

VOLUME I

**Attachment And Theory Of Mind
In Borderline Personality Disorder**

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requirements of the degree of

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ABSTRACT

Background: Individuals with BPD are characterised by extreme difficulties in their interpersonal functioning. Recently, a deficit in Theory of Mind abilities (ToM) has been proposed to underlie these difficulties. Although there has been little research investigating this claim, studies by Stokes (2001) and Fonagy et al. (1996) have provided some initial support. Clinical observations of individuals with BPD in therapy suggest that ToM abilities may fluctuate.

To date, studies using the Adult Attachment Interview (AAI) have indicated that the ‘anxious-preoccupied’ attachment style is the most frequently assigned attachment style for individuals with BPD. A high proportion of them are also categorised as ‘unresolved in relation to loss, trauma and abuse’ (Fonagy et al. 1996; Patrick et al., 1994). This category best relates to the most recently identified attachment style, ‘disorganised attachment’, and Fonagy et al. (2000) suggest that this is the characteristic attachment style of individuals with BPD. The present study investigates the constructs of attachment and ToM in women with BPD.

Method: There are two parts to the present study. A pilot study was undertaken to create the short, equivalent forms of two ToM measures, the Story Comprehension Test (SCT) and the Reading the Mind in the Eyes Test (RMIET). These equivalent forms were required for the main study. In the main study, a group of participants diagnosed with BPD ($n = 22$) were compared to a mixed clinical comparison group ($n = 17$) on a new attachment measure (Attachment Q-Sort, Fonagy et al., 2002) and the two ToM measures. The equivalent forms of the ToM measures were administered under two different conditions; a control/non-primed condition and a second condition where participants were primed to think about their personal attachment histories.

Results: Contrary to the study's hypothesis, no deficit in ToM was found in BPD participants as compared to the clinical comparison group. The study provided some support that women with BPD may have a better ToM ability than women with mood-related disorders on one measure (which may be comparable to a non clinical population as measured in previous research), although this may be connected to whether or not they were in individual therapy at the time of testing, and their younger age. Whilst the Stokes (2001) study concluded that individuals with BPD may have a slight deficit compared to healthy individuals in understanding social situations (as measured in the SCT), the present study concluded they do not have a deficit compared to other women with mood-related disorders. It may be that general psychopathology is a contributing factor to any subtle deficit. In line with clinical observations, the current study provided a little support for a state or context dependent ToM deficit in women with BPD although again, differences in age and current therapy status between the two groups is associated with this finding.

The results of the attachment component of this study provide further evidence that the preoccupied attachment style is the one most associated with individuals with BPD. It proposes further research with more participants to investigate the disorganised attachment style. The present study hints that these findings relate to the higher levels of psychopathology inherent in individuals with BPD but encourages more research to assess this notion further. Contrary to the study's hypothesis, it provides no support for a direct one-to-one correspondence between ToM and secure attachment in adults.

The present study highlights the need for replication given the relatively low number of participants involved. Although more research is required, it suggests that the Attachment Q-Sort may be a useful tool for assessing attachment styles. Finally, suggestions for future research into both attachment and ToM are proposed.

INTRODUCTION

SYNOPSIS

Borderline Personality Disorder; current status

The recent circulation of the policy implementation guidance, “*Personality Disorder: No longer a diagnosis of exclusion*” (NIMHE; 2003) demonstrates the government’s current high level of commitment to the issue of Personality Disorders (PDs). Following extensive debate and as a result of the proposed amendments to the Mental Health Act legislation, Borderline Personality Disorder (along with the other PDs) is on the verge of being perceived and treated very differently by the mental health system.

The present study; central tenet and short definitions of the constructs

This study is primarily concerned with furthering knowledge about Borderline Personality Disorder (BPD). Although definitions of BPD vary, most people agree that an attachment related interpersonal deficit is at the heart of the disorder. Some people (Fonagy & Target, 1997) propose that a mentalising deficit underlies the deficit in interpersonal functioning. It is these two concepts specifically, attachment and mentalising (or theory of mind), which have come to be associated with BPD that will be explored in this thesis.

Each construct constitutes a vast area of literature, and demands significant description both as an entity in itself, and in comparison with how it links in with the other constructs. Accordingly, short definitions of each of the three constructs are given at this point in an attempt to equip the reader for the richer detail and elaboration of each construct as presented in later sections. It is hoped these

definitions will serve as the foundations upon which all future discourse can be located.

‘BPD’ is a disorder in which the individual has problems in interpersonal functioning, identity disturbance, and regulation of emotions. ‘Attachment Theory’ (Bowlby, 1969) offers explanations for the relationship between the experiences of type of care in childhood and interpersonal functioning in adulthood. ‘Theory of Mind’ (mentalising) is best defined as “*the ability to impute mental states in oneself and in others*” (Premack & Woodruff, 1978).

The association of ‘attachment’ and ‘theory of mind’ in relation to BPD is best described by Fonagy et al. (1991). Simply stated, they propose that a child’s ability to mentalise (be reflective about mental processes or employ his or her theory of mind) develops within the context of a secure attachment. Thus, if people with BPD have poor attachment relationships (as emerging evidence suggests) it follows that they will also have a deficit in mentalising (theory of mind). This deficit in mentalising may be a crucial, causal factor in the BPD client’s deficit in interpersonal functioning as the ability to acknowledge and consider the mental states of others, underlies good interpersonal functioning.

(1.1) BORDERLINE PERSONALITY DISORDER (BPD)

This section is intended as an introduction to the main construct, Borderline Personality Disorder. Background theory and concepts within which the research questions can be located, will now be provided.

(1.1.1) THE NATURE OF BPD

(i) Difficulties in interpersonal functioning

People with BPD regularly experience high levels of emotional distress as a result of their extreme difficulty in interpersonal functioning. Similarly, the high levels of emotional distress contribute to further difficulties in interpersonal functioning. This difficulty, considered to be the fundamental deficit of people with BPD, manifests itself in a pattern of unstable and intense relationships. This deficit has ‘knock on’ effects on many areas of the individual’s life, for example, people with BPD find it extremely hard to manage interpersonal issues such as difficult work situations and close relationships. The deficits in interpersonal functioning can be problematic not only in relationships with people close to them such as partners, friends and family but also with those who work therapeutically with them. People with BPD have a tendency to behave in a chaotic manner and often seem oblivious to the negative effects that their behaviour has on others. A key factor in the interpersonal functioning deficit appears to be an extreme difficulty in modulating their own emotional reactions. The difficulty can lead them to put themselves and sometimes other people at risk.

As already acknowledged, the other two key constructs, attachment and ToM, are hypothesised to underlie the deficits in the interpersonal functioning. These are discussed later on. Although the interpersonal functioning deficit is the overarching key difficulty for BPD clients, it is important to acknowledge the other symptoms associated with the disorder to give a more complete picture of the experiences of these individuals. Accordingly the DSM-IV criteria for the disorder are now presented.

(ii) DSM-IV criteria

Providing a framework for identifying and diagnosing psychiatric disorders, the Diagnostic Statistical Manual-IV (DSM-IV; American Psychiatric Association, 1994) defines BPD on Axis II along with the other nine personality disorders and developmental disabilities. Personality disorders in general are characterised by:

“an enduring pattern of inner experience and behaviour that deviates markedly from the expectations of the individual’s culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time and leads to distress and impairment” (pp 629).

BPD is described as one of the “flamboyant” cluster B personality disorders (PDs) as opposed to the “odd and eccentric” cluster A PDs, or the “anxious and fearful” cluster C PDs and according to DSM-IV (APA, 1994), it is

“a pervasive pattern of instability of personal relationships, self image, and affects and marked impulsivity beginning in early adulthood and present in a variety of contexts” as indicated by five (or more) of the following :

- (1) Frantic efforts to avoid real or imagined abandonment (do not include suicidal or self-mutilating behaviour);
- (2) A pattern of unstable and intense interpersonal relationships characterised by alternating between extremes of idealization and devaluation;
- (3) Identity disturbance; markedly and persistently unstable self-image or sense of self;

- (4) Impulsivity in at least two areas that are potentially self-damaging (spending, sex, substance abuse, reckless driving, binge eating - do not include suicidal or self-mutilating behaviour);
- (5) Recurrent suicide behaviour, gestures or threats or self mutilating behaviour;
- (6) Affective instability due to a marked reactivity of mood (e.g. intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days);
- (7) Chronic feelings of emptiness;
- (8) Inappropriate, intense anger or difficulty controlling anger (e.g. frequent displays of temper, constant anger, recurrent physical fights);
- (9) Transient, stress-related paranoid ideation or severe dissociative symptoms.

(pp 654)

Dangerousness to the self is an important factor when considering the relevance of research in furthering our understanding of BPD. Rates of suicidal (McGlashan, 1996; Stone, 1993) and self-injurious behaviour (Cowdry et al., 1985; Clarkin et al., 1983), the fifth listed symptom in DSM-IV, are high within the BPD population, ranging from 69%-75% (as cited by Clarkin, Foelsch, Levy, Hull, Delaney & Kernberg, 2001). Approximately 10% of individuals with the diagnosis of BPD commit suicide (Stone, 1989). At a service level, the government have highlighted the problem of suicide. The prevention of suicide constitutes one of the seven 'standards', or targets for prioritisation set in the National Service Framework for Mental Health (DOH, 1999). Accordingly, at the present time, the National Health Service is actively taking steps to reduce suicides. As the Stone (1989) figure clearly demonstrates, people with BPD have a particularly high risk of succeeding with suicide.

(1.1.2) WHY UNDERTAKE RESEARCH INTO THIS CLIENT GROUP?

It is clear that the life of the individual with BPD is characterised by dangerousness particularly in terms of harm to the self. This in itself implies that research into the client group is worthwhile. However, in order to fully acknowledge the issues associated with BPD and validate the importance of research into the client group, other factors need to be taken into consideration. Such factors include prevalence rates (how large a problem do people with BPD represent?) the impact of BPD on services, and finally the impact on the people who care for and work with them. These factors are detailed in turn.

(i) Prevalence rates – how large a challenge do people with BPD represent?

(a) Community prevalence rates

Prevalence rates for BPD range from 1.1% (Maier, Lichterman, Klinger, Heun & Hallmeyer, 1992) to 1.8% (Swartz, Blazer, George & Winfield, 1990) of community samples, depending on the assessment measures used. (Both studies present methodological weaknesses associated with the use of the different assessment measures employed).

(b) Clinical prevalence rates

In terms of the clinical population, Skodol, Gunderson, Livesley, Pfol, Siever and Widiger (2000) reported that approximately 11% of psychiatric outpatients and 19% of inpatients met DSM-IV (APA, 1994) criteria for BPD. This is probably a reliable

figure as, unlike the previous two studies mentioned, it relates to the current concept of BPD (as defined by DSM-IV). Together therefore, these studies indicate that BPD is not an uncommon disorder.

(c) Bias of BPD diagnosis according to gender

Of those diagnosed with BPD, there appears to be a significant gender bias inherent in the disorder. BPD is observed more frequently in women as compared to men. In an epidemiological study carried out by Swartz et al. (1990), females accounted for 70% of BPD cases.

There are a number of ways that this bias could be explained. It could be that this is indeed a true reflection of reality. For example, child sexual abuse (CSA) is an identified risk factor for BPD (see later) and females are estimated to be three times more likely at risk of CSA compared to males (Russell, 1984). This may result in more females developing the disorder. Alternatively, it may be that males with BPD do not come to be diagnosed as such as they are seen in different settings. Swartz et al. (1990) describe how males with BPD may be underestimated in outpatient settings and more likely found in treatment settings for co-morbid disorders such as in substance abuse clinics. Finally, it is possible that the gender bias in BPD may be explained by the same symptoms being attributed by clinicians to different disorders according to gender. For example BPD symptoms such as impulsivity and anger in males may be more readily attributed by clinicians to antisocial personality disorder, as compared to the same symptoms in females, which are more readily attributed to BPD.

The gender bias inherent in this disorder was duly acknowledged and subsequently only women were recruited as participants for this study (see chapter three).

Accordingly, and for ease of reading, BPD clients will be referred to hereafter in the female form.

(ii) Implications of BPD for the NHS and wider system

Clients with BPD present a significant challenge to services. They are renowned heavy users of psychiatric resources. On reviewing treatment utilisation by BPD patients, Bender, Dolan, Skodol, Sanislow, Dyck, McGlashen, et al. (2001) describe how such patients are more frequently hospitalised, make greater use of outpatient psychotherapy, and make more visits to emergency services. In addition, the implementation of treatment plans by hospital and clinical staff was found to be worse for these patients compared to other personality disordered or Axis I diagnosed individuals (Clark, Hofner & Holme, 1995; Delito & Stam, 1989; Ewing, Falk & Otto, 1996; Soloff, 1998). Perry, Lavori and Hoke (1987) and Skodol, Buckley and Charles (1983) point out that not only is there a high uptake of services by clients with BPD but that the types of service they tend to use are the more expensive resources, for example, emergency, day treatment and inpatient services.

Bender et al. (2001) also explored the treatment history of personality disordered and depressed patients in more detail. On being interviewed about past psychosocial treatments, BPD patients were found to be significantly more likely to have received every type of psychosocial treatment (except self help groups) as compared to the depressed group. They also received greater amounts of treatment (other than self help groups or couples therapy) than the depressed group or the other personality disorders and used more anti-anxiolytics, antidepressants, mood stabilizers, and more

anti-psychotic medication. Although findings should be considered with caution as data was generated from participants' memories of treatments and is therefore subject to bias, it seems that generally BPD clients receive considerable input from services.

In summary, caring for people with BPD is exceptionally costly.

(iii) Implications for the therapist working with the BPD client.

So far, we have seen that BPD clients present a danger to themselves and others, that they are not uncommon in the community or clinical population and that they are very costly to treat. But what is the impact for the professionals who work with them or care for them?

Given the descriptions so far, particularly the high rates of self-harming and dangerous behaviour, it is not surprising to learn that anyone supporting an individual with BPD, particularly the therapist, experiences a very much-increased practical and emotional workload. This increased workload can lead to staff burnout.

“ because of the chronic nature of the BPD patient’s problems, their frequent referral through family pressure or judicial remand, and their apparent reluctance to change, they often are the most difficult and trying patients in a clinician’s caseload. Typically, they require more time within a session, cause greater drain on the therapist’s energy, demand more time outside of the session because of emergencies and evoke more powerful counter-transference reactions than do any other patients.”

(Layden, Newman, Freeman & Morse, 1993; pp 1-2).

Pressures of working with the BPD client are not exclusive to the individual therapeutic relationship; anxiety is often rife in the client’s system. For example,

“staff splitting” is an additional obstacle in working with the BPD client. Commonly professionals begin arguing over the client, her treatment plan or the behaviour of other professionals towards her. Responsibility for the conflict is then attributed to the client who is said to have ‘split the staff’. De Zulueta (1999) acknowledged the difficulty in the management of BPD clients attributing it to their extreme moods and impulsive behaviour, their tendency to become extremely dependent and often angry with people involved in their care.

(a) Perspective of health care professionals towards PD

Lewis and Appleby (1988) reported that patients with a previous diagnosis of PD were viewed by psychiatrists as more difficult and less deserving of care than people in comparison vignettes (the vignettes controlled for depression, gender and occupation). The responses given to the PD vignettes indicate that PD patients were seen as *“manipulative, difficult to manage, unlikely to arouse sympathy, annoying and not deserving of NHS resources.....uncompliant, not accepting advice and as having a poor prognosis... suicide attempts were seen as attention seeking rather than genuine.... judged less mentally ill and their problems were less severe.”*

(Lewis & Appleby, 1988; pp 47).

The findings demonstrated ‘mental health professionals’ rejecting, negative attitudes of individuals with personality disorders. Although this study is dated, similar descriptions gleaned recently from service users in the context of a service user focus group (NIMHE, 2003) showed a remarkable likeness to the 1988 findings. Service users (PD) commented that they were “the patients psychiatrists disliked”, had been called ‘time wasters, difficult, manipulative, bed-wasters and attention seeking” and reported feeling blamed for their condition. They wanted to gain legitimacy and

acceptance in the eyes of the professional (NIMHE, 2003). If professional attitudes have changed since 1988, the impact has not yet had a desirable effect on service users. Thus, the situation between health care professional and client appears far from satisfactory.

The emotional and practical impact of burnout in professionals seems to have influenced the generation of negative perceptions of this client group. Overcoming the consequences of working with BPD clients seems a monumental task. One way of addressing this issue could be to explore the nature of the relationship between client and professional (therapist) as difficulties are played out in this relationship. For example, stronger negative emotions may be evoked in the BPD client (as compared to a non BPD client) if she is unable to accurately work out the reasons behind why her therapist continues to ask her questions of a sensitive nature about a difficult topic, when she is clearly distressed by this. If she is unable to identify her therapist's mental state at such a time accurately, she may conclude that the therapist is enjoying asking such questions and is thus deliberately persecuting her in some way. Naturally, this would result in considerable emotional distress. Thus the value of investigating the factors that may be influencing this relationship negatively (whether they are difficulties in theory of mind or attachment) is highlighted once more.

To summarise, BPD is not an uncommon diagnosis. Individuals with BPD are perceived as difficult to treat and are particularly worrying as they often self-harm, place themselves in risky situations and attempt suicide. They are intensive users of services, especially pharmacological treatments, and often dip in and out of psychological therapy as they negotiate the relationship with their therapist. For these reasons, research into this client group is considered extremely important. Any

finding which can further our understanding of the mental world of the person with BPD, particularly on dimensions relating to the therapeutic relationship, may assist the therapist in encouraging the individual to stay in therapy and benefit from help that is on offer.

(1.1.3) BPD -WHAT ARE THE OBSTACLES IN RESEARCHING THIS CLIENT GROUP?

Several factors present significant problems in undertaking research into this disorder. These will now be identified.

(i) Diagnostic validity of BPD

The term 'borderline' is laced with ambiguity. Although DSM-IV sets out the criteria for BPD, many remain unconvinced that the concept constitutes a single distinct diagnostic category (Fromm, 1995; Holmes, 1993; Johnson, 1991). Some have suggested that BPD is more of a spectrum disorder than a single discrete category (Kernberg, 1975; 1984; Meissner, 1998). Others have directly questioned its discriminant validity among the personality disorders (Clarke, Livesley & Morey, 1997).

(ii) Co-morbidity and BPD

Typically, the BPD client presents at the clinic as a result of the difficulties associated with co-morbid Axis I disorders, rather than personality problems per se, and it is often only as therapeutic sessions unfold that personality issues become salient.

(a) Axis I Disorders

The most recent study of co-morbidity in PD was undertaken by Zanarini, Frankenberg, Dubo, Sickel, Trikha, Levin and Reynolds (1998) who investigated lifetime rates of occurrence of a full range of DSM-III-R Axis I disorders in inpatients with PD. The study merits from being fairly large-scale in that 379 BPD patients were identified from an original sample of 520 PD patients. In addition, interviewers were blind to clinical information including prior diagnoses of the participants. However, a weakness exists in that the authors used a now out-of-date measure, the Structured Clinical Interview for DSM III-R (Spitzer, Williams, Gibbon & First, 1990) to identify Axis I disorders. The findings were as follows: 96% of the BPD group had a mood disorder, 88.4% had some kind of anxiety disorder, 82.8% had major depressive disorder, 64.1 % had a substance misuse disorder, 55.9% met criteria for PTSD, 53.0% a co-morbid eating disorder and 10.3% a somatoform disorder.

Depression in particular, is very common amongst people with BPD. However, it is noteworthy that controversy exists over the type of depression that people with BPD experience. Some authors (Gunderson, 1984; Kernberg, 1975; Masterson, 1976 as cited in Westen, Moses, Silk, Lohr, Cohen & Segal, 1992) have argued that individuals with BPD have a 'qualitatively distinct depression', compared to Major Depressive Disorder (as described in DSM-IV).

(b) Other personality disorders (Axis II)

There is a high co-morbidity with Axis II disorders (Zimmerman & Coryell, 1990; cited in Roth & Fonagy, 1996). This issue will be addressed further in the discussion section.

Due to the queries about the concept's discriminant validity and its significant comorbidity with other psychiatric disorders, there is an ongoing debate regarding the usefulness of the concept of BPD. These difficulties present challenges to the researcher in terms of selecting definitions for BPD and in obtaining a homogenous group of participants with BPD.

(1.1.4) AETIOLOGY OF BORDERLINE PERSONALITY DISORDER

A review of background information to a disorder would not be complete without a summary of current ideas of how a person comes to develop the disorder. The central tenet of this thesis fits best with psychodynamic explanations of BPD. For this reason psychodynamic ideas are presented first. The psychodynamic ideas are elaborated later on in the section relating to attachment.

(i) Psychodynamic explanations

Psychodynamic theories of BPD focus on early developmental occurrences. For example Kernberg (1975) believed that BPD results from the child's failure to amalgamate the good and bad images of herself and others into an ambivalent, more realistic view. Instead, as a consequence of her early excessive aggression, she splits the positive and negative images. Kernberg thought that the aggression was either innate or rooted in frustration. Others believe that a failure in early mothering results in the child being unable to achieve object constancy and that inconsistent care giving leads the child to fail to develop a consistent self view (for example, Adler & Buie, 1979). Winnicott (1965) believed borderline symptoms resulted because the un-integrated infant has serious difficulty in achieving the so called "unit status", that is,

existing as one person. This difficulty was thought to occur as a consequence of an inadequacy in the infant's holding environment. A review of the empirical studies exploring the link between BPD and childhood care giving experiences, is also set out in detail in the section relating to attachment.

(ii) Biological explanations

Silk (2000) reminds us that personality disorders were placed in Axis II on DSM-IV because researchers could not find any real biological theory that could exclusively explain the aetiology of BPD. However, there are thought to be biological disturbances underpinning difficulties in cognition, impulsivity, aggression, affective lability and the chronic anxiety often seen in people with BPD.

Genetic studies reveal that no single gene locus is responsible for any psychological disorder. Instead, geneticists advance the idea of a genetic predisposition for a disorder; that is, there is an interaction between the gene and the environment and the environment and the gene. Although not specifically linked to BPD, some geneticists have found certain biological responses in personality disorders to be linked to impulsive personality traits (Coccaro & Kavoussi, 1997) and others have discovered links between certain gene polymorphisms, the neuro-transmitter, serotonin, and increased suicide attempts (Nielson, Goldman & Virkkunen, 1994). Zanarini, Gunderson and Marino (1988) have shown that relatives of BPD individuals are more likely to have disorders on the impulsive spectrum (individuals who misuse substances, Antisocial Personality Disorder and BPD).

Biological explanations in conjunction with life events, is more likely to be a better way forward in understanding the aetiology of BPD. For example, repeated childhood trauma (something that has been shown to be characteristic of BPD patients) has been consistently linked to specific neuro-endocrine responses (Rinne, de Klut, Wouters, Goekoop, DeRijk, & Van den Brink, 2002). Work in this area is considered key to a better understanding of BPD.

In conclusion, none of the biological risk factors so far explored, can explain fully the development of BPD.

(iii) Cognitive-behavioural model

From their perspective, cognitive therapists (e.g. Layden et al., 1993) believe people with BPD to be locked into rigid and predictable patterns of thinking, feeling and acting so that they feel safe. However, the familiar yet maladaptive patterns mean that the individual with BPD has reduced opportunities. Should the individual with BPD move outside these familiar patterns, she feels vulnerable and experiences a high level of anxiety, which is perceived as intolerable. The development of an intolerance of emotions leads the BPD client to avoid experiencing her negative feelings (an extreme form of which manifests itself as the phenomenon of dissociation). The aforementioned patterns of thinking, feeling and acting are thought to have evolved from core maladaptive schemas, which were produced as a consequence of adverse childhood experiences such as neglect and abuse.

(iv) The Biosocial model

Linehan's (1993) model of BPD is an amalgamation of biological and psychosocial theories. Linehan believes that a combination of invalidating environments (from caregivers which includes experiences of abuse and neglect) and a biological susceptibility to emotional reactivity, leads to problems relating to emotional dysregulation, the core feature of BPD. The treatment she has developed, Dialectical Behaviour Therapy (DBT), takes into account this proposed aetiology.

(1.1.5) WHAT TREATMENT IS USEFUL FOR INDIVIDUALS WITH BPD?

Given BPD clients' highly distressing subjective experience, and the huge cost of treating them, it seems prudent to identify the treatments which are most helpful in order that precious resources can be channelled into treatments that are most likely to have positive outcomes. BPD patients are notoriously difficult to treat and heavy users of services. Fromm (1995) compared the BPD patient's treatment outcome to a "disastrous marriage" which gives us a flavour of the treatment success in this client group. Some treatments may expose BPD clients' deficits (the hypothesised attachment difficulties and poor theory of mind), which lead to negative outcomes, to a greater extent as compared to other treatments. Thus, identification of factors that may be contributing to this state of affairs, through research (regardless of the theoretical orientation of the therapist) is valuable.

In a review of treatment of BPD, Livesley (2000) reports that the optimum treatment for this client group requires a combination of medication and interventions drawn from diverse therapeutic approaches. The single treatment option, he believes will be less effective, especially considering the wide range of psychopathology with which

these patients present. Interventions need to be coordinated in an integrated way as opposed to being offered in a 'piecemeal fashion' especially given the difficulties in establishing an effective therapeutic alliance, inherent in this client group.

Evidence from randomised controlled trials reported in the research literature, indicates that several types of treatments may be useful in helping people with BPD with their emotional distress. Specifically, Dialectical Behaviour Therapy (DBT; for example, Linehan, Comtois & Koerner, 1998), and Psychoanalytically Oriented Partial Hospitalisation (POPH; Bateman & Fonagy, 1999) have been shown to be effective. Some types of medication can be helpful with certain symptoms of BPD such as impulsivity. Other treatments such as Transference Focused Psychotherapy (TFP; Clarkin et al., 2001) have shown promising preliminary results, but as yet have not been assessed using a control group.

(1.2) ATTACHMENT

Background information relating to the first of the two constructs to be explored in this study, attachment, will be covered in this section. The literature pertaining to attachment is vast and expansive, and a complete review is well beyond the means of this thesis. However, in order to be able to fully understand the study's research questions and hypotheses, selected relevant aspects of the subject will be discussed and presented in discrete sections.

In order that the reader is prepared for the specific link between attachment and BPD, considerable time will now be spent in describing various attachment constructs such

as attachment theory, the established attachment styles and the consistency of attachment status across the life span. Specifically, the most recently identified ‘disorganised’ attachment style, its manifestation in childhood and associated developmental theory will be emphasised, as this is the attachment status that has been linked to BPD (Fonagy, Leigh, Steele, Steele, Kennedy, Mattoon, Target & Gerber, 1996; Patrick, Hobson, Castle, Howard & Maughan, 1994).

(1.2.1) ATTACHMENT THEORY

Sable (1997) described Bowlby’s attachment theory as a

“...biologically rooted, lifelong attachment behavioural system which promotes proximity and feelings of security...” (pp172).

According to Bowlby (1969), all human beings have a basic biological need to form close affectional bonds or in other words, we have an innate disposition to form attachments. Solomon and George (1999) use the term ‘internal goal correcting system’ to describe attachment. This system allows attachment behaviours (behaviours that promote proximity to the attachment figure resulting in feelings of security and protection in the infant) to become organised around a particular attachment figure in a flexible way. Solomon and George go on to describe how the nature of the interactions between the infant and the caregiver are of paramount importance in this process, particularly in terms of how accessible, sensitive and responsive the caregiver is (or perceived to be) to the infant’s needs. Attachment behaviours in the infant are triggered both by internal cues such as illness, and by external threats as appraised by the infant in the environment. For example, if the environment elicits fear in the infant, he or she may cry indicating a distressed state. As the attachment system is activated, the infant’s emotional state increases in

negative affect and emotional appraisals of anxiety, alarm and fear are made by the infant. If the infant perceives the attachment figure to be unreliable or inaccessible, anger and sadness are likely to comprise his or her emotional state. Over time, the response of the adult caregiver to the attachment behaviour reinforces the infant's attachment behaviour and these behaviours then come to be organised around a representation of his or her care giving figures.

Solomon and George (1999) describe the importance of affective and emotional state in the organisation and expression of attachment. Thus, *"the child's affective states and emotional appraisals are expected to vary in accordance with the attachment system."* (Solomon & George, 1999; pp 5).

The ability to regulate emotions is not present in the new-born but develops as the two way system of interactions between the infant and caregiver unfold, that is to say, as the child's state is acknowledged and responded to by the caregiver over time. The caregiver regulates the infant's emotions, for example by soothing the infant's arousal and thereby re-establishing the equilibrium (Fonagy, Target & Gergely, 2000). The infant learns that his or her arousal will not be overwhelming in the presence of the caregiver and so consequently physically seeks out the caregiver, especially at times of arousal. Through repeated patterns of responses to attachment behaviours and ongoing interactions with the people around them, children learn how relationships work and form sets of assumptions or models (Solomon and George, 1999). Bowlby (1969) labelled such models 'internal working models' (or representational schema). These are thought to hold information regarding oneself and one's own capacities, and what one can expect from others.

“These models reflect the child’s appraisal of and confidence in, the self as acceptable and worthy of care and protection, and the attachment figure’s desire, ability and availability to provide protection and care.”

(Solomon & George, 1999; pp 5).

If the attachment figure can be relied upon, she is seen to represent (something Bowlby referred to as) the “secure base” and the child tends to explore his or her world to a greater degree, safe in the knowledge that the caregiver will be there, should he or she encounter difficulties. Ainsworth (1989) found that if the child has a secure attachment to his caregiver, he or she not only tends to spend more time away from the attachment figure but also tolerates separation with less distress. It is thought that if no secure base is available, willingness to explore is inhibited, resulting in limited opportunities to interact with others. This can result in the internal working model failing to be updated and as such, the repertoire of ways of interacting may become limited or rigid (Sable, 1997). Sable believes that access to information and feelings necessary for adaptive functioning subsequently become severed, something that is then carried forward to the individual’s new relationships and influences the degree to which the individual is able to cope in stressful situations, particularly separation.

These ‘internal working models’ are thought to then influence how the child relates to other important attachment figures throughout his or her life. Many studies of a longitudinal nature (for example, Waters et al., 2000; Hamilton, 2000) have supported this idea of consistency of attachment style across the life span showing between 72% - 77% correspondence between classification in infancy on the ‘Strange Situation’ and attachment classification in adulthood on the Adult Attachment Interview (AAI).

To summarise, Bowlby's Attachment Theory (1969) offers explanations for the relationship between the experiences of lack of care in childhood and the range of mental distress shown in adulthood. It explains the behaviour and emotions that exist between an infant and his or her primary caregiver referring particularly to the concepts of "secure base" and "Internal Working Models". Importantly, attachment behaviour is evident through the lifecycle.

(1.2.2) ATTACHMENT STYLES

One of the aims of this study is to identify the predominant attachment style of individuals with BPD. Whilst 'disorganised attachment' is the style most pertinent to the study and the understanding of BPD, it requires a context and comparison with the other recognised attachment styles in order to fully appreciate its distinctness. In addition, disorganised attachment is sometimes considered a blend of the two insecure styles, 'anxious-ambivalent' and 'avoidant'.

(i) History and method of assessment of the attachment styles

Ainsworth and her colleagues (1978) were the first researchers to test attachment theory empirically. They described three principal patterns of attachment observed in infants in their work using the 'strange situation'; a laboratory observation procedure where the infant's attachment and exploratory behaviour are studied under conditions of low and high stress. In the 'strange situation' the caregiver, the infant and a stranger take part in a "miniature drama" consisting of eight episodes, which includes the infant's brief separation from his primary caregiver. In this way the researcher is provided with an opportunity to observe the infant's exploratory behaviour in the

presence and absence of the caregiver. The behaviours exhibited by the infant upon re-union with the caregiver are considered especially indicative of the hypothesised attachment style. Three identified attachment patterns have been described (cited in De Zulueta, 1999) secure, and two types of insecure attachment: anxious-ambivalent and anxious – avoidant.

(ii) Secure attachment

63% of the middle-class infants who took part in the study showed secure attachment. The infant was active in play, usually cried on separation from the mother, sought contact when distressed after a brief separation from the attachment figure, was readily comforted, and soon returned to absorbed play. These infants were reported to form good relationships with adults and peers and were able to empathize with them.

“The individual is confident that his parent (or parent figure) will be available, responsive, and helpful, should he encounter adverse or frightening situations. With this assurance, he feels bold in his explorations of the world”

(Bowlby 1988; pp 124).

(iii) Insecure attachment –‘anxious-ambivalent’

12% of the Ainsworth sample displayed anxious-ambivalent attachment. These infants tended to become very distressed on separation from the parent, but when reunited showed an ambivalent response; they wanted to be close to their mother but at the same time arched away from her. They took a long time to settle down on their mother’s return. Also noted was the less responsive nature of these mothers to their infants’ crying and communications as compared to the mothers of the securely attached infants. It is thought that these infants had been exposed to inconsistent parenting and were trying to influence their mothers in some way.

"This individual is uncertain whether his parent will be available or responsive or helpful when called upon. Because of this uncertainty he is always prone to separation anxiety, tends to be clinging and is anxious about exploring the world"

(Bowlby, 1988; pp 124).

(iv) Insecure attachment – ‘anxious-avoidant’

20-25% of the infants in Ainsworth sample were seen to exhibit an anxious-avoidant attachment pattern. They showed no distress on separation from the mother and avoided her during reunion. Many of these children treated the stranger in a friendlier manner than their mother. It is known that these infants were anxious as their physiological responses (e.g. increased heart rate) were monitored (Stroufe & Waters, 1977). It is thought that these infants had been neglected or rejected and Main (1981; cited in De Zulueta, 1999) explains that they have diverted their attention and cut off their anger and fear so that they can remain close to the parent they need to depend upon.

"The individual has no confidence that, when he seeks care, he will be responded to helpfully but, on the contrary, expects to be rebuffed"

(Bowlby, 1988; pp 124).

Fonagy et al. (2000) describes the difference between the two groups of insecurely attached children relating to their experiences of arousal. He suggests that anxious – avoidant children grow up to over-regulate their affect and avoid situations that are likely to cause distress. This tendency is thought to have arisen as a result of two possible scenarios. Either these infants were excessively aroused through intrusive parenting, and so they learned to avoid the distressing situations. Alternatively, the levels of arousal they experienced were ‘normal’ but the caregiver did not re-stabilise

the arousal in an appropriate way. Anxious-ambivalent children, on the other hand, having learned that the caregiver is sometimes available, increase their distress in an attempt to elicit a response from the caregiver. They tend to under-regulate their arousal so that even when the caregiver is present, they remain frustrated.

(v) Disorganised attachment

Subsequent to Ainsworth's work, a fourth group of infants was identified by Main and Hesse (1992) using the 'strange situation' procedure. This group of infants were labelled as having a 'disorganised attachment' style. Research during the last 15 years indicates that it is the "disorganised" attachment style, rather than the "organised" insecure attachment styles, that presents a more serious developmental risk factor for pathological outcomes (George, West & Pettem, 1999).

(a) Behaviour inherent in the disorganised attachment style

So what does the 'disorganised' attachment style represent in terms of infant behaviour? The behaviour of "disorganised" infants was observed to be 'fundamentally bizarre', and has been described as a mixture of 'avoidant' and 'anxious-ambivalent' behaviour. On the reunion stage of the 'strange situation' the disorganised child displays a variety of unusual behaviours such as diving under the mother's chair, clapping his hands, freezing, or moving to the other side of the room. The child's attachment system shows high arousal during these times indicating that the caregiver is concurrently perceived as a source of fear and a source of reassurance (Fonagy et al., 2000).

(b) Who displays disorganised attachment?

Studies have shown that the highest proportion of disorganised attachment is found in children who have been maltreated (Carlson et al., 1989). This classification is also more frequent in the children of depressed and alcoholic mothers (DeMulder & Radke Yarrow, 1991) and in families where there is a high degree of marital conflict (Owen & Cox, 1997). Evidence from maltreated children is a putative factor that brings together BPD and disorganised attachment, given the high frequency of abusive childhood experiences of clients with BPD (elaborated later).

(c) Caregiver-child relationship in ‘disorganised’ children

Given that a central tenet of this thesis is understanding how attachment (with ToM) fits with BPD, it is useful to establish what is known about the child-mother relationship. Solomon and George (1999) interviewed the mothers of disorganised children and noted two significant findings. They found that these mothers were capable of increasing their child’s attachment related anxieties by frightening and rejecting the child when he or she most needs consolation, and that these mothers appear to simultaneously activate the child’s attachment system with threatening or angry behaviour followed by rejection and withdrawal. Solomon and George propose that these children are thus prevented from developing an organised strategy of attachment and their extreme fear overwhelms their ability to regulate their affect.

To summarise, caregivers of disorganised infants are thought to be experienced by their ‘disorganised’ children, as abusive and frightening (a source of fear as well as the source of potential comfort). Alternatively, it may be that the caregiver herself is frightened perhaps due to suffering from dissociative experiences such as flashbacks, and is thus emotionally unavailable and unable to contain her infant’s distress.

(d) Theory underlying the ‘disorganised’ attachment style

Bowlby’s notion of “segregated systems” is the component of attachment theory that has been most closely considered in relation to the disorganised attachment classification. This is due to the similarities in the behaviours he described in infants when this process is evoked, and those shown by infants who have subsequently been classified as disorganised. “Segregated systems” is defined as,

“an extreme and potentially pathological form of exclusion that functions to separate attachment information from consciousness

(Solomon & George, 1999; pp 6).

This type of exclusion is thought to take place as a defensive process when a child is under chronic stress and the attachment behaviour he or she elicits persistently and chronically fails to regain the attachment figure, and hence fails to be ‘switched off’. The pain associated with this kind of attachment experience is so great that the memories and feelings associated with those experiences threaten to undermine the individual’s ability to function, therefore “segregated systems” are activated (Solomon & George, 1999). According to George, West and Pettem (1999), at such a time,

“Mental material related to attachment is literally re-housed elsewhere and in the most extreme situation, trauma related attachment memories and emotions (in a separate representational model) is kept, as completely as possible inaccessible to consciousness” (pp 320).

(1.2.3) ATTACHMENT AND BPD

As already alluded to, child sexual abuse (CSA) is an established risk factor for BPD. For example, using the Parental Bonding Instrument (PBI; Parker, Tupling & Brown,

1979) to explore participants' recollections of affection and control from their parents over the first 16 years of their lives, Paris, Frank and Guzder (1994) found individuals in a BPD group to have experienced both a greater frequency of CSA and more severe CSA as compared to a non-BPD, PD group. The BPD individuals also experienced more physical abuse and demonstrated a lower maternal affection score. The authors concluded that the nature of the CSA was the risk factor that most strongly discriminated between the BPD group and the non BPD group, but acknowledged that CSA has a low specificity to BPD (as compared to a group of patients with other Axis II disorders). CSA can be acknowledged as a vulnerability factor for BPD but not a direct cause, in that not all BPD clients have experienced CSA, and not all who are sexually abused develop BPD.

Attachment patterns can predict the way that we as humans will interact with the important figures throughout our lives. Given the aforementioned link of CSA as a risk factor for BPD (experiencing maltreatment at the hands of a parent), and in consideration of the principal tenet of attachment theory (early experience of the caregiver works to organise attachment and future relationships with others), it is perhaps not surprising that investigators have turned to attachment theory to increase their understanding of BPD. In addition, individuals with BPD are notoriously difficult to treat. Psychological therapies have a strong interpersonal focus. Therefore exploration of attachment issues associated with this group may prove fruitful in informing the ways that therapists work with BPD clients and thereby improve treatment outcome.

The aim of the following section is to present the empirical data which specifically relates to attachment in people with BPD. However, before doing so, some explanation is required of how attachment styles are measured in adults.

(i) Attachment in adults: measures

Attachment status in adults has been assessed predominantly by using the Adult Attachment Interview (AAI; George, Kaplan & Main 1984;1985;1996). This is a semi- structured interview measure used with adults, which “*provides access to the adult’s current ‘state of mind’ with regard to his or her childhood attachment experiences*” (Main, 1995; pp 467). Adults are assigned to one of four categories according to the narratives that they generate from the questions on the AAI.

Although the AAI is often listed as the gold standard for measuring adult attachment, other measures have been developed and used in this area. One such measure is described briefly as it is mentioned in the studies described on attachment on BPD. The Parental Bonding Instrument (PBI; Parker, Tupling & Brown, 1979) is a self-report questionnaire that assesses an individual’s judgement of the parental contribution to the parent-child relationship. ‘Care’ and ‘overprotection’ are the two independent dimensions derived from scores on the PBI.

(ii) Adult attachment styles (on the AAI); comparison to childhood attachment styles

According to Fonagy et al. (2000) ‘secure autonomous’ indicates that the adult valued the attachment relationship, has integrated memories of it in a coherent, meaningful way and is able to use the attachment relationship formatively. Those classified as

‘insecure/dismissing’ tend to idealize and devalue early relationships, demonstrating avoidance and denying memories. These people often have a deep sense of shame, poor self-esteem and describe themselves as having no need for love. This is considered to be an extension of the ‘anxious-avoidant’ childhood classification. The ‘insecure/preoccupied’ classification is given if the individual is confused, angry or passive in relation to the attachment figure. They often give significance and emphasis to things that failed to go their way in childhood. This corresponds to the childhood ‘anxious- ambivalent’ classification. Finally the ‘unresolved’ classification is given to those who show a disorganisation and confusion when describing attachment relationships. This may be in terms of semantics or syntax in their attachment narratives with respect to loss and trauma. The unresolved or ‘disorganised’ adult shows a lack of resolution when discussing loss, trauma or physical abuse demonstrated by ‘significant lapses in the meta-cognitive monitoring of reasoning’ in the discourse of the attachment narrative (Main & Goldwyn, 1991).

(iii) Empirical Data - attachment and BPD

The research evidence pertaining to attachment status in adults with BPD will now be reviewed. Research evidence into attachment in people with BPD, is accumulating (for example Fonagy et al., 1996; Nickell, Wandby & Trull, 2002; Paris & Frank, 1989; Patrick et al., 1994; Sack, Sperling, Fagen & Foelsch, 1996; Sperling, Sharp & Fishler, 1991; Torgersen & Alnaes, 1992; West, Keller, Links & Patrick, 1993). Only selected studies will be presented.

Torgersen and Alnaes (1992) identified people with BPD using the Structured Interview for DSM III, SIDP. They used the PBI and found negative over-involvement was the predominant child rearing style of parents of people with BPD.

Negative over-involvement can be seen as parents' active hindrance of the child's independence and separation, where the child's natural curiosity tends to be met with warnings, hostility and an emphasis on potential danger (Parker et al., 1979, cited in Torgensen & Alnaes, 1992). In interpreting the results from this study, it is important to acknowledge that the PBI relies on patient's retrospective memories, which may be subject to bias.

Using the AAI, Patrick et al. (1994) found all BPD patients were classified as 'preoccupied' in their attachment style and all fell into the sub category of 'confused, fearful and overwhelmed in relation to their attachment figures'. Three quarters of the BPD patients in this study were classified as 'unresolved, disorientated or disorganised' with respect to loss, abuse and trauma. BPD diagnosis was also associated with reports of significantly lower maternal care and significantly higher maternal overprotection on the PBI compared to those patients diagnosed with dysthymia. This finding echoes Torgensen and Alnaes (1992) finding of the parental negative over-involvement child rearing style. Fonagy et al.'s (1996) study mirrored Patrick et al.'s findings in that 89% of participants with BPD were classified as 'unresolved' compared to 65% of those without a BPD diagnosis. Again, the classification of being 'preoccupied' was most frequently assigned to patients with BPD (75%), and within this category, the sub classification of 'confused, fearful and overwhelmed' was most common. This can be seen to relate to the unresolved trauma often inherent in the BPD patient's life resulting from various forms of abuse particularly physical and sexual abuse (identified earlier as common risk factors for the disorder). Leading on from their findings, these authors propose that individuals with BPD are disorganised in their self-representation, partly as a result of their disorganised attachment styles.

In an attempt to control for Axis I disorders and the full range of non BPD Axis-II disorders, Nickell et al. (2002) explored parental bonding and attachment constructs in a non-clinical sample of young adults (18 year old students). They maintained that previous findings relating to parental bonding and attachment might have been a function of co-morbid psychopathology. Moreover, they recognised that previous studies had not controlled for childhood adversity. They used a variety of appropriate measures; the Structured Interview for DSM-IV Personality Disorders (SIDP-IV; Pfohl, Blum & Zimmerman, 1995), the Diagnostic Interview for Borderlines-revised (DIB-R; Gunderson & Zanarini, 1992) and the MMPI-Borderline Personality Disorder Scale (MMPI-BPD; Morey, Waugh & Blashfield, 1985) to assess features of BPD. The familial Experiences Interview (FEI; Ogata, 1988) was administered to identify childhood physical and sexual abuse. The PBI was administered to obtain data about relationships with parents. Following sophisticated hierarchical regression analyses, these authors found that even whilst controlling for both childhood adversity and Axis I and non BPD Axis II pathology, certain parental bonding and attachment patterns were significantly related to BPD features. Participants with BPD showed an anxious or ambivalent attachment pattern, and their perceptions of care were characterised by mothers as being less caring, more overprotective and more encouraging of independence. The focus on the mother's parenting style specifically, is a relatively new finding, whereas until now parenting style in general was addressed. 'Over-protectiveness' and 'encouraging of autonomy' seem to indicate a paradox. 'Autonomy encouraged by mother' was explored further and subsequently redefined by the authors as an 'over-permissiveness,' which includes items such as 'let me go out as often as I wanted'. This can be seen to relate to a lack of parental control. Nickell et al. (2002) go on to describe the combination of the aforementioned factors which constitute a conflicting and contradictory perception of one's mother

which they relate to alternating images of the caregiver and the characteristic tendency for BPD patients to use 'splitting' as a mode of functioning. This psychoanalytical term refers to the tendency to separate the 'object' (attachment figure or other person) into a good and bad form. This happens so that the individual can avoid the conflict (anxiety evoked) between loving and hating the other, who in reality is both good and bad.

To summarise, BPD has been associated with an anxious-preoccupied attachment style and more specifically with 'confused, fearful and overwhelmed' as the most common sub-classification. It is thought that this classification characterises the BPD patients' emotional template of intimacy and anger (Dutton, Saunders & Starzomski, 1994). The BPD diagnosis is also associated with being 'unresolved, disoriented and confused regarding trauma and loss'. Specifically, perceived low maternal care, perceived high maternal over-protection and more recently, a maternal over-permissiveness (an apparently contradictory parenting style), appears characteristic of mothers of people with BPD. Disorganised attachment style as described earlier, can be seen as a mixture of 'avoidant' and 'anxious-ambivalent' behaviours. As yet however, other than the frequently assigned 'unresolved' status finding, evidence for the disorganised attachment style in people with BPD has not as yet emerged.

(1.3) MENTALISING OR THEORY OF MIND (TOM)

Theory of mind is the second principal construct to be explored. First some definitions of the concept and ideas about ToM from the developmental literature will be

outlined. Then autism and schizophrenia will be discussed as ToM deficits have been found in people who have these disorders. Finally ToM in BPD is described.

(1.3.1) DEFINITIONS

‘Theory of mind’ is a term that has been used predominantly by developmental psychologists and is the term most commonly associated with autism. At the beginning of this thesis, Premack and Woodruff’s (1978) definition “*the ability to impute mental states in oneself and in others*” was given. Until now, ToM has been referred to alongside the term ‘mentalisation’. This term came about because some authors decided they needed a verb to refer to the active use of theory of mind capacities (Fonagy, 1999). They decided on ‘mentalising’ or ‘mentalisation’. This contains the original Premack and Woodruff definition but appears more extended in its usage. A fuller definition of mentalisation is,

“...the capacity for internal experience that is felt to belong to one. It is experience that is truly felt and owned, and that carries a sense of personal meaning. It also means appreciating that one’s thoughts and feelings are subjective, a mental state that is subject to modification. It is a primary avenue for understanding that others also have their own modifiable subjectivity. It means being able to step into the shoes of the other and out again; to be able to anticipate that others can understand, to think about and be able to empathise with one. It means being able to be reflective about mental processes”

(Fonagy, 1999).

Fonagy suggests that mentalising relates to concepts such as psychological mindedness and that it overlaps with empathy and insight. He proposes that mentalising is strongly connected to folk psychology which includes the mental concepts that we naturally employ, such as desires, feelings, goals and beliefs, the

narrative structures in which such concepts are embedded as well as the autobiographical sense of self. ‘Theory of Mind’ on the other hand, could be seen to have scientific implications and Allen and Fonagy (2002) consider the term fuses together ideas relating to our common sense folk psychology with those of scientific psychology in an unhelpful way. Both terms are used in this thesis and the term chosen generally reflects the origin of whichever issue is being discussed (i.e. developmental/autism literature or the specific author e.g. Fonagy and colleagues).

(1.3.2) METHODS OF MEASURING TOM

‘ToM’ is a significant factor in children’s development as it is thought that children come to understand behaviour as meaningful and predictable following the attribution of mental states to others. It is considered fundamental to social development as the foundation of human social interaction (Baron-Cohen, Jolliffe, Mortimore & Robertson, 1997). Research often assesses ToM in terms of competence on ‘false belief tasks’ of which there are two types. A *first order* false belief task requires the child to infer another person’s mistaken belief about a situation. For example, Sally counts 10 sweets in a tin and then leaves the room. Whilst Sally is out of the room, 5 sweets are taken from the tin. Sally comes back into the room. The child is asked to predict how many sweets Sally believes are in the tin. To pass this false belief task the child needs to answer ‘10’ as opposed to ‘5’.

A *second order* false belief task requires the child to infer another person’s thoughts about a third person’s thoughts. For example, Sally and her friend, Ann, count 10 sweets in the tin. Sally leaves the room and Ann takes 5 sweets away, then Ann leaves the room. 2 more sweets are taken from the tin whilst they are both out of the room. Both children come back into the room. In order to pass this test, the child must

answer several questions correctly. First, the number of sweets that Ann thinks Sally thinks are in the tin, and second, the number of sweets Ann thinks are in the tin. Finally the child needs to demonstrate that he or she knows that the actual number present is different to both Sally and Ann's prediction.

It is important to acknowledge that there is some controversy over whether mentalizing and ToM is or is not the same as executive function. Whilst this study is not aiming to provide any evidence for or against this argument, a brief outline is given. Russell, Saltmarsh and Hill (1999) suggest that executive functioning is required in order to answer the false belief tasks (as outlined above). The child must suppress his or her own belief and choose a less salient response (the other's false belief). However Leekam and Perner (1991) have shown that autistic children are able to perform adequately in a non-mental comparison task with the same element of executive functioning, which goes against the argument of ToM being the same as executive functioning. Stokes (2001) investigated ToM and executive functioning in BPD and whilst finding a subtle deficit in ToM, did not find any consistent findings with regards to executive functioning. It suffices to say, the relationship between ToM and executive functioning remains slightly ambiguous.

(1.3.3) NORMAL TOM DEVELOPMENT

Generally, it is acknowledged that four-year-old children should pass first order false belief tasks and six-year-olds should pass second order false belief tasks (Perner & Wimmer, 1985; Sullivan, Zaitchick & Tager-Flusberg, 1994; Wimmer & Perner, 1983). Baron-Cohen et al. (1999) equate the development of theory of mind to that of literacy development, where although a child can read at 4-6 years old, the skill

continues to develop until adolescence and beyond. For example, the recognition of bluff, irony and double bluff are thought to be more sophisticated aspects of theory of mind, which Baron-Cohen et al. (1999) believe children do not fully understand until at least 8 years of age.

So what factors influence the development of theory of mind in children from a non-clinical population? The link between attachment and ToM is specifically discussed in a later section but it is worth taking note that research has shown measures of mother-child interaction at 33 months to correlate positively with a child's ability to use false belief in explaining behaviour at 40 months (Dunn, 1994). Another factor that has been linked to ToM ability is Youngblade's (1993) finding that the amount of pretend play exhibited at 33 months also independently predicted emotional understanding at 40 months.

(1.3.4) TOM DEVELOPMENT AND CHILD CLINICAL POPULATIONS

Fonagy (2000) reviewed the literature on findings of reflective capacities (ToM) in maltreated children. Schneider-Rosen and Cicchetti (1984) conducted a study investigating self-recognition and attachment in a relatively small group of preschoolers who had been abused. They found the maltreated group showed less positive affect on recognising themselves in a mirror than did age matched controls from the same lower class band of socio-economic status. In another study, Beeghly and Cicchetti (1994) found abused preschoolers used internal state words significantly less, and when they did, the words appeared to be used in a way that suggested that the child had learned idioms by rote, to match a specific context, and in expectation of

a specific response. Therefore they could be said to be using them without understanding their full meaning. Thus, there is some evidence accumulating to support the notion that abused children retreat from the mental world. For example, Fonagy et al. (2000) found that physically and sexually abused children as old as 5-8 years had significant problems with second-order false belief tasks.

(i) ToM deficits and specific disorders: autism and schizophrenia

ToM deficits have been found consistently in children with autism and more recently with adults diagnosed with some types of schizophrenia. The majority of children with autism fail both first and second order false belief tasks (Baron Cohen, 1989; Baron Cohen, Leslie & Frith, 1985). It is thought that differences in ToM deficits exist in the two disorders; whilst autistic individuals never develop their ToM, people with paranoid schizophrenia may have lost the ability at a younger age. Therefore, whilst autistic individuals cannot make inferences about others' mental states, people diagnosed with paranoid schizophrenia may make inaccurate inferences (Frith & Corcoran, 1996).

(ii) ToM – state or trait variable (in schizophrenia)?

An interesting finding by Frith and Corcoran (1996) indicated that patients in remission of schizophrenia performed no differently on ToM tasks compared to normal controls. They concluded that ToM ability varies with the symptoms, the implication of which being that it (ToM) is a state as opposed to a trait variable (see also, Drury, Robinson & Birchwood, 1998). However, Herold, Tenyi, Lenard and Trixler (2002) then found that compared to the matched control participants, participants in remission from schizophrenia, were impaired only on tasks involving

understanding irony, but not in first and second order tasks or metaphor tasks. Irony requires more sophisticated ToM skills, and has been linked in the literature to second order ToM skills. They concluded that even in remission, participants diagnosed with schizophrenia have a ToM deficit, albeit a very subtle one. This issue of ToM as a state or trait variable will be considered later on in relation to BPD.

(1.3.5) BPD AND TOM

Clinicians working with BPD patients first considered the possibility that this group may have a deficit in ToM abilities. This section aims to describe the limited empirical evidence available on deficits in ToM in BPD, and makes links with current theory.

(i) Empirical data

One study (Stokes, 2001) found a ToM deficit on one ToM measure, the Story Comprehension Test (SCT; Channon & Crawford, 2000) but not on another ToM measure, Happe's Strange Stories Test (SST; Happe, 1994). However, the number of participants involved in the study was low so it was difficult to generalise the results. Baron Cohen et al. (1997) have described the SST as being targeted at the level of an 8-9 year old and therefore being more advanced than previous ToM tests. It appears that the SCT is an even more advanced test than the SST, and the ToM deficit found in the participants with BPD, is therefore a subtle deficit. Stokes recommended the use of a developmentally advanced ToM measure such as the 'Reading the Mind in the Eyes Test' (RMET; Baron Cohen et al., 2001) in future research. A criticism of Stokes's (2001) study is that he used the 'Inventory of Interpersonal Problems' (Pilkonis, Klim, Proietti & Barkham, 1996) as a measure of personality disorder.

Although the BPD patients had undergone the SCID-II as part of their assessment in the clinic, this was not undertaken as part of the project and depending on the timing of this, may have been inaccurate as to their current level of BPD psychopathology (particularly if they were in therapy).

Another source of data on ToM deficits in BPD comes from Fonagy et al. (1996). They created an additional scale for the AAI known as the 'The Reflective Self Function Scale' (RSF) that assesses interviewees' transcripts for capacity to understand their own and others mental states and their willingness to think about these in a coherent manner. At the same time as exploring patterns of attachment and psychiatric status, they found that BPD individuals showed lower awareness of mental states than non-BPD psychiatric patients. Following analyses of experiences of abuse, RSF scores, and presence of BPD, they concluded that a low RSF score in itself is not an independent risk factor for BPD but that in conjunction with abuse, is highly predictive of BPD. The RSF was based on current knowledge on meta-cognitive reasoning and had a high inter-rater reliability after some training. It does not appear however, to have been validated against other ToM measures. The number of BPD participants in the study was relatively small and so the findings warrant further replication.

(ii) Current theory relating to the hypothesised ToM deficit

Fonagy et al. (2000) account for the BPD individual's hypothesised deficit in capacity to mentalise, by recognising that in abused children the deficit serves as a defensive strategy to preserve the well-being of the child (a high proportion of individuals with BPD have been abused in childhood). This defensive function results as the child's

accurate recognition of the caregiver's mental state (as torturing or having harmful intentions towards the child) would be negative and overwhelmingly damaging to the child's self-esteem. Whilst in the short term, the defensive strategy preserves, to an extent, the child's well-being and view of self, it appears to have negative implications for later life. This is because the inhibition to think about mental states (both in the self and other) is activated in other close relationships and can be the cause of significant misunderstandings and inter-personal problems. In avoiding thinking about the mental state of the self or the caregiver, the individual is prevented from working through an understanding of the abuse experience and thus misses out on the opportunity of resolving difficulties or feelings associated with such experiences.

(iii) The nature of the ToM deficit

Arriving at a conclusion that BPD individuals do or do not have a deficit in ToM may be an oversimplification of the phenomenon itself. As noted by Fonagy (2000) many clinicians working with BPD individuals have observed that although it generally appears that they have some deficit in ToM, at specific times they appear to be almost hypersensitive to the therapist's state of mind. Fonagy (2000) has put forward the notion that BPD patients develop a level of non-conscious mind reading skills. He supports this idea by referring to observations made of three-year old children (before they formally pass tests of ToM). Clements and Perner (1994; cited in Fonagy, 2000) observed that three-year-old children have an intuitive understanding of false belief which although unable to communicate verbally, they reveal nonverbally with their eye movements. Fonagy (2000) asserts that when the BPD individual is developing, it is often too destructive for her to be able to read the state of mind of her caregiver accurately, and so she reverts to the strategy of using action to influence others as

opposed to words. Fonagy maintains that the child, however, retains an understanding of mental states at an unconscious level. BPD patients are thought to pick up information about mind states at the behavioural level but this does not emerge at a conscious level. *“It is not that borderline patients are ‘mind blind’; it is rather that they are not ‘mind conscious’.”* (Fonagy, 2000; pp 1141).

With regard to the inconsistent ToM abilities clinically observed in BPD, Fonagy et al. (2000) also draw attention to Kurt Fischer’s skills theory of development. Using an example, Fonagy et al. (2000) assert that just as a young child’s understanding of conservation of liquid does not immediately generalise to conservation of area, mentalisation skills in individuals with BPD are not integrated. They remain in their ‘fractionated’ state and so are inconsistently applied across different domains. It is thought that this could be either a natural process or an active attempt not to coordinate so that the different contexts can stay separate, thus perhaps protecting the child’s positive view of himself.

The idea that BPD individuals can at times appear to be expert ‘mind readers’ could indicate that ToM deficits in BPD patients are perhaps dependent on context. Fonagy (2000) proposes that the less mature, non-reflective models are more salient in individuals with BPD particularly under certain conditions, that is to say, in the context of emotionally charged attachment relationships. It could be that akin to the findings of a fluctuating ToM capacity in people diagnosed with paranoid schizophrenia (depending on floridity of symptomatology), ToM functioning in people with BPD may be a state variable rather than a trait variable. If ToM development was impeded as the child was growing up as a result of a poor

attachment relationship, it does not seem surprising that the resultant ToM deficit may only become evident under difficult attachment contexts in the present.

In summary, just two studies have produced evidence that a ToM deficit may exist amongst the BPD population. The first study identified a possible subtle deficit on one of the two ToM tests employed (SCT), and the second study used a reflective function scale that the authors constructed and used on narratives of attachment experiences in the AAI. Reports from clinical observations, point to a variable ToM deficit.

(1.4) THE RELATIONSHIP BETWEEN ATTACHMENT AND TOM FONAGY ET AL'S MODEL (1991)

The next section outlines how the concepts of ToM and attachment fit together from a developmental perspective. The crucial point of note is that ToM is no longer considered as a distinct module of cognitive ability but rather a capacity very much dependent on attachment status. First pertinent studies will be reviewed and then the current theory proposed to account for the association will be outlined.

(1.4.1) EMPIRICAL DATA

Fonagy et al. (1991) looked at the security of children's attachment (at one year to mother and at 18 months to father) and their ToM abilities at a later age (5 years). Using three ToM tests they found that an extremely high proportion of those children who had been classified as securely attached to their mothers at one year in the 'Strange Situation' passed the belief desire reasoning task compared to less than half

of those who had been classified as insecurely attached. In addition, significantly more children who were classified as securely attached in two relationships passed the belief desire task than did those with just one secure attachment relationship. On the second order false belief task, a similar but weaker pattern emerged.

In a later study, Fonagy, Redfern and Charman (1997) using a projective measure of attachment security, found that secure attachment predicted belief-desire reasoning capacity in 3-6 year-olds even when age, social maturity and verbal mental age were held constant.

(i) Parental mentalising and children's' attachment status

Mentalising abilities in the parent have also been explored in relation to infant attachment status. Meins and her colleagues have carried out substantial work investigating mother-child interactions, particularly relating their concept of 'maternal mind-mindedness' to attachment concepts. 'Maternal mind mindedness' describes *"the mother's proclivity to treat her infant as an individual with a mind rather than merely as a creature with needs that must be satisfied"*

(Meins, Fernyhough, Fradley & Tuckey, 2001; pp638).

This is a more specific notion than Ainsworth's maternal sensitivity, a factor Ainsworth originally saw as predictive of secure attachment in infants (Ainsworth, Bell & Stayton, 1971). Meins et al. (2001) looked at five aspects of 'maternal mindedness' in interactions of six-month-old infants with their mothers and related these to their subsequent attachment status at twelve months. One of the five factors, 'appropriate mind related comments' was a stronger predictor of attachment status than maternal sensitivity. 'Appropriate mind related comments' generally referred to

the mother's tendency to use language to frame interaction in a mentalistic context. Some examples include reference to the infant's thoughts, desires and interests, mental processes, level of emotional engagement and references to the infant's intention to influence other's beliefs, such as "you're just teasing me".

Another aspect of maternal mentalising and its link with attachment status in children has been explored by Koren-Karie, Oppenheim, Dolev, Sher and Etzion-Carasso (2002). Specifically, they assessed 'mothers' insightfulness' into their child's behaviour and emotions and demonstrated that this relates to a child's attachment status. Mothers' 'insightfulness' of their twelve-month-old infants was defined as *"parent's capacity to consider the motives underlying their children's behaviours and emotional experiences in a complete, positive, and child-focused manner while taking into consideration their children's perspectives"*

(Koren-Karie et al., 2002; pp 534).

They also explored mothers' sensitivity to their infants during play and the infants' attachment status (as assessed in the strange situation). Insightfulness was assessed by asking the mothers questions about their infants' thoughts and feelings, whilst they looked at pre-recorded clips of their own interactions with their child. Mothers classified as 'positively insightful' were rated as more sensitive and more likely to have securely attached children than those not classified as positively insightful, and furthermore, this insightfulness accounted for variance beyond maternal sensitivity.

In summary, not only has ToM ability been shown to be more advanced in children who are securely attached, but also their secure attachment status is predicted by certain maternal mentalising abilities. These include insightfulness and

communication of the mothers' understanding of the child's mental states, processes and intentions.

(1.4.2) THEORY RELATING TO ATTACHMENT AND TOM ASSOCIATION

Fonagy (2000) proposed that a secure attachment to the caregiver gives the infant the opportunity to explore the caregiver's mind. He proposed that it is the caregiver who gives meaning to the infant's affect states and that from this the child learns to understand himself and then others' behaviour.

"The securely attached child perceives in the care-giver's reflective stance an image of him as desiring and believing. He sees that the caregiver represents him as an intentional being, and this representation is internalised to form the self. She [caregiver] thinks of me as thinking, therefore I exist as a thinker"

(Fonagy, 2000; pp 1132).

Furthermore, the capacity of the caregiver to mentalise can influence the development of attachment in the infant and influence the subsequent development of the infant's ToM. Studies (including the Koren-Karie study above) have shown that quality of the caregiver's reflective function predicts attachment status in the child when other variables are held constant (Fonagy et al., 1991). Therefore, it is proposed that the reflective caregiver increases the likelihood of the child's secure attachment, which in turn, facilitates the development of mentalisation or ToM. The implication of this is that at the core of the infant's self-representation, exists the other (the caregiver), but this 'other' also represents the self.

Although the evidence is accumulating for the attachment-mentalisation link, Fonagy (2000) acknowledges that other factors beyond parenting ability or attachment may contribute to difficulties in ToM, for example biological factors within the child such as attention deficits.

(1.5) BPD - ATTACHMENT AND TOM

The hypothesised poor attachment status in people with BPD, in combination with the model just described (stating that development of mentalisation is more likely in a secure attachment) leads to a hypothesis that people with BPD are likely to have poor mentalisation which underlies their difficulties in interpersonal relationships. Fonagy and Target (1999) propose that ToM deficits in people with BPD can be pinpointed to a specific stage of the development of the self. This crucial stage is when the child searches the face of his caregiver for a representation of his own state of mind. If the child continually fails to find this, he is forced to employ pathological strategies to achieve a containing organisation. Fonagy (2000) explains that not only do people with BPD have a disadvantage in terms of exploring their caregiver's mind due to lack of a secure attachment relationship, but they also have less of an incentive to accurately understand what their caregiver might be experiencing (perhaps anger and hostility) due to the extreme negative implications this will have on their thoughts about themselves.

To draw together all the ideas thus far discussed, the main symptoms of BPD will now be anchored by ToM and attachment concepts.

(1) *“Frantic efforts to avoid real or imagined abandonment”* is associated with the idea that the disorganised individual’s attachment system does not come to be appropriately ‘switched off’ by the care-giver (as the caregiver does not contain the child’s distress as she is either perceived as frightening by the child or is herself frightened and therefore unable to attend to the child’s emotional needs). This symptom is reminiscent of the ‘anxious preoccupied’ attachment style where the child escalates her attachment behaviour in an effort to elicit an appropriate response from the attachment figure (individuals with BPD are most commonly classified as ‘insecure - preoccupied’).

(2) *“A pattern of unstable and intense interpersonal relationships characterised by alternating between extremes of idealization and devaluation.”*

This symptom can be related to the concept of seeing the attachment figure both as a source of fear and as the source of potential reassurance as seen in Main and Hesse’s (1992) ‘disorganised children’.

Melges and Swartz (1989) refer to the individual with BPD’s difficulty with regulating interpersonal distance and identify this as being linked to the conflict they have between fears of abandonment and fears of domination. They believe these concurrent fears result in oscillations in attachment that are seen so frequently in BPD. These authors point out that the resulting two goals, preventing engulfment and preventing abandonment, are directly in opposition. They relate this idea to two separate control systems and note that one control system must always be in error due to the conflicting goals. In order to avoid this error (or distress) the individual with BPD switches rapidly from between attachment and disengagement.

(3) *“Identity disturbance; markedly and persistently unstable self-image or sense of self.”*

In terms of the identity disturbance, De Zulueta (1999) believes that under threat, the disorganised child cannot separate physical events from mental events due to her limited capacity to think of the other as a thinking being, that is to say a limited ToM capacity. De Zulueta (1999) gives the example that when a mother calls her child ‘devil’, the child believes herself to be such, especially if she observes terror or rage in her mother’s facial expression (possibly linked to the mother’s un-integrated trauma). Although the individual with BPD is thought to lack a sense of self in relation to the other, she is thought to have a sense of self in reaction to the other; either fearing or needing the other (De Zulueta, 1999). Although she does not expand on this, De Zulueta may be hinting at the tendency for individuals with BPD to be unsuccessful in holding the other’s mental state in mind, when they are physically absent. If the ‘other’ is not physically present, the anxiety induced can be overwhelming. This may lead the individual with BPD to react (impulsively).

(4) *“Impulsivity in at least two areas that are potentially self-damaging (spending, sex, substance abuse, reckless driving, binge eating)”*.

Fonagy et al. (2000) associate impulsive behaviour to the ‘dominance of pre-mentalistic physical action centred strategies,’ particularly in situations where the individual is under threat. Using physical action is sometimes deemed to be the only course of action for people with BPD as they cannot influence the person emotionally because they are unable to accurately understand the other’s mental state (deficit in mentalisation).

(5) *“Recurrent suicide behaviour, gestures or threats or self mutilating behaviour”.*

Herman, Perry and Van Der Kolk (1989), and Stein, Corter and Hull (1996) have proposed that self cutting occurs because the individual with BPD, in the absence of having an internal representation of a consistent, safe attachment figure, tends to rely on external sources for reducing distress and attaining comfort.

Fonagy (1991) believes that aggression directed at the self could be linked to reduced capacity to think about one's own mental state. Thoughts, images or feelings seem intolerable and the individual is forced to manage their thoughts or feelings in a physical domain. Suicidal behaviour is perceived to be a 'freeing of the self', a final attempt to be rid of the internalised 'alien caregiver' that is hypothesised to constitute the core of self of the individual with BPD.

(6) *“Affective instability due to a marked reactivity of mood (e.g. intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days).”*

Affect instability resulting from emotional dysregulation is thought to be a consequence of inconsistent or mis-attuned care-giving, which contributes to the individual's inability to delay action, control attacks of rage or overwhelming panic, or feel empathy for others (Allen, 1995; Brown, 1993; Schore, 1994).

(7) *“Chronic feelings of emptiness”*

This symptom could be seen to link in with (3) the “unstable sense of self” and the fragmented representations of self and other as a result of disorganised attachment.

These fragmented representations link in with Bowlby's idea of segregated systems and the fact that information to attachment in disorganised individuals can be split off and housed as inaccessible to consciousness. Fonagy et al.'s (1991) model advances that reflective function (ToM) and its attachment context is at the root of self-organisation. It follows then, that if individuals with BPD do not experience secure attachments, their reflective function may fail to develop adequately and thus they fail to achieve a coherent sense of self. If the self lacks meaning to an individual, it is not difficult to see that feelings of emptiness may result. In other words the emptiness experienced may be due to the lack of an integrated internalised good object resulting from the lack of secure relationship. This is a reminder of Fonagy's (2000) notion *"She [caregiver] thinks of me as thinking, therefore I exist as a thinker."* Alternatively the emptiness could be a reflection or direct result of a ToM deficit related specifically to a lack of understanding of internal self-states.

(8) *"Inappropriate, intense anger or difficulty controlling anger (e.g. frequent displays of temper, constant anger, recurrent physical fights.)"*

Sable (1997) understands anger "as a response to frustration, a reproach to endangering a bond, and also a deterrent to not repeating hurtful behaviour". (pp173). She talks about anger as aggravated anxiety. The anxiety is evident when the attachment figure is inaccessible or rejecting. She believes that inconsistent or unreliable care-giving can intensify both anger and anxiety. This is because the attachment behaviour of the child and the corresponding distress does not come to be 'switched off' by the appropriate response from the caregiver, so the individual develops "chronic fear and anxiety combined with bitter anger and resentment". 'Inappropriate anger' is also a reminder of the 'ambivalent' child's type of anger who, having become frustrated, "flails about seeking connection".

In the individual with BPD, aggression resulting from anger is hypothesised to result from a reduced capacity to mentalise. Fonagy (1991) proposed that the reduced capacity to picture the mental state of others, reduces the inhibition of aggression as the other is pictured as without thought, feeling and therefore the capacity for suffering.

(9) *“Transient, stress-related paranoid ideation or severe dissociative symptoms.”*

Fonagy (1991) perceives dissociation to be the converse of mentalisation, that is, a complete lack of subjectivity and ability to mentalise. Liotti (cited in Solomon & George, 1999) describes the phenomenological resemblance between dissociative states (as proposed by Janet 1889;1973) in the disorganised attachment shown in infant behaviours, and the lapses in the monitoring of reasoning as observed in adults discussing traumatic memories in the AAI. Liotti asserts that the hypothesised cognitive-emotional processes underpinning the behaviours of the disorganised infants and unresolved adults are similar. Accordingly, Liotti presents recent research evidence that supports his proposal that disorganised attachment can be seen to be the prototypical example and model of dissociation.

To summarise then, it is hypothesised that people with BPD have insecure attachment styles, either ‘anxious/preoccupied’ or disorganised. It is hypothesised that people with BPD have ToM deficits, which may fluctuate according to the different contexts in which the individual finds herself. From a developmental perspective, ToM abilities fail to develop ‘normally’ partly because the child lacks a secure attachment to her care-giver. The lack of secure attachment may result in the care-giver being unable to perceive the child as a thinking, intentional being, which leads to the infant

missing out on internalising a good attachment relationship, or ‘good object’. This ultimately leads to difficulties in understanding her own self states (or emotions) and thus results in missing out on opportunities to experience herself from within. A lack of understanding of self-states contributes to a lack of understanding of the ‘other’ person’s mental state, which culminates in a deficit of ToM.

(1.6) AIMS OF THE PRESENT STUDY

(1.6.1) AIMS FOR EXPLORING ATTACHMENT IN BPD

The current study aims to build on previous studies of attachment in BPD. However, this study differs from previous studies in one major way that has two associated benefits. First, the attachment styles in a BPD group and in a clinical comparison group will be assessed using a new attachment measure called the ‘Attachment Q-Sort’ (Fonagy, Allen, Stein, Fultz & Target, 2002). This measures attachment styles in terms of continuous scores, as opposed to specific categories (as identified by pre-existing attachment measures, in previous studies) and it is hoped that the preoccupied attachment style (thus far associated with people with BPD in previous studies) will be specifically linked with people with BPD in the present study.

Second, by using the new attachment measure, the study aims to explore the concept of the disorganised attachment style specifically, in people with BPD further, again from a dimensional perspective. Evidence for the existence of this attachment style in people with BPD has been obtained from just a handful of studies, it relates the construct to the ‘unresolved’ category on the AAI, and as such is limited to categorical models of attachment.

(1.6.2) AIMS FOR EXPLORING TOM IN BPD

The present study aims to add to the research evidence relating to ToM in people with BPD in several different ways. First, it is hoped that findings of the existence of a ToM deficit in people with BPD will be replicated, something which to date, has been identified in just two studies, and in a limited number of participants. Second, the study will use a borderline specific, current measure for diagnosis of BPD (SCID-II) something that was absent from one of the previous studies. Third, the present study explores the ToM in people with BPD as compared to a mixed clinical comparison group. One of the previous studies used a non-clinical comparison group. By using a clinical comparison group, the ToM deficit in BPD can be additionally related to levels of psychopathology. Fourth, as well as a measure that successfully detected a deficit in ToM in BPD in a previous study, this study attempts to demonstrate the deficit using a new ToM measure ‘The Reading the Mind in the Eyes Test’ (RMIET; Baron Cohen et al., 2001) and in doing so aims to increase the reliability of the finding of the ToM deficit in this client group. Fifth, following clinical observations of an inconsistency in ToM ability in individuals with BPD, this study aims to explore the nature of the ToM deficit in different contexts, that is when individuals are primed or focused on their attachment history. This has never before been explored.

(1.6.3) AIMS FOR EXPLORING TOM AND ATTACHMENT IN BPD

Finally, this study aims to explore the specific association between ToM and attachment style in a group of participants from a clinical population. To date just one other study has explored the two concepts in the BPD client group and these researchers reported categorical data. Although both constructs were examined, the

specific relationship between the two constructs was not explored. So a difference between the present study as compared to previous studies is that it aims to focus on the specific relationship between attachment dimensions and ToM abilities.

(1.6.4) RESEARCH QUESTIONS AND HYPOTHESES

(1) *What are the attachment patterns of people with BPD?*

Hypotheses: A negative relationship will exist between the level of borderline psychopathology and the secure attachment dimension. Positive relationships will be observed between the level of borderline psychopathology and the two insecure attachment dimensions and the disorganised attachment dimension.

A stronger positive relationship will be observed between both preoccupied attachment and disorganised attachment and borderline psychopathology, compared to dismissing attachment.

Individuals with BPD will score higher on Attachment Q-sort items representative of the anxious-ambivalent/preoccupied attachment style, and on the disorganised attachment style as compared to the clinical comparison group.

(2) *Do people with BPD have ‘Theory of Mind’ deficits?*

Hypothesis: Individuals with BPD will perform worse on theory of mind tasks than a clinical comparison group.

(3) *Is ToM in people with BPD, dependent on context?*

Hypothesis: Individuals with BPD will perform worse on theory of mind tasks when primed with personal attachment history questions compared to their ToM performance in a non- primed condition.

(4) *Is there a relationship between attachment and Theory of Mind?*

Hypotheses: Secure attachment is hypothesised to correlate in a positive direction with ToM ability. Insecure attachment styles are hypothesised to correlate negatively with ToM ability.

Individuals high on secure attachment will have better ToM than those low on secure attachment.

Pilot Study

(2) PILOT STUDY

Establishing short equivalent forms of two Theory of Mind measures: The Reading the Mind in the Eyes Test (RMET; Baron Cohen et al., 2001) and the Story Comprehension Test (SCT; Channon and Crawford, 2000)

(2.1) RATIONALE

The design of the principal study (addressed in chapters three to five) necessitates the existence of the pilot study. Specifically, the principal study is a repeated measures design in which theory of mind (ToM) of each participant is to be measured under two conditions, thus requiring the administration of parallel forms of the theory of mind tests. Parallel or equivalent forms of the ToM tests are needed so that any potential difference obtained by the participants under the two conditions in the principal study, can be attributed to the differing conditions of the study and not to factors associated with the measures.

Literature searches for parallel forms of suitable adult ToM measures proved unsuccessful. Indeed it was apparent that very few suitable ToM measures exist in a single form for use in adult populations. Thus, in the absence of pre-existing parallel forms of ToM measures, the decision was made to create equivalent short (half) forms, of two suitable ToM measures. In this way, the two short forms of the ToM tests could then be administered in the principal studies under the two conditions. Accordingly, the aim of the pilot study was to develop two short, equivalent forms of the two ToM measures which could then be used in the principal study.

(2.2) METHOD

(2.2.1) Design of the Study

Given the time limitations of the study, the author attempted, as far as possible, to use data obtained in previous studies in order to create the equivalent forms of the ToM measures. As a result, raw scores obtained for the two ToM measures from two previous studies, were gathered.

For the first measure, the RMIET (described in the next section), data were obtained from a clinical population in the USA. The two equivalent forms of the RMIET were to be based on these data. Following the creation of the two equivalent forms, the author wanted to check that cultural differences would not confound the reliability of the equivalence of the two forms (given that the target population in the principal study were to be British and the original data were from participants from USA). As such, the test was administered to 11 UK participants and scores on the two forms were compared and contrasted to those of the USA sample.

For the second measure, the SCT (also described in the next section), the equivalent forms were to be based on data from a previous study (Stokes, 2000). However, data were available for a low number of participants ($n = 18$). Consequently, a decision was made to administer the SCT to additional participants ($n = 19$) for the purposes of creating a larger data set upon which the equivalent forms would be based.

(2.2.2) Measures

(a) Reading the Mind in the Eyes Test – revised

(RMIET; Baron-Cohen, Wheelwright, Hill, Raste and Plum, 2001)

This test was developed as a measure of adult ‘mentalising’. Although described as an advanced theory of mind measure, it deals with the first stage of theory of mind only; the attribution of relevant mental state. Although the first version was developed in 1997, it suffered from several psychometric problems, which the revised version aimed to rectify. In the newest version, the participant is presented with 36 photographs of the eye-region of the face of different actors and actresses, and is asked to choose one of four words that best describes what the person in the photograph is thinking or feeling. According to the authors, it is best conceived of as how well an individual can put themselves in the mind of the other person and “tune in” to their mental states. The participant is required to have a mental state lexicon and know the semantics of mental state terms. They then have to map these terms onto the fragments of facial expression. The authors believe the participants then match the eyes in each photograph in the context of particular mental states, to eye region expressions in their memories. A decision is then made about which mental state term most closely matches the eyes in the photographs.

The authors tested the measure on normal adults and adults with Asperger Syndrome, or high functioning autism. They found it correlated inversely with the ‘Autistic Spectrum Quotient’ (a measure of autistic traits in adults of normal intelligence). The RMIET distinguishes individuals with high functioning autism from controls and is validated as a useful test with which to identify subtle impairments in social

intelligence in otherwise normal intelligent adults. No correlation has been found between IQ and the RMIET test.

A computerised version of the RMIET was developed by Fultz, in 2002. This was based on Baron-Cohen's revised paper version of the test. The measure is being utilized in the USA where validity and reliability data are currently being collated. The original version of the RMIET was validated against Happe's Strange Stories Test, a pre-existing theory of mind measure (Happe, 1994).

It is hypothesised that the RMIET (with its specific focus on facial expression, particularly on the eyes) may be especially useful in identifying ToM deficits in the BPD population. This hypothesis stems from Fonagy and Target's (1997) idea that theory of mind development may be inhibited as a result of the infant failing to find a representation of his own state of mind, in the face of the caregiver.

Example 1

Surprised

**Sure about
something**



Joking

Happy

Example 2

Friendly

Sad



Surprised

Worried

(b) Story Comprehension Test (SCT; Channon and Crawford, 2000)

This test, as described by Channon and Crawford (2000), consists of a series of twelve vignettes, which are thought to tap into theory of mind abilities. The vignettes include examples of sarcasm, pretence, misunderstanding, lie, white lie, threat and dare. Participants are asked to explain the main character's speech or actions where the reason behind them is not made explicit. The final sentence of each vignette gives information that ensures the vignette could not be understood sufficiently by using a literal interpretation. Thus the participant is required to give a non-literal interpretation in order to understand and answer the vignette correctly.

Respondents' answers to the vignettes are scored as correct or incorrect depending on whether they are judged to interpret the speech or behaviour of the main character

accurately. The authors of the test provided guidelines for scoring each vignette which included sample answers for each item.

Example 1

George went shopping for the week's groceries. He left the shop carrying lots of bags full of food. As he started to walk to his car, a man bumped into him, causing him to drop the bags, and the food went all over the ground. George turned to the man and said, "Thanks a lot, mate"

Question: Why did George say that?

Example 2

Stuart has wanted to have a go at bungee jumping for a long time. His friend Richard thinks it would be very frightening, but Stuart has persuaded him to come along. Now that it is nearly time for Stuart to jump, he has lost his nerve. Stuart says to Richard, "I dare you to go first to prove you are not frightened".

Question: Why did Stuart say that?

The stories were read out one at a time to the participant and the relevant vignette was on display throughout. If a response was unclear, a single neutral prompt such as "Can you explain that a little further" was given. A maximum of one prompt was given for each answer. Answers were written down verbatim by the researcher (see Appendix D for the SCT).

The measure was used originally to assess ToM abilities in participants with unilateral anterior or posterior lesions. Those participants with left anterior brain lesions showed an impairment relative to the other groups (Channon and Crawford, 2000). As Stokes (2001) indicated, the Story Comprehension Task can be considered a developmentally advanced ToM test as the mean for Channon and Crawford's (2000) healthy normal subjects, was found to be 89%. Other psychometric data are not available at the current time.

(2.2.3) Participants

(a) Reading the Mind in the Eyes Test-revised (Baron-Cohen, Wheelwright, Hill, Raste and Plum, 2001)

Raw scores from 47 participants consisting of a mixed clinical sample (from the Menninger Clinic USA), were obtained. A further 11 individuals from a non-clinical British population were recruited to complete this test.

Table 1 Demographic data of participants who completed the RMIET

	Nationality	n	Male	Female	Age range (yrs)	Mean age (yrs)	(SD) age (yrs)
Mixed clinical sample	USA	47	24	23	22-61	39.53	(11.00)
Non clinical sample	British	11	5	6	24-55	34.36	(11.96)

An independent t-test revealed no significant difference between the mean ages of each group ($t(56) = 1.380, p = .173$). There was an equal gender split in the two samples.

(b) Story Comprehension Test (Channon and Crawford 2000)

Raw scores from 18 participants from a mixed personality disorder group from a previous study (Stokes 2001) were obtained. A further 19 individuals from a non-clinical population completed this test. The table below shows some demographic data for the two samples.

Table 2 – Demographic data of participants who completed the SCT

	Nationality	% Male	% Female	Age range (yrs)	Mean age (yrs)	(SD) age (yrs)
Personality Disorder sample (n =18)	British	0	100	22-50	35.00	(7.52)
Non clinical sample (n= 19)	British	36.8	63.2	23-55	31.63	(10.11)

The age data for the non clinical group was found to be skewed. A Mann Whitney test was carried out to explore differences in age between the two groups. No significant difference was found (Mann Whitney U = 110.5, $p = .065$).

(2.2.4) Recruitment Procedure

All participants specifically recruited for this study ($n = 19$) were from a non-clinical population and were already known to the author. The identified individuals were approached by phone with information regarding the study. If they were interested in taking part, they were sent an information sheet giving details about the study and were given the opportunity to ask questions regarding the testing process. If they agreed to participate, a suitable testing time and place was negotiated.

(2.2.5) Testing Procedure

Participants were welcomed on arrival and offered a chair positioned near a table. Prior to testing, participants were encouraged to re-read the information sheet and given the opportunity to ask questions. They were then asked to complete a consent form (see Appendix B and C).

Participants were told that the two tests were “tasks that explore your understanding of other people’s feelings and behaviours.”

The SCT was administered first to all participants ($n = 19$). This test was described to participants as “twelve everyday scenarios where you are asked to give your ideas about the main character’s actions or things he or she says”. The twelve vignettes from the SCT were then administered in the order as described by Channon and Crawford (2000). A written form of the vignette was on display throughout so as to eliminate memory bias. In cases where the participant’s response was not clear, a maximum of one neutral prompt per vignette was given. The task was not time limited.

The first 11 participants seen for testing were also administered the RMIET (after they had completed the SCT). This test was described to participants as “a computer task of a series of photos where you are asked to choose the word which best fits how the person in the photo, is thinking or feeling”. The RMIET was then administered via a lap-top computer, placed on the table in front of the participant. The procedure for completing the test, answering the questions and manipulation of the ‘mouse’ was explained and participants were encouraged at this point to ask questions regarding the test. Participants were then asked to complete the test in their own time and to let

the researcher know when they had finished the task. Again, there was no time limit for the task.

(2.2.6) Ethical Permission

Ethical approval was sought and obtained through the UCL/UCLH Joint Research Committee (Appendix A).

(2.3) RESULTS

(2.3.1) Reading the Mind in the Eyes Test-Revised

All data were entered into an SPSS data file. Means and standard deviations for the USA group of participants were gathered and compared with norms obtained from this test by Baron Cohen et al., (2001).

**Table 3 - RMIET data resulting from this study and Baron-Cohen's
(2001) study**

Group	n	Mean Score (/36)	(SD)
USA clinical sample	47	26.87	(3.60)
Baron Cohen et al. (2001) – General Population	122	26.20	(3.93)
Baron Cohen et al. (2001) – Asperger / HFA	15	21.90	(6.60)
Baron Cohen et al. (2001) – Matched IQ Controls	14	30.90	(3.00)
Baron-Cohen et al. (2001)- Students	103	28.00	(3.50)

In terms of similarities between mean scores, the USA clinical sample fell nearest the 'General Population' mean score, as reported by Baron Cohen et al. (2001). As Baron Cohen's individual RMIET scores were not available to the researcher, it was not possible to undertake statistical analyses comparing the mean scores between the different groups. At an initial glance, however, the aforementioned groups appeared very similar in their mean scores.

Data from the USA sample was analysed on an item-by-item basis. The 36 items were studied as to which items were most often responded to incorrectly. Having noted the difficulty of each item in these terms, the 36 items were assigned to two sets and a correlation was carried out to examine the association between the two sets. This procedure was carried out repeatedly, using permutations comprising different items, until a good association between the two sets was achieved. Finally, a Pearson correlation of $r = .771$, $p < .01$ was achieved.

The internal consistency of the two forms and differences between their respective means were explored. The results are detailed in Table 4. These two sets of items (identified as those that would constitute the two forms of the RMIET) can be considered to be as highly associated with one another as was possible from the data available. In this way, if any participant were to repeat the RMIET using the two short forms under the same conditions, one would expect his or her scores on form A and form B to be equivalent.

To go some way in addressing the possibility that differences in culture (between the sample upon whom the equivalent forms were based and the target population) may have had an impact on the equivalence of Forms A and B, the same statistical

analyses were applied to data from the UK sample. The results are also detailed in Table 4. These appear to be very similar to those as obtained from the USA data. This reassured the author that by basing the item analysis for the RMIET test on the larger data set gathered for the clinical USA group (as opposed to a British sample) reliability of the study would not be compromised.

Table 4 – Statistical properties of the two forms of the RMIET obtained from the USA and UK data

	Form A		Form B		Paired t-test			Pearson's correlation		Internal consistency
	Mean	(SD)	Mean	(SD)	t	df	p value	Pearson's r	p value	Cronbach's α
USA Sample (n = 47)	13.4	(1.9)	13.5	(2.3)	.59	46	.56	.771	< .001	.86
UK sample (n = 11)	13.4	(2.9)	13.9	(2.9)	.70	10	.50	.615	.04	.76

(2.3.2) Story Comprehension Test (SCT)

Again, the data obtained from the SCT was analysed in the same way as was the RMIET data. The highest correlation achieved between the sets developed was $r = .614$, $p < .01$. These items were assigned to Form A and Form B and subsequent paired t-tests carried out on the two forms revealed no significant differences between their respective means. In addition, Cronbach's α for internal consistency was .76.

(2.4) DISCUSSION

The results of this study show that the mean RMIET score from the US clinical population used in this study (mean = 26.87, SD = 3.60) was very similar to Baron Cohen et al.'s (2001) general population mean score. Following a lengthy process of exploring multiple permutations of the RMIET in forming two short sets (comprising an equal number of items) a final satisfactory Pearson correlation ($r = .771$, $p < .01$) was achieved. These short sets had similar means and good internal consistency and also had very similar properties to a UK non clinical sample.

In terms of the second measure, the SCT, the new data obtained from the non clinical group was added to the data gathered from a previous study. Following the same lengthy process of allocation of items into two sets (as used to establish equivalent forms of the RMIET), the highest Pearson correlation achieved was $r = .614$, $p < .01$. Again, there were no differences between the means of the two short forms of the test and the internal consistency was good.

The identified items for the two forms of the RMIET were sent to the computer programmer of the RMIET in the USA. He re-organised and reprogrammed the test so that form 'A' and form 'B' could be presented independently.

Less work was involved in creating the two forms of the SCT, as this is a pen-and-paper based measure. It was easily adapted to create the equivalent forms with the pre-identified items in each.

Several limitations are evident in this pilot study, the most obvious one being the small data sets used to identify the shorter forms. The heterogeneity of the data sets

can be seen as another limitation, particularly in the use of the RMIET, where the sample included both male and female participants. Whilst a mixed gender sample is useful if the short forms are to be used again on a mix of male and female participants, it is a limitation for the present study as the target population is exclusively women (Baron-Cohen et al, 1997 have shown that women perform significantly better than men on the RMIET). The different country of origin of the two samples is less concerning as analyses revealed similar item correlations between the scores from the two samples.

Another limitation of the study relates to the diagnostic status of the mixed clinical sample who completed the RMIET. Given that a proportion of the sample met criteria for BPD and other personality disorders (13% and 21% respectively), it could be that the equivalent forms of the RMIET may be biased towards being more equivalent for the BPD group in the main study (as compared to the comparison group).

Ideally, a further check of the reliability would have been undertaken. A larger set of participants would have been asked to complete both short forms of each test to obtain parallel form reliability data. Unfortunately this was not possible due to the time constraints of the study.

Although the reliability values between the short forms of the RMIET seem adequate, reliability between the short forms of the SCT are lower. In an attempt to address problems with reliability and in order to address the difficulties as outlined above, the measures were counter-balanced in their presentation in the principal study. This means that half of the experimental group and half of the comparison group were presented with form A of the tests under condition 1, and form B of the tests under

condition 2. The other half of the experimental and comparison group were presented with the forms in the reversed order, under condition 1 and condition 2.

Principal Study (Method)

(3) METHOD

(3.1) DESIGN OF THE STUDY

This study explored attachment and ‘Theory of Mind’ abilities in two groups of female participants; women who have Borderline Personality Disorder (BPD) and a clinical comparison group of women who experience depression, anxiety or bipolar disorder.

In accordance with one of the study’s hypotheses, that ‘Theory of Mind’ in people with BPD varies depending on the context in which it is assessed (i.e. ToM is reduced in the individual with BPD when she is thinking about her personal attachment history), there were two conditions within the study. A non-primed or control condition accounted for the first half of the procedure. Following the non-primed condition, participants were asked to undertake two tasks, both requiring them to focus on their attachment history and early experience of their primary care-givers (further details of these tasks are given in the ‘testing procedure’ and ‘measures’ sections). In this way, participants were primed to think within an attachment context and they were then asked to complete the second batch of ‘Theory of Mind’ tasks.

The study was combined with another Trainee Psychologist’s study. Sian Barnett was concurrently investigating attachment and coping strategies in the same client groups. For the purposes of her study, two additional questionnaires were added to those measures included in the current study. These questionnaires investigated participants’ ways of coping and are identified later on in the ‘testing procedure’ section. Thus all measures were administered to participants by both the author and Sian Barnett.

By combining the studies, time and resources were pooled and participants were able to take part in two studies in the same sitting thereby avoiding being subjected to two separate research assessments.

(3.2) PARTICIPANTS

In an attempt to reduce confounding variables and given that the majority of individuals with BPD are female, only women were recruited as participants for the study. Specifically, there is accumulating evidence (Baron-Cohen et al., 1997) that women, perform significantly better than men on one of the ToM measures used in the present study (The Reading the Mind in the Eyes Test).

(3.2.1) Power Analysis

The only comparable study available for research on theory of mind in this client group is Stokes (2001), where a significant difference was found between a group of people with BPD and a healthy control group, effect size 1.13 (large effect). Using this estimate, a minimum of 14 participants are needed in each group in the present study to have 80% power to detect this effect size at $\alpha = .05$. Stokes (2001) study included a relatively small sample size and this estimate is therefore necessarily an approximation.

(3.2.2) Inclusion and exclusion criteria:

(i) Borderline Personality Disorder Group:

Inclusion Criteria: Women aged between 18-65 years with a diagnosis of BPD.

Exclusion Criteria: Any co-morbid diagnosis of Bipolar Disorder, psychosis, schizophrenia or whose symptoms occurred following a head injury. Learning disability and illiteracy were also exclusion criteria for the study

(ii) Psychiatric comparison group:

Inclusion Criteria: Women between the age of 18-65 years, known to Community Mental Health Teams, Outpatient Clinics or Day Hospitals, who experienced depression, anxiety or bipolar disorder.

Exclusion Criteria: Diagnosis of Personality Disorder (or above 5 on the SCID-II BPD criteria), co-morbid psychosis, schizophrenia or whose symptoms occurred following a head injury. Again, learning disability and illiteracy were exclusion criteria for the study.

(3.2.3) Number of participants recruited and drop-out rate

Table 1 – number of participants and drop out

Participants recruited	Rescheduled appointments	Participants who took part in study	Total participants whose data was used in study	Participants in BPD Group	Participants in clinical comparison group
50	15	42	39	22	17

As seen from the table, a significant number of participants dropped out of the study after agreeing to take part. Many appointments were rescheduled at participants'

request. Data from three participants had to be discarded as two did not meet criteria for either group, and the other was unable to participate in all tasks due to emotional distress from a recent family bereavement.

Key-workers of participants provided information regarding participants' diagnoses for the clinical comparison group. In the BPD group, in addition to giving names of patients known to have BPD, key-workers were also encouraged to give names of patients who they suspected had personality problems, even if they had not yet received a formal diagnosis of BPD. Key-workers were reassured that the diagnosis of BPD would not be revealed during the research to the participant.

The SCID-II interview (First et al., 1996, described below) was the diagnostic tool used to ascertain the presence of BPD. All potential participants first completed the screening questionnaire. For those items which they answered in the affirmative, they were then asked the corresponding interview questions in order to obtain more detailed information and clarification of the symptom of BPD.

(3.3) ETHICAL PERMISSION

Ethical approval was given for the project by Camden and Islington Community Health Service Local Research Ethics Committee on 28th June 2002. On 3rd July 2002, the Camden and Islington Mental Health and Social Care Trust granted approval for the project to proceed (Appendix E).

Following difficulties in recruitment, it was decided that the field of recruitment needed to be widened, and an additional ethics application was submitted to

Dagenham and Barking LREC. Ethical approval was obtained in December 2002 (Appendix E).

Participants were also recruited from the Cassel Hospital in Richmond. Following discussion with the Research Director at the Cassel Hospital, a decision was made that the project would run as part of a pre-existing study there. Ethical permission had already been obtained for this study.

(3.4) RECRUITMENT PROCEDURE

The Oscar Hill Personality Disorder Service and Consultant Psychiatrists from all Adult Community Mental Health Teams and managers of Day Hospitals in Camden and Islington were sent information regarding the study and were invited to disseminate the information to their colleagues and to patients who they thought would meet criteria for the study. Some CMHTs invited the researcher to speak further about the study in their team meetings. Once CMHT workers had spoken to patients about the study, patients were encouraged to phone the researcher to talk through what the study would involve so as to facilitate their decision as to whether to take part or not. If patients decided to take part in the study, a mutually convenient time and location for the research session was agreed. Generally, participants originating from a CMHT or Day Hospital were tested at their local CMHT centre.

Consultants from CMHTS in the North East London area were encouraged to discuss the project with their teams, who in turn discussed the project with patients on their caseloads who met the study's inclusion criteria (and provided them with an information sheet). If patients gave consent to be contacted, CMHT workers then put

forward names of potential participants to the researchers. Patients were contacted by phone and encouraged to ask questions about the study. If agreeable to taking part, a mutually convenient time was identified for testing. Participants from this geographical area were usually seen at their local facilities, such as their local Health Centre.

In terms of recruitment from the Cassel Hospital, Richmond, the Research Director supplied the author with names of patients who had taken part in the pre-existing project, and had given permission to be contacted for further research projects. All participants had been resident at the Cassel in the past, but were not resident at the time of testing. All participants were having ongoing therapy. Participants were contacted by phone and invited to discuss the project. They were then sent information sheets regarding the project. Following this, they were re-contacted to clarify whether they wanted to take part, and if so, a suitable time for testing was arranged. These participants were seen either at the Cassel, or at a Health Centre in central London, depending on the participant's preference.

(3.5) TESTING PROCEDURE

All measures are described in full in section 3.6.

In the majority of cases, participants had been given the information sheet at least a week prior to the time of testing (Appendix F). Upon arrival, participants were given the information sheet to re-read and given another opportunity to ask questions about the study. If they were still willing to take part, they were given consent forms to read and sign (Appendix G). They were then asked to complete a written set of questions

containing demographic data (Appendix I). The following set of questionnaires and computer tasks were then administered to all participants in this order:

- 1 (a) SCID-II questionnaire for BPD

 (b) For the questions in which the participant answered in the affirmative on
 (a), the corresponding questions from the BPD section of SCID-II
 interview (questions 90-104 inclusive) were administered in order to
 gather more detailed information.
- 2 Beck Depression Inventory II (Beck, 1996)
- 3 The Coping Inventory of Stressful Situations (CISS; Endler & Parker,
 1990). This is a brief questionnaire asking about coping strategies used in
 stressful situations. **(OTHER TRAINEE'S STUDY)**
- 4 Computerised 'Reading the Mind in the Eyes Test'
 (Baron Cohen, 2001) (part 1)
- 5 Symptoms Check List-90, revised (Derogatis, 1994)
- 6 Story Comprehension Test (Channon & Crawford, 2000) (Part 1)
- 7 Coping questionnaire (2) (measure being developed)
 (OTHER TRAINEE'S STUDY)

A coffee break was offered at this stage of the session.

- 8 Computerised attachment measure Q-Sort (Fonagy et al., 2002)

- 9 Four questions from the Adult Attachment Interview intended to focus participants on their attachment to their parents. A 5-10 minute speech sample was obtained on audio-tape. (This task held an additional priming function).
- 10 Computerized 'Reading the Mind in the Eyes Test' (Baron Cohen, 2001) (Part 2)
- 11 Story Comprehension Test (Channon & Crawford, 2000) Part 2

(All measures for the current study that were not administered on the computer can be found in Appendix J).

A relaxation/grounding task was then undertaken to ensure that any anxiety aroused by the Adult Attachment Interview questions was alleviated.

It is important to note that the two 'Theory of Mind' tasks were counter-balanced across participants. This means that for half the participants in the BPD group and half the participants in the comparison group, form A of the ToM tasks was administered first (in the non-primed/ control condition) and form B was administered in the primed condition. For the other half of participants in each of the two groups, form B of the ToM tasks was administered in the non primed or control condition and form A of the ToM tasks was administered in the primed condition. This reduced the possibility of confounding factors linked to the measures themselves such as the levels of difficulty in the equivalent forms of the tests.

If a participant became upset at any point during the procedure, the testing was stopped and the participant was given the opportunity to discuss what had upset them. They were then given the choice of withdrawing, continuing after a break, or continuing at a later date.

The testing procedure lasted for approximately two and a half hours. Upon completion of testing, the participants were offered £10 to cover their expenses.

(3.6) MEASURES

(1) (a) SCID-II Personality Questionnaire (First, Spitzer, Gibbon and Williams, 1996)

This is a self-report questionnaire comprising of items from the SCID-II interview (see below), which can be used as a screening tool for identifying Personality Disorders. It can be used prior to the SCID-II interview thus reducing the time required for administration of the interview. This questionnaire asks the participant to rate the questions as 'yes' if they apply partly or completely to her, and 'no,' if the question does not apply. If used in conjunction with the SCID-II interview, as in this study, only the items answered positively on the questionnaire are followed up on the interview.

(b) Structured Clinical Interview for DSM-IV Axis II personality disorders (SCID-II version 2.0; First, Spitzer, Gibbon and Williams 1996)

This is a semi-structured Clinical Interview used to obtain DSM-IV (American Psychiatric Association, 1994) Axis II Personality Disorders. It has been used extensively in both research and in clinical contexts. Specific questions relating to

each (PD) criteria are asked and clients must endorse the criteria and give specific examples. The answers are rated on a scale from 1-3: 1 (absent or false), 2 (Sub-threshold) or 3 (threshold or true).

Psychometric properties; reliability and validity.

First, Spitzer, Gibbon and Williams (1996) cite a test-retest reliability Kappa of .87 for the SCID-II interview (within a 48 hour period) specifically for BPD (Marlow et al., 1989). The validity of this measure is derived from its one to one correspondence with DSM-IV criteria.

Jacobsberg et al. (1995) explored the psychometric properties, particularly the rate of false positives using the self-report questionnaire and compared it to the Personality Disorder Examination as the standard. They found that using the questionnaire in conjunction with the SCID-II interview by following up on the positive responses (on the questionnaire) to be a valid method. Ekselius et al. (1994) reported a Kappa of .78 between the questionnaire and the SCID-II interview.

For the purpose of this research and the need to limit time in administering the whole battery, (as described earlier), only those positively endorsed questions relating to BPD were administered (questions 90-104 inclusive).

Both researchers were given training in the use of the SCID-II and both administered the SCID-II interviews. In an attempt to increase the reliability of the results on this measure, notes were taken during the interview by the researchers and scoring of the responses of each participant was discussed in detail by the researchers and the

supervisor of the project. The supervisor is experienced with this measure and its utilisation with the BPD client group both in a clinical and research context.

(2) Beck Depression Inventory- 2nd Edition (Beck et al., 1996)

This instrument is a self-report questionnaire containing 21 items pertaining to the concept of depression (the authors of the test do however advise caution in the use of this measure, maintaining that BDI-II scores reflect the degree of depression rather than the diagnosis of depression). Each item on the BDI-II contains four statements corresponding to a four-point scale (0-3). The respondent is asked to select a statement which best describes how she has been feeling during the past two weeks, including the day of testing. Respondents are encouraged to circle the highest number if they find that two statements could apply to them.

Psychometric properties; reliability and validity.

The BDI-II is a well-validated measure. For example, Beck et al. (1996) found the internal consistency on a group of outpatients to be .92 and in a college sample .93 respectively. They found the test-retest reliability based on 26 outpatients (tested one week apart) to be .93 ($p < .001$).

In terms of content validity, The BDI-II was developed especially to assess depressive symptoms listed as criteria for depressive disorders according to DSM-IV. Its factorial validity (as assessed on 500 psychiatric outpatients) is high at .95 for Kaiser's measure for sampling adequacy value for matrix.

(3) Symptoms Checklist-revised (3rd Edition) (Derogatis, 1994)

This is described by Derogatis (1994) as “*a measure of current, point in time psychological symptom status*”. It is a “*90 item self report symptom inventory designed to reflect the psychological symptom patterns of community, medical and psychiatric respondents*”. Items are rated on a five-point scale of distress ranging from “not at all” to “extremely”, and can be interpreted in terms of nine primary symptom dimensions; somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation and psychoticism. In addition, three global indices of distress can be obtained: ‘global severity index,’ ‘positive symptom distress index,’ and the ‘positive symptom total.’

For the purposes of this study, only the Global Severity Index (GSI) was used as this is recommended by the author as the best single indicator of the current degree of disorder, combining information on the number of symptoms reported with the intensity of the perceived distress.

Psychometric properties; reliability and validity.

The SCL-90 is a very well-validated measure. Many studies have explored reliability and validity issues in the SCL-90 (for examples see Asberg et al., 1973, Derogatis et al., 1976; Horowitz et al., 1988; Peveler & Fairburn, 1990 Pinneau & Newhouse, 1964). For further information, please see Appendix K.

(4) Story Comprehension Test (Channon and Crawford, 2000)

Subtle ToM deficits were found in people with BPD using this measure in a study by Stokes (2001). Considering the relatively small numbers of participants who took part in this study, it was considered important to use the same ToM measure to explore whether this finding could be replicated.

As already described in the pilot study, the original test consisted of a series of twelve vignettes, which are thought to tap into theory of mind abilities. Please see chapter two for further details about this test. Following on from the pilot study (where the test was divided into two equivalent forms, each consisting of 6 vignettes) the SCT short forms were administered under the two conditions of the study: the control (unprimed) condition and the primed condition. Each form of the SCT was therefore scored out of 6.

In terms of psychometric properties of the short forms of the SCT, other than the limited information as detailed for the original (full) version of the SCT in the pilot study, only the reliability coefficients between the two short forms of the test are available at the current time ($r = .614, p < .01$).

(5) Reading the Mind in the Eyes Test -Revised Version (RMIET; Baron-Cohen, Wheelwright, Hill, Raste and Plum 2001)

In order to increase validity and reliability of the study, a second ToM test was included. The authors of RMIET describe it as a “pure” theory of mind measure, as it

does not involve an executive function component or a central coherence component (since there is little contextual information available; Frith, 1989)

For a description of the original RMIET and examples of items, please see the ‘pilot study measures section’. As a result of the pilot study, this test was split into two equivalent forms each consisting of 18 items. The two forms were administered under the two conditions: the control (unprimed) condition and the primed condition.

Psychometric properties of the short forms of the RMIET are limited to the correlation coefficient between the two short forms ($r = .771$, $p < .01$) at the current time. Information regarding the psychometric properties of the full version of the RMIET is detailed in chapter two.

(6) Attachment Q-sort (Fonagy et al., 2002)

(a) Description of the measure

Although the Adult Attachment Interview is considered the gold standard in assessing Adult attachment (Fonagy et al., 2002), it is a measure not without limitations of which Fonagy et al. describe five. Two limitations are particularly pertinent to the design of this study: *“The AAI requires extensive training of interviewers and raters, it is costly to transcribe and to rate”*. The AAI takes between one to two hours to complete before any transcription is carried out. The time and resources that would have been required to use the AAI is beyond the scope of this study, especially given the large number of other questionnaires and tasks involved in the battery.

The Attachment Q-sort, on the other hand, can be completed in as little time as 20 minutes and is easily coded and scored. It is a 60 item, self-assessment computer based measure of attachment. It is described by its authors as capable of assessing the quality of attachment (secure, preoccupied and dismissing) separately for a range of attachment figures (mother figure, father figure, significant other, best friend and acquaintance). Fonagy et al. (2002) aimed to develop a measure that systematically distinguished amongst attachment figures and was compatible with mainstream attachment literature (directly assessing the three classic attachment styles). In line with Fraley and Waller's (1998) finding that dimensional models are superior to typological ones in the assessment of adult attachment, they aimed to develop a measure that yielded continuous scores for each attachment style (Fonagy et al., 2002). In addition, the Attachment Q-sort discriminates between attachment and non-attachment aspects of close relationships and controls for social desirability of responses by matching secure attachment and positive non-attachment items as well as insecure attachment and negative non-attachment items. The measure itself involves Q-sort methodology requiring the respondent to place items in rank ordered groupings with a fixed distribution, a 'forced choice format'. This was an attempt to eliminate response biases associated with more traditional questionnaire methods of assessment.

The measure was developed by identifying attachment items in existing self-report attachment measures and generating an additional pool of non-attachment items some positive, and some negative. Using expert consensus, 60 items were selected following two focus groups of panels of experts and local judges of attachment.

Psychometric properties: reliability and validity data

More information is provided for this measure than any other in this study, as the measure is relatively new and is still being validated.

There was a high level of agreement between judges' ratings and hypothesised classifications on the 60 items of the Q-sort. Median Kappa coefficients for the three attachment categories were .86 for 'secure', .82 for 'preoccupied', and .81 for 'dismissing' (avoidant) attachment style. Local judges also judged the majority of items correctly, although their rates were slightly lower than the experts.

Adequate internal consistency alphas were found on the Q-sort scales. For 'secure', 'preoccupied', 'dismissing', 'positive non-attachment' and 'negative non-attachment', alphas ranged from .60 to .89 for mother and father figures. The test re-test reliability alphas for 56 participants recruited from a US community sample were good on all 5 aforementioned Attachment Q-sort scales, ranging from .74 to .89. In terms of criterion validity, the Attachment Q-sort scales were compared to various attachment measures: the Parental Bonding Instrument (PBI; Parker et al., 1979), the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) and several measures of attachment in romantic relationships: the Experience of Close Relationships (ECR; Brennan, Clark & Shaver, 1998) the Relationship Questionnaire, and the Dyadic Adjustment Scale (DAS; Spanier, 1976). The most relevant measure to the current study is the PBI. The 'mother and father care' domains on the PBI related strongly to the Q-sort although the overprotection domain correlated minimally.

The Attachment Q-sort was also compared to two measures of psychopathology. Modest correlations were obtained between levels of psychopathology and attachment

as measured by the Brief Symptom Inventory (BSI; Derogatis, 1993), and the Inventory of Interpersonal Problems (IPP; Horowitz et al., 1988). However, the preoccupied scale on the Q-sort related most strongly to psychopathology on these measures, which Fonagy et al. (2002) suggest supports other research linking the preoccupied attachment style with personality disorders.

Having explored the ‘fearful’ attachment scale on the RQ, Fonagy et al (2002) propose that “fearful” attachment falls between preoccupied and dismissing on the Attachment Q-sort, is slightly higher on insecurity, and indicates the absence of an organised strategy to cope with insecurity. This ‘fearful attachment, is the style most similar to disorganised attachment in infancy.

The Q-sort was adapted slightly for use in this study in that the respondent was asked to rate their primary childhood care-giver, rather than both mother and father. This is because two complete attachment ratings was considered too lengthy for the study and possibly, given the nature of childhood experiences of individual’s with BPD, two ratings may well have been perceived as traumatic and punitive by the respondents.

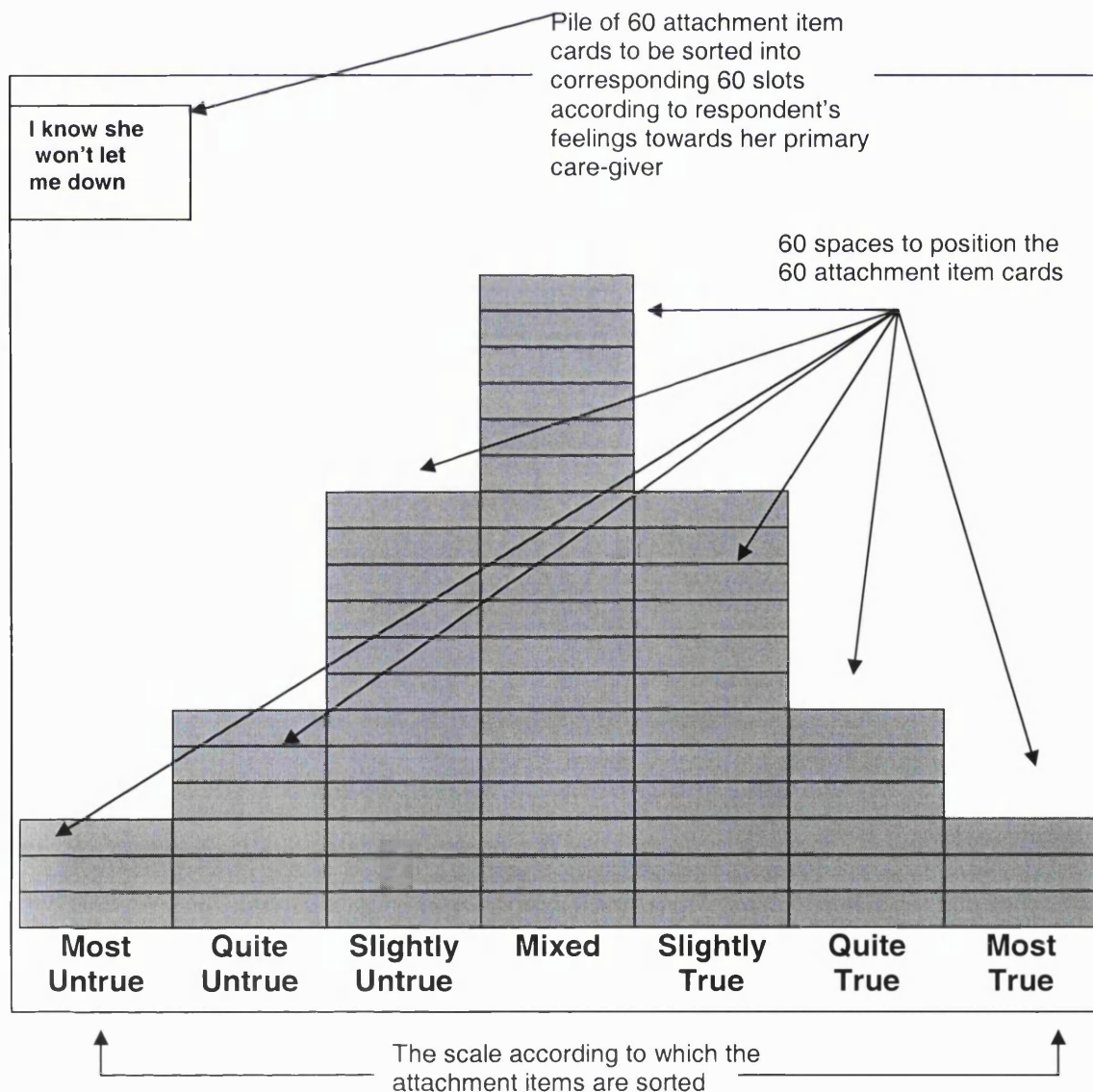
Having first identified the practice target of a respected teacher, the respondent is asked to rate 6 practice items to ensure that she understands the task and can operate the lap-top to a satisfactory degree (the respondent is required to manipulate the ‘mouse’ so that ‘cards’ containing the items, are sorted and placed according to a seven-point scale). Following this, the respondent is asked to identify her primary care-giver, “*Rate your relationship with the main person responsible for your physical and emotional needs as you were growing up*”. Then, holding her primary

care-giver in mind, the participant moves the statement card (top right hand corner of figure 1 below) to one of the boxes, according to how true or untrue she feels the statement is with regards to the primary care-giver. She then repeats the procedure until all 60 statements have been placed in the 60 boxes.

Examples of items:

- (a) It is hard for us to cooperate (b) When I need her, she always makes time for me (c) I know she won't let me down

Figure 1 - A diagrammatic representation of the Attachment Q-sort as it appears on the screen of the lap-top.



Although the items are presented in a random order to each respondent, the individual item data is stored in a data file on the computer, in a fixed order. This data sheet is then incorporated into an SPSS file and the program's syntax file 'reads' the data and produces continuous ratings for each of the three attachment styles; 'secure', 'preoccupied' and 'dismissing' as well as two non-attachment scales; 'positive non-attachment' and 'negative non-attachment'. An example of a positive non-attachment item is, "I have a lot of fun with her". An example of a negative non-attachment item is "Some of her habits bug me".

(b) Choice of primary caregiver

Table 2 - shows the primary caregiver that participants chose to rate during the attachment Q sort task.

	Experimental BPD group	Clinical Comparison Group	Total
Birth mother	17	15	32
Birth father	2	1	3
Foster mother	3	0	3
Aunt	0	1	1
Total	22	17	39

(7) Adult Attachment Interview (George, Kaplan & Main, 1985; 1996).

This measure has been used extensively in research and explores people's attachment status. It takes the form of a semi-structured interview and is used to obtain information regarding an individual's representation of his or her childhood

experiences. It includes questions relating to different areas of childhood experience such as separations, losses, rejection, maltreatment and the quality of the relationship between child and his or her care-giver. If the whole AAI is administered, it is possible to classify the participant's attachment style by analysing the narrative that the individual generates.

For the purposes of this study, four principal questions were used because the aim of using them was to prime the participants to their attachment history, rather than elicit a comprehensive account of their early childhood experiences. The following questions from the AAI were used:

- (1) Could you start by helping me get oriented to your early family situation and where you lived and so on? Could you tell me where you were born, whether you moved around much, and what your family did for a living?*
- (2) I'd like you to try to describe your relationships with your parents as a young child. If you can start as far back as you remember.*
- (3) Why do you think your parents behaved as they did?*
- (4) Did you ever feel rejected as a young child? Of course, looking back at it now, you may realise that it wasn't really rejection, but what I'm trying to ask about is whether you remember ever having felt rejected...*

The AAI was positioned deliberately after the Attachment Q-sort in the battery of tests. The Q-sort requires the participant to hold her primary care-giver in mind whilst responding to different statements regarding her early relationships with this caregiver. Thus, the Q-sort task in combination with the selected AAI questions was hypothesised to be an adequate primer of participants to think about personal attachment histories.

(3.7) DATABASE ENTRY AND STATISTICAL ANALYSES

Data from all measures used in this study was transferred and stored on an SPSS data spread sheet. All analyses were undertaken using SPSS version 10.1.

Dependent variables were compared to the normal distribution and values of skewness and kurtosis were computed. If variables were not found to be normally distributed, the number of outliers was ascertained and a decision made as to whether to remove the outlier or use a non-parametric equivalent test.

Differences between groups on demographic and descriptive variables were explored using chi-squared tests for categorical variables. Independent t-tests were carried out on continuous variables (or the Mann Whitney Test on data that was not normally distributed).

The scores from the two ToM tests were considered the main dependent variables. A 'repeated measures ANOVA' was the principal analysis used to examine ToM scores (taking into account grouping and the non-primed/primed conditions). Background variables that were found to be different between the two groups were used as

covariates in this analysis (any categorical background variable found to be different was introduced as a second between subjects factor).

Attachment dimensions were used as dependent variables when considering the predominant attachment styles of the two groups (these were assessed using independent t-tests). Correlational analyses were used to explore relationships between attachment dimensions and ToM scores and between attachment dimensions and types of psychopathology.

RESULTS

(4.1) Overview

This study addressed four main research questions and their associated hypotheses. In this chapter, background data on the characteristics of participants in the experimental BPD group and clinical comparison group will be presented first. Next, data gathered from the two ‘Theory of Mind’ measures will be explored taking into account the nature of the context in which it was administered. The data will then be re-presented after analyses have controlled for the influences of various background data variables (as identified as different between the two groups in the initial stage). Next ToM data from this study will be compared to previous studies. Following this, data regarding attachment (obtained from the ‘Attachment Q-sort’ and the final question from the AAI) will be presented. Relationships between ToM and attachment data will then be explored. Finally the influence of other explorative variables on ToM will be addressed.

(4.2) Issues of normality

The data was inspected for issues of normality of distribution before analysis was undertaken. Tests for skewness and kurtosis indicated that for the most part, the data was sufficiently normally distributed to allow the use of parametric tests. There were however five exceptions, three of these related to data obtained from the clinical comparison group: ‘age’ was negatively skewed, and the ‘somatisation’ and ‘hostility’ variables (from the SCL-90) were positively skewed. For these data, non-parametric results are reported. The fourth exception relates to the attachment data and the fifth to ‘length of therapy’, both of which are discussed further in the relevant sections.

(4.3) Group characteristics

(4.3.1) Demographic data (Table 1)

All participants were women aged between 28 and 57 years. The vast majority were from a white British ethnic background (91% of BPD group and 88.2% of the clinical comparison group). Most participants were not in a relationship and were unemployed. Participants' educational qualifications varied from no qualifications to having an undergraduate degree.

Table 1 – Demographic data of participants

		BPD Experimental Group (n = 22)		Clinical Comparison Group (n = 17)		Total (n = 39)	
		n	(%)	n	(%)	n	(%)
Marital Status	Single	15	(68.2)	14	(82.4)	29	(74.4)
	In a relationship	7	(31.8)	3	(17.6)	10	(25.6)
Education	No GCSE /O level	5	(22.7)	8	(47.1)	13	(33.3)
	Obtained GCSE / O levels	3	(13.6)	4	(23.5)	7	(17.9)
	Obtained A level	6	(27.3)	1	(5.9)	7	(17.9)
	Course in Further Education	8	(36.4)	4	(23.5)	12	(30.8)
Employment Status	Unemployed	16	(72.7)	12	(70.6)	28	(71.8)
	Employed	3	(13.6)	4	(23.5)	7	(17.9)
	Student	3	(13.6)	1	(5.9)	4	(10.3)
Ethnicity	White-British	20	(90.9)	15	(88.2)	35	(89.7)
	Afro-Caribbean	2	(9.1)	1	(5.9)	3	(7.7)
	Other	0	(0)	1	(5.9)	1	(2.6)

Chi-squared tests were carried out on these categorical background variables in order to investigate differences between the experimental and comparison groups. Because the frequency in cells were low in some cases, standard Chi-squared values were not reliable, therefore Fisher's exact values are given. Table 2 shows the results of these analyses.

Table 2 – Differences between groups on demographic data

	χ^2 test		Mann Whitney test			
	χ^2	df	p value	u value	df	p value
Marital status	1.01	1	.315	-	-	-
Employment status	1.09	2	.591#	-	-	-
Education	5.18	3	.161#	-	-	-
Ethnicity	1.43	2	.761#	-	-	-
Age	-	-	-	103.0	37	.017*

Fisher's exact values

No significant differences were found between the two groups on marital status, employment status, education or ethnicity. The non-parametric Mann Whitney test was undertaken on the 'age' variable given that the comparison group's data was found to be negatively skewed (in view of the low number of people in the comparison group, it was preferable to report results from this test than remove the three outliers that were skewing the data). This test showed a significant difference between the two groups. Participants from the clinical comparison group (mean age = 44.65 years, SD = 9.16) were significantly older than those in the BPD group (mean age = 37.91 years, SD = 6.69).

(4.3.2) Descriptive data

(i) Diagnoses- clinical comparison group

The majority of participants ($n = 16$) in the clinical comparison group were diagnosed with Depression (four of whom received a diagnosis of Bipolar Disorder). Five participants had additional anxiety related problems, for example, Generalised Anxiety Disorder and Panic Disorder. One participant was diagnosed with Obsessive Compulsive Disorder.

(ii) Differences between groups on measures of psychopathology

Data on the SCL-90 and BDI-II was obtained from participants in both groups.

Independent T-tests were undertaken to explore the differences between the groups' means on these variables, except for the somatisation and hostility subscales of the SCL-90, on which Mann Whitney U tests were performed due to a skewed distribution. See Table 3 below for results of these analyses.

Table 3 – Differences in psychopathology between groups as measured by the Beck Depression Inventory (BDI-II) and the Symptom Checklist (SCL-90)

	Experimental Group		Clinical Comparison Group		t value	p value
	(n = 22)		(n=17)		[u value]	
	Mean	(SD)	Mean	(SD)	(df)	
BDI-II	33.50	(12.84)	27.94	(14.72)	1.26 (37)	.216
SCL-90						
(global severity index)	2.00	(.69)	1.41	(.71)	2.59 (37)	.013*
Somatisation	2.21	(1.19)	1.14	(.84)	[119] (37)	.054
Obsessive-compulsive	2.35	(.70)	1.76	(.87)	2.31 (37)	.026*
Inter-personal sensitivity	2.19	(1.00)	1.43	(.93)	2.43 (37)	.020*
Depression	2.65	(.78)	1.93	(1.02)	2.49 (37)	.018*
Phobia	1.83	(1.18)	.96	(.73)	2.69 (37)	.011*
Anxiety	2.21	(1.19)	1.49	(1.06)	1.96 (37)	.058
Hostility	1.27	(1.00)	.72	(.90)	[103] (37)	.021*
Paranoia	1.83	(1.98)	1.24	(.96)	1.89 (37)	.067
Psychoticism	1.60	(1.05)	1.22	(.88)	1.07 (37)	.240

* p = < 0.05

No significant difference was found between means of levels of depression between the two groups (as measured by the BDI-II). However, the BPD group did score significantly higher on a general measure of psychopathology (as measured by the SCL-90) and on five of the SCL-90 dimensions (obsessive-compulsive, interpersonal sensitivity, depression, phobia and hostility) compared to those in the clinical comparison group. In fact, a general trend was revealed; participants in the BPD group scored consistently higher than those in the comparison group on all of the nine dimensions (Appendix L). Both groups' scores on all dimensions fell within the expected parameters for this outpatient group when compared to previously published results and cut-offs (Derogatis, 1994).

(4.4) Theory of mind (ToM)

(4.4.1) Restatement of hypotheses

Two hypotheses were put forward regarding ToM abilities.

Hypothesis A: The BPD group would have lower abilities in ToM tasks as compared to the clinical comparison group

Hypothesis B: ToM ability in the BPD group would depend on the context in which the ToM measure was given, such that BPD individuals would perform significantly worse on ToM tasks when primed with personal attachment history questions as compared to their ToM performance in the no priming condition.

(4.4.2) Theory of mind measures: RMIET and SCT data

A repeated measures analysis of variance (ANOVA) was considered the most appropriate test to explore the hypotheses as proposed above. Table 4 shows mean scores and standard deviations on the two ToM measures; the ‘reading the mind in the eyes test’ (RMIET) and the story comprehension test (SCT). Table 5 reports the findings from the ANOVA.

Table 4 – Repeated measures ANOVA on ToM variables

	EXPERIMENTAL GROUP (BPD)				CLINICAL COMPARISON GROUP			
	<u>Not primed</u>		<u>Primed</u>		<u>Not primed</u>		<u>Primed</u>	
	Mean	(SD)	Mean	(SD)	Mean	(SD)	Mean	(SD)
RMIET	13.36	(2.30)	12.91	(2.66)	10.89	(3.46)	11.88	(3.71)
SCT	4.86	(1.32)	4.73	(1.35)	4.18	(1.35)	4.59	(1.46)

Table 5 – Results of Repeated Measures ANOVA's

	Group	Condition	Group x Condition
RMIET			
F value	4.70	.318	2.27
df	1, 37	1,37	1,37
p value	.037*	.576	.141
SCT			
F value	1.51	.262	1.04
df	1,37	1,37	1,37
p value	.227	.612	.315

* p = < 0.05

In terms of the hypotheses, the current data do not support hypothesis A, moreover, a significant difference was found in the opposite direction - BPD participants performed significantly better on one ToM measure (RMIET) than the comparison group.

In terms of hypothesis B, although no significant difference was found in the no priming/primed conditions, there was a trend amongst BPD participants' such that ToM performance on the two tasks was worse after priming with their attachment history than the non-primed condition (particularly on the RMIET). In the clinical comparison group ToM performance improved after priming on both tests.

(4.4.3) ToM results when holding background variables constant (those found to be significantly different between the groups).

In order to explore whether the significant difference found between groups on the RMIET test related to differences in background variables between the two groups, the repeated measures (ANOVA) was re-run. This time, age and the global severity index were used as covariates. Co-varying age affected F values for the RMIET; $F(1,36)$ for grouping was 2.875, $p = .099$, (therefore no longer significant) and $F(1,36) = 1.267$, $p = .268$ for condition x group indicating that the age difference between groups may have been influencing RMIET performance and responses to priming. The GSI as a covariate did not appear to be influencing the results (Appendix M).

(4.4.4) Total RMIET ToM scores as compared to other populations

Although not directly comparable, an estimate of how participants' ToM (as measured by the RMIET) relates to other samples can be obtained by doubling the un-primed mean score (given that the short forms are assumed to be equivalent).

**Table 6 – Comparison of current study with
Baron- Cohen et al. (2001) findings**

	<u>RMIET</u>		
	n	Mean	(SD)
Aspergers/High Functioning Autism	15	21.9	(6.6)
General Population			
All	122	26.2	(3.6)
Males	55	26.0	(4.2)
Females	67	26.4	(3.2)
Students			
All	103	28.0	(3.5)
Males	53	27.3	(3.7)
Females	50	28.6	(3.2)
Matched IQ Controls (with Aspergers/HFA group)	14	30.9	(3.0)
BPD group	22	26.73	(4.6)
(current study)			
Clinical comparison group	17	21.76	(6.92)
(current study)			

The BPD group in the current study performed slightly better than the women in their general population sample whereas the clinical comparison group mean, fell closer to the mean score of adults with Aspergers syndrome.

Caution is advised when considering these findings, due to the use of the short form of the test in the present study (thus items were administered in a slightly different order compared to the Baron – Cohen study).

(4.4.5) Total SCT ToM scores compared to previous research findings for participants with BPD (Stokes, 2001)

Again, although not strictly directly comparable, differences in ToM performance of BPD participants in this study and a previous study can be assessed, if the un-primed SCT score is doubled (to represent an estimate of the total score).

Stokes (2001) found BPD participants to have statistically poorer performance on the SCT as compared to healthy controls. Independent t-tests carried out using Stokes's (2001) data, revealed no significant difference between the means of Stokes' BPD group and the present study's BPD group ($t(37) = .936$, $p = .356$). Importantly, the present study's clinical comparison group performed worse on the SCT than did Stokes' (2001) BPD group (although not significantly so).

As with the previous comparison, caution is advised when considering these findings as the SCT short form's items were presented in a slightly different order as compared to the full form used in Stokes (2001) study.

(4.5) Attachment

(4.5.1) Restatement of hypotheses

Hypothesis C: A negative relationship would exist between the level of borderline psychopathology and secure attachment. Conversely, positive relationships were predicted between the level of borderline psychopathology, the two insecure attachment dimensions, and the disorganised attachment dimension.

Hypothesis D: The relationship between preoccupied and disorganised attachment and borderline psychopathology would be stronger than the relationship between dismissing attachment and borderline pathology.

Hypothesis E: Individuals with BPD would score higher on Q-sort items representative of anxious-ambivalent/preoccupied attachment and on disorganised attachment as compared to the clinical comparison group.

(4.5.2) The relationship between attachment and degree of Borderline psychopathology.

(i) Disorganised attachment

The attachment Q-sort generates scores for secure attachment, preoccupied and dismissing attachment. Given that disorganised attachment is often perceived as a

mixture of the latter two, a composite disorganised score was computed by multiplying each participant's score on the preoccupied and dismissing dimensions.

(ii) Normality issues and the attachment dimensions

The attachment data showed one significant outlier in the clinical comparison group that was causing these data (specifically the disorganised dimension) to be significantly skewed. A decision was made to remove this participant's data for all analyses involving attachment scores. Therefore the number of participants in the clinical comparison group for the following analyses was 16.

(ii) Correlation between SCID-II scores and Attachment dimensions on the

Attachment Q sort

In order to examine the relationship between attachment and degree of Borderline psychopathology, bi-variate correlations of each attachment dimension and SCID-II scores were undertaken.

**Table 7– Relationships between attachment dimensions and BPD
psychopathology (SCID-II)**

	<u>SCID-II</u>	
	Pearson's r	p value
Secure attachment	-.230	.164
Preoccupied attachment	.217	.190
Dismissing attachment	.152	.362
Disorganised attachment	.242	.144

In terms of hypothesis C, no significant relationships were found between attachment dimension and borderline psychopathology as measured by the SCID-II. However, the directions of the relationships whilst not significant, were in the predicted directions; that is negatively with secure attachment, and positively with the insecure attachment dimensions and disorganised attachment.

(4.5.3) Differences between groups on attachment dimensions

Now, to address hypothesis E regarding the identification of the predominant attachment style for the two groups. Independent t-tests were carried out to see whether there were any significant differences between the means of the two groups with regards to their attachment to their primary care-giver (Table 8).

Table 8 – Differences in attachment between groups

	Experimental Group (BPD)		Clinical comparison group		t value	df	p value
	Mean	(SD)	Mean	(SD)			
Secure attachment	1.21	(.70)	1.41	(.73)	.85	36	.401
Preoccupied attachment	1.76	(.47)	1.42	(.58)	2.01	36	.052
Dismissing attachment	1.18	(.77)	1.02	(.61)	.68	36	.498
Disorganised attachment	1.97	(1.29)	1.32	(.88)	1.74	36	.091

Although strictly analyses revealed no significant differences according to $p < .05$ criteria, the difference between the mean values for preoccupied attachment was very

close to significance, in that the experimental BPD group scored higher than the clinical comparison group. This is in line with the hypothesised direction. The t value for differences between groups on disorganised attachment is also encouraging, given the low number of participants in the study. The number of statistical tests already performed however clearly dictates caution in interpreting these findings.

(4.5.4) Differences within groups on attachment

A repeated measures ANOVA was undertaken to see whether scores on attachment dimensions differed significantly within either group. No significant differences were found ($F(3, 108) = 1.17, p = 1.17$) suggesting that participants in the BPD group were no more likely to be high on one attachment dimension as compared to another attachment dimension, compared to participants in the clinical comparison group.

(4.5.5) Adult Attachment questions (AAI)

Coding the four AAI questions was beyond the scope of this study. No hypotheses were put forward regarding any of this data but the rejection question was explored as it was considered to be of interest.

Chi-squared tests were undertaken on whether or not participants had felt rejected, by whom, and whether they thought the carer knew he or she was rejecting the participant. Just one significant difference was found. Although numbers were low, χ^2 test revealed a significant difference between the groups for whether they felt rejected as a young child (Fisher's exact test $p = .046$). More of the BPD participants felt they had been rejected by a parent compared to the clinical comparison group.

(4.6) Attachment and ToM

(4.6.1) Restatement of hypotheses

Hypothesis F: There would be a relationship between the predominant attachment dimension and the ToM ability across the two groups. Secure attachment is hypothesised to correlate in a positive direction with ToM ability. Insecure attachment styles are hypothesised to correlate negatively with ToM ability.

Hypothesis G: Individuals high on secure attachment will have better ToM than those low on secure attachment

(4.6.2) Analyses

To see whether data lends support to hypotheses F, bi-variate correlations were carried out on the total scores for both ToM tests (by doubling the un-primed score) and the different attachment dimensions, regardless of group.

Table 9– relationship between ToM and attachment

	Secure Pearson's r (p value)	Preoccupied Pearson's r (p value)	Dismissing Pearson's r (p value)	Disorganised Pearson's r (p value)
RMIET	-.136 (.414)	.226 (.173)	-.073 (.662)	.047 (.781)
SCT	.105 (.529)	.123 (.460)	-.183 (.268)	-.188 (.258)

The scores on both ToM tests correlated significantly with each other ($r = .466, p = .003$).

Findings showed no significant relationships between any attachment dimension and ToM ability on either of the two ToM tests. The data from the current study do not support either hypothesis proposed for the relationship between attachment dimensions and ToM.

In terms of hypothesis G, individuals across the two groups were assigned to a high and low secure attachment category according to where their secure attachment score fell in relation to the median of all participants. An independent t-test was undertaken on the ToM scores. No significant differences were found between low secure attachment and high secure attachment on either ToM test. For the SCT, $t(37) = .177$, $p = .860$ and for the RMIET, $t(37) = .895$, $p = .377$.

Following on from this, the author was interested to see if being high or low on any of the other attachment dimensions related to differences in ToM scores. Participants were assigned to a low or high category of each attachment dimension, according to where their score fell in relation to the median of all participants. Independent t-tests were undertaken on SCT and RMIET ToM scores for each group. The only statistically significant finding from all these analyses was for the preoccupied attachment dimension. Interestingly, those people high on preoccupied attachment performed significantly better than those participants on low preoccupied attachment on the RMIET ($t(37) = 2.51$, $p = .017$). Mean scores for the RMIET test are shown in table 10 below.

**Table 10 - Mean ToM scores on the RMIET according
to attachment dimension**

Secure attachment		Preoccupied Attachment		Dismissing Attachment		Disorganised attachment	
High	Low	High	Low	High	Low	High	Low
Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
23.47	25.47	26.95	22.31	24.83	24.31	25.91	23.16
(6.94)	(5.28)	(6.78)	(4.65)	(5.48)	(6.97)	(5.29)	(6.84)

(4.7) Exploration of other variables and their effect on ToM scores.

(4.7.1) Impact of therapy on ToM

Various factors relating to the individual therapy participants had received were investigated as it was thought that this might impact on ToM findings.

(i) Type of therapy

No differences were found between the two groups on type of therapy received

($\chi^2 (3) = 5.77, p = .123$).

(ii) Length of therapy

Following identification that the comparison group's length of therapy data was positively skewed, a non-parametric test (Mann Whitney) was undertaken. This showed a significant difference (Mann Whitney $U = 113, p = .035$) between the groups indicating that the BPD group had spent a longer time in therapy than had the clinical comparison group (again this test's results are reported rather than an independent t-test, as removal of outliers would have rendered numbers in the

comparison group, even lower). The original analyses were re-run with length of therapy as a covariate. The F value for the grouping variable became slightly more significant ($F(1,36) = 5.20, p = .029$) indicating that the length of time spent in therapy was not influencing the results on ToM between the two groups.

(iii) Therapy status at time of testing

A significant difference between the two groups was found in terms of whether participants were in individual therapy at the time of testing. A higher proportion of participants in the BPD group were in therapy at the time of testing compared to controls ($\chi^2(1) = 4.04, p = .044$). Although cell sizes are small, original analyses were re-run with current therapy status included as a second between factors variable as an exploratory exercise. No significant results were produced on this occasion, suggesting that the original difference between groups (BPD had higher scores on RMIET ToM task than did clinical comparison group) may have been influenced by the higher number of BPD participants being in therapy at the time of testing (compared to the clinical comparison group).

(4.7.2) Relationship between level of general psychopathology and attachment

Given that BPD psychopathology was not found to relate significantly to attachment, the author queried whether attachment dimensions was significantly related to levels of general psychopathology. Bi-variate correlations were carried out between attachment dimensions and global severity index of the SCL-90 regardless of group status.

Table 11 – General psychopathology and attachment

	SCL-90 (global severity index)	
	Pearson's	
	r	p value
Secure attachment	-.079	.636
Preoccupied attachment	.326	.046*
Dismissing attachment	.180	.281
Disorganised attachment	.346	.034*

There was a significant correlation between levels of psychopathology and both preoccupied and disorganised attachment. As a consequence of these findings and the previous finding of significantly higher mean scores of preoccupied attachment in the BPD group, an ANCOVA was undertaken to explore whether the difference could be associated with general psychopathology. By covarying GSI (general level of psychopathology) the significant difference between the groups on preoccupied attachment disappeared ($F(1) = 1.76$, $p = .191$).

Following on from these analyses, partial correlations were carried out to see whether the association between preoccupied attachment and ToM was being suppressed by the SCL-90. Even controlling for SCL-90 scores, there was still no significant association between ToM data from either test and preoccupied attachment (Appendix M).

DISCUSSION

(5.1) THEORY OF MIND

(5.1.1) Does a ToM deficit exist in people with BPD?

The aim of this study was to build on two previous studies where BPD patients were found to have a reduced ToM capacity (Fonagy et al. 1996; Stokes, 2001). The present study, however, used a psychiatric comparison group and an additional new ToM measure. This methodology allowed for investigation of the impact of general psychopathology on any ToM deficits identified.

Hypothesis A suggested that individuals with BPD would perform worse on ToM tasks than a clinical comparison group. This hypothesis has not been supported by the results. In fact, the BPD participants in the current study performed significantly better on the new measure (the RMIET) than the clinical comparison group so this constitutes a new finding. No difference was found on the other ToM measure (SCT, the same measure used in the Stokes, 2001, study). These findings are therefore contradictory to previous studies.

(i) What could have contributed to this apparently superior ‘ToM’ finding?

Further analyses revealed that if current individual therapy status was introduced as a between subjects factor (i.e. whether or not a participant was receiving current therapy at the time of testing), the significant difference between the two groups disappeared. The fact that more participants with BPD were in therapy at the time of testing may have influenced their higher mean score on RMIET. It seems likely that if an

individual is attending regular therapy sessions, repeated attempts at understanding mental states might be ongoing and salient for the individual, and result in enhanced ToM scores.

If being in therapy contributes to a better ToM ability, one might also expect that the length of time the individual has been in therapy to be a factor. However, results showed this not to be the case. Additionally, time spent in therapy can be a misleading concept if the individual's level of psychopathology at the onset of therapy, is not known. This data may also be slightly unreliable as it was subject to participants' memory bias (the literature on autobiographical memory suggests various factors might impact on an individual's memory of therapy, for example, the quality of therapy and the client's satisfaction with therapy).

A second factor that appeared to contribute to the differences between the groups on the RMIET, although to a lesser extent, was the age of the participants. The BPD individuals, whose mean score was significantly higher, were also younger than the clinical comparison group. This is a rather surprising result as one might expect higher scores in older people (as compared to younger individuals) due to greater experience and exposure to others. This might need further investigation.

In summary, it seems that participants in this study did not have a deficit compared to other psychiatric patients. Although they initially appeared to have an enhanced ToM on the RMIET this seems to have been influenced by two factors. First, the high number of BPD patients in therapy at the time of testing, and second, the younger age of the BPD participants.

(ii) What can account for the differences between this study's findings and those of previous studies?

In comparing the present study with the Fonagy et al. (1996) study, reference must be made to the differences in ToM measures used. The RSF scale was created as an additional scale for the AAI, and assessed interviewees' transcripts for capacity to understand their own and others mental states and their willingness to think about these in a coherent manner. This measure seems to require quite different abilities than one where respondents are matching mental states to visual stimuli (RMIET). ToM measures are discussed in more detail in a later section.

Again, the factor of current therapy status is important to consider when thinking about the differences between findings across studies. The BPD patients in the current study had indeed received a significant amount of individual therapy and were in ongoing therapy (and hence may have had enhanced ToM skills), whereas it is unclear as to the time spent in therapy of those in the Fonagy et al. (1996) study. We do know that in this study "*patients were assessed within 14 days of admission to hospital*" (pp24). This might indicate that they were interviewed at the assessment phase of their care. The apparent disparity in the two groups in current therapy status may have influenced the differences observed in ToM results. Another contributing factor to the differences between studies may have been linked to severity of symptomatology. The inpatients in the Fonagy et al. (1996) study may have been at a 'crisis' phase of their symptomatology compared to the relative 'recovery' of the outpatients in the present study.

Caution must be taken in making comparisons to the other study (Stokes 2001), due to the differences in administration of tests (as noted in chapter four). However, BPD participants in the current study did not perform in a significantly different way to those in Stokes (2001) study. The crucial difference was that those in the Stokes (2001) study were compared to healthy controls whereas those in the present study are compared to clinical controls (whose ToM was poorer than the BPD patients, although not significantly so on the SCT).

Stokes (2001) subsequently recommended that ToM in people with BPD (as measured by the SCT) should be tested in comparison to a depressed control group in an attempt to tease apart the relative influences of the BPD diagnosis and co-morbid depression. In the present study the majority of the clinical comparison group had a diagnosis, which included depression. Overall their BDI-II scores for levels of depression were no different than the BPD participants although their SCL-90 depression scores were lower. What can be drawn from this? The BDI-II is considered the gold standard for severity of depression, has many more items than the SCL-90 sub scale for depression, and appears to tap into a variety of cognitive and somatic symptoms of the disorder. This might indicate that the BDI-II is the more comprehensive measure.

BPD participants are significantly worse compared to healthy women at understanding ToM constructs such as sarcasm, white lie, threat etc., which are apparent in everyday situations (as assessed by the SCT in the Stokes, 2001 study). However, they perform no worse than other female psychiatric patients with similar levels of depressive symptomatology. This might suggest that it is factors related to depression that are influencing the reduced ability to understand reasons for other people's behaviours in social situations as measured by the SCT. If this is correct,

then the slight deficit in ToM ability as measured by the SCT, does not appear to be specific to people with BPD.

(iii) Measures

It is interesting to consider the BPD group's superior abilities on the RMIET ToM task, given that their mean score was comparable to females in the general population. The RMIET is a very structured task and the correct label for the mental state in the photo is amongst the four options offered. In addition, the representation of the mental state is static. In real life, on the other hand, the other person's mental states are not necessarily at the forefront of the BPD patient's mind. The individual must therefore generate the answer from nothing. Furthermore, the mental state representation (facial expression) is far from static. Thus the RMIET may present an easier task and be tapping participants' optimal ToM abilities. A study by Arntz and Veen (2001) provides support for patients with BPD performing better at evaluating other people's emotional situations (in terms of perceptions of character traits) in a structured as opposed to unstructured format.

Considering that there was a significant finding on only one of the two ToM measures (RMIET), it would seem appropriate to reflect on their respective properties. Prior to considering this issue, it is important to note that there are few well-validated measures of ToM for adults. The choice of tests for the present study was influenced by those that had been used in past studies on people with BPD (SCT in the Stokes, 2001, study). It was also important to have a test that was sensitive enough to measure ToM without significant ceiling effects (RMIET). Now returning to the issue in hand, both the RMIET and SCT are clearly linked to the definition of ToM ("understanding the mental states of self and other") but this definition is somewhat broad. Indeed the

overall scores on each test do correlate at a significant but not particularly high level with one another (correlation coefficient = 0.47, Pearson's rho). This could imply that the tests whilst definitely appearing to tap related constructs, may be measuring slightly different things. To expand on this theme, there seems to be a large conceptual distinction to be made between visual recognition and labelling of mental states (i.e. in RMIET), and the ability to actually infer and communicate an understanding of people's mental state and behaviour (i.e. in the SCT). Moreover, understanding how someone is feeling and/or their behaviour is different yet again from being able, knowing how (as in Linehan's, 1993, skills deficit model), or wanting to behave in an appropriate manner to this in a social situation. One useful way of distinguishing these different abilities may be conceptualising ToM abilities as implicit (in the RMIET) and explicit (in the SCT). The notion of implicit and explicit ToM relates back to Fonagy's (2000) hypothesis that BPD patients develop a level of non-conscious mind-reading skills akin to those observed in three-year old children before they formally pass tests of ToM (Clements & Perner, 1994). They appear to have an intuitive understanding of false belief, but they are not able to verbalise this. However, they reveal this understanding nonverbally with their eye movements. Relating these ideas to the ToM measures, selecting the correct mental state term to match a photograph as in the RMIET (tapping more implicit knowledge) may require less active ToM skills than generating an explanation for a person's behaviour following an open ended question about a social situation, as in the SCT (perhaps requiring more explicit ToM skills). The SCT would thus appear to be a more difficult task than the RMIET. Future research could explore implicit ToM by building on the ideas and techniques used in developmental studies. Thus it would be important to focus on behavioural cues as providers of ToM information, as opposed

to relying on both the acknowledgement of ToM (at a conscious level), and its subsequent successful communication.

A further difference between the two tests is linked to executive function. The RMIET was designed to be a “pure” theory of mind measure, as it does not involve an executive function component. The SCT, on the other hand does have an executive functioning element. Indeed Stokes et al. (in preparation) found that there is a significant correlation between executive functioning as measured on validated neuropsychological tests and performance on the SCT such that poor executive functioning correlated with lower performance on the SCT. It is interesting that BPD participants in this study apparently found the task without the executive functioning element easier (albeit in a non-stressful situation). Further research would benefit from using other measures with and without executive functioning components to see how BPD participants’ performances compared.

(iii) Summary –ToM deficit in BPD

So what can we conclude for the hypothesis implying a ToM deficit in BPD? When all things are considered, findings from this study suggest that if any subtle deficit does exist in people with BPD it only exists in terms of what one ToM measure assesses (SCT) and it is likely to be linked to psychopathology in general, rather than to factors unique to individuals with BPD. This study does not support models of blanket ToM deficits in people with BPD. In fact, it opens up the possibility that BPD participants may be similarly able as non-clinical populations (as compared to Baron-Cohen’s data) at recognising mental states in others (RMIET). However, the fact that more BPD individuals were in therapy at the time of testing and their younger ages, could have influenced this finding. More generally, a need exists for a

more precise working definition of ToM, possibly distinguishing between implicit and explicit ToM abilities.

(5.1.2) Is ToM context dependent?

Clinicians observed that at times patients with BPD seemed to have considerable insight into the therapist's state of mind. This led to a hypothesis about a state dependent ToM ability and accordingly, hypothesis B proposed that individuals with BPD would perform worse on ToM tasks when primed with personal attachment history questions, compared to their ToM performance in a non-primed condition. Although results did not reach criteria for statistical significance, a trend was found, on the RMIET task in particular, that BPD participants do indeed perform worse once primed with their attachment history, compared to their un-primed performance. This is in contrast to participants in the clinical comparison group, whose performance improved in the priming condition. There is therefore speculative support for this hypothesis. One might expect that any person may perform better on the second administration of the test due to practice effects. Thus, it is of some interest that despite the potential for practice effects, BPD participants appeared to perform worse.

However, as with the first finding on the RMIET, this trend became weaker when age and current therapy status were included in the analyses, indicating that these factors may also have been influencing the differences in performance after priming between the two groups. So whilst BPD participants may become more anxious or upset when thinking about their attachment history (the priming), which then interferes with their ability to label others' mental states accurately (use ToM), it may be that their performance was also associated with their younger age or current therapy status.

(i) What could account for a state dependent ToM deficit in people with BPD?

The following ideas are based on some degree of speculation and therefore some caution is advised. However, they are worthy of discussion and may prove to be important if future research were to replicate the trend of a state dependent ToM deficit.

Fonagy (2000) suggested that when the BPD individual is developing, it is often too destructive for her to be able to read the state of mind of her caregiver accurately (as it could be that the caregiver indeed wishes harm to her). Building on his ideas from observations of children and their implicit ToM (see earlier), he suggests that mentalisation skills can remain in a 'fractionated' state and as such, are inconsistently applied across different domains. This could be a natural, instinctive process or an active attempt not to coordinate so that the different contexts can stay separate, thus perhaps protecting the individual's positive view of herself. It is possible that in the non-primed condition the structure of the RMIET facilitated the implicit understanding emerging into consciousness. Therefore, the BPD participant was able to choose the correct mental state. However, in the primed condition, the anxiety (induced by thinking about her personal attachment history) blocked this process.

The current finding appears to fit well with Jeff Young's (2003) model and the idea of schema modes. He describes a 'mode' as a state comprising individual schemas (broad conceptualisations of traits) and coping strategies. These are employed in response to environmental or internal triggers. Non-clinical individuals are able to modulate one schema with another in their repertoire, and are able to move from one to another with relative ease. However, BPD patients' schemas are more pathologically dissociated from one another. Therefore, it is more likely that they will

become entrenched within a particular mode or suffer from violent ‘flipping’ from one mode to the next. Young describes the ‘detached protector’ mode as the default mode for patients with BPD. This mode characterises the avoidance coping strategy and involves (amongst many other things) the detachment of emotional involvement and blocking of intolerable affect. A lack of empathy borne out of a hypothesised ToM deficit may exist in this one mode, triggered in a specific stressful situation. However, in some other modes, such as ‘the healthy adult’ mode, empathy (or ToM) is intact. Therefore, if some modes afford a better understanding of other people’s mental states, then these are the modes in which we might observe BPD patients optimal ToM abilities. In addition, if a patient is rapidly and frequently switching modes (something she might do when difficult, sensitive attachment issues are being discussed), her ToM is likely to be reduced and she is unlikely to have a stable internal image of the therapist, which might further impact negatively on ToM abilities.

In thinking about models for BPD, it is worth noting that symptomatic improvement has been found to be common and stable amongst even the most disturbed borderline patients (Zanarini, Frankenburg, Hennen & Silk, 2003). This finding is compatible with the idea that deficits in BPD are likely to be state or context dependent and not all-pervasive.

(iii) Measures

Reflection on the RMIET findings for context dependent ToM seems valuable at this point. Why did the trend appear in results from this test but not on results from the SCT (at least to the same degree)? One explanation could be due to the length of the SCT. The original form of the SCT is short (just 12 items) and accordingly the short

form of 6 items, may have been too short to accurately pick up differences in ToM functioning over the two conditions. A longer test may be required in further research. An alternative speculative idea is that there could be a differential effect of anxiety (induced by the priming procedure) on implicit and explicit ToM, such that implicit abilities are affected to a greater degree than explicit abilities.

(iv) Summary – findings on variable ToM ability in BPD

The present study's results go a little way in lending support for a variable ToM ability in people with BPD. Results indicate that more research studies with higher numbers of participants are required to examine the variable ToM deficit in BPD further. In particular, the relative contributions of age and current therapy status on ToM may require further attention. Equivalent forms of ToM tests with larger numbers of items (compared to the SCT) are needed to carry out the research in exploring a state dependent ToM deficit.

(5.2) ATTACHMENT

The preoccupied and “unresolved, disorientated or disorganised with respect to loss, abuse and trauma” attachment styles have been linked to BPD in several studies (Fonagy et al., 1996; Nickell et al. 2002; Patrick et al., 1994). A secondary aim of this study was to build on these findings by using a new measure of attachment.

(5.2.1) How do levels of borderline psychopathology relate to the different attachment dimensions?

Two hypotheses were put forward: Hypothesis C proposed that a negative relationship would exist between the level of borderline psychopathology and the secure attachment dimension. Positive relationships were predicted between the level of borderline psychopathology and the two insecure attachment dimensions and the disorganised attachment dimension. Hypothesis D predicted a stronger positive relationship between both preoccupied attachment and disorganised attachment and borderline psychopathology, compared to dismissing attachment.

Hypotheses C and D were not supported. BPD psychopathology as measured by SCID-II did not relate significantly to scores on any attachment dimension, and to no dimension significantly more than another.

(i) What may have contributed to this finding?

The SCID-II was chosen as the most appropriate measure that exists for assessing whether or not someone has a diagnosis of BPD (categorical classification). It is not, however, a well validated measure for measuring severity of borderline psychopathology (i.e. using number of criteria as continuous data). The lack of a clear link between borderline psychopathology as measured by the continuous SCID-II scores, and the preoccupied and disorganised attachment dimensions, may be associated with limitations inherent in the measure itself. Indeed neither of the previously mentioned attachment studies reported findings regarding the relationship between SCID-II continuous scores and attachment styles.

Following the finding of an absence of association between BPD symptomatology and attachment dimensions, exploratory analyses were undertaken to see whether general psychopathology related to scores on any attachment dimensions. These analyses revealed that preoccupied and disorganised attachment dimensions correlated significantly with global severity index, a measure of general psychopathology on the SCL-90.

Difficulties and limitations of the attachment measure itself are addressed later, in section 5.5.2.

(ii) Summary – relationship between borderline psychopathology and attachment dimensions

The link between attachment dimensions and severity of BPD psychopathology (as measured by SCID-II continuous scores) was not found in this particular study. Although given the low numbers of participants recruited for this study, it might be prudent to replicate the study before ruling out specific relationships between severity of BPD psychopathology and attachment dimensions. However, the link between general psychopathology and preoccupied and disorganised attachment styles seems a more robust phenomenon.

(5.2.2) How do the attachment dimensions compare between the two groups?

Hypothesis E advanced that individuals with BPD would score higher on Attachment Q-sort items representative of the anxious-ambivalent/preoccupied attachment style,

and on the disorganised attachment style as compared to the clinical comparison group.

The hypothesis has been supported for preoccupied attachment. The result for disorganised attachment, whilst not reaching significance was encouraging, given the low number of participants involved in the study. These results appear consistent with previous studies' findings. Further analyses on the group difference in scores on preoccupied attachment showed that when general psychopathology (as measured by the global severity index of the SCL-90) was added as a covariate, the significant difference between groups disappeared. This indicates that the group difference in preoccupied attachment overlaps with the effect of general psychopathology on preoccupied attachment. Thus it may be that the original difference was more closely associated with the higher levels of psychopathology in the BPD group than other factors unique to BPD. Further research where levels of psychopathology are matched between the two groups is needed to provide more support for this speculative conclusion.

(i) Models and previous research – what could account for differences in strengths of associations in attachment styles in BPD and in comparison groups across studies?

The first consideration must be the different attachment measures used in the studies and subsequent different statistical analyses. Whilst the AAI generates categorical classifications of attachment, the present study's Attachment Q-Sort produces continuous attachment variables. In Patrick's (1994) study, 12 BPD participants in each group were sufficient to identify differences on attachment classification using χ^2

tests (categorical variables). However, the situation may be different for the continuous scores obtained on the Attachment Q-sort. It may be that more participants are required for significant effects to be seen on the Attachment Q-sort's continuous variables.

A second explanation may be linked to the way the attachment Q-sort was used. This measure was originally designed to be used on a range of target figures. It may be that just one rating of a primary caregiver, as used in the current study, may have been too limited to assess the attachment dimensions of an individual to a desirable level. It may be that a 'watered down' version of the overall attachment style was obtained.

Whilst the above two explanations may apply equally to the lack of a significant result between the two groups on the disorganised attachment dimension, an additional factor may have contributed to this result. As with the other explanations, this finding could indeed be an accurate reflection of reality, or it may be due to a factor inherent in the measure, namely that the disorganisation dimension has not yet been fully validated. It is possible therefore, that the dimension is measuring just an estimate of what can be thought to constitute the disorganised attachment style.

A final speculative idea regarding the attachment Q-sort relates to the computerised format of the measure. It could facilitate the participant to take a more meta-perspective on her attachment experiences than she might take when talking to an interviewer about her experiences as on the AAI. It might encourage an individual to think more mechanically about her attachment, given that she might perceive herself as having more distance between her and the experience (which is being laid out on the computer screen). If this is true, it might imply that a preoccupied individual's

‘preoccupation dimension’ score, for example, may appear suppressed in some way (in comparison to how the same individual may come across on the AAI), simply as a result of the computerised measure. It should be noted, however, that the Attachment Q-sort is currently being validated against the AAI and correlations between the two measures to date appear promising.

(ii) Summary – findings on attachment between the two groups

BPD participants are (on average) more ‘preoccupied’ with regards to their attachment than other psychiatric participants. Findings from this study hint at this being most likely associated with their inherently higher levels of psychopathology, but further research (where participants are matched in each group on general levels of psychopathology) is required to provide more support for this speculative conclusion.

(5.3) ATTACHMENT AND THEORY OF MIND

(5.3.1) Does a relationship exist between Attachment and ToM?

Fonagy et al. (1991) proposed that by being reflective on the child’s mental state, the caregiver increases the likelihood of the child’s secure attachment, which in turn, facilitates the development of mentalisation or ToM. Secure attachment is hypothesised to mediate ToM development. Accordingly, hypothesis F advanced that secure attachment would correlate in a positive direction with ToM ability whereas insecure attachment styles would correlate negatively with ToM ability.

The analyses on these variables produced somewhat perplexing results. No relationships were found between the attachment dimensions and ToM scores on

either test. In addition, no differences were found between participants high on secure attachment and those low on secure attachment on either ToM test. Therefore this hypothesis was not supported, and findings do not therefore seem to fit with the Fonagy et al. (1991) model.

(i) What can account for this finding?

Whilst it could be that ToM and attachment do not relate to each other in an equal one to one correspondence in reality, it is necessary to specify that the Fonagy et al. (1991) model is a developmental one and subsequently most evidence to date focuses on children's ToM abilities. Only one study (Fonagy et al. 1996) explores the two constructs in adulthood. One possible explanation for the confusing results for attachment and ToM in the present study is that whilst ToM and attachment relate to one another in childhood, other factors come into play to influence this relationship in adulthood. One example of this may be time spent in therapy. Many of the participants in the current study had spent significant time in individual therapy. It may be that individual therapy influences people's ToM and attachment in an unequal way in the individual and between individuals. Further research is implicated which clearly defines amount of therapy an individual has received (or alternatively recruiting participants who have never had any therapy). In addition, future research should estimate how severe the individual's problems were initially (possible using the GSI from the SCL-90, as in this study) and should use the attachment Q-sort across the range of attachment figures. A further example of factors influencing the relationship between attachment and ToM in adulthood could be executive functioning (an overlap in these constructs was outlined in chapter one).

(iii) Summary

Findings from this study suggest there is no one to one corresponding relationship between ToM and attachment.

(5.3.2) Do people higher on the secure attachment dimension have better ToM skills than those lower on the secure attachment dimension?

Hypothesis G advanced that individuals who scored high on the secure attachment dimension would have better ToM than those who scored low on the secure attachment dimension, following the Fonagy et al. (1991) model.

People high on the secure attachment dimension were not found to have significantly better ToM as measured by either test, than those low on attachment, so this hypothesis has not been supported either. An interesting finding though was that participants who were high on the preoccupied dimension also had the highest mean score on the RMIET, over and above those high on secure attachment. Intuitively, of the insecure attachment styles, someone who is ‘preoccupied’ with their attachment figure may attend more to him or her (and thus their mental states) than someone who is more dismissing or disorganised.

(ii) What can account for these findings?

Given that all participants come from a clinical population, it may be that the range of scores on the ‘secure attachment’ dimension was not sufficient to allow for a dichotomous comparison. In other words, the majority of scores may well have been on the lower side for secure attachment. Indeed this is in line with evidence from the

literature. Psychiatric patients are associated more with preoccupied attachment and unresolved classifications than secure attachments (Fonagy et al., 1996).

Some speculation on the finding related to differences found on preoccupied attachment will now be presented. It could be that preoccupied individuals, as a result of the inconsistent parenting characteristic of this attachment style (Ainsworth et al., 1978), develop a hyper-vigilance for monitoring others' mental states. This seems adaptive so that on any given occasion, such individuals can attempt to work out whether they need to escalate their attachment behaviour to gain the attachment figure's attention, or whether on this occasion, their attachment figure seems to be responding appropriately in meeting their attachment needs. As these individuals grow up, they are exposed to more and more people and the hyper-vigilance may still remain (in that they are still preoccupied and anxious), but their understanding of mental states becomes more accurate as they are now well-practised (because of the hyper-vigilance) at reading other people's mental states. In addition, whilst no longer focused on one attachment figure, (who may be inconsistent in their attachment behaviour) they have monitored many people's mental states, whose behaviour may be more consistent with their mental state.

(ii) Summary – the relationship between attachment and ToM

Participants (relatively) high on secure attachment in this study, do not appear to have a better ToM as measured by either task than those who are (relatively) low on attachment. This could be due either to a lack of direct relationship between the two factors, or because the range of scores on this dimensions was insufficient for an adequate dichotomous comparison. Individuals high on preoccupied attachment had the best mean ToM score on the RMIET. This warrants further investigation.

(5.4) REJECTION

Whilst not in itself a specific hypothesis of the present study, although intuitively a pertinent issue for people who have BPD (given what is known about their often turbulent childhoods), rejection and the associated feelings were explored. Feelings of rejection were explored through questions of the AAI, the principal function of which was to prime participants to think about their personal attachment histories. Significantly more people with BPD felt rejected by their caregivers than people in the clinical comparison group. This is interesting, yet not unsurprising, and is important in that it validates the use of these questions as a priming tool in the absence of another source of validation.

(5.5) LIMITATIONS OF THE STUDY

(5.5.1) Participants

Recruitment of participants was difficult for various reasons. Recruitment was dependent on mental health workers from CMHTs and day hospitals giving names of patients who considered themselves to be potential participants. Generally these workers seemed hesitant, cautious and very protective of patients. Indeed many seemed reluctant to even consider the research project as a result of heavy clinical workloads and the fact that other research projects were being undertaken in the same area. At times, therapists of BPD patients made decisions to not invite patients to take part in the study if they thought the patient was too ‘unwell’ to cope with the testing situation. Finally, the very nature of the attachment component of the study appeared to be off-putting for some potential participants. BPD clients in particular have a history of problematic relationships with carers, and some appeared especially reluctant to commit to taking part in the study, knowing that these issues would be

discussed. For these reasons, recruitment was slow and the numbers in the two groups were lower than had been hoped for. The results of the study may thus be subject to type II error. The small sample size affects the reliability of the findings and as such the present study requires replication to improve the extent to which the findings can be generalised.

Possible future research could recruit matched controls in terms of level of psychopathology and amount of therapy (preferably women who had received no therapy and were about to be assessed), and age and compare them to BPD participants. This would go some way to address the difficulty in teasing apart the relative effects of such factors on findings in the current study.

(5.5.2) Measures

Although Baron Cohen et al. (2001) found no relation between IQ and scores on the RMIET, Stokes (2001) found that IQ influenced results on the SCT. A measure of IQ may have been a useful addition to the battery in this study. However, since the battery was already lengthy, further additions to the battery may have had implications such as two sittings as opposed to one. This in turn may have impacted further on difficulties in recruitment.

(i) Attachment Q-sort

Limitations to this measure include the fact that it is not yet fully validated and that there are difficulties with its continuous scores (as identified earlier). Another important limitation of the measure was that 12 participants' primary caregivers had died prior to testing. These ratings inevitably relied solely on memories of caregivers

and may have been influenced by the stage of the grief cycle at which the individual found herself at the time of testing (for example see Parkes, 1972). The link between personality disorder and pathological outcome of grief is not well understood. However, Sanders (1989) alerts us to the increased risk of pathological bereavement outcome associated with personalities that are characterised by feelings of inadequacy, inferiority and insecurity. Thus the way in which an individual rated her dead caregiver may have been different to how that same individual would have rated the caregiver when she was alive. Wayment and Wierthaler (2002) found that individuals with anxious ambivalent (preoccupied) attachment styles report greater levels of grief compared to other attachment styles. It may be therefore, that factors relating to bereavement may have influenced the BPD participants and psychiatric control participants in different ways.

Observations and comments from some participants carrying out the attachment Q-sort reflected that at times participants found the task a little frustrating due to the high number of items (60) they were asked to sort. Consequently the motivation of some participants towards the end of the task was questionably less than at the start by which time finishing the task seemed to have become more important than creating an accurate representation of their attitudes towards their primary caregiver. One participant, found the task distressing and 'far too clinical'. She found it difficult to put her feelings in boxes. Interestingly, she was keen to talk about the same experiences reporting she could truly express herself in this way. Speculatively, it may be that the forced-choice format of the task was a position in which the patient was loathe to put herself, given her very aversive unwelcome childhood experiences.

(ii) RMIET

Potentially a disadvantage of this test is that it may have brought out participants optimum qualities as mentioned earlier. However, it seemed an appropriate choice for many reasons. First, it was recommended for use in a previous study (Stokes, 2001). Second, Fonagy and Target's (1999) suggest that a crucial stage for ToM development is when the child searches the face of his caregiver for a representation of his own state of mind. Finally, it benefited from having been designed specifically without an executive functioning component.

Given that BPD clients performed well on this test in the un-primed situation, and the possibility of it tapping optimal ToM abilities, it may be useful to adapt the RMIET in any future research to make it more synonymous with real life. This could be achieved by presenting the photographic stimuli only very briefly, then flashing the four mental state terms individually so that the participant has less time to make a decision. Alternatively video clips of people in various social situations with a series of changing emotional states could be used. Results from such a study may give a more accurate picture of people with BPD's real life ToM abilities.

(5.5.3) Design

(i) Priming

The method of priming participants to their attachment history could have been more sophisticated but was considered acceptable for an exploratory study such as this. In particular, in the absence of any method of checking, in the first 'unprimed' condition it could not be guaranteed that participants had not been thinking about their caregivers before entering the testing situation. Although attempts were made to treat

participants in the two groups in the same way e.g. they asked the same questions about attachment histories and in as similar manner as possible, levels of priming may well have varied from individual to individual for a variety of reasons, e.g. the extent to which a given participant was used to or comfortable with thinking about the caregiver may well have varied. The level of priming was not captured by the design of the study. Checks for priming manipulation, such as the use of affect scales (e.g. Positive Affect Negative Affect Schedule, Watson, Clark & Tellegen, 1988) before and after priming would have been useful to assess the extent to which the individuals in the two groups were 'primed' to thinking about their attachment histories.

Future studies may benefit from adding a neutral or positive affect primer such as those used in a study by Mikulincer et al. (2001) to obtain a more complete picture of the ToM abilities in different contexts.

(ii) Comparison group

The study was originally designed to have a comparison group whose participants had diagnoses of Major Depressive Disorder. However, as a result of the problems with recruiting, the criteria were loosened and women with Bipolar Disorder and one participant with Obsessive Compulsive Disorder were recruited. A general psychiatric control group was formed as opposed to a depressed comparison group and so whilst findings may give an estimate of depressed women's ToM abilities and attachment styles, this may be slightly different in comparison to a group of women who were all diagnosed with Major Depressive Disorder.

In view of the fact that only questions pertaining to BPD in the SCID-II were administered to participants, it is possible that they may have had other personality

disorders. It may be useful in future research to use the full SCID-II interview to assess for all personality disorders. It may also be useful to use the SCID-I interview to assess for co-morbidity of Axis I disorders in all participants. In so doing, a more accurate understanding of ToM abilities and attachment styles specific to BPD will be obtained relative to other PDs and Axis I disorders.

(5.6) CLINICAL IMPLICATIONS OF THE FINDINGS

The author hesitates in suggesting clinical implications from this study for a number of reasons. First, the variable ToM ability did not reach statistical significance, can only be termed a 'trend'. Second, the BPD individuals' significantly higher ability (as compared to the clinical comparison group) was only shown on one ToM test, and may be linked to the fact that more BPD participants were in therapy at the time of testing and their younger age. However, if future research reveals that people with BPD do indeed have difficulties reading others' mental states in an attachment context, this would have some pertinent clinical implications. Clinicians may need to be mindful that as the therapeutic relationship with a BPD client develops from a non-attachment relationship to an attachment relationship, the clients' ability to read the therapist's mental state accurately may deteriorate, leading to difficulties in the therapeutic relationship. The fact that the client may have appeared to have a relatively 'normal' (compared to non clinical populations) ToM ability initially, may leave the therapist feeling confused at the disparity in ability across situations.

Second, if ToM ability is found to be dependent on context (and appears to be a phenomenon outside of the client's control), by keeping this in mind (or even acknowledging it explicitly with the client), professionals can allow for a fluctuating

ability. In allowing for a fluctuating ability, our expectations of clients' behaviour may be adjusted to a more realistic level, which may reduce the frustration in working with these clients. Any steps towards reducing frustration and burn-out (Layden et al., 1993) may contribute to a decline in the negative labelling associated with the BPD client group.

There are clinical implications for the therapeutic relationship regarding the increased level of 'preoccupied attachment'. Slade (1999), whilst not advocating a specific 'attachment therapy', believes that paying attention to attachment 'narratives' (in terms of inconsistencies, lapses, contradictions and irrelevancies) can be very informative for therapists' formulations. This can be especially useful in terms of how a patient defends him or herself against the intrusion of unacceptable feelings. More specifically, for preoccupied individuals, who are often overwhelmed and driven by affect, Slade (1999) suggests that therapy should revolve around the slow creation of specific structures designed for affect modulation. This creation of structures is in sharp contrast to goals of therapy for an individual who is 'dismissing'. Here affect is almost absent, and the patient clings to rigid stories. Therapy with dismissing individuals requires a re-working of attachment stories, and unblocking of affect.

Finally it may be pertinent to think about patients' ToM in terms of their understanding of social situations involving sarcasm, white lie and the other ToM constructs as measured by the SCT. This could be applied across diagnostic categories of mood related disorders given the poor performance of the clinical comparison group on this task.

(5.7) FUTURE RESEARCH SUGGESTIONS

(5.7. 1) Replication

A common theme throughout this chapter is the relatively low number of participants whose data was used in this study. Generalising any results from this study would be problematic. Hence replication of the study is strongly recommended with recruitment of a larger number of participants.

(5.7.2) Dissociation and ToM

It would be interesting to know more about the relationship of ToM and dissociation, especially given the findings in this study. Dissociation can be thought of as the antithesis of mentalising (Fonagy, 1991) and is a common symptom of BPD. Thus, it may be helpful to add a measure of both trait (e.g. The Dissociative Experiences Scale; DES-II, Carlson & Putnam, 1993) and state dissociation (e.g. the Clinician Administered Dissociative States Scale, Bremner et al. 1998) to the battery of tests. Because of the absence of dissociation measures, it is unclear as to which participants may have experienced this during testing. Did those who performed worse on the ToM task after priming experience dissociation during the attachment tasks and subsequent ToM tasks more than those participants who performed in a similar way? Logically, if someone is dissociating for a considerable amount of time in her day, she will inevitably be spending less time using ToM. It may be that rather than people with BPD having a poor ToM, they may have a good ToM but be spending less time using it, if they are experiencing dissociative phenomena. Incorporating dissociation measures into the battery would also give additional information to assess the level of priming.

(5.7.3) Item analysis of RMIET data from current study

Building on the results of the current study, it would be interesting to undertake an item analysis of the RMIET in order to explore whether there were any significant differences in items (specific emotional states) that the two groups found particularly difficult. This would be especially informative in the second condition where participants were primed with thinking about their personal attachment history. BPD participants are hypothesised to answer more of the negative threatening emotional states incorrectly, as compared to the positive mental states.

(5.8) CONCLUSIONS

This study has demonstrated the need for a better working definition of theory of mind. This is because the current definition appears too broad. Implicit and explicit ToM constructs may be one way of achieving this. The current study has provided no evidence for a blanket ToM deficit in people with BPD. Indeed it provides some support that individuals with BPD may have a ToM ability in recognising other people's mental states in a non stressful, non attachment related context, that is similar to a non-clinical population. This 'comparable' ability may be connected to whether individuals are in individual therapy or not and their age. Whilst individuals with BPD may have a slight deficit compared to healthy individuals in understanding social situations and ToM constructs such as sarcasm, white lie and threat (as measured in the SCT), they do not have a deficit compared to other women with mood related disorders. It suggests that levels of depressive symptomatology may be a contributing factor to any subtle deficit.

The current study provided a little support for a state dependent deficit in women with BPD, in recognising others' mental states when primed with their attachment history (although like the first finding this may be associated to some degree with participants age and current therapy status). Some clinical implications were identified in relation to a state dependent ToM deficit. It has shown that it might be useful to examine the ToM constructs as measured in the SCT in patients with mood related disorders, in light of their poor performance on this task.

In terms of attachment, this study has provided further evidence that the preoccupied attachment style is the one most associated with individuals with BPD. It proposes further research with more participants to investigate the disorganised attachment dimension. The present study hints at the fact that the findings in preoccupied attachment may be attributable to the BPD individuals' inherently higher level of psychopathology but recommends more research to investigate this notion further.

It has provided no support for a direct one to one correspondence between ToM and secure attachment in adults. As a result, it questions whether the Fonagy et al. (1991) model is restricted to describing such phenomena accurately in children and speculates that other factors influence the relationship in adults. Although more research is required, it has shown that the attachment Q-sort can be a useful tool in assessing attachment styles.

Finally and perhaps most importantly, many ideas have been generated for future investigations into the constructs of theory of mind and attachment, as a result of this study.

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APPENDICES

Material in the appendix is compiled in the following order:

Appendices, pilot study

- A Ethical permission*
- B Information sheet*
- C Consent form*
- D Full version of the Story Comprehension Test (SCT)*

Appendices, principal study

- E Ethical Permission*
- F Information sheets*
- G Consent forms*
- H Recruitment advert*
- I Demographics sheet*
- J Measures*
 - *SCT, form A*
 - *SCT, form B*
- K Psychometric properties of SCL-90*
- L Mean SCL-90 scores for the BPD group and clinical comparison group*
- M*
 - *Results of Repeated Measures ANOVA on RMIET scores with ‘age’ and ‘global severity index’ as covariates.*
 - *Results of partial correlations between preoccupied attachment and ToM scores, controlling for Global Severity Index (GSI)*

University College London Hospitals

NHS Trust

Co-Chairs:
Mr M Harrison and Dr R MacAllister

Please address all correspondence to:
Ms Sabrina Balendra – Ethics Administrator
Email: sabrina.balendra@uclh.org

The UCL/UCLH Joint Research Committee A
Research & Development Directorate
1st floor, Vezey Strong Wing
112 Hampstead Road, London NW1 2LT
Tel. 020 7380 9579 Fax 020 7380 9937
Website: www.uchl.org

02 October 2002

Our ref: RM/SB/02A079

Dr J Feigenbaum
Sub Dept of Clinical Health Psychology
1-19 Torrington Place
UCL

Dear Dr Feigenbaum

REC Ref No: 02/0219 (*please quote in all correspondence*)
REC Name: Committee A (*please quote in all correspondence*)
Study Title: Creating short equivalent forms of the reading the mind in the eyes test (Baron-cohen, S) and the story comprehension test (Crawford and channon), tests for theory of mind

The Joint UCL/UCLH Committees on the Ethics for Human Research reviewed your application on 26th September 2002. The documents reviewed were as follows:

REC application form
Patient information sheet (version and date)
Patient consent form (version and date)
Research Protocol

The members of the committee present gave approval for your research on ethical grounds providing you comply with the conditions of approval set out below:

- You do not recruit any research subjects unless you have received a notification of no objections from the R&D office.
- You do not undertake this research until the relevant Trust management approval has been received (via the R&D office).
- You do not deviate from, or make changes to, the protocol without prior written approval of the REC, except where this is necessary to eliminate immediate hazards to research participants or when the change involves only logistical or administrative aspects of the research. In such cases the REC should be informed within seven days of the implementation of the change.
- You complete and return the standard progress report form to the REC one year from the date on this letter and thereafter on an annual basis. This form should also be used to notify the REC when your research is completed and in this case should be sent to this REC within three months of completion.
- If you decide to terminate this research prematurely you send a report to the REC within 15 days, indicating the reason for the early termination.
- You advise the REC of any unusual or unexpected results that raise questions about the safety of the research.

- The project must be started within three years of the date of this letter.

NHS REC is compliant with the International Conference on Harmonisation/Good Clinical Practice (ICH GCP) Guidelines for the conduct of trials involving participation of human subjects.

Your application has been given a unique reference number please use it on all correspondence with the REC.

Yours sincerely

PP MacAllister

Dr R MacAllister
Chair

Enclosure: REC Response Form
REC Progress Report



Sub-Department of Clinical Health Psychology

UNIVERSITY COLLEGE LONDON

GOWER STREET LONDON WC1E 6BT

Dr Janet Feigenbaum
Senior Lecturer in Psychology
UCL: 020-7679 5964
Code from overseas: +44 20
Fax: 020-7916 1989
e-mail: j.feigenbaum@ucl.ac.uk

INFORMATION SHEET

Theory of Mind in healthy volunteers

- **What is the purpose of the study?**

I am carrying out a study, which explores a specific aspect of thinking called theory of mind, which involves working out what other people are thinking. I am trying to create two equal forms of two tests so that the two shorter versions of the two tests can be used in a separate study.

- **What does it involve?**

You will be asked to complete one pencil and paper task and one computerised task. The tests do not cause distress and many people find them interesting and enjoy completing them. The tests should take a maximum of 30 minutes

- **Will people who take part be identified by name?**

The data that is obtained from the study will be labelled with a code so as to maintain anonymity. Any publications that produced from the study will not identify people who take part, in any way.

- **Where does the study take place?**

Around UCL

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason.

All proposals for research using human subjects are reviewed by an ethics committee before they proceed. This proposal was reviewed by UCL/UCLH ethics committee

If you have any questions about this study, please contact:

Amanda Malins	tel:	07900 210 541,
	email:	amandamalins@hotmail.com
	write to:	Sub Department of Clinical Health Psychology
		University College London
		1-19 Torrington Place
		London
		WC1E 6BT



Sub-Department of Clinical Health Psychology

UNIVERSITY COLLEGE LONDON

GOWER STREET LONDON WC1E 6BT

Dr Janet Feigenbaum
Senior Lecturer in Psychology
UCL: 020-7679 5964
Code from overseas: +44 20
Fax: 020-7916 1989
e-mail: j.feigenbaum@ucl.ac.uk

CONSENT FORM

Theory of Mind in healthy volunteers.

Amanda Malins, Dr. Janet Feigenbaum, Professor Peter Fonagy, Dr. Mary Target
Sub-Department of Clinical Health Psychology, University College London

To be completed by the participant:

- | | |
|---|----------|
| 1. I have read the information sheet about this study | YES / NO |
| 2. I have had the opportunity to ask questions and discuss this study | YES / NO |
| 3. I have received satisfactory answers to all my questions | YES / NO |
| 4. I have received sufficient information about this study | YES / NO |
| 5. Which health professional have you spoken to about this study? | |

.....

6. I understand that I am free to withdraw from this study at any time without giving a reason- YES / NO

7. Do you agree to take part in this study? YES / NO

Signed: _____

Date: _____

Name in block letters _____

Signature of investigator: _____

APPENDIX D

The Story Comprehension Test (Channon and Crawford, 2000)

- (1) *Daniel is doing the ironing while his young daughter plays with some plasticine. She has rolled the plasticine in her hands until it is long and thin and she says to Daniel, 'this is a snake and its going to come and bite you!'*

Why did Daniel's daughter say that?

- (2) *Harry has his penfriend staying with him in England. They have decided to go out for the day, and to travel by bus. When they get to the bus stop, Harry's friend looks at the stop and reads the words, "queue other side". He then crosses the road and stands on the opposite pavement.*

Why did Harry's friend do that?

- (3) *Harriet's daughter, Lara, likes playing with her friends after school, but she has been told to be home by 5 o' clock. Sometimes Lara is late and then Harriet worries in case something has happened to her. This evening, Harriet tells Lara "If you're not back by 5, you won't get any dinner".*

Why did Harriet say that?

- (4) *George went shopping for the week's groceries. He left the shop carrying lots of bags full of food. As he started to walk to his car, a man bumped into him, causing him to drop the bags, and the food went all over the ground. George turned to the man and said, "Thanks a lot, mate"*

Why did George say that?

(5) Stuart has wanted to have a go at bungee jumping for a long time. His friend Richard thinks it would be very frightening, but Stuart has persuaded him to come along. Now that it is nearly time for Stuart to jump, he has lost his nerve. Stuart says to Richard, "I dare you to go first to prove you are not frightened".

Why did Stuart say that?

(6) Neil went to Angela's wedding reception. Angela and Neil have been good friends for a long time. Neil is worried because he does not think that she and her husband are suited to each other, and feels that the marriage will break up. At the wedding reception, Neil goes up to Angela and says, "This is a wonderful day, I'm sure you'll be very happy together".

Why did Neil say that?

(7) Samantha is having a party to celebrate her birthday at the weekend. Her next door neighbour, who Samantha does not like, has complained in the past when Samantha has played loud music, so Samantha decides to warn her about the party. When she sees her neighbour, Samantha says, "I'm glad I saw you, I just wanted to let you know that I'm having a party on Saturday night, it should finish quite early". Her neighbour replies, "oh thank you so much, I would love to come".

Why did the neighbour say that?

(8) Michael's new boss, whom he was keen to impress, invited Michael and Alice to a dinner party. Alice did not want to go so Michael went to the dinner by himself. When his boss asked why Alice was not there, Michael said, "Alice has gone to Liverpool on a business trip".

Why did Michael say that?

(9) Dave was frequently late for work, and had been warned that he might lose his job if this continued. This morning, he was trying to drive quickly as it was likely that he would be late again. As he approached a set of traffic lights, Dave saw that they had just turned red, but instead of stopping, he drove straight through. A police officer saw him and waved him to stop. He asked Dave why he had driven through a red light. Dave replied "I'm terribly sorry, officer, I'm afraid I was daydreaming and thought it was still green"

Why did Dave say that?

(10) Mr. Smith spent the day interviewing candidates for a job in his firm and now wants to relax and wind down. However, first he has to telephone the unsuccessful candidates and tell them he hasn't given them the job. He calls Mr. Webster who had done very poorly at the interview. He says, "you were a really good candidate, but unfortunately someone else had more experience".

Why did Mr. Smith say that?

(11) Marie dreaded her trips to meet her husband's relatives because they were so boring. Most of the time, they all sat in awkward silence and this occasion was no different. On the way home, Marie's husband asked her how she found the visit. Marie said, "Oh marvellous. I could hardly get a word in edgeways".

Why did Marie say that?

(12) Anne and Emily were late home and were driving in their car down some country lanes. They passed a car containing a group of people who had been sitting next to them in the restaurant earlier on. The people flashed their headlights at them and so Anne and Emily flashed their lights and waved cheerfully. When they turned around the next corner, Anne and Emily were stopped by the police for speeding.

Why did Anne and Emily wave?

Why did the people in the other car flash their lights?

Camden and Islington Community Health Service LOCAL RESEARCH ETHICS COMMITTEE

Research & Development Unit, 3rd Floor, West Wing, St. Pancras Conference Centre

St Pancras Hospital, London NW1 0PE

tel: 020 7530 3376 fax: 020 7530 3235

e-mail: ayse.ali@camdenpct.nhs.uk

Chair: Stephanie Ellis Administrator: Ayse Ali

28 June 2002

Amanda Malins
1B Stanmer Street
Battersea
London
SW11 3EQ

Dear Ms Malins

LREC Ref: 02/53 (please quote in all further correspondence)

Title: Attachment and Theory of Mind in Borderline Personality Disorder and a Depressed Comparison Group

Thank you for your letter dated 15 June 2002 addressing the concerns raised by the regarding the above project and Sian Barnett's project (ref 02/54). I am pleased to inform you that after careful consideration the Local Research Ethics Committee has no ethical objections to your project proceeding. This opinion has also been communicated to the North Central London Community Research Consortium.

PLEASE NOTE THAT THIS OPINION ALONE DOES NOT ENTITLE YOU TO BEGIN RESEARCH.

Camden and Islington Community Health Service LREC considers the ethics of proposed research projects and provides advice to NHS bodies under the auspices of which the research is intended to take place. It is that NHS body which has the responsibility to decide whether or not the project should go ahead, taking into account the ethical advice of the LREC¹. Where these procedures take place on NHS premises or using NHS patients, the researcher must obtain the agreement of local NHS management, who will need to be assured that the researcher holds an appropriate NHS contract, and that indemnity issues have been adequately addressed.

N.B. Camden and Islington Community Health Service LREC is an independent body providing advice to the North Central London Community Research Consortium. A favourable opinion from the LREC and approval from the Trust to commence research on Trust premises or patients are **NOT** one and the same. Trust approval is notified through the Research & Development Unit.

The following conditions apply to this project:

- ♦ You must write and inform the Committee of the start date of your project. The Committee (via the Local Research Ethics Committee Administrator or the Chair at the above address) must also receive notification:
 - a) when the study commences;
 - b) when the study is complete;
 - c) if it fails to start or is abandoned;
 - d) if the investigator/s change and
 - e) if any amendments to the study are made.
- ♦ The Committee must receive immediate notification of any adverse or unforeseen circumstances arising out of the project.

¹ Governance Arrangements for NHS Research Ethics Committees, July 2001 (known as GAFREC)

- ♦ It is the responsibility of the investigators to ensure that all associated staff, including nursing staff, are informed of research projects and are told that they have the approval of the Ethics Committee and management approval from the body hosting the research.
- ♦ The Committee will require a copy of the report on completion of the project and may request details of the progress of the research project periodically (i.e. annually for longer projects).
- ♦ If data is to be stored on a computer in such a way as to make it possible to identify individuals, then the project must be registered under the Data Protection Act 1998. Please consult your department data protection officer for advice.
- ♦ Failure to adhere to these conditions set out above will result in the invalidation of this letter of no objection.

Please forward any additional information/amendments regarding your study to the Local Research Ethics Committee Administrator or the Chair at the above address.

Yours sincerely


Stephanie Ellis
Chair, LREC



**North Central London
Community Research Consortium**

Dr Paul Fox
Research & Development Unit
3rd Floor West Wing
St Pancras Hospital
London
NW1 0PE

E-mail Paul.Fox@camdenpct.nhs.uk

Phone 020 7530 5375
Fax 020 7530 3235

3 July 2002

Ms Amanda Malins
1b Stanmer Street
Battersea
London
SW11 3EQ

Dear Ms Malins

LREC Ref: 02/53

Title: Attachment and Theory of Mind in Borderline Personality Disorder and a Depressed Comparison Group

I am pleased to note that the Local Research Ethics Committee has recommended to the Trust that there are no ethical reasons why your study should not proceed.

Projects are registered with the North London Community Research Consortium if they utilise patients, staff, records, facilities or other resources of Camden Primary Care Trust, Islington Primary Care Trust or the Camden & Islington Mental Health and Social Care Trust. On the basis of the documentation supplied to us, your study has the support of the clinical service manager/assistant locality director of the service in which it will be based.

The Camden and Islington Mental Health and Social Care Trust therefore grants approval to begin research based on the proposal reviewed by the ethics committee and subject to any conditions set out in their letter of 28 June 2002. Should you fail to adhere to these conditions or deviate from the protocol reviewed by the ethics committee, then this approval would become void. The approval is also subject to your consent for information to be extracted from your project registration form for inclusion in NHS project registration/management databases and, where appropriate, the National Research Register and the UCL Clinical Research Network register.

Permission to conduct research is also conditional on the research being conducted in accordance with the Department of Health Research Governance Framework for Health and Social Care:

- Appendix A to this letter outlines responsibilities of principal investigators;
- Appendix B details the research governance responsibilities for other researchers. It also outlines the duties of all researchers under the Health and Safety at Work Act

1974. Principal investigators should disseminate the contents of Appendix B to all those in their research teams.

Further information on the research governance framework for health and social care can be found on the DH web pages at <http://www.doh.gov.uk/research/>. Staff working within trusts covered by the research consortium can also find the information on the Trust Intranet.

Researchers are also reminded that personally identifiable information on living persons must be collected, stored, processed and disclosed in accordance with the Data Protection Act 1998. Such data may be in the form of electronic files, paper files, voice recordings or photographs/scans/X-rays. Further information on the Data Protection Act is available from your organisations Data Protection Officer or from the Consortium R&D Unit. The Medical Research Council also publishes the guidance booklet 'Personal Information in Medical Research' which is available from <http://www.mrc.ac.uk/pdf-pimr.pdf>

Except in the case of commercially funded research projects, the following acknowledgement and disclaimer MUST appear on all publications arising from your work.

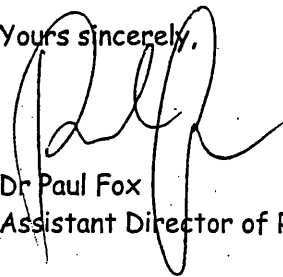
*"This work was undertaken with the support of The Camden and Islington Mental Health and Social Care Trust, who received [***insert "funding" or a "proportion of funding" ***] from the NHS Executive; the views expressed in this publication are those of the authors and not necessarily those of the NHS Executive".*

** "a proportion of funding" where the research is also supported by an external funding body;
"funding" where no external funding has been obtained.*

This is a requirement of the contract between the Trust and the NHS Executive in which the Trust receives funding to cover the infrastructure costs associated with performing non-commercial research.

Please make all members of the research team aware of the contents of this approval. I wish you every success with your research.

Yours sincerely,



Dr Paul Fox
Assistant Director of Research and Development



Sub-Department of Clinical Health Psychology

UNIVERSITY COLLEGE LONDON

GOWER STREET LONDON WC1E 6BT

Dr Janet Feigenbaum
Senior Lecturer in Psychology
UCL: 020-7679 5964
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Fax: 020-7916 1989
e-mail: j.feigenbaum@ucl.ac.uk

INFORMATION SHEET

**“Attachment, Coping and Theory of Mind,
in women who are severely emotionally distressed”**

Sian Barnett, Amanda Malins and Dr. Janet Feigenbaum
Sub Department of Clinical Health Psychology, University College London

- We are conducting a study to look at how women who are severely emotionally distressed view their relationships with the people that raised them, what they do in stressful situations and aspects of their styles of thinking.
- The results of this study will hopefully add to our knowledge and understanding of the severe distress experienced by some individuals and may help to improve treatment techniques and the evaluation of treatment techniques
- If you decide to take part, you will be asked to complete an interview and questionnaires about your symptoms, questionnaires relating to what you do in stressful situations, a questionnaire looking at reasons for other people's behaviour and two computer tasks. Some people find they enjoy completing the tests!
- A small speech sample (5-10 minutes) will be recorded onto tape. The tapes will be labelled with a number (and not your name) and will be erased once the study is completed.
- It is hoped that you will not find any of the tasks distressing. However, if you do we can stop at any time, and if you want, the researcher/clinician will spend time talking to you about what has upset you. You will have the choice of withdrawing from the study, resuming testing after a break or continuing at a later date.
- All data will be labelled with a number in order to preserve anonymity. Any publications that arise from this study will not identify individuals in any way.
- **PARTICIPANTS WILL BE PAID £10**
- There is some flexibility as to where we can meet with you to complete the tasks, including Hunter Street Health Centre and your local Community Mental Health Centre, depending on room availability. The session will last approximately two hours with a break for refreshments.

This study is not part of normal treatment. You do not have to take part in this study if you do not want to. If you decide to take part you may withdraw at any time without having to give a reason. Your decision to take part or not will not affect your care in any way. Taking part in this research will not interfere in any way with normal treatment nor affect any decisions subsequently made by any service.

All proposals for research using human subjects are reviewed by an ethics committee before they proceed. This proposal was reviewed by Camden and Islington Local Research Ethics Committee.

If you have any questions about this study, please contact:

Dr. Janet Feigenbaum tel: 020 7679 5964
write to: Sub Department of Clinical Health Psychology,
University College London, Gower Street, London. WC1E 6BT

Or leave a message for Sian Barnett or Amanda Malins on 07905 943654



Sub-Department of Clinical Health Psychology

UNIVERSITY COLLEGE LONDON

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Dr Janet Feigenbaum
Senior Lecturer in Psychology
UCL: 020-7679 5964
Code from overseas: +44 20
Fax: 020-7916 1989
e-mail: j.feigenbaum@ucl.ac.uk

INFORMATION SHEET

**“Attachment, Coping and Theory of Mind,
in women who are depressed”**

Sian Barnett, Amanda Malins and Dr. Janet Feigenbaum
Sub Department of Clinical Health Psychology, University College London

- We are conducting a study to look at how women who are depressed view their relationships with the people that raised them, what they do in stressful situations and aspects of their styles of thinking.
- The results of this study will hopefully add to our knowledge and understanding of depression and may help to improve treatment techniques and the evaluation of treatment techniques.
- If you decide to take part, you will be asked to complete an interview and questionnaires about your symptoms, questionnaires relating to what you do in stressful situations, a questionnaire looking at reasons for other people's behaviour and two computer tasks. Some people find they enjoy completing the tests!
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- It is hoped that you will not find any of the tasks distressing. However, if you do we can stop at any time, and if you want, the researcher/clinician will spend time talking to you about what has upset you. You will have the choice of withdrawing from the study, resuming testing after a break or continuing at a later date.
- All data will be labelled with a number in order to preserve anonymity. Any publications that arise from this study will not identify individuals in any way.
- **PARTICIPANTS WILL BE PAID £10**
- There is some flexibility as to where we can meet with you to complete the tasks, including Hunter Street Health Centre and your local Community Mental Health Centre, depending on room availability. The session will last approximately two hours with a break for refreshments.

This study is not part of normal treatment. You do not have to take part in this study if you do not want to. If you decide to take part you may withdraw at any time without having to give a reason. Your decision to take part or not will not affect your care in any way. Taking part in this research will not interfere in any way with normal treatment nor affect any decisions subsequently made by any service.

All proposals for research using human subjects are reviewed by an ethics committee before they proceed. This proposal was reviewed by Camden and Islington Local Research Ethics Committee.

If you have any questions about this study, please contact:

Dr. Janet Feigenbaum tel: 020 7679 5964
write to: Sub Department of Clinical Health Psychology,
University College London, Gower Street, London. WC1E 6BT

Or leave a message for Sian Barnett or Amanda Malins on 07905 943654



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Code from overseas: +44 20
Fax: 020-7916 1989
e-mail: j.feigenbaum@ucl.ac.uk

CONSENT FORM

“Attachment, Coping Strategies and Theory of Mind in Individuals who are Severely Emotionally Distressed”

Sian Barnett, Amanda Malins, Dr. Janet Feigenbaum,
Professor Peter Fonagy, Dr. Mary Target

Sub-Department of Clinical Health Psychology, University College London

To be completed by the participant:

- | | |
|---|----------|
| 1. I have read the information sheet about this study | YES / NO |
| 2. I consent to the researcher recording a 5 minute sample | YES / NO |
| 3. I have had the opportunity to ask questions and discuss this study | YES / NO |
| 4. I have received satisfactory answers to all my questions | YES / NO |
| 5. I have received sufficient information about this study | YES / NO |
| 6. Which health professional have you spoken to about this study? | |

.....

7. I understand that I am free to withdraw from this study at any time without giving a reason and without it affecting my future care:-

YES / NO

8. Do you agree to take part in this study?

YES / NO

Signed:

Date:

Name in block letters

Signature of investigator:



Sub-Department of Clinical Health Psychology

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e-mail: j.feigenbaum@ucl.ac.uk

CONSENT FORM

“Attachment, Coping Styles and Theory of Mind in Individuals with Depression”

Amanda Malins, Sian Barnett, Dr. Janet Feigenbaum,
Professor Peter Fonagy, Dr. Mary Target

Sub-Department of Clinical Health Psychology, University College London

To be completed by the participant:

- | | |
|---|----------|
| 1. I have read the information sheet about this study | YES / NO |
| 2. I consent to the researcher recording a 5 minute sample | YES / NO |
| 3. I have had the opportunity to ask questions and discuss this study | YES / NO |
| 4. I have received satisfactory answers to all my questions | YES / NO |
| 5. I have received sufficient information about this study | YES / NO |
| 6. Which health professional have you spoken to about this study? | |

.....

7. I understand that I am free to withdraw from this study at any time without giving a reason
and without it affecting my future care:-

YES / NO

8. Do you agree to take part in this study?

YES / NO

Signed:

Date:

Name in block letters

Signature of investigator:

Sub-department of Clinical Health Psychology
University College London
Torrington Place
London
WC1E 6BT

**VOLUNTEERS NEEDED FOR
PSYCHOLOGICAL STUDY!**

**Attachment, Coping and Theory of Mind
in Depressed Women**

PAYMENT OF £10

Female volunteers who suffer from depression are needed for a psychological study run by researchers at University College London. The study will involve filling out some pen and paper questionnaires and some computer tests.

The tasks will last for approximately 2 hours with a break for refreshments and will take place at Hunter Street Health Centre.

We hope to gain a greater understanding of Depression, which may help to improve treatment and the evaluation of treatment.

Before asking you to come to the session we will ask you a number of routine questions over the phone to check if we are able to include you in the study.

If you are interested in taking part, please leave a message for Amanda Malins or Sian Barnett on 07905 943654 stating the title of the study and your name and a contact number.

In order to maintain confidentiality, you will be assigned a code instead of using your name. Please complete the following information:

Identity
Code: _____

Age: _____ Years D.O.B: _____

Marital status:	Single	In a relationship	Married or Cohabiting	Widowed	Separated	Divorce
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Ethnicity	White British	White Other	Black Afro-Caribbean	Black Other	Asian	Other
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Education:	Left school before taking 'O' levels / GCSEs	Left school after 'O' levels / GCSEs	Left school after 'A' levels	Finished course in further education
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Employment status:	Not currently in work	Part-time employed	Full-time employed	Voluntary work	Student
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Number of
Years in
Therapy:

Type of
therapy:

FORM A**The Story Comprehension Test (Channon and Crawford, 2000)**

- (1) *Harry has his penfriend staying with him in England. They have decided to go out for the day, and to travel by bus. When they get to the bus stop, Harry's friend looks at the stop and reads the words, "queue other side". He then crosses the road and stands on the opposite pavement.*

Why did Harry's friend do that?

- (2) *George went shopping for the week's groceries. He left the shop carrying lots of bags full of food. As he started to walk to his car, a man bumped into him, causing him to drop the bags, and the food went all over the ground. George turned to the man and said, "Thanks a lot, mate"*

Why did George say that?

- (3) *Neil went to Angela's wedding reception. Angela and Neil have been good friends for a long time. Neil is worried because he does not think that she and her husband are suited to each other, and feels that the marriage will break up. At the wedding reception, Neil goes up to Angela and says, "This is a wonderful day, I'm sure you'll be very happy together".*

Why did Neil say that?

- (4) *Michael's new boss, whom he was keen to impress, invited Michael and Alice to a dinner party. Alice did not want to go so Michael went to the dinner by himself. When his boss asked why Alice was not there, Michael said, "Alice has gone to Liverpool on a business trip".*

Why did Michael say that?

- (5) *Mr. Smith spent the day interviewing candidates for a job in his firm and now wants to relax and wind down. However, first he has to telephone the unsuccessful candidates and tell them he hasn't given them the job. He calls Mr. Webster who had done very poorly at the interview. He says, "you were a really good candidate, but unfortunately someone else had more experience".*

Why did Mr. Smith say that?

- (6) *Anne and Emily were late home and were driving in their car down some country lanes. They passed a car containing a group of people who had been sitting next to them in the restaurant earlier on. The people flashed their headlights at them and so Anne and Emily flashed their lights and waved cheerfully. When they turned around the next corner, Anne and Emily were stopped by the police for speeding.*

Why did Anne and Emily wave?

Why did the people in the other car flash their lights?

FORM B

The Story Comprehension Test (Channon and Crawford, 2000)

- (1) *Daniel is doing the ironing while his young daughter plays with some plasticine. She has rolled the plasticine in her hands until it is long and thin and she says to Daniel, 'this is a snake and its going to come and bite you!'*

Why did Daniel's daughter say that?

- (2) *Harriet's daughter, Lara, likes playing with her friends after school, but she has been told to be home by 5 o' clock. Sometimes Lara is late and then Harriet worries in case something has happened to her. This evening, Harriet tells Lara "If you're not back by 5, you won't get any dinner".*

Why did Harriet say that?

- (3) *Stuart has wanted to have a go at bungee jumping for a long time. His friend Richard thinks it would be very frightening, but Stuart has persuaded him to come along. Now that it is nearly time for Stuart to jump, he has lost his nerve. Stuart says to Richard, "I dare you to go first to prove you are not frightened".*

Why did Stuart say that?

- (4) *Samantha is having a party to celebrate her birthday at the weekend. Her next door neighbour, who Samantha does not like, has complained in the past when Samantha has played loud music, so Samantha decides to warn her about the party. When she sees her neighbour, Samantha says, "I'm glad I saw you, I just wanted to let you know that I'm having a party on Saturday night, it should finish quite early". Her neighbour replies, "oh thank you so much, I would love to come".*

Why did the neighbour say that?

(5) *Dave was frequently late for work, and had been warned that he might lose his job if this continued. This morning, he was trying to drive quickly as it was likely that he would be late again. As he approached a set of traffic lights, Dave saw that they had just turned red, but instead of stopping, he drove straight through. A police officer saw him and waved him to stop. He asked Dave why he had driven through a red light. Dave replied "I'm terribly sorry, officer, I'm afraid I was daydreaming and thought it was still green"*

Why did Dave say that?

(6) *Marie dreaded her trips to meet her husband's relatives because they were so boring. Most of the time, they all sat in awkward silence and this occasion was no different. On the way home, Marie's husband asked her how she found the visit. Marie said, "Oh marvellous. I could hardly get a word in edgeways".*

Why did Marie say that?

APPENDIX 'K'

Psychometric Properties of the Symptoms Checklist-revised (3rd Edition) (Derogatis, 1994)

In the main, it is the individual nine disorder dimensions of the scale that have been examined for reliability and validity data. Generally, the internal consistency and test-retest reliability for these has been good; internal consistency, coefficient α ranges from .77 for psychoticism to .90 for depression (Derogatis et al., 1976). Test-retest reliability, coefficient α ranges from .80 for paranoid ideation to .90 for depression (Horowitz et al., 1988).

Pinneau and Newhouse (1964) found the factorial variance of the SCL-90 to be high with levels of agreement of .60 - .85 between males and females on structural definitions of 8 of the 9 dimensions. In terms of convergent-discriminant validity, the SCL-90 has been validated against many measures and the respective correlation coefficients have been consistently satisfactory.

Fewer studies address the specific global measures of psychopathology such as the GSI, the score used for the purposes of this study. However one study by Peveler & Fairburn (1990) validated the GSI score on the SCL-90 against the Present State Examination (PSE) across two samples (102 diabetic patients and 71 bulimic patients). All correlations were found to be statistically significant, ranging from .60-.82.

SCL-90-R[®]

Symptom Checklist-90-R[™]

Leonard R. Derogatis, PhD

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X = MEAN BPD GROUP SCORES
 ○ = MEAN CLINICAL COMPARISON GROUP SCORE

Outpatient Psychiatric Female

T	SOM	O-C	I-S	DEP	ANX	HOS	PHOB	PAR	PSY	GSI	PSDI	PST	T	%
> 80	- 3.87+	- 3.87+		- 3.94+	- 3.87+		- 3.67+		- 3.54+	- 3.60+	- 3.67+		> 80	
	- 3.62-3.68	- 3.79-3.81	- 3.98+	- 3.84-3.88	- 3.82-3.83		- 3.55-3.61		- 3.34-3.36	- 3.49-3.54	- 3.55-3.61	- 89+		
75	- 3.35-3.41	- 3.75-3.76	- 3.94-3.95	- 3.78-3.80	- 3.78-3.79	- 3.98+	- 3.47-3.50	- 3.98+	- 3.24-3.28	- 3.24-3.28	- 3.47-3.50		75	99%
	- 3.20-3.23	- 3.71-3.72	- 3.60-3.63	- 3.64-3.73	- 3.69-3.73	- 3.89-3.93	- 3.40-3.43	- 3.82-3.93	- 3.17-3.19	- 3.15-3.19	- 3.42-3.43	- 87		
70	- 3.09-3.14	- 3.64-3.66	- 3.42-3.48	- 3.57-3.59	- 3.55-3.61	- 3.55-3.81	- 3.29-3.34	- 3.62-3.68	- 3.09-3.13	- 3.02-3.08	- 3.37-3.39		70	98%
	- 2.93-2.96	- 3.55-3.59	- 3.31-3.34	- 3.51-3.53	- 3.34-3.36	- 3.29-3.48	- 2.88-3.01	- 3.37-3.54	- 2.82-2.94	- 2.75-2.87	- 3.29-3.33	- 85		
	- 2.62-2.81	- 3.35-3.41	- 3.15-3.26	- 3.42-3.46	- 3.27-3.30	- 3.02-3.21	- 2.68-2.74	- 3.29-3.33	- 2.55-2.67	- 2.62-2.67	- 3.20-3.23	- 83		
65	- 2.42-2.47	- 3.09-3.14	- 2.95-3.08	- 3.34-3.36	- 3.14-3.16	- 2.88-2.94	- 2.42-2.54	- 3.02-3.14	- 2.35-2.41	- 2.48-2.54	- 3.14-3.16		65	93%
	- 2.21-2.27	- 2.88-3.01	- 2.82-2.87	- 3.22-3.28	- 2.95-3.01	- 2.68-2.81	- 2.15-2.34	- 2.82-2.94	- 2.08-2.14	- 2.35-2.41	- 3.02-3.08	- 77		
	- 1.95-2.14	- 2.62-2.74	- 2.48-2.67	- 3.09-3.14	- 2.75-2.87	- 2.48-2.61	- 1.95-2.07	- 2.55-2.61	- 1.93-1.96	- 2.21-2.27	- 2.88-2.94	- 74		
60	- 1.81-1.87	- 2.42-2.54	- 2.35-2.41	- 2.88-2.94	- 2.55-2.67	- 2.15-2.27	- 1.61-1.80	- 2.28-2.34	- 1.75-1.80	- 2.06-2.09	- 2.80-2.83	- 71	60	84%
	- 1.54-1.67	- 2.21-2.34	- 2.15-2.27	- 2.75-2.81	- 2.28-2.41	- 1.88-1.94	- 1.34-1.47	- 2.01-2.14	- 1.48-1.53	- 1.88-1.94	- 2.68-2.74	- 68		
	- 1.28-1.40	- 2.01-2.14	- 1.95-2.00	- 2.62-2.67	- 2.08-2.14	- 1.61-1.80	- 1.14-1.20	- 1.81-1.87	- 1.28-1.33	- 1.68-1.80	- 2.55-2.61	- 63-64	55	70%
55	- 1.14-1.20	- 1.75-1.87	- 1.75-1.80	- 2.35-2.47	- 1.81-1.94	- 1.34-1.47	- 87-1.00	- 1.54-1.67	- 1.14-1.20	- 1.54-1.60	- 2.44-2.47	- 60-61		
	- .94-1.00	- 1.54-1.67	- 1.54-1.60	- 2.15-2.27	- 1.68-1.74	- 1.14-1.20	- .67-80	- 1.34-1.47	- .94-1.00	- 1.41-1.47	- 2.35-2.39	- 56-58	50	50%
50	- .74-80	- 1.34-1.47	- 1.28-1.40	- 1.95-2.00	- 1.41-1.53	- .94-1.00	- .54-60	- .87-1.00	- .76-80	- 1.28-1.33	- 2.21-2.27	- 53		
	- .61-66	- 1.14-1.27	- 1.08-1.20	- 1.68-1.80	- 1.28-1.33	- .67-80	- .41-46	- .67-80	- .61-71	- 1.14-1.20	- 2.03-2.14	- 48-50		
45	- .47-53	- .94-1.07	- .94-1.00	- 1.41-1.53	- 1.08-1.13	- .54-60	- .22-26	- .54-60	- .52-55	- 1.01-1.07	- 1.95-1.99	- 44-46	45	30%
	- .34-40	- .76-80	- .74-86	- 1.21-1.33	- .87-93	- .46-48	- .16-18	- .34-46	- .41-46	- .87-93	- 1.81-1.87	- 39-40		
40	- .27-28	- .67-71	- .61-66	- 1.08-1.13	- .74-80	- .27-33	- .10-11	- .25-28	- .32-35	- .74-80	- 1.68-1.74	- 35-37		
	- .23-24	- .47-53	- .47-53	- .87-93	- .61-66	- .19-21	- .06-07	- .16-19	- .25-28	- .61-66	- 1.59-1.62	- 32	40	16%
	- .20	- .36-40	- .32-35	- .67-73	- .47-53	- .15-16	- 0-03	- .12-13	- .16-19	- .47-53	- 1.50-1.53	- 27-28		
35	- .14-17	- .32-33	- .25-28	- .54-60	- .27-33	- .11-12	- .07-08	- .07-08	- .12-13	- .39-42	- 1.41-1.45	- 23-25	35	7%
	- .08-09	- .25-28	- .19-21	- .36-40	- .16-19	- .07-08	- 0-04	- 0-04	- .08-09	- .32-35	- 1.30-1.33	- 20		
	- .06	- .16-19	- .12-15	- .27-31	- .10-11	- 0-04			- .06	- .25-28	- 1.23-1.25	- 14-16		
< 30	- 0-03	- 0-11	- 0-09	- 0-21	- 0-07				- 0-03	- 0-21	- .97-1.18	- 0-11	< 30	2%

Raw Score

T Score



Product Number 35621

APPENDIX 'M'

(i) Results of Repeated Measures ANOVA on RMIET scores with 'age' and 'global severity index' as covariates.

Covariate		Group	Condition	Group x Condition	Covariate	Condition x covariate
None	F value	4.70	.318	2.27	-	-
	df	1,37	1,37	1,37	-	-
	p value	.037	.576	.141	-	-
Age	F value	2.88	.241	1.27	.479	.364
	df	1,36	1,36	1,36	1,36	1,36
	p value	.099	.627	.268	.494	.550
Global Severity Index (GSI)	F value	4.44	.211	2.75	.125	.522
	df	1, 36	1,36	1,36	1,36	1,36
	p value	.042	.649	.106	.725	.475

(ii) Results of partial correlations between preoccupied attachment and ToM scores, controlling for Global Severity Index (GSI)

Test	Partial Correlation Coefficient	df	p value
RMIET	.267	36	.105
SCT	.090	36	.590