target, M. (2002). *Affect regulation, mentalization and the development of the self.* New York, NY: Other Press.

Fonagy, P., Gergely, G., & Target, M. (2007). The parent–infant dyad and the construction of the subjective self. *Journal of Child Psychology and Psychiatry, 48*, 288-328.

Fonagy, P., Luyten, P.&Allison, E. (2015).Epistemic petrification and the restoration of epistemic trust: A new conceptualization of borderline personality disorder and its psychosocial treatment. *Journal of Personality Disorders*, *29(*5), 575-609

Fonagy, P., Luyten, P., Campbell, C., & Allison, L. (2014). Epistemic trust, psychopathology and the great psychotherapy debate. [Web Article]. Retrieved from http://www.societyforpsychotherapy.org/epistemic-trust-psychopathology-and-the-great-psychotherapy-debate

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*,*38,* 581–586.

Goodman, R., Ford, T., Simmons, H., Gatward, R. & Meltzer, H. (2003). Using the Strengths and Difficulties Questionnaire (SDQ) to screen for child psychiatric disorders in a community sample. *International Review of Psychiatry, 15*, 166–172.

Greisbach, J. (2017). The impact of early adversity and trauma on adolescent's epistemic trust. (Unpublished Doctoral manuscript). University College London, England.

Gullone, E., & Robinson, K. (2005). The Inventory of Parent and Peer Attachment--Revised (IPPA-R) for Children: A Psychometric Investigation. *Clinical Psychology & Psychotherapy, 12*, 67-79.

Gunderson, J.G., Daversa, M.T., Grilo, C.M., McGlashan, T.H., Zanarini, M.C., Shea, M.T., (2006).Predictors of 2-year outcome for patients with borderline personality disorder. *American Journal of Psychiatry, 163, 822–6.*

Ha, C., Sharp, C., Ensink, K., Fonagy, P., & Cirino, P. (2013). The measure of reflective function in adolescents with and without borderline traits. *Journal of Adolescents, 36* (6) 1215-1223.

Hoelling, H., Erhart, M., Ravens-Sieberer, U. & Schlack, R. (2007) Behavioural problems in children and adolescents. First results from the German Health Interview and Examination Survey for Children and Adolescents. *Journal of Health Research*, *50,* 784 – 793.

Holmes, J. (2004). Disorganized attachment and borderline personality disorder: A clinical perspective. *Attachment and Human Development*,*6*(2), 181–190.

Jennings, T.C., Hulbert, C.A., Jackson, H.J. & Chanen, A.M. (2012). Social perspective coordination in youth with borderline personality pathology. *Journal of Personality Disorders, 26* (1), 126-140.

Kernberg, P. F., Weiner, A. S., & Bardenstein, K. K. (2000). *Personality Disorders in Children and Adolescents*. New York: Basic Books.

King-Casas, B., Sharp, C., Lomax-Bream, L., Lohrenz, T., Fonagy, P., & Montague, P. R. (2008). The rupture and repair of cooperation in borderline personality disorder. *Science, 321*(5890)*,* 806-810.

Kollock, P. (1998). Social dilemmas: The anatomy of cooperation. *Annual Review of Sociology, 46*(1), 183-207.

Lieb, K., Zanarini, M.C., Schmahl, C., Linehan, M.M. & Bohus, M. (2004). Borderline Personality Disorder. *Lancet, 364*, 453-461.

Little, R.J. (1988). A Test of Missing Completely at Random for Multivariate Data with Missing Values. *Journal of the American Statistical Association,* 83 (404), 1198-1202.

Miller, A.L., Muehlenkamp, J.J. & Jacobson, C.M. (2008). Fact or fiction: Diagnosing borderline personality disorder in adolescents. *Clinical Psychology Review, 28,* 969-981.

Millon, T. (1993). The Millon Adolescent Personality Inventory and the Millon Adolescent Clinical Inventory. *Journal of Counseling & Development*, *71,* 570.

Millon, T., Millon, C. & Davis R. (1993). *Manual for the Millon Adolescent Clinical Inventory.* Minneapolis, MN: National Computer Systems.

Mize, J., & Pettit, G. S. (2008). *Social information processing and the development of conduct problems in children and adolescents: Looking beneath the surface*. In C. Sharp, P. Fonagy & I. M. Goodyer (Eds.), Social cognition and developmental psychopathology (pp. 141–174). Oxford: Oxford University Press.

Morey, L.C. (1991). *Personality Assessment Inventory - Professional Manual.* Psychological Assessment Resources, Inc: Florida, USA.

Muris, P., Meesters, C., van Melick, M. & Zwambag, L. (2001). Self reported attachment style, attachment quality, and symptoms of anxiety and depression in young adolescents. *Personality and Individual Differences, 30*, 809-818.

Nicol, K., Pope, M., Sprengelmeyer, R., Young, A. W., & Hall, J. (2013). Social judgement in borderline personality disorder. *PLOS ONE, 8*, e73440.

O'Connell, J. (2014). Can We Develop an Adult Assessment Tool for Measuring Epistemic Trust? (Unpublished Masters manuscript). University College London, England.

Parker, G., Roussos, J., Hadzi-Pavlovic, D., Mitchell, P., Wilhelm, K. and Austin, M.P. (1997). The development of a refined measure of dysfunctional parenting and assessment of its relevance in patients with affective disorders. *Psychological Medicine*, *27,* 1193-1203.

Reches, T. (2017). Exploring the relationship between attachment, epistemic trust and expectations of helping relationships in adolescents. (Unpublished Doctoral manuscript). University College London, England.

Robin, M., Pham_Scottez, A., Curt, F., Dugre-Le Bigre, C., Speranza, M., Sapinho, D., Corcos, A., Berthoz, S. & Kedia, G. (2012). Decreased sensitivity to facial emotions in adolescents with Borderline Personality Disorder. *Psychiatry Research.* 417-421.

Russell, B. (1940). *An inquiry into meaning and truth*. London, UK: Allen & Unwin.

Sanson, R.A., Wiederman, M.W. & Sandsone, L.A. (1998).The Self-Harm Inventory (SHI): Development of a Scale for Identifying Self-Destructive Behaviors and Borderline Personality Disorder. *Journal of Clinical Psychology, 54*(7), 973-983.

Schafer, J. L. & Olsen, M. K. (1998). Multiple imputation for multivariate missing-data problems: A data analyst's perspective. *Multivariate Behavioral Research*, 33, 545-571.

Scott, Levy, Adams & Stevenson (2011). Mental State Decoding Abilities in Young Adults with Borderline Personality Disorder Traits. *Personality Disorders: Theory, Research, and Treatment*, 2 (2), 98–112.

Sharp, C. (2014). The social-cognitive basis of BPD: A theory of hypermentalizing. In C. Sharp & J. L. Tackett (Eds.), *Handbook of borderline personality disorder in children and adolescents* (1 ed., Vol. 1, pp. 211-225). New York: Springer.

Sharp, C., Fonagy, P., & Goodyer, I.M. (2006). Imagining your child's mind: Psychosocial adjustment and mothers' ability to predict their children's attributional response styles. *British Journal of Developmental Psychology*, *24,* 197-214.

Sharp, C., Ha, C., Carbone, C., Kim, S., Perry, K., Williams, L. & Fonagy, P. (2013). Hypermentalizing in adolescent inpatients: treatment effects and association with borderline traits. *Journal of Personality Disorders, 27*(1), 3-18.

Sharp, C., Mosko, O., Chang, B., & Ha, C. (2010). The cross-informant concordance and construct validity of the Borderline Personality Features Scale for Children in a sample of male youth. *Clinical Child Psychology and Psychiatry, 16,* 1–15.

Sharp, C., Pane, H., Ha.C., Venta, A;, Patel, A.B. & Fonagy, P. (2011). Theory of mind and emotion regulation difficulties in adolescents with borderline traits. *Journal of American Academy of Child and Adolescent Psychiatry, 50*(6), 563-571.

Sharp, C., Venta, A., Vanwoerden, S., Schramm, A., Ha, C., Newlin, E., Redd, R. & Fongagy, P. (2016). First empirical evaluation of the link between attachment, social cognition and borderline features in adolescents. *Comprehensive Psychiatry, 64,* 4-11.

Sharp, C., Williams, L., Ha, C., Baumgardner, J., Michonski, J., Seals, R., et al. (2009). The development of a mentalization-based outcomes and research protocol for an adolescent in-patient unit. *Bulletin of the Menninger Clinic, 73,* 311–338.

Sperber, D., Clement, F., Heintz, C., Mascaro, O., Mercier, H., Origgi, G., & Wilson, D. (2010). Epistemic vigilance. *Mind & Language, 25*, 359-393.

Target, M., Oandasan, C., & Ensink, K. (2001). Child Reflective Functioning Scale scoring manual: For application to the child attachment Interview. Unpublished manuscript. UK: Anna Freud Centre/University College London.

Trull, T. J. (1995). Borderline personality disorder features in nonclinical young adults . Identification and validation. *Psychological Assessment, 7,* 33-41.

Unoka, Z., Seres, I., Aspan, N., Bodo, N & Keri, S. (2009). Trust game reveals restricted interpersonal transactions in patients with borderline personality disorder. *Journal of Personality Disorders, 23* (4), 399-409.

Wechsler, D. (1999). *Wechsler Abbreviated Scale of Intelligence.* The Psychological Corporation: Harcourt Brace & Company. New York, NY.

World Health Organization (1986). Young people's health – a challenge for society Report of a Study Group on Young People and Health for All by the Year 2000, Technical Report Series, No 731. Geneva. Available from: http://whqlibdoc.who.int/trs/WHO_TRS_731.pdf

Part 3: Critical Appraisal

Introduction

This appraisal examines my experiences of the process of developing and conducting my major research project and the reflections that I have about the project now that it has come to an end. Firstly, I reflect on my thoughts around the diagnosis of Borderline Personality Disorder (BPD) in adolescents and the difficulties and benefits that may come with such a diagnosis. Then, as an extension of reflecting on the limitations of this study, I focus on the methodological issues that became apparent over the course of the research. This includes barriers that were faced, including the difficulties of applying for NHS ethics, as well as the difficulties associated with measuring complex psychological constructs such as mentalizing and epistemic trust. Finally, I consider my experiences of working with this target population of adolescents, who are often felt to be hard to engage both clinically and in research settings. Personal reflections on the research process will be shared throughout.

The Diagnosis of BPD in Adolescence

Problems with the diagnosis

I feel that firstly, it is important to comment on the use of the term Borderline Personality Disorder (BPD), which is an expression that I have used throughout this thesis. When the psychoanalyst Adolph Stern in 1938 first described a group of patients who were classified as lying on the ‘border line’ between psychosis and neurosis, the belief then and for many years was that these patients were near impossible to treat. Although this belief of ‘untreatability’ has now been disproven clinically, this narrative around personality disorders persists. This in turn contributes to the stigma and controversy that is often associated with the diagnosis of personality disorder.

A stigma refers to the perception of a particular negative attribute that becomes associated with a certain person or group and leads to the global devaluation of that individual (Katz, 1981). As a consequence, individuals who are members of this group are perceived as having less intrinsic value and may become marginalised in society (Katz, 1981). BPD has been noted to have a stigma associated with it that appears to go beyond that which is associated with other mental health problems (Aviram, Brodsky & Stanley, 2006). Indeed, the very words 'personality disorder' bring with it connotations that the entire personality is disordered or damaged in some way. Those with a diagnosis of BPD have reported feeling stigmatised by the diagnosis, as well as frequently finding that they are treated differently by healthcare professionals, for example that any co-morbid mental health difficulties are overlooked and overshadowed by their BPD diagnosis (Haigh, 2002). The fact that the difficulties of those with BPD are often triggered by interpersonal situations can lead to clinicians finding it difficult to work with these clients, which is often exacerbated by the perception that individuals with BPD have control over their behaviour; maintaining the stigma related to BPD (Aviram et al., 2006). Similar findings are discovered when investigating the narratives and discourse that exists around BPD in society more generally, with individuals with BPD often being presented and viewed in a negative way (Bjokrlund, 2006).

Therefore, given these narratives that are associated with the term BPD and the difficulties that individuals often face when being given such a diagnosis, the use of this term, either clinically or within a research setting, needs to be done so with care and with an awareness of the implications that come with it. This seems especially important when working with adolescents, as adolescence is known to typically be a tumultuous time, associated with the development of a sense of identity and self (Chanen et al., 2008). Therefore the concerns relating to the diagnosis of BPD in adolescents has been commented on throughout this thesis and still holds a place of importance in my mind as this project comes to a close.

Benefits of the diagnosis

It has been found that clinicians are often reluctant to diagnose BPD in adolescents, due to concerns relating to the 'medicalising' of young peoples' difficulties (Baverstock & Wright, 2015). However, despite the difficulties associated with a BPD diagnosis, considerable evidence now exists to suggest that BPD can be accurately diagnosed in childhood and adolescence and that in some circumstances, such a diagnosis may be in fact be helpful (Chanen et al., 2008). It has been shown that adults with a diagnosis of BPD exhibited certain symptoms during childhood; mainly symptoms of internalising and externalising disorders, that preceded their adult BPD diagnosis (Stepp et al., 2013). One of the benefits to understanding the developmental trajectory of BPD in childhood and adolescence is that once vulnerabilities to BPD have been identified, young people who are at risk of going on to develop BPD are able to be targeted for intervention (Kernberg, Weiner & Bardenstein, 2000). This early intervention may help to prevent some of the difficulties that are so often seen in adults with a diagnosis of BPD, including emotional, inter-personal and functional problems (Kernberg et al, 2000). If stigma around the diagnosis of BPD was to reduce, a diagnosis early on may mean that young people would be able to achieve greater understanding of their difficulties, both for themselves and their families, as well as having greater access to treatment options and strategies to help to build on their strengths (Baverstock & Wright, 2015).

What a BPD diagnosis misses: strengths and abilities

Something that really struck me when starting to review the literature into BPD and as I progressed over the course of this research, was how great an emphasis is placed on psychopathology, risk factors and deficits when thinking about BPD in young people. During testing of participants who had been recruited from the clinical

sample, some of the young people involved had diagnoses of emerging personality disorders. I noticed when talking to these young people, that despite some of them having difficulties, that they all also had skills, strengths and talents. I felt that these strengths were not really able to be captured by either the personality disorder diagnosis or the measures used within this study.

Rutter (1993) commented that in order to gain a true understanding of adolescent development, both strengths and resilience as well as maladaptive psychopathology need to be considered. This made me think back to my own time on placement in CAMHS, where a more systemic approach was used to approaching mental health difficulties in children and adolescents. For example, in solution-focused approaches, although developing an understanding of the young person's difficulties and problems remains important, the main focus belongs to understanding the young person's goals and where they would like to be in relation to these (Berg, 1994). Solution-focused approaches work to develop strategies as to how to move closer towards these goals; the client's previous experiences are used to discover times when there have been 'exceptions' to the problem and to notice when the client has developed skills and strengths, with the aim of utilising such strengths to help solve the current problem (Berg, 1994). This approach appealed to me as I felt that it was helpful to incorporate and reflect on the strengths and resilience that young people already have, providing a more rounded picture of the young person. This was something that was not included when designing this project. This may be because the problem-saturated narrative surrounding BPD did not lead me to consider that strengths and abilities may also be important in contributing to levels of epistemic trust in young people. In future research it may be interesting to consider the role that resilience plays in epistemic trust, for example whether it may have a protective effect against other psychopathology.

A more helpful way of conceptualising BPD

It has been questioned as to whether there could be a more helpful way of conceptualising BPD in young people, such as viewing BPD symptomology as a global dimension, as opposed to a categorical diagnosis (Hawes, 2014). Currently, the criteria used to make a diagnosis of BPD in adolescence using the DSM-5 is based on exactly the same criteria as those used to make the adult diagnosis, albeit with symptoms needing to be present for longer in young people (DSM-5; American Psychiatric Association, 2013). Therefore, this makes the assumption that BPD in childhood and adolescence has the same structure as BPD in adulthood (Hawes, 2014). The natural fluctuations of BPD symptoms over time in adolescents means that the stability of a categorical BPD diagnosis has been demonstrated to be fairly low, however this stability is significantly higher when BPD is measured dimensionally (Chanen et al., 2004). Additionally, it has been suggested that a categorical diagnosis may lead to adolescents easily switching from subclinical levels of symptoms, to being just above the threshold for diagnosis, whereas a more dimensional approach would allow for variations in the level of symptoms (Larrivée, 2013). Miller, Muehlenkamp and Jacobson (2008) describe that a dimensional approach may be able to better account for the developmental heterogeneity and variability that is seen among adolescents. As this topic has become increasingly debated both among clinicians and researchers, it will be of interest in the future to observe whether a move towards a more dimensional diagnosis takes place.

Methodological Issues

Applying for NHS ethics

One of the main difficulties faced in carrying out this research was in obtaining NHS ethical approval. My reflections on this process are mostly over-shadowed by how

time-consuming and lengthy the ethical application process was. There are potential risks in any research procedure that involves human participants and therefore it is vital that any proposals for research activity are scrutinised and monitored. However, the bureaucracy of the process was something that I found to be quite frustrating. My main reflection on the process relates to the amount of time that was required to achieve ethical approval; in this case over a year from start to finish, which is something that I would definitely consider when applying for NHS ethics in future and that is important for other researchers to also hold in mind.

When reflecting on why the process took so long, I think that this is probably due to the time that each stage of the process takes. In regards to this study in particular, extra time was added due to ethical approval not being granted at the first NHS ethics research panel that was attended, which added a considerable time delay to the project. Unfortunately at the first NHS ethics research panel, it was found that no member of the panel was either a mental health expert or a child safe guarding expert. This unfortunately meant that the members of the panel did not feel confident in making a decision relating to our study which involved both mental health difficulties and adolescents. Therefore the panel decided that they would defer the final decision regarding ethical approval to an external expert, who we were unable to converse with, leading to ethical approval being denied. On reflection this initial lack of ethical approval had a significant impact on the project. Firstly, after such a long process, it was a very demoralising experience for me and the two other trainees involved in this joint project. Additionally, having to re-apply for ethical approval from scratch was time consuming and led to a delay in starting participant recruitment. Thankfully, attendance at a different panel for the second application proved much more successful and ethical approval was achieved. However, I feel that a lesson learnt from this experience would be to ensure that the NHS ethics committee which is being attended has people sitting on the panel who have

expertise in the area in which ethical approval is being sought and for ethical approval to be sought as early on as is possible.

Measuring complex psychological constructs

Another methodological limitation that became apparent over the course of this project related to the difficulties involved in measuring complex psychological constructs, including both mentalizing and epistemic trust. The literature review involved comparing findings relating to mentalizing abilities in adolescents across a range of studies. I was struck by how complex and multi-faceted a psychological construct mentalization actually is. This complexity became clear as I discovered that as opposed to just being a homogenous construct, that in fact mentalizing can be divided along four polarities: self/other focused, cognitive/affective, internal/external focused and implicit/explicit (Fonagy & Luyten, 2009). As mentalizing difficulties in adolescents are posited to exist in specific domains of mentalizing, the challenge then is to find measures that tap into these specific domains. As the studies reviewed had used several different measures when investigating mentalizing, I found it particularly difficult to make comparisons across these, as much of the time the results, i.e. whether deficits, enhanced abilities or the use of unusual strategies in mentalizing were found, appeared to be directly related to the chosen measure.

Additionally, when investigating epistemic trust in the main research project similar difficulties in the assessment of epistemic trust became apparent. As the assessment of epistemic trust in adolescents and adults is a relatively new area of interest, this meant that there was a lack of measures to choose from. The Trust Game (King-Casas et al, 2008) was used as a measure in the study due to having previously been used to assess trust and cooperation in adults and due to having reasonable face validity in terms of being able to assess epistemic trust. However, this measure was specifically created to assess trust and cooperation, which is not

entirely the same construct as epistemic trust. During the administration of the task, during the testing phase of the study, some participants reported finding the task boring and appeared to rush through it, potentially impacting on results. Additionally, I felt that as the participants were aware that they were playing against a computer and not a real human partner, this meant that the measure did lack some ecological validity.

Additionally, before the Epistemic Trust Instrument can be considered a reliable and valid measure of epistemic trust, the psychometric properties of the measure need to be evaluated. The gold standard for determining this is the test-retest reliability method, which will allow the reliability of the ETI over time to be determined (Hilsenroth, Segal, & Hersen, 2004). This method involves the measure being used at least twice and the scores on the measure being correlated. A high test-retest reliability coefficient (r>.8) indicates that the measure is likely to be reliable (Hilsenroth et al., 2004). Once the reliability of the measure has been shown, then its validity can also be formally assessed. Construct validity can be assessed by comparing the measure with other tasks that measure the same construct (Embretson & Gorin, 2001).The ETI was used in this study as it was felt to have good face validity and due to a lack of other measures, however it is important that its validity is also assessed formally. As the ETI is the first measure designed specifically to assess epistemic trust, this may have to be against other interpersonal trust tasks such as the Trust Game (King-Cases et al., 2008).

Working with Adolescents

Difficulties with recruitment

One of the challenges that became apparent during this research project was related to the recruitment of adolescents. Throughout, recruitment seemed to be an area that was particularly difficult, with a high attrition rate and potential participants

dropping out at various stages of the recruitment process. This ranged from young people saying they were not interested in participating right from the start, through to one participant choosing to stop halfway through testing due to feeling tired and not wishing to continue with the study. Obviously, an important part of the research process is allowing participants the opportunity to withdraw from at any time they wish, however I was left wondering why it was that recruitment with young people appeared to be so challenging.

It has been proposed that often adolescents are unwilling to engage with mental health services, including for both clinical and research purposes, due to issues around stigma (Bolton-Oetsel & Scherer, 2003). This therefore links with the concerns about stigma that I have mentioned previously related to diagnosing BPD in young people and it appears that stigma is obviously of importance to adolescents. I spent some time reflecting on what it was that may have made some adolescents reluctant to participate in this study. Although most adolescents I met at the testing phase were willing to take part in the study, some voiced concerns. These included worries about the study being a 'test' and the implications of 'doing badly'. Additionally, some young people were concerned about whether information about them would be shared with their parents or clinicians with concerns relating to what others would think of them. Therefore, I felt it was particularly important to understand where the adolescents' concerns were coming from and to take the time to discuss and explore this with them, before potentially going on to participate in the study. I also made sure to allocate enough time to explaining the confidentiality process to the young people, in order for them to have a sufficient and thorough understanding of this. Additionally, when thinking about carrying out research or working clinically with adolescents, it is important to give consideration to developmental factors. Adolescence is known to be a time of great developmental change, involving physiological, cognitive, emotional and social shifts (Weisz

&Hawley, 2002). Therefore it is important to take these developmental factors into consideration when working with an adolescent population.

Engaging participants

Although engaging adolescents in research is a different process to engaging adolescents in clinical work, I felt that there were some similarities between the two and I found it useful to draw on some of the skills I had developed on clinical placement within CAMHS when trying to engage adolescents in the research process. As I met more young people for testing I realised that for some of the adolescents, it was of particular importance for me to spend a little time getting to know the young person before jumping straight in with the research tasks. This was generally only a brief interaction, such as hearing a little about their interests or what it was that had prompted them to take part in the research. I was struck by how willing the young people were to be open with me. I felt it was important for me to consider the way that I engaged with the adolescents participating in the study; while I wanted to engage the young people and help them to feel at ease, at the same time I had to hold the frame of the research in mind as well as maintaining boundaries in order to help this be a positive research experience for the young person. Karver, Handelsman, Fields and Bickman (2006) describe the importance of interpersonal skills when working clinically with adolescents including empathy, alliance building, positive regard, trust and engagement and it is likely that such skills are also important when engaging young people in psychological research. These are all skills that trainee clinical psychologists are likely to be developing over the course of clinical placements and therefore it appears to be a case of also learning how to apply such skills in a research setting. Rubenstein (1996) spoke of the importance of extending non-judgemental acceptance towards adolescents and of respecting and attempting to understand their perspectives, which I feel is a helpful approach when trying to engage young people.

Concluding remarks

On reflection, throughout the course of this research there were many issues that arose. It seems important for these issues to be considered, both when making any conclusions about the findings of either the literature review or the main research project and additionally with regards to any future research. Taking on a research role for this project was something that was new to me and seemed very different to my other work as a trainee clinical psychologist. However, I feel that having the opportunity to take on this role has really developed my interest in the field of research. It has also highlighted to me that the skills I had developed over the rest of my training including an ability to empathise, contain and reflect, as well as an ability to think critically, were extremely important in this setting, especially when attempting to engage young people in the research process.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Aviram, R., Brodsky, B. & Stanley, B. (2006). Borderline Personality Disorder, Stigma and Treatment Implications. *Harvard Review of Psychiatry, 14*(5), 249-256.

Baverstock, S. & Wright, K. (2015). Borderline personality disorder in young people: the perspective of frontline professionals in child and adolescent mental health. *Mental Health Nursing,35* (4), 14-19.

Berg, I.K. (1994). Family-based services: A solution-focused approach. New York, NY, US: WW Norton & Co.

Bjorklund, P.(2006). No man's land: Gender bias and social constructivism in the diagnosis of borderline personality disorder. *Issues in Mental Health Nursing, 27,* (1) 3-23.

Bolton-Oetzel, K. & Scherer, G. (2003). Therapeutic engagement with adolescents in psychotherapy. *Psychotherapy: Theory, Research, Practice, Training, 40* (3), 215-225.

Chanen, A.M., Jackson, H.J., McGorry, P.D., Allot, K.A., Clarkson, V. & Yuen, H.P. (2004). Two-year stability of personality disorder in older adolescent outpatients. *Journal of Personality Disorders,18,* 526–541.

Chanen A.M., Jovev M., McCutcheon L.K., Jackson H.J. & McGorry P.D. (2008) Borderline personality disorder in young people and the prospects for prevention and early intervention. *Current Psychiatry Reviews*, *4*, 48-57.

Embretson S.E. & Gorin, J.S. (2001). *Improving construct validity with cognitive psychology principles*'. *Journal of Educational Measurement*, *38* (4), 343–68.

Fonagy, P. & Luyten, P. (2009). A developmental, mentalization-based approach to the understanding and treatment of borderline personality disorder. *Development and Psychopathology, 21*(4), 1355-1381.

Haigh, R. (2002). *Services for people with Personality disorder: The thoughts of service users.* Key text on NIMHE website.

*Hawes***,** D.J. (2014). *Does the concept of "borderline personality features***"** have clinical utility in childhood? *Current Opinion in Psychiatry*, *27*(1), 87–93.

Hilsenroth, M. J., Segal, D. L., & Hersen, M. (2004). Projective assessment of object relations. In M., Hersen (Ed.), *Comprehensive Handbook of Psychological Assessment* (449-465). New York, NY: Wiley.

Karver, M.S., Handelsman, J.B., Fields, D. & Bickman, L. (2006). Meta-analysis of therapeutic relationship variables in youth and family therapy: The evidence for different relationship variables in the child and adolescent treatment outcome literature. *Clinical Psychology Review, 26,* 50– 65.

Katz I. (1981). Stigma: a social psychological analysis. Hillsdale, NJ: Erlbaum.

Kernberg, P. F., Weiner, A. S., & Bardenstein, K. K. (2000). *Personality Disorders in Children and Adolescents*. New York: Basic Books.

King-Casas, B., Sharp, C., Lomax-Bream, L., Lohrenz, T., Fonagy, P., & Montague, P. R. (2008). The rupture and repair of cooperation in borderline personality disorder. *Science, 321*(5890)*,* 806-810.

Larrivée, M. (2013). Borderline personality disorder in adolescents: the He-who-must-not-be-named of psychiatry. *Dialogues of Clinical Neuroscience. 15* (2), 171-179.

Miller, A.L., Muehlenkamp, J.J., Jacobson, C.M. (2008). Fact or fiction: diagnosing borderline personality disorder in adolescents. *Clinical Psychology Review,28,* 969–981.

Rubenstein, A. K. (1996). Interventions for a scattered generation: Treating adolescents in the nineties. *Psychotherapy: Theory, Research, Practice, Training, 33,* 353–360.

Rutter, M. (1993). Resilience: Some conceptual considerations. *Journal of Adolescent Health, 14,* 626-631.

Stepp, S.D., *Olino, T.M.*, *Klein, D.N.*, Seeley, J.R. & Lewinsohn, P.M. (2013). Unique influences of adolescent antecedents on adult borderline personality disorder features. *Personality Disorders, 4,* 223–229.

Weisz, J. R. & Hawley, K. M. (2002). Developmental factors in the treatment of adolescents. *Journal of Consulting and Clinical Psychology, 70*,21–43.

Appendices

Appendix A: Assessment criteria of Quality Assurance Checklist (Kmet, Lee & Cook, 2004)

Item Number	Criteria
1	Question / objective sufficiently described?
2	Study design evident and appropriate?
3	Method of subject/comparison group selection or source of information/input variables described and appropriate?
4	Subject (and comparison group, if applicable) characteristics sufficiently described?
5	If interventional and random allocation was possible, was it described?
6	If interventional and blinding of investigators was possible, was it reported?
7	If interventional and blinding of subjects was possible, was it reported?
8	Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?
9	Sample size appropriate?
10	Analytic methods described/justified and appropriate?
11	Some estimate of variance is reported for the main results?
12	Controlled for confounding?
13	Results reported in sufficient detail?
14	Conclusions supported by the results?
Scoring: Yes = 2; Partial = 1; No = 0	

Note: Coding: 2= all specified criteria are met, 1= specified criteria are partially met, 0= none of the specified criteria was met

Appendix B: Epistemic Trust Instrument (ETI)

Instructions

The purpose of this task is to look at how people make decisions in a dilemma situation. There will be 20 questions containing a mixture of moral and amoral situations.

Although you will have your own opinions about what you think is right and wrong in these moral dilemma questions, you must ignore your own opinions and assume that you are a blank slate with no clue about what is considered right and wrong by society.

There are four rules for the dilemma task:

1. Put aside your own opinions of what you think the answer should be. Imagine that you are very naïve and have no clue about what is right and wrong.
2. Ask yourself, what would the "professional" (e.g., masseuse, butcher, etc.) know about this situation, given the stereotypical information you know about their job.
3. Ask yourself, what would YOUR own mother know about this situation, given the stereotypical information you know about her job.
4. If neither person (i.e., professional or your mother) would know anything about the situation from their jobs (and jobs alone), ask yourself, which of these two people am I most likely to trust or to take advice from in a general situation, independent of the this dilemma task.

First you will receive a dilemma situation and advice from two people, one of which will always be **your** mother, the other will be a professional.

You will then be asked to rate which persons advice you are more likely to trust on a scale ranging from mildly to strongly trust.

For example, if you trust the masseuse in this case more than your mother, you would focus only on the left side of the scale. You will then indicate the strength of this trust.

However, if you trust your mother more than the masseuse, you would focus only on the right side of the scale. You will then indicate the strength of this trust.

Next, you will be asked how likely are you to change your mind on the person who's advice you selected, on a scale ranging from very unlikely to very likely.

Instrument Items

Item 1

While on vacation, a couple of tourists select out a small speedboat from a variety of options. An hour after they set off, a sales assistant in the rental shop says that there is a chance that the boat they are in is prone to mild leaking. Alternatively, there is a chance that they are in a different boat that does not leak. The owners are unsure whether to spend a lot of money sending out a search team or not.

A butcher advises that they should not send out a search team because in his opinion, the boat may hold together until they get back.

Your mother advises that they should send out a search team because in her opinion, the boat may not hold together until they get back.

Which advice do you trust in this situation?

Butcher Mother

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 2

Mrs Bennett has cancer. She asks the cashier working in the pharmacy to give her more painkillers than her prescription states. No harm will come to Mrs Bennett if she takes this additional medication and it would help to ease her pain. There is a chance that the cashier will get away with giving the additional medication. Alternatively, there is a chance that he will get caught.

A plumber advises that he should not give the additional medication because in his opinion it is probably noticeable when medication goes missing in a pharmacy.

Your mother advises that he should give the additional medication because in her opinion it is probably not noticeable when medication goes missing in a pharmacy.

Which advice do you trust in this situation?

Plumber Mother

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|

Very Unlikely Very Likely

Item 3

Sherry is certain that her ruthless boss Bryan overheard her criticise his unethical management practices. There is a chance that she will keep her job if she apologises. Alternatively, there is a chance that he will not accept her apology and that she could lose her job for criticising his practices. If Sherry decides not to apologise to Bryan she is unsure what will happen.

A painter advises that she should not apologise because it is possible that he may have forgotten about it.

Your mother advises that she should apologise because it is possible that he won't have forgotten about it.

Which advice do you trust in this situation?

Mother Painter

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 4

Una is walking down a street when she comes across a wallet on the ground. She opens the wallet and finds that it contains several hundred pounds in cash but no identification. There is a chance that Una will not be seen taking the wallet and will get to keep the money. There is also a chance that someone will witness her taking the wallet and she will be reported to the police.

A postman advises that she should not take it because from his experience the police usually take these types of thefts very seriously.

Your mother advises that she should take it because from her experience the police do not usually take these types of thefts very seriously.

Which advice do you trust in this situation?

Postman Mother

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|

Very Unlikely Very Likely

Item 5

Laura has signed a contract with a sales company stating that she will not work any other jobs while employed with them. She currently has an evening job in a restaurant from which she gets paid cash-in-hand. If Laura gets caught she will lose her job with the company. There is a chance that a co-worker will come into the restaurant, see Laura working, and tell her boss. Alternatively, there is a chance that no one from work will ever come into the restaurant and see her.

An electrician advises that she should not keep working in the restaurant because he knows from experience that not that many people working in sales have two jobs.

Your mother advises that she should keep working in the restaurant because she knows from experience that many people working in sales have two jobs.

Which advice do you trust in this situation?

Electrician Mother

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 6

Jim, an owner of a small business, is struggling to make ends meet. It occurs to him that he could lower his taxes by pretending that some of his personal expenses are business expenses. There is a chance that Jim will get away with this and save money. Alternatively, there is a chance that he will get caught and receive a fine.

Your mother advises that he should not lie about his expenses because she knows from experience that there are not many small businesses that generally get away with this.

A lifeguard advises that he should lie about his expenses because he knows from experience that there are many small businesses that generally get away with this.

Which advice do you trust in this situation?

Mother Lifeguard

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 7

Tom goes to the pharmacy with the intention of buying a particular brand name medicine. When he gets there, he discovers that the pharmacy is out of the brand that he is looking for. Tom is unsure whether a cheaper similar medicine will be as effective as the brand name for his complaint.

A bartender advises that he should not get the cheaper one because in his opinion there is a difference between the effectiveness of this medicine and the brand name one.

Your mother advises that he should get the cheaper one because in her opinion there is no difference between the effectiveness of this medicine and the brand name one.

Which advice do you trust in this situation?

Mother Bartender

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 8

There is a runaway trolley quickly approaching a fork in the tracks. On the tracks extending to the left is a group of workmen. The tracks extending to the right are clear. It is not known which path the trolley will take on its own. If an eyewitness pulls a lever there is a chance that the trolley will go right and avoid the workmen. Alternatively, there is a chance that the trolley will go left and kill the workmen. The eyewitness can do nothing or pull the lever.

Your mother advises that they should not pull the lever because in her opinion it may not turn the trolley to the right, killing the workmen.

A shop assistant advises that they should pull the lever because in her opinion it may turn the trolley to the right, saving the workmen.

Which advice do you trust in this situation?

Mother Shop Assistant

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|

Very Unlikely Very Likely

Item 9

Helen forgot to submit an essay for her French elective. However, when she checked the results online there was a grade beside her name. Helen is not sure whether the professors in her university will ever notice this error. If Helen remains quiet, she will have a great grade but if she gets caught there are serious consequences for indirectly cheating.

A janitor advises that she should not remain quiet because in his opinion it likely that student's grades will be reassessed once they are posted online.

Your mother advises that she should remain quiet because in her opinion it is unlikely that student's grades will be reassessed once they are posted online.

Which advice do you trust in this situation?

Mother Janitor

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 10

A health care agency is deciding whether to promote the use of a newly developed vaccine designed to permanently cure a deadly disease that is quickly spreading around the country.

There is a chance that those who take the vaccine will develop immunity to the deadly disease forever. Alternatively, there is a chance that those who take the vaccine will contract the disease instead.

A computer technician advises that they should not promote the vaccine because in his opinion it may not help to prevent death or cure people.

Your mother advises that they should promote the vaccine because in her opinion it may help to prevent death and cure people.

Which advice do you trust in this situation?

Computer technician Mother

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 11

Jane received an email from a close colleague at work. The email asked her to make an anonymous online donation for him to partake in a charity sky dive. Jane does not want to give a lot of money but she does not want her colleague to find out that she gave a very very small donation. Jane is unsure whether it is truly anonymous or not.

Your mother advises that she should not give a very small donation because she knows from experience that there is often ways of detecting who sent an anonymous donation online.

A waitress advises that they should give a very small donation because she knows from experience that there is often no way of detecting who sent an anonymous donation online.

Which advice do you trust in this situation?

Mother Waitress

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------| Very Unlikely

Very Likely

Item 12

Mr. Johnson is a young man in hospital with a chronic disease. There is a chance that administering a particular drug could cure him of his illness forever. Alternatively, there is a chance that it could end his life faster.

Your mother advises that the drug should not be administered because in her opinion it does not work out safe when doctors take these types of risks.

A farmer advises that the drug should be administered because in his opinion it works out safe when doctors take these types of risks.

Which advice do you trust in this situation?

Mother Farmer

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|

Very Unlikely Very Likely

Item 13

Paula has decided to make a batch of brownies for herself. The recipe calls for a measure of chopped walnuts. A bag of walnuts on her shelf has exceeded their expiration date. There is a chance that these walnuts will make Paula very ill if she consumes them. Alternatively, there is a chance that she will feel fine.

A construction worker advises that she should not use the walnuts because in his opinion they usually do not last beyond their expiration date so they may not be safe to consume.

Your mother advises that she should use the walnuts because in her opinion they usually last beyond their expiration date so they may be safe to consume.

Which advice do you trust in this situation?

Construction worker Mother

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 14

David is a lawyer working on a big case. The judge presiding over the trial happens to be someone he knew from law school. If David were to talk to him over lunch it would be very good for his work on the case. If they meet for lunch, there is a chance that someone will find out and it may slightly impede the case. Alternatively, there is a chance that no one will find out and it could help David to win his case.

Your mother advises that they should not meet for lunch because she knows from experience that there are not many judges and lawyers who socialise when working on the same case.

A hairdresser advises that they should meet for lunch because she knows from experience that there are many there are many judges and lawyers who socialise when working on the same case.

Which advice do you trust in this situation?

Mother Hairdresser

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 15

There is a fire in the building next door and deadly fumes are rising up through the ventilation system. There is a dog trapped in an office. An eyewitness can do something. By saving the dog there is a chance that the eyewitness could get injured. Alternatively, there is a chance that the eyewitness will not get injured.

A cleaner advises they should not save the dog because in her opinion the fire looks dangerous.

Your mother advises that they should save the dog because in her opinion, the fire does not look dangerous.

Which advice do you trust in this situation?

Cleaner Mother

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|

Very Unlikely Very Likely

Item 16

There is a famine and Mustaq's family is unsure whether they will have enough food to survive the winter. There is a chance that stealing food from a neighbour in the village will provide him with enough food to save his family's life. There is also a chance that if he is caught stealing the neighbour may take matters into his own hands.

A hotel receptionist advises he should not steal the food because in her opinion the neighbour will probably notice the missing food.

Your mother advises that he should steal the food because in her opinion the neighbour will probably not notice the missing food.

Which advice do you trust in this situation?

Hotel receptionist Mother

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 17

A lifeboat is sitting dangerously low in the water. If the weight is not reduced the boat will sink and there is a chance that the people on board will all drown. If someone volunteers to jump into the sea to reduce the weight, there is a chance that this person will be saved by the rescue boat. Alternatively, there is a chance that this person will drown before the rescue boat reaches them.

Your mother advises someone should not jump out of the boat because in her opinion it will not be possible for the volunteer to tread water until the rescue-boat arrives.

A tile-layer advises that someone should jump out of the boat because in his opinion it will be possible for the volunteer to tread water until the rescue-boat arrives.

Which advice do you trust in this situation?

Mother Tile-layer

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|

Very Unlikely Very Likely

Item 18

Harry is driving when he sees an injured man thumbing a lift at the side of the road. He has never picked up a hitchhiker before and he does not know whether it is safe to do so, but this man needs medical attention. Harry could take a chance that it is safe and allow him into the car, or he could drive past him.

Your mother advises he should not give the man a lift because she knows 4from experience that it is generally not safe to pick up hitchhikers.

A florist advises that he should give the man a lift because she knows from experience that it is generally safe to pick up hitchhikers.

Which advice do you trust in this situation?

Mother Florist

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 19

There is a chance that a new environmental policy could save many animal species. There is also a chance that it could backfire and put one specific category of species in danger. Someone must make a decision on whether to sign the policy or not.

A babysitter advises that this policy should not be signed because in her opinion this one specific category of species concerned is very important for the ecology.

Your mother advises that this policy should be signed because in her opinion this one specific category of species concerned is not very important for the ecology.

Which advice do you trust in this situation?

Babysitter Mother

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

How likely are you to change your mind regarding this decision?

|----------|----------|

Very Unlikely Very Likely

Item 20

Matthew has been trying to get an interview for his dream job. He figures that if he could leave out a period of unemployment from his CV he could make it more impressive. If Matthew does this, there is a chance that he could get hired, improving his reputation. Alternatively, there is a chance that he could get caught, damaging his reputation.

A carpenter advises that he should not omit the employment gap from his CV because he knows from experience that it is very obvious when someone is giving selective information on a CV.

Your mother advises that he should omit the employment gap from his CV because she knows from experience that it is not very obvious when someone is giving selective information on a CV.

Which advice do you trust in this situation?

Carpenter Mother

|----------|----------|

MildlyTrust StronglyTrust MildlyTrust StronglyTrust

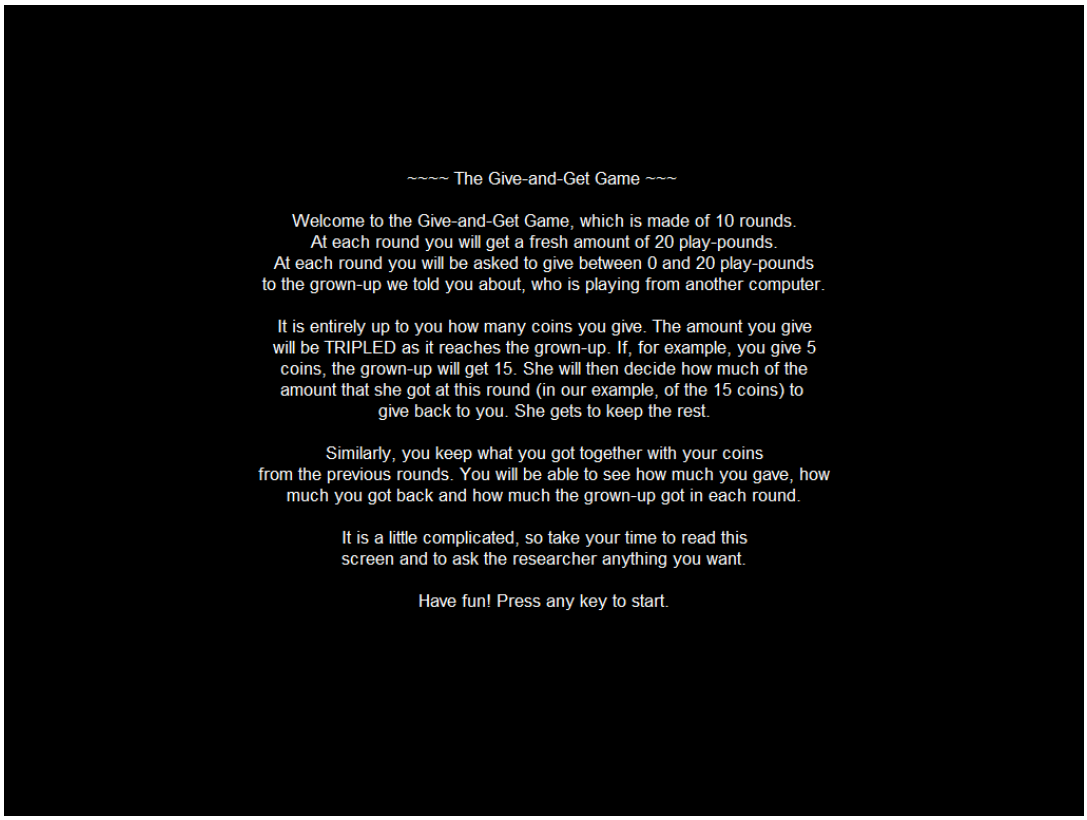
How likely are you to change your mind regarding this decision?

|----------|----------|

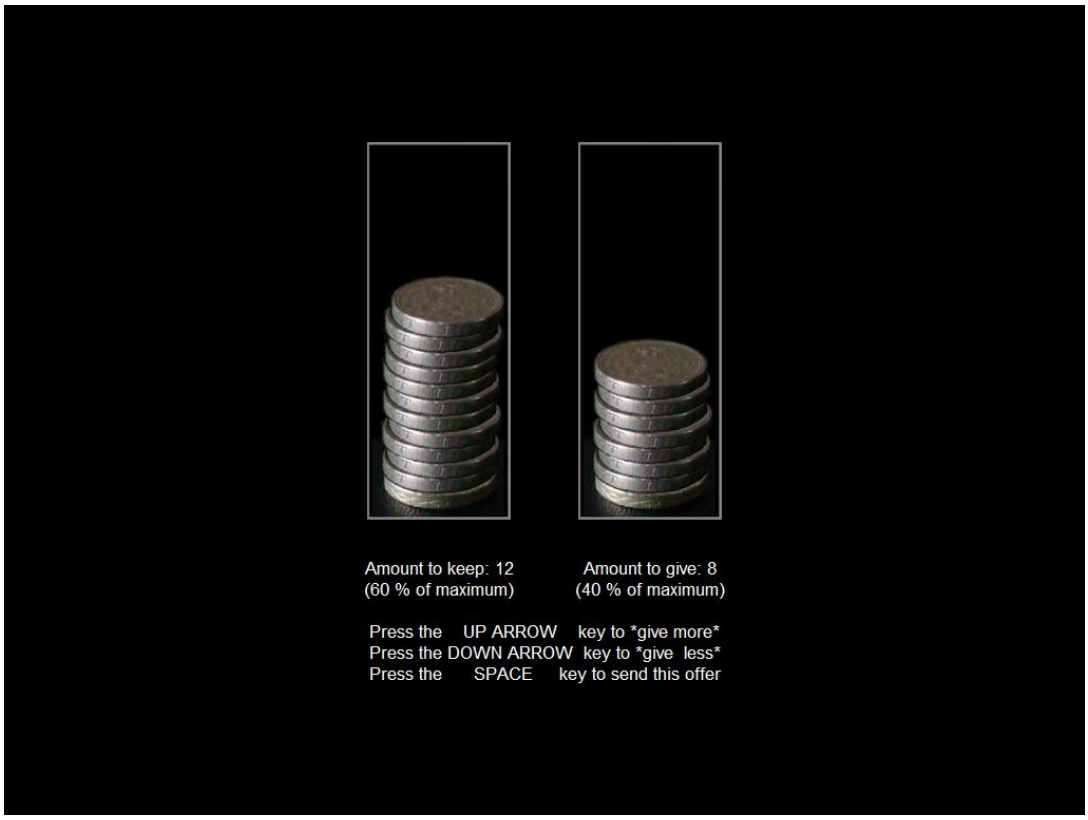
Very Unlikely Very Likely

Appendix C: Trust Game

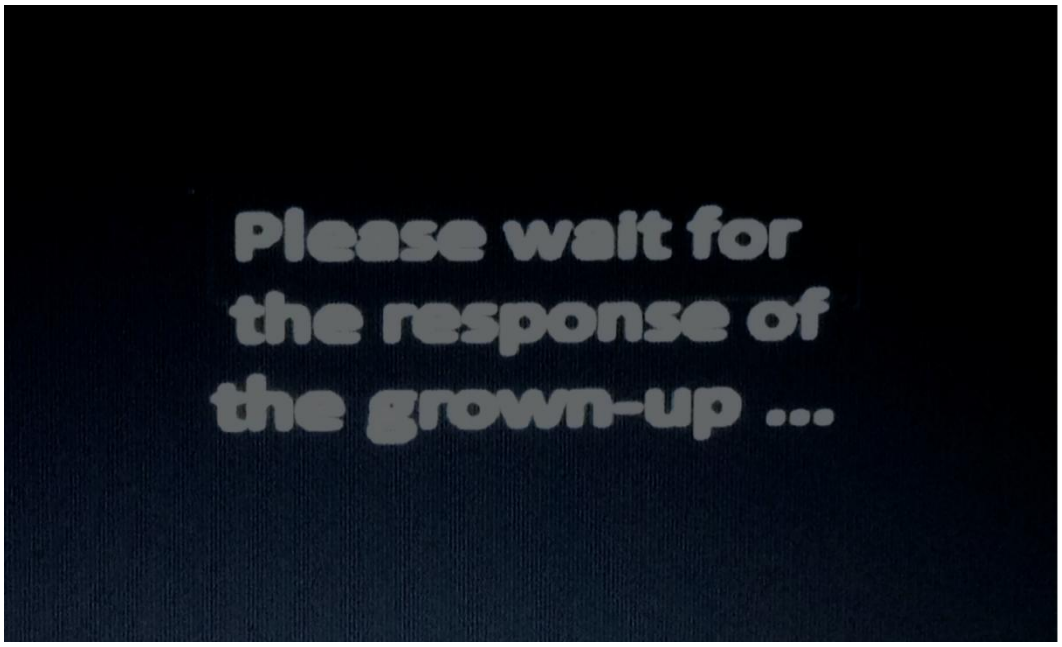
The Trust Game: A 10 round version of the trust game was used. Participants are initially provided with instructions as to the aim of the game.



The participant is then asked to practice using the arrow keys so they learn how to manipulate the amount of coins they would like to keep and send. Following this, round 1 begins and the participant is presented with the screen below.



Once the participant chooses the amount that they want to keep and the amount they want to give away, they confirm their choice by pressing the space bar. A pause is created while a message appears on the screen stating “Please wait for the response of the grown-up”.



The participant then receives money back from the grown-up. This process is repeated until ten rounds have been completed.

Appendix D: The Borderline Personality Disorder Features Scale for Children (BPFSC)

How I Feel About Myself and Others

Instructions: Here are some statements about the way you feel about yourself and other people. Put an X in the box that tells how true each statement is about you.

1. I'm a pretty happy person.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

2. I feel very lonely.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

3. I get upset when my parents or friends leave town for a few days.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

4. I do things that other people consider wild or out of control.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

5. I feel pretty much the same way all the time. My feelings don't change very often.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

6. I want to let some people know how much they've hurt me.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

7. I do things without thinking.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

8. My feelings are very strong. For instance, when I get mad, I get really really mad. When I get happy, I get really really happy.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

9. I feel that there is something important missing about me, but I don't know what it is.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

10. I've picked friends who have treated me badly.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

11. I'm careless with things that are important to me.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

12. I change my mind almost every day about what I should do when I grow up.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

13. People who were close to me have let me down.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

14. I go back and forth between different feelings, like being mad or sad or happy.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

15. I get into trouble because I do things without thinking.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

16. I worry that people I care about will leave and not come back.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

17. When I'm mad, I can't control what I do.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

18. How I feel about myself changes a lot.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

19. When I get upset, I do things that aren't good for me.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

20. Lots of times, my friends and I are really mean to each other.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

21. I get so mad I can't let all my anger out.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

22. I get bored very easily.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

23. I take good care of things that are mine.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

24. Once someone is my friend, we stay friends.

Not at All True	Hardly Ever True	Sometimes True	Often True	Always True

Appendix E: The Strengths and Difficulties Questionnaire (SDQ)

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 thelast six months.**

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

Do you have any other comments or concerns?

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

Yes -

Yes -

Yes –

minor

definite

severe

No difficulties

difficulties

difficulties

☐ ☐ ☐

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
☐	☐	☐	☐

Do these difficulties upset or distress or upset you?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

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	☐	☐	☐	☐
FREINDSHIPS	☐	☐	☐	☐
CLASSROOM LEARNING	☐	☐	☐	☐
LEISURE ACTIVITIES	☐	☐	☐	☐

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
☐	☐	☐	☐

Appendix F: UCL ethical approval confirmation

UCLRESEARCHE THICSCOMMITTE E ACADEMICSERVI CES

16May2016

ProfessorPeterFonagy

Divisionof PsychologyandLanguageSciences

UCL

DearProfessorFonagy

Notificationof EthicalApproval

Re:EthicsApplication8843/001:Epistemictrustinadolescents

Furthertoyoursatisfactoryresponsestothecommittee'scomments,Iampleasedtoconfirminm ycapacityas Chairof theUCLResearchEthicsCommittee(REC)thatyourstudyhasbeenethicallyapprovedbytheU CL RECuntil16thMay2018.

Approvalis subjecttothefollowingconditions.

1. YoumustseekChair'sapprovalforproposedamendmentstotheresearchforwhichthis approvalhas been given.Ethical approval isspecifictothisprojectandmustnotbetreatedasapplicable toresearchofa similarnature. Eachresearchprojectisreviewedseparatelyandiftherearesignificantchangestothe research protocol you should seek confirmation of continued ethical approval by completing the

   'AmendmentApprovalRequestForm':http://ethics.grad.ucl.ac.uk/responsibilities.php

2. Itisyourresponsibilitytoreporttothe Committeeanyunanticipatedproblemsoradverseev

entsinvolving riskstoparticipantsorothers. TheEthicsCommitteeshouldbenotifiedofallseriousadverseeventsvia the EthicsCommittee Administrator (ethics@ucl.ac.uk)immediatelythe incident occurs. Where the adverseincidentisunexpectedandserious,theChairorVice-Chairwilldecidewhetherthestudyshould beterminated pendingtheopinionofanindependentexpert. Theadverseeventwillbeconsidered atthe nextCommitteemeetingandadecisionwillbemadeontheneedtochangetheinformationleaflet and/or studyprotocol.

3. Fornon-seriousadverseeventstheChairorVice-ChairoftheEthicsCommitteeshouldagainbenotified viatheEthicsCommitteeAdministrator(ethics@ucl.ac.uk)withintendaysofanadverseincident occurring andprovideafullwrittenreportthatshouldincludeanyamendments totheparticipantinformation sheet andstudyprotocol. TheChairorVice-Chairwillconfirmthattheincidentisnon-serious andreporttothe Committeeatthenextmeeting.Thefinalviewof theCommitteewillbecommunicatedto you.

Oncompletionoftheresearchyoumustsubmitabriefreportofyourfindings/concludingcommentstothe

Committee,whichincludesinparticularissuesrelatingtotheethicalimplicationsof theresearch.

Yourssincerely

xxxxxxxxxxxx

ProfessorJohnForeman

ChairoftheUCLResearchEthicsCommittee

Cc:TobiasNolte,EliseDraper,JessieGreisbach&TalReches,Applicants

Academic Services,1-19Torrington Place(9thFloor), University CollegeLondon

Tel: +44(0)2031088216

Appendix G: NHS ethical approval confirmation

NHS
Health Research Authority
London - Bloomsbury Research Ethics Committee
HRA RES Centre Manchester
Barlow House 3rd Floor
4 Minshull Street
Manchester
M1 3DZ
Telephone: 0207 104 8002

27January2017

Professor Peter Fonagy

FreudMemorial Professorof Psychoanalysis

UniversityCollege London

PsychoanalysisUnit

Research DepartmentofClinical, Educational and Health Psychology

London

WC1E6BT

DearProfessorFonagy

Studytitle:	**Exploringhowtrauma, symptomatologyand expectations ofhelping relationshipsarerelated to epistemictrust inadolescents.**
REC reference:	**16/LO/2108**
IRAS projectID:	**217408**

Thankyouforyourletter of05January2017, responding totheCommittee's request forfurther informationonthe above researchandsubmitting reviseddocumentation.

Thefurtherinformationhas been consideredonbehalfoftheCommitteebytheChairandMs Gila Falkus.

Weplanto publish your researchsummarywordingfor theabove studyon theHRA website, togetherwith yourcontactdetails.Publication willbenoearlier thanthreemonthsfrom the date of thisopinionletter. Should youwish to providea substitute contactpoint, require further

information,orwish tomake arequest topostponepublication,pleasecontact hra.studyregistration@nhs.netoutlining thereasonsforyour request.

Confirmation ofethical opinion

On behalfof theCommittee, Iampleasedtoconfirm afavourable ethical opinionfor the above researchonthebasisdescribedin theapplicationform, protocol and supporting documentationasrevised,subject totheconditionsspecifiedbelow

Conditionsofthefavourableopinion

TheRECfavourable opinionissubject tothefollowingconditionsbeingmet prior tothe start ofthestudy.

- Pleaseensurethat thePISfor theParent/Carerstatesthat it isinformationforParent/Carerand notYoung People.

You should notifytheREC onceallconditions have been met (exceptforsite approvalsfromhostorganisations)and provide copiesofanyrevised documentation with updated versionnumbers.Revised documentsshouldbe submittedtothe REC electronicallyfrom IRAS.The RECwillacknowledgereceiptand provide a final listof the approved documentationfor the study, whichyou can makeavailableto host organisationstofacilitatetheirpermissionforthestudy.Failureto provide thefinal versions tothe REC maycause delayin obtaining permissions.

Managementpermission mustbeobtainedfromeach host organisation priortothe startofthe studyatthesiteconcerned.

Managementpermissionshould besoughtfromall NHS organisationsinvolvedin thestudy in accordancewith NHS researchgovernance arrangements.Each NHS organisationmust confirmthroughthesigningofagreementsand/orotherdocumentsthat ithasgiven permissionfortheresearch toproceed (exceptwhere explicitlyspecifiedotherwise).

Guidanceonapplyingfor NHS permissionfor research isavailable in theIntegrated

ResearchApplication System, www.hra.nhs.ukorat http://www.rdforum.nhs.uk.

Wherea NHS organisation's role inthestudy islimitedto identifyingand referringpotential participants toresearchsites("participant identification centre"), guidanceshould besought from theR&D officeontheinformationit requirestogive permissionforthisactivity.

Fornon-NHS sites,sitemanagementpermissionshould beobtained inaccordance with the proceduresoftherelevanthostorganisation.

Sponsorsare not required tonotifytheCommitteeofmanagementpermissions from host organisations

Registration ofClinical Trials

All clinical trials (definedas thefirstfourcategoriesontheIRASfilterpage) must be registeredonapubliclyaccessible databasewithin 6weeksof recruitmentof thefirst participant (formedical device studies,within thetimelinedetermined bythe current registrationandpublication trees).

There is norequirement to separatelynotifytheREC butyoushould dosoat theearliest opportunitye.g. when submitting anamendment.Wewill audittheregistration detailsas part oftheannual progress reporting process.

Toensure transparencyin research, we stronglyrecommendthat all research isregistered but for non-clinicaltrialsthisisnot currentlymandatory.

Ifa sponsorwishes to requestadeferralforstudyregistrationwithin the requiredtimeframe, theyshould contacthra.studyregistration@nhs.net.Theexpectation isthat all clinical trials will be registered,however, in exceptional circumstancesnonregistrationmaybe permissible with prioragreementfromtheHRA. Guidanceonwhere toregisterisprovided on theHRA website.

It istheresponsibilityofthesponsortoensure thatall theconditions are complied with beforethestartof the studyor itsinitiation at a particularsite(as applicable).

Ethical reviewofresearch sites

NHS sites

Thefavourable opinionapplies to all NHS sitestakingpart inthestudy,subject to managementpermissionbeingobtainedfromtheNHS/HSC R&D office prior tothestartof thestudy(see"Conditionsofthefavourable opinion"below).

Approved documents

Thefinal listofdocuments reviewedand approvedbytheCommitteeisasfollows:

Document	*Versi*	*Date*
Contract/StudyAgreement [DraftAgreement]		
Contract/StudyAgreement [InsuranceCertificate]		
Copies ofadvertisementmaterialsfor research participants [Guideforclinicians to share with youngpeople (changes accepted)]	2	05January2017
Coveringletteronheaded paper [Covering letter to REC]	1	05January2017
EvidenceofSponsor insurance orindemnity(nonNHS Sponsorsonly) [Insurance		05April 2016
Interviewschedules or topicguidesforparticipants[Interview schedule]	1	05February2016
IRAS Application Form [IRAS_Form_11112016]		11November
IRAS Application Form XML file [IRAS_Form_11112016]		11November
IRAS Checklist XML [Checklist_21112016]		21November
IRAS Checklist XML [Checklist_13012017]		13January2017
Letter from funder [FundingConfirmation]		08June 2016
Lettersofinvitationto participant [Coverletter]	2	16September
Non-validatedquestionnaire [DilemmaTask]	1	05February2016
Non-validatedquestionnaire [Computer task]	1	05February2016
Other [Email confirmation re:AcademicSupervisors]		20November
Other [Schedule ofevents]		22November
Other [Statementof activities]		22November
Participant consentform [Consent Parent/Carer]	2	16September
Participant consentform [Consent 16-18]	2	16September
		2016
Participant consentform [Assent 12-15]	2	16September
Participantinformationsheet (PIS) [PIS 12-15(changes accepted)]	3	05January2017
Participantinformationsheet (PIS) [PIS 16-18(changes accepted)]	3	05January2017
Participantinformationsheet (PIS) [PIS Parent/Carer	3	05January2017
Referee'sreportorotherscientificcritique report [Critique1]		28 October2016
Referee'sreportorotherscientificcritique report [Critique2]		
Referee'sreportorotherscientificcritique report [Critique3]		
Referee'sreportorotherscientificcritique report [REC		21September
Referee'sreportorotherscientificcritique report [REC		05 October2016
Referee'sreportorotherscientificcritique report [Response to REC]		15 October2016

Researchprotocolorproject proposal [Protocol]	2	16September
Summary CVforChiefInvestigator (CI) [Summary CV Chief		28 October2016
Summary CVforstudent [Jessie Greisbach CV]		28 October2016
Summary CVforstudent [Elise DraperCV]		28 October2016
Summary CVforstudent [Tal RechesCV]		28 October2016
Summary CVforsupervisor (student research) [Tobias Nolte		28 October2016
Validatedquestionnaire [BPFSC]		28 October2016
Validatedquestionnaire [CTES]		28 October2016
Validatedquestionnaire [CTQ]		28 October2016
Validatedquestionnaire [APPA-R]		28 October2016
Validatedquestionnaire [NRI-SPV]		
Validatedquestionnaire [NRI-SPV (short version)]		28 October2016
Validatedquestionnaire [PEPI]		28 October2016
Validatedquestionnaire [RFQY]		28 October2016
Validatedquestionnaire [SDQ]		28 October2016

Statementofcompliance

TheCommitteeisconstitutedin accordancewith the GovernanceArrangementsfor ResearchEthicsCommitteesandcompliesfully with theStandardOperatingProceduresfor ResearchEthicsCommitteesintheUK.

Afterethical review

Reporting requirements

Theattacheddocument*"Afterethicalreview–guidance for researchers"*gives detailed guidanceonreporting requirementsforstudieswith afavourable opinion,including:

Notifyingsubstantial amendments

Addingnewsites andinvestigators

Notification ofseriousbreachesof theprotocol

Progressand safetyreports

Notifyingtheendofthe study

TheHRAwebsite also providesguidanceonthese topics,which is updated in thelightof changesinreporting requirementsorprocedures.

UserFeedback

TheHealth Research Authority iscontinuallystriving toprovidea highqualityservice to all applicantsand sponsors. Youare invited togive yourviewoftheservice youhave received and theapplicationprocedure. Ifyouwish tomake yourviewsknown please usethe feedback form availableon theHRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRATraining

Weare pleasedtowelcomeresearchersand R&D staff at our trainingdays– seedetailsat http://www.hra.nhs.uk/hra-training/

16/LO/2108 **Pleasequotethis numberonall correspondence**

WiththeCommittee'sbestwishesfor thesuccessofthisproject.

Yourssincerely

xxxxxxxxxxxxxxxxxxxxxx

Reverend JimLinthicum

Chair

Email: nrescommittee.london-bloomsbury@nhs.net

Enclosures: "Afterethical review –guidanceforresearchers"

Copyto: MsTaniaWest

Ms.Fiona Horton,

North EastLondon NHSFoundationTrust

Appendix H1: Participant information sheet – clinical adolescent version

Epistemic Trust and Learning in Adolescence

INFORMATION FOR YOUNG PEOPLE

Invitation and brief summary

We would like to invite you to join a research project. We want to learn more about how teenagers learn and what makes learning easier or harder. We are specifically looking at epistemic trust, which means an openness to learn from others. We are looking at how difficult situations and mental health in childhood may lead to people being less trusting of things that they are told and therefore find it more difficult to learn new information. We are also looking at how trust affects young people's expectations of helping relationships. This is important to us because the information that we get from this project might help us understand the process of learning and help people in the future.

What would taking part involve?

Before meeting we will ask half of the young people joining the project to email the researcher a photograph of their mother, so we can include it in a section of the computer task.

We will meet you at CASUS and your key worker will introduce us. We will ask you to sign a form, complete some computer tasks, fill in some questionnaires and then do a short activity. Each of these things are described below.

- **The form**

The assent form shows that you agree to take part in the study.

- **The computer tasks**

You will be asked to play some games on a computer, these involve:

  - Trading coins with the computer
  - Making decisions whether to move towards or away from different objects
  - A dilemma task - the purpose of this task is to look at how people make decisions in a dilemma situation, where different people may act in different ways.Before you begin playing each game, the researcher will go through it with you to make sure you understand what you're doing.

- **The questionnaires**

There are questions about:

  - Your behaviour and how you are feeling
  - How you get on with friends and family
  - Difficult situations you may or may not have experienced
  - Your expectations of helping relationships

The questionnaires we will ask you to complete are the Strength and Difficulties Questionnaire, Reflective Functioning Questionnaire for Youth, The Inventory of Parent and Peer Attachment Revised questionnaire, The Borderline Personality Disorder Features Scale for Children, Childhood Trauma Questionnaire, the Childhood Traumatic Events Scale, the Network of Relationship Questionnaire Manual, Psychotherapy Expectation & Perception Inventory, and the Child Rejection Sensitivity Questionnaire.

- **The short activity**

We would like to give you some words and ask you what they mean. For example, words that describe animals and words that describe feelings, such as anger. There is also another short activity, like a puzzle. The short activities have been taken from the Wechsler Abbreviated Scale of Intelligence.

It is important to note that this is **NOT** a test.

All this should take around 2-3 hours (with breaks). If you decide that you want to stop before all the different tasks are finished then you can.

We would like to say thank you for helping us by giving you a £30 voucher for completing the tasks.

What are the possible benefits of taking part?

If you do decide to participate you will be helping us to understand the part trust plays in learning. This may help other people in the future. You may find some of the tasks enjoyable to complete.

What are the possible disadvantages and risks of taking part?

The research is not intended to be upsetting. But, if you do find it stressful or upsetting we will give you information about who you can contact for support.

Rules that we must follow

There are a few things for you to know before you decide whether or not to take part in this study. We have to follow some important rules to make sure that people who help us are treated well and are safe:

(1) Consent or agreeing to take part in the study

- You do not have to agree to take part if you do not want to. You are completely free to decide whether or not you want to take part in the study.
- If you decide you would like to take part in the study both you and your parent or carer have to agree
- **If you do agree to take part, you can change your mind and stop at any time, without giving a reason. This will not affect any support you are receiving. Your decision not to take part or to withdraw from the study will override the wishes of your parent or carer.**

(2) Confidentiality: keeping what you tell us private

The information you give is private. Nothing you say will be told to anyone outside the research team, except in three circumstances:

- You tell us that you or another person are planning to seriously harm a specific person.
- You tell us that you or another young person is at risk of harm.
- We may inform your mental health worker if we are concerned about your mental health.

If it was necessary to take any of the above steps, this will be discussed with you first.

Further supporting information

How will my information be kept confidential?

We will keep all the information that you give us private (confidential). You will be given an ID number (e.g. 001) so your name will not be on any of your answers. The information will not be shared with anyone (e.g. school) and it will be used only for this project. Once the project is finished we will happily tell you what we have learnt.

What will happen to the results of the study?

The report will be written about the results of the study. In that report, no one could identify you, or your parent or carer. In other words, we can guarantee that information about you will be secret and private because we talk about groups not the individual.

Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect you. This study has been reviewed and given favourable opinion by London - Bloomsbury Research Ethics Committee (Project ID Number): 16/LO/2108

How have young people been involved in this study?

Young people have provided consultation to the research project by reviewing materials, planning how to present the questionnaires and computer tasks to young people and making adaptations to the questionnaire pack and computer tasks.

Who is organising and funding the study?

Doctoral trainees at the Department of Clinical, Educational and Health Psychology at University College London have set up the project. Professor Peter Fonagy and Dr Tobias Nolte are supervising the research. The research is being funded by University College London and is an educational project.

What if something goes wrong?

If you have any worries about how this study is being run, you should ask to speak to the researcher who will do their best to answer your questions. If you would like to contact someone outside the team you can do this through the Research Governance Sponsor, University College London (UCL). You can write to Joint UCLH/UCL Biomedical Research Unit, R&D Directorate (Maple House), Rosenheim Wing, Ground Floor, 25 Grafton Way, London, WC1E 5DB quoting reference 16/0021. All communication will be in confidence.

If something does go wrong and you are harmed then you may have grounds for a legal action for compensation against University College London (UCL).

If you would like to contact Cambridgeshire and Peterborough Patient Advice and Liaison Services (PALS), they can be contacted either by calling 0800 376 0775, via email PALS@cpft.nhs.uk, or in writing to:

Patient Advice and Liaison Service,
Elizabeth House,
Fulbourn,
Cambridge
CB21 5EF

Thank you for reading ☺

We will contact you shortly to answer any questions and discuss whether this is a project that you would like to join.

Our contact details are

Jessie Greisbach, Tal Reches and Elise Draper are researchers on the project. If you have any questions about the project you can contact them on:

j.greisbach@ucl.ac.uk

tal.reches.13@ucl.ac.uk

elise.draper@ucl.ac.uk

Dr Tobias Nolte is a supervisor on the project. If you have any concerns you wish to discuss, you can contact him on:

t.nolte@ucl.ac.uk

Appendix H2: Participant information sheet – clinical parent version

Epistemic Trust and Learning in Adolescence

INFORMATION FOR PARENTS/CARERS

Invitation and brief summary

We are asking you to help us with a study that we are doing to learn about how teenagers learn and generalise new pieces of information. We are telling all teenagers who attend CASUS about this project.

We want to learn more about how adolescents learn and what makes learning easier or harder. We are specifically looking at epistemic trust, which refers to an openness to learn from others. We are looking at how difficult situations and mental health in childhood may lead to people being less trusting of things that they are told and therefore find it more difficult to learn new information. We are also looking at how trust influences young people's expectations of helping relationships. This is important to us because the information that we get from this project might help us understand the process of learning and help people in the future.

Do I have to take part?

As a legal guardian of your child you are the person who must legally consent on their behalf. If you do not wish your child to participate then that will be respected and we will not contact you or your child about this project in the future. However even if you consent, if your child does not want to participate then that will be respected and they will not be approached to participate in this project in the future. There are no consequences for not participating.

What would taking part involve?

Before meeting we will ask half of the young people joining the project to email the researcher a photograph of their mother, so we can include it in a section of the computer task. We may ask for a photo as we are interested to see whether the presence of the image affects how young people learn a new task.

We will meet your child at CASUS and their key worker will introduce us. Your child will be asked to sign a form to show that they have agreed to take part, complete some computer tasks, fill in some questionnaires and then do a short activity. Each task is described below in more detail.

- **The computer task**

Your child will be asked to play a game on a computer where they will be trading coins with the computer. Then they will play a different game that involves making decisions about whether to move towards or away from different objects. The last section is a dilemma task – the purpose of this task is to look at how people make decisions in a dilemma situation. The dilemmas will contain a mixture of moral and amoral situations. Before they begin playing each game, the researcher will go through it with them to make sure they understand and answer any questions.

- **The questionnaires**

Your child will be asked to complete a questionnaire pack that the researcher will offer to read to them and complete together. The pack includes questions about their behaviour, mental health, how they get on with friends and family, difficult situations they may or may not have experienced and their expectations of helping relationships.

The names of these questionnaires are the Strength and Difficulties Questionnaire, Reflective Functioning Questionnaire for Youth, The Inventory of Parent and Peer Attachment Revised questionnaire, The Borderline Personality Disorder Features Scale for Children, Childhood Trauma Questionnaire, the Childhood Traumatic Events Scale, the Network of Relationship Questionnaire Manual, Psychotherapy Expectation & Perception Inventory, and the Child Rejection Sensitivity Questionnaire.

- **The short activity**

The activities include asking the meaning of words. For example, words that describe animals and words that describe feelings, such as anger. There is also another short activity, like a puzzle. The short activities have been taken from the Wechsler Abbreviated Scale of Intelligence.

The above tasks will take approximately 2-3 hours (with breaks).

It is important to note that this is **NOT** a test.

If they decide that they want to stop before all the different tasks are finished then they can.

We would like to show your child our appreciation for agreeing to participate by offering them a £30 voucher for completing the tasks.

What are the possible benefits of taking part?

If your child does decide to participate they will be helping us to understand the part trust plays in learning. This may help other people in the future. Your child may also find completing some of the activities enjoyable.

Are there any risks to you if you take part in the research?

The research is not intended to be upsetting. However, if you or your child do find it stressful or are upset by it we will provide you with information on who you can contact for support. They can also stop participating at any point during the research.

Rules that we must follow

There are a few things for you to know before you decide whether or not you would like your child to take part in this study. When running studies, there are some important rules we have to follow to make sure that people who help us are treated well and not harmed in any way. Here are those rules:

(3) Consent

First, you should know that your child does not have to agree to take part, if they or you do not want them to. In other words, this is voluntary. If your child does not take part, it will not disadvantage them in any way. If they do agree to take part, you or your child can change your mind and withdraw consent at any time and without giving a reason. This will result in no negative consequences and it will not affect any support you or your family are receiving. If your child decides not to consent or chooses to withdraw consent at anytime their wishes will be respected and override any consent given by yourself.

(4) Confidentiality

Secondly, you should know that all the information your child gives is confidential. All data will be collected and stored in accordance with the Data

Protection Act 1998. Nothing you or you child says will be told to anyone outside the research team, except in three circumstances:

- We would have to tell the police or another relevant agency if we were told that someone was planning to seriously harm a specific person.
- We would also have to tell the police or another relevant agency if we were to learn that a person under the age of 18 was currently at risk.
- We may inform your child's mental health worker if we are concerned about their mental health.

<u>If it was necessary to take any of the above steps, this will be discussed with the young person.</u>

<u>Further supporting information</u>

How will our information be kept confidential?

All the information that your child provides will be treated confidentially. Your child will be assigned an ID number (e.g. 001) and they won't be identified by name to anyone. The information will not be shared with anyone (e.g. school) and it will be used solely for this project. Once the project is finished we will happily give you a report of our findings if you are interested.

What will happen to the results of the study?

The report will be written about the results of the study. In that report, the results will be presented in such a way that no one can identify the young person or you. In other words, we can guarantee that information will be anonymous because we talk about groups not the individual.

Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by London - Bloomsbury Research Ethics Committee (Project ID Number): 16/LO/2108

How have young people been involved in this study?

Young people have provided consultation to the research project by reviewing materials, planning how to present the questionnaires and computer tasks to young people and making adaptations to the questionnaire pack and computer tasks.

Who is organising and funding the study?

Doctoral trainees at the Department of Clinical, Educational and Health Psychology at University College London have set up the project. Professor Peter Fonagy and Dr Tobias Nolte are supervising the research. The research is being funded by University College London and is an educational project.

What if something goes wrong?

If you have a concern about any aspect of this study, you should ask to speak to the researcher who will do their best to answer your questions. If you have any concerns and would like to contact someone outside the team you can do this through the Research Governance Sponsor, University College London (UCL). You can write to Joint UCLH/UCL Biomedical Research Unit, R&D Directorate (Maple House), Rosenheim Wing, Ground Floor, 25 Grafton Way, London, WC1E 5DB quoting reference 16/0021. All communication will be dealt with in strict confidence.

If in the event that something does go wrong and you are harmed during the research and this is due to someone's negligence then you may have grounds for a legal action for compensation against University College London (UCL).

If you would like to contact Cambridgeshire and Peterborough Patient Advice and Liaison Services (PALS), they can be contacted either by calling 0800 376 0775, via email PALS@cpft.nhs.uk, or in writing to:

Patient Advice and Liaison Service,
Elizabeth House,
Fulbourn,
Cambridge
CB21 5EF

Thank you for reading ☺

We will contact you shortly to answer any questions and discuss whether this is a project that you would like to join study.

Our contact details are

Jessie Greisbach, Tal Reches and Elise Draper are researchers on the project. If you have any questions about the project you can contact them on:

j.greisbach@ucl.ac.uk

tal.reches.13@ucl.ac.uk

elise.draper@ucl.ac.uk

Dr Tobias Nolte is a supervisor on the project. If you have any concerns you wish to discuss, you can contact him on:

t.nolte@ucl.ac.uk

Appendix H3: Participant information sheet – community adolescent version

A study about trust and learning

INFORMATION FOR YOUNG PEOPLE

Invitation and brief summary

We would like to invite you to join a research project. We want to learn more about how teenagers learn and what makes learning easier or harder. We are specifically looking at epistemic trust, which means an openness to learn from others. We think that when people are babies they learn through their relationship with their parent(s) or the person who takes care of them. We also think that being in difficult situations may lead to people being less trusting and this might mean they find it more difficult to learn new things. This is important to us because the information that we get from this project might help us get a better understanding about how teenagers learn and help people in the future.

What would taking part involve?

Before meeting we will ask half of the young people joining the project to email the researcher a photograph of their mother, so we can include it in a section of the computer task.

We will meet you at your home or at the Anna Freud Centre, whichever you and your parent or carer prefer.We will ask you to sign a form, complete some computer tasks, fill in some questionnaires and then do a short activity. Each of these things are described below.

- **The form**

The assent form shows that you agree to take part in the study. We will also ask you to give us your doctors (GP) contact details as part of our routine safeguarding protocol.

- **The computer tasks**

You will be asked to play some games on a computer, these involve:

  - Trading coins with the computer
  - Making decisions whether to move towards or away from different objects
  - Problem solving tasks where you are asked to make decisions about conflicting advice

Before you begin playing each game, the researcher will go through it with you to make sure you understand what you're doing.

- **The questionnaires**

There are questions about:

  - Your behaviour and any worries you may have
  - How you get on with friends and family
  - Difficult situations you may or may not have experienced

The questionnaires we will ask you to complete are the Strength and Difficulties Questionnaire, Reflective Functioning Questionnaire for Youth, The Borderline Personality Disorder Features Scale for Children, The Inventory of Parent and Peer Attachment Revised questionnaire, The Measure of Parental Style, Childhood Trauma Questionnaire, the Childhood Traumatic Events Scale, the Network of Relationship Questionnaire Manual, Psychotherapy Expectation & Perception Inventory, and the Child Rejection Sensitivity Questionnaire.

- **The short activity**

We would like to give you some words and ask you what they mean. For example, words that describe animals and words that describe feelings, such as anger. There is also another short activity, like a puzzle. The short activities have been taken from the Wechsler Abbreviated Scale of Intelligence.

It is important to note that this is **NOT** a test.

All this should take around 2-3 hours (with breaks). If you decide that you want to stop before all the different tasks are finished then you can.

We would like to say thank you for helping us by giving you £10 for every hour that you help us.

What are the possible benefits of taking part?

If you do decide to participate you will be helping us to understand the part trust plays in learning. This may help other people in the future.

What are the possible disadvantages and risks of taking part?

The research is not intended to be upsetting. But, if you do find it stressful or upsetting we will give you information about who you can contact for support.

Rules that we must follow

There are a few things for you to know before you decide whether or not to take part in this study. We have to follow some important rules to make sure that people who help us are treated well and not harmed in any way:

(5) Consent or agreeing to take part in the study

- You do not have to agree to take part if you do not want to. You are completely free to decide whether or not you want to take part in the study.
- If you decide you would like to take part in the study both you and your parent or carer have to agree
- **If you do agree to take part, you can change your mind and stop at any time, without giving a reason. This will result in no negative consequences and it will not affect any support you are receiving. Your decision not to take part or to withdraw from the study will override the wishes of your parent or carer.**

(6) Confidentiality: keeping what you tell us private

The information you give is private. Nothing you say will be told to anyone outside the research team, except in three circumstances:

- You tell us that you or another person are planning to seriously harm a specific person.
- You tell us that you or another young person is at risk of harm.

- We may contact your GP if we are concerned about your mental health or emotional difficulties.

Further supporting information

How will my information be kept confidential?

We will keep all the information that you give us private (confidential). You will be given an ID number (e.g. 001) so your name will not be on any of your answers. The information will not be shared with anyone (e.g. school) and it will be used only for this project.

What will happen to the results of the study?

The report will be written about the results of the study. In that report, no one could identify you, or your parent or carer. In other words, we can guarantee that information about you will be secret and private because we talk about groups not the individual. Once the project is finished we will happily give you a report of what we learn.

How have young people been involved in this study?

Young people have provided consultation to the research project by reviewing materials, planning how to present the questionnaires and computer tasks to young people and making adaptations to the questionnaire pack and computer tasks.

Who is organising and funding the study?

Doctoral trainees at the Department of Clinical, Educational and Health Psychology at University College London have set up the project. Professor Peter Fonagy and Dr Tobias Nolte are supervising the research. The research is being funded by University College London.

What if something goes wrong?

Professor Peter Fonagy, Principle Investigator, will be available if you have any questions or concerns. You can contact him at:

Research Department of Clinical, Educational and Health Psychology
1-19 Torrington Place, WC1E 7HB
Tel: 020 7679 1943
Email: p.fonagy@ucl.ac.uk

If you have any concerns and would like to contact someone outside the team you can email the Chair of the UCL Research Ethics Committee, Professor John Foreman c/o Helen Dougal at:

Email: ethics@ucl.ac.uk

Thank you for reading ☺

We will contact you shortly to answer any questions and discuss whether this is a project that you would like to join.

Our contact details are

Jessie Greisbach, Tal Reches and Elise Draper are researchers on the project. Dr Tobias Nolte is a supervisor on the project. If you have any questions or concerns, you can contact them on:

j.greisbach@ucl.ac.uk

tal.reches.13@ucl.ac.uk

elise.draper@ucl.ac.uk

t.nolte@ucl.ac.uk

This study has been approved by UCL Research Ethics Committee (Project ID Number): 6129/003

Appendix H4: Participant information sheet – community parent version

A study about trust and learning

INFORMATION FOR PARENT/CARER

Invitation and brief summary

We are asking your child to help us with a study that we are doing to learn about how teenagers learn and generalise new pieces of information.

We want to learn more about how adolescents learn and what makes learning easier or harder. We are specifically looking at epistemic trust, which refers to an openness to learn from others.We think that when people are babies they learn through their relationship with their parent(s) or the person who takes care of them. We also think that difficult situations may lead to people being less trusting of things that they are told and therefore find it more difficult to learn new information. This is important to us because the information that we get from this project might help us understand the process of learning and help people in the future.

Do I have to take part?

As a legal guardian of your child you are the person who must legally consent on their behalf. If you do not wish your child to participate then that will be respected and we will not contact you or your child about this project in the future. However even if you consent, if your child does not want to participate then that will be respected and they will not be approached to participate in this project in the future. There are no consequences for not participating.

What would taking part involve?

Before meeting we will ask half of the young people joining the project to email the researcher a photograph of their mother, so we can include it in a section of the computer task.

We will meet your child at home or at the Anna Freud Centre, which ever you and your child would prefer. Your child will be asked to sign a form to show that they have agreed to take part, complete some computer tasks, fill in some questionnaires and then do a short activity. Each task is described below in more detail. We will also ask for the contact details of your child's doctor (GP) as part of our routine safeguarding protocol.

- **The computer task**

Your child will be asked to play a game on a computer where they will be trading coins with the computer. Then they will play a different game that involves making decisions about whether to move towards or away from different objects. The last section is a dilemma task where they will be given situations and asked to make decisions about conflicting advice. Before they begin playing each game, the researcher will go through it with them to make sure they understand and answer any questions.

- **The questionnaires**

Your child will be asked to complete a questionnaire pack that the researcher will offer to read to them and complete together. The pack includes questions about their behaviour, worries they may have, how they get on with friends and family, and difficult situations they may or may not have experienced.

The questionnaires we will ask you to complete are the Strength and Difficulties Questionnaire, Reflective Functioning Questionnaire for Youth, The Borderline Personality Disorder Features Scale for Children, The Inventory of Parent and Peer Attachment Revised questionnaire, The Measure of Parental Style, Childhood Trauma Questionnaire, the Childhood Traumatic Events Scale, the Network of Relationship Questionnaire Manual, Psychotherapy Expectation & Perception Inventory, and the Child Rejection Sensitivity Questionnaire.

- **The short activity**

The activities include asking the meaning of words. For example, words that describe animals and words that describe feelings, such as anger. There is also another short activity, like a puzzle. The short activities have been taken from the Wechsler Abbreviated Scale of Intelligence.

The above tasks will take approximately 2-3 hours (with breaks).

It is important to note that this is **NOT** a test.

If they decide that they want to stop before all the different tasks are finished then they can.

We would like to show you our appreciation for agreeing to participate by offering your child £10 for every hour that you help us with the above tasks.

What are the possible benefits of taking part?

If your child does decide to participate they will be helping us to understand the part trust plays in learning. This may help other people in the future.

Are there any risks to you if you take part in the research?

The research is not intended to be upsetting. However, if your child finds it stressful or are upset by it we will provide them with information of whom they can contact for support. They will also be reminded that they can stop participating at any point during the research.

Rules that we must follow

There are a few things for you to know before you decide whether or not to take part in this study. When organisations like ours do studies, there are some important rules we have to follow to make sure that people who help us are treated well and not harmed in any way. Here are those rules:

(7) Consent

First, you should know that you do not have to agree to take part if you do not want to. In other words, this is voluntary. If you DO NOT take part, it will not disadvantage you in any way. If you DO agree to take part, **you can change your mind and withdraw your consent at any time and without giving a reason. This will result in no negative consequences.** If your child decides not to consent or chooses to withdraw consent at anytime their wishes will be respected and override any consent given by yourself.

(8) Confidentiality

Secondly, you should know that all the information you give is confidential. All data will be collected and stored in accordance with the Data Protection Act 1998.

Nothing you say will be told to anyone outside the research team, except in three circumstances:

- We would have to tell the police or another relevant agency if we were told that someone was planning to seriously harm a specific person.
- We would also have to tell the police or another relevant agency if we were to learn that a person under the age of 18 was currently at risk.
- We may contact your child's doctor (GP) if we are concerned about your child's mental health.

Further supporting information

How will our information be kept confidential?

All the information that you provide will be treated confidentially. You will be assigned an ID number (e.g. 001) and we won't identify you by name to anyone. The information will not be shared with anyone (e.g. school) and it will be used solely for this project. Once the project is finished we will happily give you a report of our findings if you are interested.

What will happen to the results of the study?

The report will be written about the results of the study. In that report, the results will be presented in such a way that no one can identify the young person or you or know that you took part. In other words, we can guarantee that information about you will be anonymous because we talk about groups not the individual.

How have young people been involved in this study?

Young people have provided consultation to the research project by reviewing materials, planning how to present the questionnaires and computer tasks to young people and making adaptations to the questionnaire pack and computer tasks.

Who is organising and funding the study?

Doctoral trainees at the Department of Clinical, Educational and Health Psychology at University College London have set up the project. Professor Peter Fonagy and Dr Tobias Nolte are supervising the research. The research is being funded by University College London.

What if something goes wrong?

Professor Peter Fonagy, Principle Investigator, will be available if you have any questions or concerns. You can contact him at:

Research Department of Clinical, Educational and Health Psychology
1-19 Torrington Place, WC1E 7HB
Tel: 020 7679 1943
Email: p.fonagy@ucl.ac.uk

If you have any concerns and would like to contact someone outside the team you can email the Chair of the UCL Research Ethics Committee, Professor John Foreman c/o Helen Dougal at:

Email: ethics@ucl.ac.uk

Thank you for reading ☺

We will contact you shortly to answer any questions and discuss whether this is a project that you would like to join study.

Our contact details are

Jessie Greisbach, Tal Reches and Elise Draper are researchers on the project. Dr Tobias Nolte is a supervisor on the project. If you have any questions or concerns, you can contact them on:

j.greisbach@ucl.ac.uk

tal.reches.13@ucl.ac.uk

elise.draper@ucl.ac.uk

t.nolte@ucl.ac.uk

This study has been approved by UCL Research Ethics Committee (Project ID Number): 6129/003

Appendix I1: Adolescent over 16 years consent form – clinical sample

Centre Number:

Study Number:

Participant Identification Number for this trial:

CONSENT FORM

Title of Project: **Epistemic Trust and Learning in Adolescence**

Name of Researcher:

Please initial box

1. I confirm that I have read the information sheet dated 05.01.2017 (version V3.0) for theabove study. I have had the opportunity to consider the information, ask questions and havehad these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at
3. any timewithout giving any reason, without my medical care or legal rights being affected. ☐

4. I understand that some documents from the study may be looked at by responsible people appointed by UCL, who must make sure (as Research Governance sponsor) that the study is being run properly. I give permission for this group to have access to the necessary information. ☐

5. I understand that information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1988. ☐

6. I understand that the information collected about me may be used to support other research in the future, and may be shared anonymously with other researchers. ☐

7. I agree that the research project named above can request information from my clinical records held at the support service that referred me to this research project. ☐

8. I agree that someone from the research study can contact me in the future. ☐

9. I agree to take part in the above study. ☐

Name of Participant	Date	Signature
Name of Person taking consent	Date	Signature

Our contact details are

Jessie Greisbach, Tal Reches and Elise Draper are researchers on the project. If you have any questions about the project you can contact them on:

j.greisbach@ucl.ac.uk

tal.reches.13@ucl.ac.uk

elise.draper@ucl.ac.uk

Dr Tobias Nolte is a supervisor on the project. If you have any concerns you wish to discuss, you can contact him on:

t.nolte@ucl.ac.uk

Appendix I2: Adolescent over 16 years consent form – community sample

A study about trust and learning

Thank you for your interest in taking part in this research. Before you agree to take part, the person organising the research must explain the project to you.

If you have any questions arising from the Information Sheet or explanation given to you, please ask the researcher before you decide whether to join.

Before you can take part in the research study we need your consent (that means you agree) to take part. Therefore, please can you complete, sign and date this form in the space provided. You will be given a copy of this consent form to keep and refer to at any time.

This study has been approved by UCL Research Ethics Committee (Project ID Number): 6129/003

CONSENT FORM

I .....

- Have read the notes written above and the Information Sheet, and understand why I'm being asked to participate in this study
- Understand that I will be requested to complete some questionnaires and take part in a computer task
- **Understand that if decide at any time that I no longer wish to take part in this project, I can notify the researchers involved and withdraw immediately.I**

understand that withdrawing will result in no negative consequences and it will not affect any support I am currently receiving.

- Consent to the processing of my personal information for the purposes of this research study.
- Understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.
- Agree to the research team obtaining my doctor's (GP) details as part of the routine safeguarding protocol.
- Agree that the research project named above has been explained to me by the researcher and I agree to take part in this study.

Optional

- Agree that the research project named above can request information from my clinical record held at the support service that referred me to this research project

Yes / No / Not applicable

Signed ……..

Name in block letters ……

Date ……

Taking part in the research involves you answering questions about your mental health. As part of our routine safeguarding protocol we are required to obtain the contact details of your GP. Please provide these details below:

Name of doctor (GP) ……

Name of surgery ……..

Telephone number ……..

To be completed by the Research Assistant

I am satisfied that the person named above had given their informed assent to take part in this study: Signed: ……

Name in block letters: ……

Date: ……..

Our contact details are

Jessie Greisbach, Tal Reches and Elise Draper are researchers on the project. Dr Tobias Nolte is a supervisor on the project. If you have any questions or concerns, you can contact them on:

j.greisbach@ucl.ac.uk

tal.reches.13@ucl.ac.uk

elise.draper@ucl.ac.uk

t.nolte@ucl.ac.uk

Appendix J1: Parental consent form – clinical sample

Centre Number:

Study Number:

Participant Identification Number for this trial:

CONSENT FORM

Title of Project: **Epistemic Trust and Learning in Adolescence**

Name of Researcher:

Please initial box

1. I confirm that I have read the information sheet dated 05.01.2017(version V.2) for theabove study. I have had the opportunity to consider the information, ask questions and havehad these answered satisfactorily. ☐

2. I understand that my child's participation is voluntary and is free to withdraw at any time without giving any reason, without their medical care or legal rights being affected. ☐

3. I understand that some documents from the study may be looked at by responsible people appointed by UCL, who must make sure (as Research Governance sponsor) that the study is being run properly. I give permission for this group to have access to the necessary information. ☐

4. I understand that information will be treated as strictly confidential and

handled in accordance with the provisions of the Data Protection Act 1988. ☐

5. I understand that the information collected may be used to support other research in the future, and may be shared anonymously with other researchers. ☐

6. I agree that the research project named above can request information from my child's clinical records that is held at the support service that referred my child to this research project. ☐

7. I agree that someone from the research study can contact me in the future ☐

8. I agree to my child taking part in the above study. ☐

Name of Participant	Date	Signature
Name of Person taking consent	Date	Signature

Our contact details are

Jessie Greisbach, Tal Reches and Elise Draper are researchers on the project. If you have any questions about the project you can contact them on:

j.greisbach@ucl.ac.uk

tal.reches.13@ucl.ac.uk

elise.draper@ucl.ac.uk

Dr Tobias Nolte is a supervisor on the project. If you have any concerns you wish to discuss, you can contact him on:

t.nolte@ucl.ac.uk

Appendix J2: Parental consent form – community sample

A study about trust and learning

Thank you for your interest in taking part in this research. Before you agree to take part, the person organising the research must explain the project to you.

If you have any questions arising from the Information Sheet or explanation given to you, please ask the researcher before you decide whether to join. You will be given a copy of this consent form to keep and refer to at any time.

Before you can take part in the research study we need your consent (that means you agree) to take part. Therefore, please can you complete, sign and date this form in the space provided. You will be given a copy of this consent form to keep and refer to at any time.

This study has been approved by UCL Research Ethics Committee (Project ID Number): 6129/003

CONSENT FORM

If applicable, please complete either participant statement 1 <u>or</u> participant statement 2

I ……

- Have read the notes written above and the Information Sheet, and understand why my child is being asked to participate in the study.
- Understand that my child will be requested to complete some questionnaires and take part in a computer task

- **Understand that if my child decides at any time that I no longer wish to take part in this project, I can notify the researchers involved and withdraw immediately.I understand that withdrawing will result in no negative consequences and it will not affect any support we are currently receiving.**
- Consent to the processing of my personal information for the purposes of this research study.
- Understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.
- Agree to the research team obtaining the contact details of my child's doctor (GP) as part of the routine safeguarding protocol.
- Agree that the research project named above has been explained to me to my satisfaction and I agree for my child to take part in this study.

Signed ……..

Name in block letters ……

Date ……

Taking part in the research involves your child answering questions about their mental health. As part of our routine safeguarding protocol we are required to obtain the contact details of your child's GP. Please provide these details below:

Name of doctor (GP) ……..

Name of surgery ……..

Telephone number ……..

To be completed by the Research Assistant

I am satisfied that the person named above had given their informed assent to take part in

this study: Signed: ……..

Name in block letters: ……..

Date: ……..

Our contact details are

Jessie Greisbach, Tal Reches and Elise Draper are researchers on the project. Dr Tobias Nolte is a supervisor on the project. If you have any questions or concerns, you can contact them on:

j.greisbach@ucl.ac.uk

tal.reches.13@ucl.ac.uk

elise.draper@ucl.ac.uk

t.nolte@ucl.ac.uk

Appendix K1: Assent form – Clinical sample

Centre Number:

Study Number:

Participant Identification Number for this trial:

ASSENT FORM

Title of Project: **Epistemic Trust and Learning in Adolescence**

Name of Researcher:

Please initial box

10. I confirm that I have read the information sheet dated 05.01.2017 (version V3.0) for theabove study. I have had the opportunity to consider the information, ask questions and havehad these answered satisfactorily. ☐

11. I understand that my participation is voluntary and that I am free to withdraw at any timewithout giving any reason, without my medical care or legal rights being affected. ☐

12. I understand that some documents from the study may be looked at by responsible people appointed by UCL, who must make sure (as Research Governance sponsor) that the study is being run properly. I give permission for this group to have access to the necessary information. ☐

13. I understand that information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1988. ☐

14. I understand that the information collected about me may be used to support other research in the future, and may be shared anonymously with other researchers. ☐

15. I agree that the research project named above can request information from my clinical records held at the support service that referred me to this research project. ☐

16. I agree that someone from the research study can contact me in the future. ☐

17. I agree to take part in the above study. ☐

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Person taking consent	Date	Signature

Our contact details are

Jessie Greisbach, Tal Reches and Elise Draper are researchers on the project. If you have any questions about the project you can contact them on:

j.greisbach@ucl.ac.uk

tal.reches.13@ucl.ac.uk

elise.draper@ucl.ac.uk

Dr Tobias Nolte is a supervisor on the project. If you have any concerns you wish to discuss, you can contact him on:

t.nolte@ucl.ac.uk

Appendix K2: Assent form – Community sample

A study about trust and learning

Thank you for your interest in taking part in this research. Before you agree to take part, the person organising the research must explain the project to you.

If you have any questions arising from the Information Sheet or explanation given to you, please ask the researcher before you decide whether to join.

Before you can take part in the research study we need your assent (that means you agree) to take part. Therefore, please can you complete, sign and date this form in the space provided. You will be given a copy of this assent form to keep and refer to at any time.

This study has been approved by UCL Research Ethics Committee (Project ID Number): 6129/003

ASSENT FORM

I .....

- Have read the notes written above and the Information Sheet, and understand why I'm being asked to participate in this study
- Understand that I will be requested to complete some questionnaires and take part in a computer task
- **Understand that if decide at any time that I no longer wish to take part in this project, I can notify the researchers involved and withdraw immediately. I understand that withdrawing will result in no negative consequences and it will not affect any support I am currently receiving.**

- Consent to the processing of my personal information for the purposes of this research study.
- Understand that such information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 1998.
- Agree to the research team obtaining my doctor's (GP) details as part of the routine safeguarding protocol.
- Agree that the research project named above has been explained to me by the researcher and I agree to take part in this study.

Optional

- Agree that the research project named above can request information from my clinical record held at the support service that referred me to this research project
  Yes / No / Not applicable

Signed ……

Name in block letters ……

Date ……

To be completed by the Research Assistant

I am satisfied that the person named above had given their informed assent to take part in this study: Signed: ……

Name in block letters: ……

Date: ……..

Our contact details are

Jessie Greisbach, Tal Reches and Elise Draper are researchers on the project. Dr Tobias Nolte is a supervisor on the project. If you have any questions or concerns, you can contact them on:

j.greisbach@ucl.ac.uk

tal.reches.13@ucl.ac.uk

elise.draper@ucl.ac.uk

t.nolte@ucl.ac.uk

Appendix L: Correlation Matrix for Independent and Dependent variables

Correlations															
		ETI factor	Trust Game factor	BPFSC affect	BPFSC identity	BPFSC relation-ships	BPFSC self-harm	BPFSC total	SDQ emotional	SDQ hyper-activity	SDQ conduct	SDQ relation-ship	SDQ pro-social	SDQ total	Relation-ships score
ETI factor	Pearson correlation	1	.066	-.109	-.090	-.251*	-.071	-.164	-.262*	.023	-.004	-.438**	-.092	-.251*	-.317**
	Sig (2-Tailed)		.569	.338	.430	.026	.533	.149	.020	.843	.969	.000	.420	.026	.004
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79
Trust Game factor	Pearson correlation	.066	1	.106	-.024	-.143	-.069	-.041	-.052	-.016	.037	-.109	-.036	-.056	-.110
	Sig (2-Tailed)	.569		.363	.838	.219	.554	.727	.655	.889	.751	.351	.755	.633	.343
	N	76	76	76	76	76	76	76	76	76	76	76	76	76	76
BPFSC affect	Pearson correlation	-.109	.106	1	.444**	.561**	.609**	.843**	.483**	.435**	.410**	.330**	.029	.577**	.585**
	Sig (2-Tailed)	.338	.363		.000	.000	.000	.000	.000	.000	.000	.003	.797	.000	.000
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79
BPFSC identity	Pearson correlation	-.090	-.024	.444**	1	.434**	.313**	.668**	.589**	.315**	.085	.150	.180	.413**	.288
	Sig (2-Tailed)	.430	.838	.000		.000	.005	.000	.000	.005	.456	.188	.112	.000	.010
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79

BPFSC relation-ships	Pearson correlation	-.251*	-.143	.561**	.434**	1	.535**	.805**	.512**	.337**	.352**	.555**	-.119	.622**	.678**
	Sig (2-Tailed)	.026	.219	.000	.000		.000	.000	.000	.002	.001	.000	.298	.000	.000
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79
BPFSC self-harm	Pearson correlation	-.071	-.069	.609**	.313**	535**	1	.809**	.358**	.656**	.533**	.290**	-.229*	.626**	.803**
	Sig (2-Tailed)	.533	.554	.000	.005	.000		.000	.001	.000	.000	.009	.043	.000	.000
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79
BPFSC total	Pearson correlation	-.164	-.041	.843**	.668**	.805**	.809**	1	.608**	.568**	.458**	.426**	-.059	.720**	.769**
	Sig (2-Tailed)	.149	.727	.000	.000	.000	.000		.000	.000	.000	.000	.606	.000	.000
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79
SDQ emotion al	Pearson correlation	-.262*	-.052	.483**	.589**	.512**	.358**	.608**	1	.404**	.261*	.456**	.054	.771**	.507**
	Sig (2-Tailed)	.020	.655	.000	.000	.000	.001	.000		.000	.020	.000	.637	.000	.000
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79
SDQ hyperac tivity	Pearson correlation	.023	-.016	.435**	.315**	.337**	.656**	.568**	.404**	1	.523**	.198	-.133	.720**	.531**
	Sig (2-Tailed)	.843	.889	.000	.005	.002	.000	.000	.000		.000	.081	.244	.000	.000
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79

SDQ conduct	Pearson correlation	-.004	.037	.410**	.085	.352**	.533**	.458**	.261*	.523**	1	.283*	-.331**	.685**	.508**
	Sig (2-Tailed)	.969	.751	.000	.456	.001	.000	.000	.020	.000		.012	.003	.000	.000
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79
SDQ relation ship	Pearson correlation	-.438**	-.109	.330**	.150	.555**	.290**	.426**	.456**	.198	.283*	1	-.126	.691**	.803**
	Sig (2-Tailed)	.000	.351	.003	.188	.000	.009	.000	.000	.081	.012		.270	.000	.000
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79
SDQ pro-social	Pearson correlation	-.092	-.036	.029	.180	-.119	-.229*	-.059	.054	-.133	-.331**	-.126	1	-.171	-.221
	Sig (2-Tailed)	.420	.755	.797	.112	.298	.043	.606	.637	.244	.003	.270		.131	.051
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79
SDQ total	Pearson correlation	-.251*	-.056	.577**	.413**	.622**	.626**	.720**	.771**	.720**	.685**	.691**	-.171	1	.820**
	Sig (2-Tailed)	.026	.633	.000	.000	.000	.000	.000	.000	.000	.000	.000	.131		.000
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79
Relation -ships score	Pearson correlation	-.317**	-.110	.585**	.288	.678**	.803**	.769**	.507**	.531**	.508**	.803**	-.221	.820**	1
	Sig (2-Tailed)	.004	.343	.000	.010	.000	.000	.000	.000	.000	.000	.000	.051	.000	
	N	79	76	79	79	79	79	79	79	79	79	79	79	79	79

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Appendix M: Correlation Matrix for Demographic and Dependent variables

Correlations								
		ETI factor	Trust Game factor	SES	Age	Gender	Ethnicity	IQ
ETI factor	Pearson correlation	1	.066	.173	-.094	-.007	.044	.096
	Sig (2-Tailed)		.569	.128	.410	.949	.702	.399
	N	79	76	79	79	79	79	79
Trust Game factor	Pearson correlation	.066	1	-.235*	.262*	.010	-.159	.054
	Sig (2-Tailed)	.569		.041	.022	.928	.170	.642
	N	76	76	76	76	76	76	76
SES	Pearson correlation	.173	-.235*	1	-.236*	.105	-.095	.287*
	Sig (2-Tailed)	.128	.041		.036	.355	.405	.010
	N	79	76	79	79	79	79	79
Age	Pearson correlation	-.094	.262*	-.236*	1	.089	-.043	.041
	Sig (2-Tailed)	.410	.022	.036		.436	.708	.719
	N	79	76	79	79	79	79	79
Gender	Pearson correlation	-.007	.010	.105	.089	1	.044	.158
	Sig (2-	.949	.928	.355	.436		.701	.165

	Tailed)					79		
	N	79	76	79	79		79	79
Ethnicity	Pearson correlation	.044	.044	-.159	-.095	-.043	1	.054
	Sig (2-Tailed)	.702	.702	.170	.405	.708		.638
	N	79	79	76	79	79	79	79
IQ	Pearson correlation	.096	.054	.287*	.041	.158	.054	1
	Sig (2-Tailed)	.399	.642	.010	.719	.165	.638	
	N	79	76	79	79	79	79	79

* Correlation is significant at the 0.05 level (2-tailed)

Appendix N: Joint project contributions

This thesis was conducted as a joint project with two other trainee clinical psychologist; Tal Reches and Jessie Greisbach, who were both also supervised by Professor Peter Fonagy. Tal's thesis explored the relationship between attachment, epistemic trust and expectations of helping relationships in adolescents (Reches, 2017). Jessie's thesis explored the impact of early adversity and trauma on adolescent's epistemic trust (Greisbach, 2017).

Whilst we recruited participants from the same populations and the measures packs used for testing contained the measures for all three projects, testing sessions were carried out separately. Additionally the projects investigated different hypotheses using different measures. We entered and analysed our data separately and wrote our empirical papers independently.