

ISSN 2241-2638 (print)

ISSN 2441-2778 (on-line)

ΣΕΙΡΑ ΚΕΙΜΕΝΩΝ ΕΡΓΑΣΙΑΣ
Αποδιοργανωτικός τύπος
συναισθηματικού δεσμού και
οριακή διαταραχή
προσωπικότητας:
Μια Ανασκόπηση

Χρήστος Κοροβίλας

Τεύχος 2014.1 Αθήνα



ISSN 2241-2638 (print)

ISSN 2441-2778 (on-line)

WORKING PAPERS SERIES

Disorganized attachment and borderline personality disorder: An overview.

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Issue 2014.1 Athens



Training and Research Institute for Systemic Psychotherapy

ΤΙΤΛΟΣ ΕΠΙΣΤΗΜΟΝΙΚΗΣ ΣΕΙΡΑΣ: Σειρά Κειμένων Εργασίας του 'Λόγω Ψυχής'

ΕΚΔΟΤΗΣ: Λόγω Ψυχής ΕΠΕ- Ινστιτούτο Εκπαίδευσης και Έρευνας στη Συστημική Ψυχοθεραπεία

ΤΟΠΟΣ ΕΚΔΟΣΗΣ: Αθήνα

ΗΜΕΡΟΜΗΝΙΑ ΠΡΩΤΗΣ ΕΚΔΟΣΗΣ: Ιούλιος 2011

TITLE OF SERIES: Working Paper Series of Logo Psychis

EDITOR: Logo Psychis LTD- Training and Research Institute for Systemic Psychotherapy

PLACE OF PUBLICATION: Athens

DATE OF FIRST PUBLICATION: July 2011

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Ο συγγραφέας είναι αναπτυξιακός ψυχολόγος και ειδικευόμενος στο Λόγω Ψυχής-Ινστιτούτο Εκπαίδευσης και Έρευνας στη Συστημική Ψυχοθεραπεία.

Η παρούσα εργασία αποτέλεσε κομμάτι των σπουδών του στο Durham University, Ηνωμένο Βασίλειο, με επιβλέπουσα την Dr Elizabeth Meins.

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The current study constituted part of his academic work at Durham University, UK, supervised by Dr Elizabeth Meins.

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Abstract

Borderline personality disorder is a chronic mental health condition characterized by serious emotional and behavioral disruptions, instability of interpersonal relationships and severe self-image distortions. The current study reviews a series of recent conceptual models and theoretical frameworks, which link the onset of the disorder with serious damages in the attachment system. Specifically, the so-called disorganized-insecure attachment style is perceived to be a risk condition for later occurrence of borderline personality disorder, while different aggravating factors, namely metalization capacity, controlling strategies, approach-avoidance dilemmas, biosocial influences and early trauma, are suggested as potential mediators that promote the emergence of the disorder. Both the strengths and limitations of each approach are discussed. In conclusion, the present literature review indicates that borderline personality disorder is a complex, multifactorial psychiatric entity, suggesting that further research is required for a better understanding of its nature.

Introduction

Borderline personality disorder (BPD) is a chronic psychiatric entity characterized by devastating emotions of emptiness, emotional deficits, disrupted interpersonal relationships, dissociative symptoms and suicidal behaviour, among other (Crowel, Beauchaine, & Linehan, 2009). The treatment of borderline patients is very difficult given the extreme expression of their symptoms and their impulsive behaviour (Holmes, 2004). Their tendency to become very reliant on and, at the same time, very angry and frustrated with the people they interact with, including their therapists and other clinical staff, is indicative of the difficulty in managing them (De Zulueta, 1993). Finally, the chronic use of psychiatric services, the high rates of dropout and their refusal to take medication shows why BPD is a serious public health problem (Levy, 2011).

John Bowlby's attachment theory (1969, 1973, 1980) has offered a conceptual framework in which BPD could be understood as the outcome of a damaged attachment system (Fonagy, Target, & Gergely, 2000). Indeed, there is increasing evidence that insecure attachment patterns in infancy have the potential to play a significant role in the onset of BPD in adulthood (Holmes, 2004). This review will focus on a specific variant of insecure attachment, namely disorganized attachment and will argue that early disorganization could potentially mediate the development of borderline personality disorder. First, I will give a short definition of the disorder and describe its symptoms as they are presented in The Diagnostic and Statistical Manual of Mental Disorders. Then, I will briefly summarize Bowlby's attachment theory referring to Ainsworth's Strange Situation laboratory procedure (1982) and Main's disorganized attachment (1986). Furthermore, this review will elaborate on how recent conceptual models link disorganized attachment to the onset of the disorder. Finally, the weaknesses of its model will be criticized and I will conclude that further research is needed for our better understanding of the nature of the disorder.

Borderline Personality Disorder

The term borderline has its roots in the psychoanalytic theory and describes those patients who are on the border between neurosis and psychosis (Holmes, 2004). Borderline personality disorder is a psychiatric entity covering a range of severe symptoms. Quoted from The Statistical Manual of Mental Disorders¹ the diagnosis of the disorder requires five (or more) of the following criteria:

1. Frantic efforts to avoid real or imagined abandonment.
2. A pattern of unstable and intense interpersonal relationships characterized 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 (e.g., promiscuous sex, eating disorders, binge eating, substance abuse, reckless driving).
5. Recurrent suicidal behavior, gestures, threats or self-injuring behavior such as cutting, interfering with the healing of scars (excoriation) or picking at oneself.
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 anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights).
9. Transient, stress-related paranoid ideation, delusions or severe dissociative symptoms.

¹ (American Psychiatric Association, (2000). Statistical Manual of Mental Disorders, fourth edition DSM IV-TR, in Axis II, Cluster B)

Attachment Theory overview

John Bowlby's (1969, 1973, 1980) attachment theory describes the universal human need to build strong affection ties with at least one caregiver (Fonagy et al., 2000). This need is a precondition for the infant's normal development and is an intrinsic characteristic of the human nature: "the young child's hunger for his mother's love and presence is as great as his hunger for food" (Bowlby, 1969, p. xiii). In the face of a threatening condition the infant's attachment-related behaviour (i.e. crying and clinging) will motivate the caregiver to protect the infant and sooth its psychological arousal, creating the base for the development of secure patterns of attachment (Bowlby, 1982). Subsequently, this secure interaction with the caregiver will structure the infant's Internal Working Model (IWM) -or else an implicit memory of the early secure attachment-, which will shape the individual's expectations for future interpersonal relationships (Bowlby, 1973).

In 1978, Mary Ainsworth developed a laboratory procedure called The Strange Situation which was aimed to assess the possible attachment patterns that infants develop with their caregivers. In addition to the secure attachment pattern (63% of the dyads tested), two insecure attachment patterns were identified; the avoidant (21%) and the anxious ambivalent pattern (16%; Levy, 2005). These two insecure attachment patterns are indicative of the inadequate parental response to the infant's requests for comfort, highlighting the development of disrupted internal working models.

In 1986, Main and Solomon identified a third category of insecure attachment; the disorganized attachment (Main, 1986). Infant's who fall into this category express disorientated behaviour in their interactions with their caregiver: "the infant may freeze with a trancelike expression and hands in the air, or may approach the parent but then fall prone and huddled on the floor" (Levy, 2005, p. 962). Moreover, there is evidence that disorganized attachment is associated with early trauma (physical or psychological neglect and/or abuse) and is highly correlated with the onset of psychopathology later in life (Steele & Siever, 2010).

Mentalization

Peter Fonagy and colleagues (2000, 2003) explained Borderline Personality Disorder (BPD) in terms of damage in the attachment system, managing to elaborate the connection between BPD and disorganized attachment. A crucial point in their explanatory schema is that patients who suffer from BPD lack the capacity to mentalize (Holmes, 2004).

Fonagy stressed the idea that the parents' ability to reflect on the mental states of their infant (the so-called parental Reflective Functioning) will lead to the establishment of a secure attachment (De Zulueta, 1999) which will, in turn, facilitate infant's mentalization capacity (Fonagy, Target, Gergely, Allen, & Bateman, 2003). According to Fonagy (2003), mentalization is "our capacity to attribute intentional mental states (such as goals, emotions, desires and beliefs) to others as the causes of our actions" (p. 428). Our mentalizing capacity enables us to think of our inner and outer reality as being linked, and at the same time, as separate from one another. Thus, we are able to experience our thoughts and feelings as representations (Fonagy et al., 2003), we are able to attribute causal mental states to others and consequently predict their behaviour, and we successfully manage to form a stable representation of our self (Fonagy, Target, & Gargely, 2000).

However, low levels of parental reflective functioning will generate insecure disorganized attachment (Fonagy et al., 2003) and will lead to a weakened capacity for mentalization, creating the preconditions for the development of BPD (De Zulueta, 1999). Indeed, Fonagy (2000, 2003) stated that patients who suffer from BPD have a poor ability to represent mental states and find it difficult to acknowledge that desires, beliefs, feelings, and thoughts lie behind their own and others' reactions. Lack of mentalization means diminished resilience towards later trauma. This inadequacy is explained in terms of early physical and psychological neglect and/or abuse and explains why certain patients are notably vulnerable to later brutal experiences (Fonagy et al., 2003). In 1996, Fonagy and colleagues found that 97% of patients with history of abuse and a low reflective functioning background met the

criteria for BPD whereas only 17% of patients with a history of abuse but with a high reflective functioning met the criteria for the disorder (Levy, 2005).

This lack of mentalization explains why individuals with BPD fail to distinguish their inner reality from the external world. As De Zulueta (1999) claims, patients with BPD are unable to identify the difference between what is happening in reality and what is only happening in their imagination (De Zuleta, 1999). As a result, they tend to cope with their desires, thoughts, feelings, and beliefs through physical rather than mental actions. It is very likely that patients who suffer from BPD will be violent towards their own body or that of another individual (Fonagy et al., 2000). Indeed, DSM IV-TR includes the impulsive behaviour, the recurrent self-mutilating, and the suicidal behaviour among the symptoms of the disorder. These self-damaging tactics indicate the deep identity distortion that patients with BPD have to sustain.

At this point, it would be useful to examine how Fonagy's mentalization model give meaning to the symptoms of the disorder (Fonagy et al., 2000):

- *Impaired sense of self:* Patients who suffer from BPD lack in capacity to reflect, which leads to a fragmented sense of self. This frangible sense of self could also be attributed to their inability to represent their internal states (beliefs, feelings, desires and wishes). As a result they find it difficult to build real relationships, shaping their own abandonment.
- *Impulsivity:* Borderline patients' inability to represent their internal states is associated with their difficulty to symbolically represent their emotions. As a result, they are unaware of their own emotional conditions, and thus, they find it extremely difficult to control themselves in states of keen emotional arousal. It is their incompetence for mentalization that explains their inability to regulate their feelings. Impulsivity can also be seen as a result of "the dominance of pre-mentalistic physical action-centred strategies, particularly in threatening relationships" (p.114). Indeed, borderline patients tend to rely on physical actions in order to control others' behaviour.

- *Emotional fragility and irritability:* BPD-patients cannot understand that other people experience reality in a completely different way. In healthy individuals, when others' behaviour is unexpected, mentalization "acts as a buffer" (p. 115) helping the individual to create alternative explanations (for the unexpected behaviour) preventing threatening hypotheses. However, in BPD-patients, where abuse shapes their internal working models, mentalization is absent, and, thus, alternative scenarios – with no threatening consequences – cannot be formed. In such cases, the experience of danger is overwhelming. Given that BPD-individuals experience their fantasies for the external world as real events (Fonagy et al., 2003), they cannot help but believe that the threatening scenario they created is real. In such situations, a therapist's attempt to persuade the patient that the reality is different may be seen as an attempt to drive the patient crazy.
- *Suicidal behaviour:* In BPD-patients, the devastating fear of physical abandonment, which is also dominant in individuals with disorganized attachment, often leads to suicide attempts. Suicidality is seen as a last desperate attempt to prevent abandonment and to restore the damaged relationship. Fonagy (2000) explains that children's experience is that only extreme events can alter their caregivers' behaviour. Similarly, BPD-patients rely on extreme self-damaging tactics in order to influence others' behaviour. Moreover, violence against the self is more common in women with disorganized attachment, while violence against the other is more prevalent in men with the same pathology.
- *The splitting representation of the other and/or the self:* It has been stated previously that mentalization enables healthy individuals to attribute intentions in a coherent way. However, in individuals with disorganized patterns of attachment, the caregiver's conflicting attitudes result in an impaired capacity for mentalizing. The abuser is seen as a source for both affection and danger. The individual splits the representation of the other into many "subsets of intention, primarily an idealized and a persecutory identity" (p.115). Due to the lack of reflective function these contradictory

representations cannot be used at the same time and, thus, the patient creates an inaccurate mentalized image of the other.

- *Feelings of emptiness:* Their incompetence for mentalization prevents them from creating stable and meaningful relationships. Their fragmented sense of self and their inability to establish meaningful relationships (difficulty in attributing meaningful intentions – lack of mentalization) lead to devastating feelings of emptiness that are prevalent throughout the patients' lives.

Attachment Disorganization and Controlling Strategies Model

Giovani Liotti (2004, 2011) argued that the pathogenesis of borderline personality disorder (BPD) involves disorganized attachment patterns and proposed an “attachment disorganization and controlling strategies” model. His explanatory model is based on the notion that disorganized attachment adversely affects the representations of the self and the other, resulting in fragmented and incoherent internal working models (Levy, 2005).

According to the attachment theory, the Internal Working Model (IWM; Bowlby, 1969/1982) is a structure of memory, which is based on an individual's memory of past interactions with his caregiver, and which shapes the individual's expectations for future attachment relationships (Liotti, 2011). An additional characteristic of the early IWM is that it can be very stable over time (Bowlby, 1982).

In disorganized attachment, the IWM gives a multiple, fragmented, and incoherent representation of reality (Liotti, 2011). “These internal working models are so contradictory and incoherent that they cannot be easily integrated and are dissociated” (Levy, 2005, p. 974). In order to understand the multiple and fragmented nature of the disorganized IWM, Liotti (2011) describes the way that the disorganized child represents the self and the attachment figure. The caregiver can be represented both

negatively, as a source of fear (persecutor), and positively, as a source of comfort (rescuer). In such cases the child experiences the contradictory feelings of affection and fear at the same time (Liotti, 2011). Moreover, the self can be represented as an evil-self (persecutor) which is responsible for the fear the attachment figure experiences, or as a rescuer-self which comforts the frightened caregiver. Finally, the child might represent both the self and the attachment figure as victims of an amorphous, invisible, and threatening power (Liotti, 2011).

Despite the fact that the fragmented representations of the world result in fragmented IWMs, the disorganized child does not constantly show dissociated and disrupted mental states (Liotti, 2011). On the contrary, before reaching school age, children with disorganized attachment “develop an organized behavioral and attentional strategy toward their caregivers” (Liotti, 2011, p.237). Liotti calls these strategies “controlling strategies”.

Before discussing the possible alternative strategies that disorganized individuals adopt, it would be helpful to think of the attachment system as one, among the different motivational/behavioural systems that monitor social interactions. Gilbert et al. (2009) give a list of these systems: an attachment system, a caregiving system, a competitive or ranking system, a sexual system, and a cooperative system (Gilbert, McEwan, Bellew, Mills, and Gale, 2009). Despite the fact that these different systems may be activated simultaneously, the dominant system tends to obstruct the activities of the others (Liotti, 2011). Under that notion, the child, who struggles in the chaotic disorganized environment, inhibits the activation of the attachment system by promoting the activation of a different motivational system, which becomes prevalent (Liotti, 2004). This defensive inhibition protects the child from the threatening reality of disorganization (Liotti, 2011).

According to Liotti (2011), the motivational systems that potentially substitute the dangerous attachment system are: the caregiving system, the competitive or ranking system and the sexual system. The first system yields controlling-caregiving strategies (inverted attachment) and entails a caring behaviour towards the attachment figure. The second system conveys controlling-punitive strategies and involves efforts to punish and/or embarrass the attachment figure through austere criticism. Finally, the

last system yields controlling sexualized strategies and involves abnormal parent-child sexualized interactions. These controlling sexualized strategies bare great resemblance to the Oedipal complex (Liotti, 2011).

In this conceptual context, BPD is seen as a consequence of the collapsed controlling strategies, which, under specific traumatic experiences, failed to inhibit the activities of the threatening disorganized attachment system. Indeed, Liotti claims that early disorganization patterns may lead to the onset of BPD in adulthood (Levy, 2005). The notion that lies behind this argument is that the controlling strategies that protect the child from his fragmented reality may collapse in the face of traumatic events. In such cases, the previously inhibited attachment system will be activated, leaving the child exposed to his emerging disorganized state of mind (Liotti, 2011). According to Liotti (2011), this collapse of the controlling strategies mediates the appearance of dissociative disorders such as BPD. Furthermore, the role of the traumatic experience in the manifestation of the disorder is catalytic. In 2000, Liotti et al.'s findings showed that for children with early traumatic experiences the possibility to manifest BPD was 5.3 times greater compared to controls (Liotti, Pasquini, & The Italian Group for the Study of Dissociation, 2000).

Ogawa et al.'s (1997) longitudinal study supports evidence for Liotti's hypothesis that early disorganization conveys symptoms that are consistent with BPD. This study concluded that those children who had been assessed as disorganized when they were infants had a higher mean of dissociation score compared to children with other attachment patterns. Additionally, children with disorganized attachment who had experienced traumatic events during their childhood appeared to have even higher dissociation scores (reaching clinical importance) compared to children with disorganized attachment with no traumatic experiences (Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997). Furthermore, Carlson (1998) found that infants who had been assessed as disorganized had higher dissociative-behaviour scores on the Teacher Report Form of the Child Behavior Checklist in both primary and high school, and had reported more dissociative experiences on the Dissociative Experience Scale (DES) at age 19 (Levy, 2005). Finally, at the time that Carlson was conducting his study, three of the participants from Ogawa's longitudinal study had

manifested clear-cut dissociative disorders in their adolescence – all of them had been diagnosed as disorganized when they were infants (Levy, 2005).

In summary, Liotti's model suggests that early disorganized attachment shapes a fragmented IWM. The disorganized child, in order to cope with the chaotic experience that disorganized attachment entails, uses specific controlling strategies, which inhibit the problematic attachment system. Finally, in the face of traumatic events the controlling strategies will collapse and the previously inhibited attachment system will be activated again, leading to the manifestation of dissociative disorders such as BPD.

Approach-Avoidance Dilemmas

Jeremy Holmes (2003, 2004) supports the idea that disorganized attachment is linked to the onset of borderline personality disorder (BPD). He claims that the traumatized/traumatizing attachment figure of the infant is both a source of threat and a source of affection (Holmes, 2003). This contradictory representation of the caregiver is similar to Liotti's argument that "the essence of infant attachment disorganization is the simultaneity of approach and avoidance attitudes towards the caregiver that induces a serious lack of organization and orientation in the infant's overall attachment behavior" (Liotti, 2004, p.8). Indeed, Holmes defends this suggestion, structuring his theory around this approach-avoidant dilemma concept (Levy, 2005). Additionally, Liotti links disorganized attachment to BPD by suggesting that the approach-avoidant dilemma that characterizes early disorganization also lies behind the manifestation of BPD (Holmes, 2003).

Moreover, Holmes (2004) finds a great similarity between Main's (1995) hypothesis that disorganization represents an approach-avoidant dilemma and Bateson et al.'s (1956) "double bind" theory of schizophrenia. According to Bateson et al. (1956), a caregiver provides an individual with two contradictory messages. This "double bind" situation, from which the individual cannot escape, mediates the

development of psychotic behaviour (Bateson, Jackson, Haley, & Weakland, 1956). Holmes (2004) refers to this similarity in order to highlight the importance of the double-contradictory nature of the approach-avoidant dilemma in the development of both disorganized attachment and psychotic-like behaviour disorders such as BPD. Finally, he gives evidence for the connection between disorganization and BPD citing Patrick's (1994) findings that 75% of the borderline individuals in his sample were also unresolved-disorganized (Levy, 2005).

Limitations of the three conceptual schemes

Despite the fact that the discussed models provide a theoretical and empirical context in which disorganization is linked to borderline personality disorder (BPD), they fail to connect disorganized attachment and BPD in terms of neurophysiological and neuroanatomical deficits. In other words, they do not explain whether and how early disorganization and/or trauma could alter an infant's neuronal structures leading to the manifestation of BPD in adulthood. Moreover, they fail to explain the possible genetic influences that potentially mediate the development of disorganized attachment, and subsequently, the onset of BPD.

Despite Fonagy et al. (2003) citing Schore's (2001) review stating that the prefrontal cortex plays a dominant role in the mentalizing activity, the authors fail to provide satisfactory explanations for how disorganized attachment can undermine the development of the prefrontal cortex, leading to diminished mentalizing capacity and, thus, to BPD. Additionally, Fonagy et al. (2000) state that, in their twin study the results "yielded no evidence of differential levels of concordance of attachment classification between identical and non-identical twins" (Fonagy et al., 2000, p. 107) implying that genetics cannot provide a sufficient explanation for the trans-generational transmission of the attachment patterns.

Furthermore, Liotti (2004) claims that individual variables (temperamental, neurological, and genetic factors) have a diminished impact on attachment

disorganization and criticizes Lakatos et al.'s (2000, 2002) findings that the dopamine D4-receptor (DRD4) plays a significant role in the development of disorganized attachment patterns (Liotti, 2004).

Taking these limitations into account, other models and conceptual schemes will be presented. These models, continuing to be consistent with the attachment framework, give a neurological/genetic dimension in our understanding of disorganized attachment and BPD.

A Biosocial Developmental Model

In 2009, Crowell, Beauchaine and Linehan proposed a biosocial developmental model for the understanding of the ontogenesis of borderline personality disorder (BPD). Their model is an expansion upon Linehan's (1993) earlier biosocial theory placed within the perspective of developmental psychopathology. This model gives great emphasis to the dynamic interactions between the characteristics of the child, the caregiver and the environment, and suggests that it is the reciprocal transactions between early biological vulnerabilities (for impulsivity and emotional sensitivity) and high-risk psychosocial factors that contribute to the manifestation of BPD.

Linehan's (1993) biosocial model proposes that BPD should be understood as a deep deficit in all facets of emotional responding. These emotional dysregulations adversely affect the neurological/genetic structures of the patient, his emotion-linked cognitive operations and actions (Linehan, 1993). Moreover, Linehan (1993) suggests that invalid environmental conditions are an important requirement for the onset of the disorder (Linehan, 1993). In an invalid environmental context the individual is not allowed to express his personal emotional states and is urged to cope with them internally and without the support of the caregiver. However, despite this prohibition, the child learns that extreme emotional expressions are able to catch the parent's attention. Thus, the child finds it extremely difficult to understand and regulate his

emotional responses and as a result, alternates between extreme emotional expressions and austere emotional inhibitions (Linehan, 1993).

Linehan's (1993) idea about the invalid environmental context, which entails the simultaneous communication of two contradictory messages, is similar to Fonagy's (2000, 2003), Liotti's (2004, 2011) and Holmes' (2003, 2004) suggestions that opposing parental messages lie behind the onset of BPD. However, Linehan's (1993) model differs as it assumes that, additionally to the invalid environmental context, early biological vulnerabilities may also play a crucial role in the development of the disorder.

When Linehan was developing her theory, the body of literature on the biological aspects of psychological disorders was limited and, thus, the biological bases of her model was not very extended (Crowel, Beauchaine & Linehan, 2009). However, the recently developed developmental biosocial model (Crowel, Beauchaine & Linehan, 2009) took advantage of the recent literature on the biological correlates of BPD and managed to give a more elaborate description of its ontogenesis. Furthermore, it suggests that apart from the early emotional deregulation, which Linehan (1993) proposed as the central characteristic of the disorder, early impulsivity (independent of emotion) is also a very crucial predisposing factor for the later development of the disorder (Crowel et al., 2009). Finally, this model places BPD within the developmental psychopathology framework, examining the disorder as the consequence of the interaction of several risk factors (i.e., neural, genetic, behavioural, environmental, familial, and social factors; Cicchetti, 2008).

Crowel (2009) cites a series of recent studies which give an outline of the biological background of the disorder. Deficits and deregulations in "several neurotransmitter systems, including serotonin, dopamine, vasopressin, acetylcholine, noradrenaline, and gamma-aminobutyric acid" (Crowel et al., 2009, p. 6) are found to be linked to the expression of BPD. Moreover, recent studies indicate that the development of the disorder is "associated with deficits of frontolimbic circuitry, including the orbitofrontal cortex and the ventrolateral prefrontal cortex, as well as the amygdala, hippocampus, fusiform gyrus, anterior cingulate cortex, basal ganglia, and thalamus" (Crowel, et al., 2009, p. 9). According to Crowel and colleagues (2009)

these deregulations of the central and peripheral nervous system are highly correlated with early vulnerabilities towards emotion deregulation and impulsivity. Finally, the model includes evidence which supports the hypothesis that BPD could also be attributed to heritable factors. Crowel et al. (2009) cites Beauchaine and Neuhaus' (2008) findings that impulsivity, as seen in BPD, is 80% heritable and is clearly associated with neuroanatomical deficits. These biological vulnerabilities in conjunction with psychosocial risk factors shape the onset of the disorder.

As far as the psychosocial risk factors are concerned, the developmental biosocial model proposes that disrupted attachment relationships are linked to the development of BPD. Linehan (1993) had suggested that the disorder should be understood as an interaction between biological factors and invalid familial contexts. Indeed, there is evidence showing that children raised by parents with low emotional engagement in their interactions with their offspring are more likely to display suicidal behaviour (Johnson, Cohen, Gould, Kasen, Brown, & Brooks, 2002). Moreover, Crowel et al. (2009) adopt Bowlby's (1969, 1973, 1980) attachment theory in order to describe Linehan's (1999) "invalid developmental context", noting however the little emphasis that the traditional attachment researchers had given to the impact of genes and other biological factors.

In order to give a biological/genetic dimension to the model's attachment approach Crowel et. al (2009) present Lakatos' (2000, 2002) studies. Their findings indicate that those children who had at least one e7-repeat allele of the dopamine D4 receptor gene (DRD4) had four times higher odds to develop disorganized attachment (Levy, 2005). Moreover, evidence from the same laboratory suggests that the presence of the -521T allele in the promoter region of the DRD4 gene is a risk factor for the development of disorganized attachment. Children who had both the e7-repeat allele and the -521T allele had 10 times higher odds to show disorganized attachment than controls (neither allele; Gervai, Nemoda, Lakatos, et al., 2005). As far as Lakatos' (2000, 2002) findings are concerned, Liotti (2004) expressed his skepticism about the influence of the DRD4 gene: in fact only fewer than 40% of the infants who had the allele developed disorganized attachment (Liotti, 2004). However, Gervai et al. (2005), replicated Lakatos' (2000, 2002) evidence confirming the link between the DRD4 gene and disorganized attachment. The gene was detected in 71% of

disorganized children in their sample and only in 29% of non-disorganized individuals (as cited in Steele & Siever, 2010).

Furthermore, BPD is highly associated with the development of insecure attachment patterns and more specifically, according to Agrawal et al.'s (2004) review of 13 adult attachment studies, with the unresolved (disorganized), preoccupied and fearful classifications.

Finally, the developmental biosocial model argues that psychical and/or psychological neglect and early abuse (emotional, physical, and sexual) are significant risk factors that contribute to the development of BPD. However, despite the fact that childhood trauma is very common in borderline patients it is neither necessary nor adequate for the manifestation of the disorder (Crowel et al., 2009).

Early trauma and its gene-environment implications

The developmental biosocial model manages to propose a holistic approach for the ontogenesis of borderline personality disorder (BPD) suggesting that the reciprocal exchanges between biological vulnerabilities and psychosocial conditions lie behind its onset. However, despite the fact that it has the biological dimension that the previous models lack, it does not explain how the invalid environmental context could adversely affect the biological component. It conveys the impression that the biological factors precede and shape the environmental, implying that BPD has a determinant heritable component: “biological vulnerabilities affects children’s temperament, which in turn affects environmental contexts” (Crowel et al., 2009, p.12).

Conversely, in order to examine how the environmental context (psychosocial risk factors) could possibly shape the neurophysiology and neuroanatomy of the individual, I will now look at De Zulueta’s (1999) review on BPD. In contrast to the developmental biosocial model, which views early trauma as an important but not

determinant factor, De Zulueta (1999) states that early trauma is highly correlated with the development of the disorder and suggests that post-traumatic stress disorder plays a significant role in our understanding of the borderline pathology. Furthermore, she notes that there is a significant overlap between early trauma and disorganized attachment given that both are the outcome of the fragmented attachment system (De Zulueta, 1999).

In environments where the caregiver is simultaneously a source of danger and affection (Linehan, 1993; Liotti, 2009; Holmes, 2004), the child might express severe dissociative symptoms. According to De Zulueta (1999) these symptoms could also be prevalent in occasions of severe abuse. However, even though the victim cuts himself off from the actual memory of the traumatic event, he might relive the painful feelings he had experienced through flashbacks, nightmares, and fragmentary memories (external or internal stimuli could activate such flashbacks; De Zulueta, 1999). These dissociative symptoms, which are seen in attachment disorganization and early trauma, are also prevalent in BPD.

In order to illustrate how psychological factors (early trauma/disorganized attachment) could affect the brain structures of an individual, De Zulueta (1999) cites Perry's (1997) findings which show that a traumatic thought has the potential to "activate limbic, basal ganglia and brainstem areas – resulting in emotional, motor and arousal/state changes which are the functional residuals associated with the stored patterns of neuronal activation present at the original event" (De Zulueta, 1999, p. 248). Subsequently, an arousal state could lead to a heightened neural activity in the amygdala resulting in emotional changes, which may or may not activate the memory of the traumatic event. This explains why borderline patients are often unaware of why they feel frightened and depressed (De Zulueta, 1993).

Furthermore, according to Panksepp et al. (1980), brain opioids mediate social attachments. Infants whose caregivers fail to comfort their psychological arousal develop fewer opioid receptors and, thus, need higher levels of endogenous opioid secretion in order to feel comforted (Panksepp et al., 1985). These findings explain how early attachment deficits lead to neuroanatomical alterations which subsequently lead to the manifestation of the disorder. Indeed, borderline patients cannot receive emotional satisfaction from their interpersonal interactions given their inability to

understand the emotional states of the other (lack of mentalizing capacity; Fonagy et al., 2003). In order to control their distressing feelings they will resort to self-damaging tactics such as drug or alcohol abuse, sexual promiscuity, and self-mutilating. These tactics are seen as attempts to artificially enforce the release of endogenous opiates so as to feel soothed (De Zulueta, 1999) and as desperate efforts to restore the damaged attachment system (Fonagy et al., 2000).

Finally, In order to show how early trauma (and disorganized attachment) could potentially alter the neurophysiology and neuroanatomy of the patient's brain, De Zulueta (1999) cites Rauch's (1996) study. These findings indicate that, when individuals with a history of abuse are exposed to a traumatogenic stimuli (which has the potential to activate memories of the traumatic event), there is "a decrease in blood flow (i.e. brain activity) in Broca's area (speech area) in the left dominant hemisphere and increased blood flow in the right limbic and para-limbic system as well as in visual cortex" (De Zulueta, 1999, p. 250). Moreover, these findings explain why borderline patients often find it hard to speak when reliving events of abuse and why they may "see things" associated with these painful memories. What is more, these findings show how early trauma and disorganized attachment patterns (according to De Zulueta (1999) there is a significant overlap between them) lead to dissociative symptoms and re-enacting phenomena (patients reliving the painful feelings they had experienced), which are also prevalent in BPD (De Zulueta, 1999).

Overall Criticism and Conclusion

This review has examined the possible effects of early disorganized attachment patterns in the development of borderline personality disorder (BPD) in adulthood. It has presented a series of relative theories, explanatory models and conceptual ideas, and has commented on the strengths and limitations of each approach. However, even though the connection between disorganized attachment and BPD seems to be reasonable, we should always take into account that there are still problematic points that need to be solved. More specifically, Levy (2005) has suggested that there is no

general consensus regarding the depth of the relationship between disorganization and BPD among the different studies (some studies show a stronger relationship between the two factors compared to others). Additionally, disorganized attachment was found to be related to other psychiatric disorders apart from BPD and, thus, it could be a general vulnerability factor rather than a specific indicator of BPD (Levy, 2005). Moreover, even though many theorists view sexual or physical abuse as a determining factor for the onset of BPD there are many borderline patients with no history of abuse (Levy, 2005). Finally, so far few longitudinal studies, examining the proposed connection, have been conducted (Levy, 2005).

Undoubtedly, there is strong evidence that early disorganized patterns may lead to the manifestation of BPD in adulthood. However, further research is needed and more longitudinal studies should be carried out in order to gain a better understanding of the nature of the disorder.

References

- Agrawal, H.R., Gunderson, J., Holmes, B., M., & Lyons-Ruth, K. (2004). Attachment studies with borderline patients: A review. *Harvard Review of Psychiatry*, 12(2), 94-104.
- American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders (4th ed., text rev.). Washington, DC: Author.
- Bateson, G., Jackson D., Haley, J., & Weakland, J. (1956). Toward a theory of schizophrenia. *Behavioral Science*, 1(4), 251-264.
- Bowlby, J. (1969). Attachment and loss: Attachment. *New York: Basic Books*, 1.
- Bowlby, J. (1973). Attachment and loss: Separation. *New York: Basic Books*, 2.
- Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. *American Journal of Orthopsychiatry*, 52(4), 664-678.
- Cicchetti, D. (2008). A multiple-levels-of-analysis perspective on research in developmental psychopathology. In: Beauchaine, TP.; Hinshaw, SP., editors. *Child psychopathology*. Hoboken, NJ: Wiley, 27-57.
- Crowell, S.E., Beauchaine, T.P., & Linehan, M.M. (2009). A biosocial developmental model of borderline personality: Elaborating and extending Linehan's theory. *Psychological Bulletin*, 135(3), 495-510.
- De Zulueta, F. (1999). Borderline personality disorder as seen from a attachment perspective: a review. *Criminal Behaviour and Mental Health*, 9, 237-253.
- Fonagy, P., Target, M., & Gergely, G. (2000). Attachment and borderline personality disorder: A theory and some evidence. *The Psychiatric Clinics of North America*, 23(1), 103-122.

- Fonagy, P., Target, M., Gergely, G., Allen, J.G., & Bateman, A.W. (2003). The developmental roots of borderline personality disorder in early attachment relationships: A theory and some evidence. *Psychoanalytic Inquiry*, 23(3), 412-459.
- Gervai, J., Nemoda, Z., Lakatos, K., Ronai, Z., Toth, I., Ney, K., Sasvari-Szekely, M. (2005). Transmission disequilibrium tests confirm the link between DRD4 gene polymorphism and infant attachment. *American Journal of Medical Genetics Part B: Neuropsychiatric Genetics*, 123B(1), 126-130.
- Gilbert, P., McEwan, K., Bellew, R., Mills, A., & Gale, C. (2009). The dark side of competition: How competitive behaviour and striving to avoid inferiority are linked to depression, anxiety, stress and self-harm. *Psychology and Psychotherapy: Theory, Research and Practice*, 82(2), 123-136.
- Holmes, J. (2003). Borderline personality disorder and the search of meaning: An attachment perspective. *Australia-New Zealand Journal Psychiatry*, 37(5), 524-531.
- Holmes, J. (2004). Disorganized attachment and borderline personality disorder: A clinical perspective. *Attachment and Human Development*, 6(2), 181-190.
- Johnson, J.G., Cohen, P., Gould, M.S., Kasen, S., Brown, J., & Brooks, J.S. (2002). Childhood adversities, interpersonal difficulties, and risk for suicide attempts during late adolescence and early adulthood. *Archives of General Psychiatry*, 59, 741-749.
- Levy, K., N. (2005). The implications of attachment theory and research for understanding borderline personality disorder. *Development and Psychopathology*, 17, 959-986.
- Linehan, M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford Press.

- Liotti, G. (2011). Attachment disorganization and the controlling strategies: An illustration of the contributions of attachment theory to developmental psychopathology and psychotherapy integration. *Journal of Psychotherapy Integration, 21*(3), 232-252.
- Liotti, G. (2004). Trauma, dissociation, and disorganized attachment: Three strands of a single braid. *Psychotherapy: Theory, Research, Practice, Training, 41*(4), 472-486.
- Liotti, G., Pasquini, P., Cirrincione, R., & The Italian Group for the Study of Dissociation (2000). Predictive factors for borderline personality disorder: Patients' early traumatic experience and losses suffered by the attachment figure. *Acta Psychiatrica Scandinavica, 102*, 282-289.
- Main, M. (1995). Recent studies in attachment: overview, with selected implications for clinical work. In: Goldberg S, Muir R, Kerr J eds. *Attachment theory: Social, developmental, and clinical perspective. Hillsdale, NJ: Analytic Press, xii*, 407-474.
- Main, M., & Solomon, J. (1986). Discovery of an insecure-disorganized/ disoriented attachment pattern. In T. Brazelton & M. Yogman (Eds), *Affective Development in Infancy* (pp. 39-51). Norwood, NJ: Ablex.
- Ogawa, J.R., Sroufe, L.A., Weinfield, N.S., Carlson, E.A., & Egeland, B. (1997). Development and the fragmented self: Longitudinal study of dissociative symptomatology in a nonclinical sample. *Development and psychopathology, 9*, 855-879.
- Panksepp, J., Herman, B.H., Vilberg, T., Bishop, P., & DeEsquinazi, F.G. (1980). Endogenous opioids and social behavior. *Neuroscience & Biobehavioral Reviews, 4*(4), 473-487.
- Panksepp, J., Siviy, S.M., & Normansell, I.A. (1985). Brain opioids and social emotions. In Reite, M., Field, T., eds. *The Psychobiology of Attachment and*

Separation. London: Academic Press.

Steele, H., & Siever, L. (2010). An attachment perspective on borderline personality disorder: Advances in gene-environment considerations. *Current Psychiatry Reports, 12*(1), 61-67.