Parental bonding and depression: Personality as a mediating factor

Penelope-Alexia Avagianou, BSc, MSc, PhD and Maria Zafiropoulou, BSc, MSc, PhD

Developmental Psychology, Psychiatric Clinic, University Hospital, University of Thessaly, Larissa and Laboratory of Developmental Psychology and Psychopathology, University of Thessaly, Volos, Greece

Abstract: According to Bowlby's theory of attachment, the role of early experience and parenting is of crucial importance to child development and mental health. In addition, several research findings suggest that parental bonding and different types of attachment play a crucial role in personality development. The present study examines the association between parental bonding experiences (lack of parental care, overprotection or both) and depression during adulthood. The objective of the present study was to evaluate different personality dimensions as possible mediators of the relation between perceptions of parental bonding and depressive symptoms in adult life. *Methods*: 181 participants (15-49 years old) completed the Parental Bonding Instrument (PBI), the Beck Depression Inventory (BDI) and the 16 Personality Factor Questionnaire (16PF). *Results*: The results show that lack of parental care and overprotection is linked with depressive symptoms and a number of personality characteristics, such as low self-esteem, introversion, distress and emotional instability. In contrast, high care and low protection (optimal bonding) is linked with increased self-confidence, less distress and less depressive symptoms. *Conclusions*: The results presented here are in line with Bowlby's theory of attachment and show that parental bonding is linked with problematic personality development and psychopathology. The present study provided evidence that personality factors may mediate the observed relationship between parental rearing style and depression. The potential causal mechanisms warrant longitudinal evaluation.

Keywords: parenting, parental bonding, personality, depression

Correspondence: Penelope-Alexia Avagianou, Clinical Psychologist, Psychiatric Clinic, University Hospital, University of Thessaly, Larissa, Greece. Tel: 00302410681073; Fax: 00302421034747; E-mail: penavagia@yahoo.gr

INTRODUCTION

Apart from being a theory of normal development and of psychopathology, Bowlby's attachment theory is also a personality theory. From its conception, the theory was concerned both with the formation and with the normal course of attachment relationships and the implications of atypical patterns of attachment (1). In his theory, Bowlby emphasizes the role of the relationship between parent and child in normal development and suggests that a parent must be available, loving, and helpful when a child experiences a frightening or stressful situation. If the parent fails to meet the child's need, then normal development is threatened (2). Several studies have indicated the link between

parental rearing style, attachment, and psychopathology, mainly using clinical populations (3). Many psychiatric disorders are attributed to deviations that have occurred in the development of attachment behavior. Moreover, recent research provides ample evidence linking anomalous parenting experiences in childhood and subsequent depression.

That anomalous parenting increases the child's risk of depression in adulthood has been clarified following the development of the Parental Bonding Instrument (PBI). The PBI was designed to measure parental behaviors as remembered in the individual's first 16 years (4). The development of the instrument was based on previous research that had shown that parental bonding has two principal dimensions: 'care' and 'control/overprotection' (5). 'Low care' and 'overprotection' have been consistently nominated as disposing to the onset of most psychiatric conditions (6). The most distinctive and specific findings have emerged for depressive disorders, in which parents are distinguished by a much greater chance of 'affectionless control', which also appears more frequently in those with anxiety neurosis or social phobia (6-8).

Whereas prior studies have measured the effect of parental bonding on mental health in adults clinical populations, very little is known about the relation between parental bonding and distress in normal populations. Additionally, in the last 15 years, an interest in personality variables has arisen that might contribute to the vulnerability of depression (9). However, very little is known about the role of personality as a mediating factor between parental bonding and depression in adulthood. The present study aimed to identify possible links between different types of bonding, personality characteristics, and signs of depression in the normal population. More specifically, the present study examined the relation between the dimensions of the Parental Bonding Instrument, personality factors, and symptoms of depression. Our working hypothesis was that participants reporting 'low care' and 'overprotection' would have more depressive symptoms or specific personality characteristics that could lead to the development of depression in the future.

METHODS

Two hundred and twenty individuals filled in the questionnaires initially, but thirty nine had to be excluded because of a problematic reliability factor in the Sixteen Personality Factor Questionnaire. Our final random sample of a non-clinical population comprised 78 students (aged between 15-18 years) and 103 adults (between 19-49 years of age). Of the participants, 42% were men and 58% were women both of average socioeconomic status.

Instruments

The following self-report instruments were completed by all subjects:

- The Beck Depression Inventory (BDI) was created by Beck et al (10). The BDI is a widely used 21-item inventory of the affective, cognitive, motivational, and somatic symptoms of depression. The BDI consists of four scales (absent, mild, moderate, and clinical depression). Research indicates that the inventory is reliable and correlates well with other self-report measures (11). In the present study, the Greek-validated BDI was employed.
- The Parental Bonding Instrument (PBI) was developed by Parker (4). The PBI is a self-report questionnaire containing 25 items each describing a parental attitude. Two scores are obtained for

each parent: a care and a control score. Accordingly, there are four types of bonding: Optimal bonding (high care – low control), weak or absent bonding (low care – low control), affectionate constraint (high care – high control), affectionless control (low care – high control). In the present study, the Greek-validated PBI was used. Two identical forms (one for each parent) were completed by each participant. The care dimension of the PBI reflects parental warmth in contrast to indifference and rejection. The overprotection dimension reflects parental control in contrast to the encouragement of autonomy. Test reliability was 0.76. Test-retest reliability is high over months, and moderate consistency has been shown over extended periods up to 10 years (6).

- The Sixteen Personality Factor Questionnaire (16PF), originally developed by Cattell et al (12), is a factor-analytically derived questionnaire for personality assessment. The 16PF scales measure a person's characteristic style of thinking, perceiving, and acting over a relatively long period and in a wide range of situations. The questionnaire provides 16 personality factors, each one based on 10-13 questions on average. In contrast to other personality questionnaires like the MMPI, the 16PF is created to assess 'normal'

personality characteristics. In the present study, the Greek-validated 16PF was employed. The test-retest reliability was found to be between 0.70 and 0.80 over a day period.

Procedure
Participants were asked to complete all questionnaires individually in the presence of the researcher. The overall time of completion was about 3 hours. All participants had previously signed an informed consent.

RESULTS
The mean PBI scores are shown in table I. Mothers are perceived as more caring and more controlling than fathers.

Table 1. *Parental Bonding Instrument (PBI) mean scores (standard deviations)*

Parental bonding	Care	Overprotection
Maternal	28.22 (5.85)	15.02 (6.3)
Paternal	25.11 (6.48)	14.17(6.7)

As shown in table 2, 32% of participants reported optimal maternal bonding, 7.7% reported absent bonding, 41.5% reported affectionate, and 18.5% affectionless bonding.

Table 2. *PBI score distribution as percentage for the four types of parental bonding*

Parental bonding	Bonding type (%)			
	Optimal	Absent	Affectionate	Affectionless
Maternal	34.3	9.9	34.8	21
Paternal	32.6	11.6	29.8	26

Accordingly, for paternal bonding 41.5% reported optimal bonding, 9.2% absent, 33.8% affectionate, and 15.4% affectionless bonding. The distribution among the four groups is quite similar for paternal and maternal bonding, with more participants reporting optimal bonding with their father and more participants reporting affectionate bonding with their mother. There was no significant relationship between gender or age of participants and the type of bonding.

Table 3. *BDI score distribution as a percentage for the four scales of depression*

Depression Scales	Sample percentages
Absent	59.1
Mild	19.3
Moderate	18.2
Clinical	3.3

Table 3 present the percentages of BDI scores for the four scales of depression. The above results are in accordance with the expected depression scores in the normal population.

Table 4. *Correlation coefficients (Pearson r) between PBI, BDI, scores and age*

Bonding	Depressive symptoms
Maternal care	−.38**
Maternal protection	.20**
Age	−.22**

** P < .01, * P < .05

In table 4, the correlations between depressive symptoms and parental bonding are presented. No significant correlation was found between paternal bonding and subsequent depression. According to the results of maternal bonding, a child appears to be in greater risk for developing depression in adulthood when the mother shows lack of care or when she appears overprotective.

To find out if personality characteristics differentiate as a result of the type of maternal bonding, a series of analysis of variance (ANOVA) were performed. In table 5, the mean scores of personality factors for each type of maternal bonding can be seen.

Table 5. *Mean scores and standard deviations of all personality factors for each type of maternal bonding*

Personality Factors	Type 1 M (SD)	Type 2 M (SD)	Type 3 M (SD)	Type 4 M (SD)
1. F (impulsivity)	5.92 (2.25)	4.44 (2.36)	5.64 (2.34)	5.22 (2.34)
2. H (boldness)	4.49 (2.33)	3.73 (2.16)	5.35 (2.37)	4.33 (2.35)
3. O (insecurity)	6.93 (1.83)	6.84 (1.71)	6.04 (1.83)	6.27 (2.63)
4. Q3 (self discipline)	4.17 (2.05)	4.13 (1.57)	4.88 (1.80)	3.61 (1.81)
5. SA (endogenous tension)	6.92 (1.79)	7.39 (1.31)	5.92 (1.88)	6.50 (2.11)
6. CA (adaptablity)	3.85 (1.99)	3.04 (1.71)	4.59 (2.32)	4.42 (2.24)
7. CL (leadership)	4.36 (1.49)	3.71 (1.45)	4.98 (1.61)	4.23 (1.75)

Type 1: High care and overprotection (affectionate); Type 2: Overprotection without care (affectionless); Type 3: Optimal bonding; Type 4: Absent bonding

Table 6. *Mean scores and standard deviations of all personality factors for each type of paternal bonding*

Personality Factors	Type 1 X (SD)	Type 2 X (SD)	Type 3 X (SD)	Type 4 X (SD)
1.C(emotional stability)	4.62 (2.10)	3.74 (1.81)	5.15 (1.78)	4.66 (2.00)
2. F (impulsivity)	5.42 (2.27)	5.29 (2.25)	6.06 (2.40)	4.09 (2.23)
3. O (insecurity)	6.66 (1.89)	6.95 (1.88)	6.47 (1.89)	5.52 (1.96)
4. Q3 (self discipline)	4.29 (1.87)	3.85 (1.61)	4.96 (2.03)	3.90 (1.67)
5. SA (endogenous tension)	6.57 (1.99)	7.38 (1.67)	6.26 (1.68)	6.15 (1.86)
6. CA (adaptability)	3.94 (2.17)	3.22 (1.78)	4.59 (2.20)	4.14 (2.24)
7. CL (leadership)	4.37 (1.72)	3.90 (1.35)	4.95(1.64)	4.27(1.42)

In table 5, ANOVA results revealed that the type of maternal bonding has an important effect on the following personality factors of the individual: impulsivity (F), $F_{(3,177)} = 3.46$, p = .018, boldness (H), $F_{(3,177)} = 4.078$, p =.008, insecurity (O), $F_{(3,177)} = 2.722$, p = 0.46, self-discipline (Q3), $F_{(3,177)} = 3.043$, p = .030, tension (SA), $F_{(3,177)} = 6.253$, p < .000, adaptability (CA), $F_{(3,177)} = 4.666$, p = .08, and leadership (CL), $F_{(3,177)} = 5.412$, p < .001. Bonferroni adjustment for all personality factors showed that the major difference was between optimal maternal bonding and affectionless maternal bonding, a result that supports the experimental hypothesis.

The mean personality factor scores for each type of paternal bonding appear in table 6. In particular, paternal bonding had an effect on the same personality factors affected by maternal bonding. The only factor that did not appear to be affected by maternal bonding is emotional stability (C), $F_{(3,177)} = 4.745$, p = .003. Bonferroni adjustment revealed exactly the same differences as for maternal types of bonding.

ANOVA was performed to determine to which degree certain personality factors characterize persons with depressive symptoms. As the results in table 7 show,

Table 7. *Effects of personality factors on depressive symptoms*

Personality factors	$F_{(3,177)}$
1. C (emotional stability)	11.989**
2. H (boldness)	10.820**
3. I (sensitivity)	4.037*
4. O (insecurity)	14.399**
5. Q4 (tension)	11.512**
6. SA (endogenous tension)	21.744**
7. CA (adaptability)	5.118*
8. CL (leadership)	8.310*

** P< 0.01, * P< 0.05

persons who reported major depressive symptoms also reported the following personality characteristics: low emotional stability, luck of boldness, increased sensitivity, insecurity (low self-esteem), high tension, inability to adapt, and inability for leadership. ANOVA was also performed to determine whether maternal bonding plays a role in depressive symptoms. The results showed that the type of maternal bonding does have an effect on BDI scores: $F_{(3,177)} = 8.566$, p < .01.

Table 8. *Regression of depressive symptoms (BDI) over maternal bonding*

Depressive Symptoms	R	R square	Beta	t	p
1. Maternal care	.416	.173	−.416	−6.129	.000
2. Maternal protection	.243	.059	.243	3.353	.001

Table 9. *Regression of depressive symptoms (BDI) over personality factors*

Depressive Symptoms	R square	R	BETA	T	P
1.C (emotional stability)	.308	.095	−.308	−4.335	.000
2. H (boldness)	.299	.089	−.299	−4.194	.000
3. O (insecurity)	.336	.113	.336	4.768	.000
4. Q4 (tension)	.334	.112	.334	4.748	.000
5.SA (endogenous tension)	.419	.176	.419	6.174	.000
6. CA (adaptability)	.331	.110	−.331	−4.696	.000
7. CL (leadership)	.352	.124	−.352	−5.031	.000

Furthermore, a series of regression equations was computed to establish whether personality plays a mediating role between parental bonding and depression. Firstly, regression equations were calculated for depression as a dependent variable and maternal bonding as an independent variable. As results in table 8 show, there is a clear relation between low maternal care and overprotection in childhood and the existence of depressive symptoms in adulthood. We did not proceed to any calculation for paternal bonding because we found no correlation with depressive symptoms.

A second series of equations was computed to establish whether maternal bonding has an effect on certain personality factors. Additionally, a third series of regression was performed to determine whether certain personality factors have an effect on the appearance of depressive symptoms. In table 9 the regression results of depressive symptoms over certain personality factors can be observed. In particular, high emotional stability and boldness, low insecurity, and tension increase adaptability, whereas leadership ability decreases the risk for experiencing depression. Exactly the same personality factors were also influenced by maternal care and overprotection.

DISCUSSION

The present study aimed to identify the possible links between different types of bonding, personality characteristics, and signs of depression in normal population. We first observed that correlations between parental bonding and personality factors do exist. In accordance with previous research studies (3,9), our results show that parental bonding has a significant effect on certain personality factors. In particular, the

participants who reported optimal bonding (high care and low control) had more 'stable' personality characteristics, reporting emotional stability, self-confidence, adaptability, self-discipline, and low levels of stress. On the opposite end, the combination of low care and overprotection (affectionless bonding) gave rise to a lesser feeling of well-being because these individuals were experiencing great emotional distress, insecurity, and tension. All the above, apart from being supported by Bowlby's theory, are also in accordance with Parker's findings regarding the applications of the PBI (6).

Our results show that parental overprotection is significantly correlated with a lack of emotional stability, which, according to Cattell (12), means that the person is not capable of decision making or problem solving and is generally at risk for engaging in problematic relationships. Moreover, parental control is related to insecurity, high stress levels, introversion, and a lack of ability to adapt to new situations, factors that are greatly related to different forms of future psychopathology (13).

Following the finding that parental behavior plays a crucial role in personality development, seemingly a great need emerges for 'teaching' parents the basic principles of child upbringing. However, the present study did not examine a series of other family factors that may have an effect on personality development, such as socioeconomic status, age of parents, divorce, other people living with the family (i.e. grandparents), or even other factors such as friends and school.

The relation between parental bonding and depression was also investigated in the present study. Interestingly enough, no significant correlation between paternal bonding and depression was found because the effect of care by father was eliminated when care by mother was controlled for. That means that paternal behavior does not seem to increase or decrease the chances for a child to develop depression in adulthood. However, paternal bonding might predispose the child for development of future psychopathology through the effect it has on the development of the child's personality.

On the other hand, both maternal care and overprotection were directly related to depressive symptoms. The type of mother who appears to be strongly related to children's psychopathology can be described as the mother whose behavior is not characterized by love or care but is very overprotective and does not allow the child to decide on his own. The results coincide with Bowlby's theory, who suggested that the parent must be loving and helpful and if the parent fails to meet the child's needs, then normal development is thwarted (2). The present study also confirms the findings of earlier studies on differences between paternal and maternal bonding. Mothers are perceived as more caring and more controlling and this was true for our sample as well. Relevant studies suggest that this could be a universal phenomenon, even though in modern society men are more involved in child rearing (13).

In the present study, the relation between personality factors and depressive symptoms was examined, whereas Parker's studies (14-15) investigated the relation between parental bonding and the development of future psychopathology, without taking into account the role of personality. An analysis of the results showed that the personality factors that are correlated with depressive symptoms include introversion, high tension, lack of ability to adapt to new situations, and lack of decision making. These findings are in accordance with relevant research findings concerning the

symptoms of depression and personality characteristics of depressed people (11). Worth mentioning here is that all the above personality factors are also related to 'problematic parental bonding', which in turn is related to psychopathology, like depression. Based on the above and taking into account all our statistical findings, we can argue that these personality factors play a 'mediating' role between parental bonding and subsequent depression.

It remains, however, extremely difficult to identify the exact personality characteristics that can be regarded as predisposing factors for future depression or other forms of psychopathology. It has been suggested that there is a connection between certain personality profiles and specific types of depression (16). It could, perhaps be argued that an affectionless bonding (low care and overprotection) with the mother, on the one hand, can affect personality development leading to certain personality characteristics, and on the other hand, it can be seen as a predisposing factor for future psychopathology, for instance depression. In the above relationships, personality dimensions are gathered as mediating factors.

An important strength of the study is the examination of personality factors that mediate the relation between parental bonding and depression. A second characteristic feature of the present study is the use of a non-clinical sample. Given that most studies (13,17) that have already observed a relation between parental bonding and certain types of psychopathology used clinical samples, questions arise concerning the participants' quality of thought and behavior. As psychopathology affects a person's ability to think and therefore alters his behavior, using a clinical sample is not always safe because the results can be biased in numerous ways. That a 'healthy' sample was used can be seen as a break-through in the research field of attachment theory because it allows us to draw safer conclusions as far as the relation between types of parental bonding and depression is concerned.

As already mentioned, the present study provides converging evidence for the relation between parental bonding and subsequent depression. In particular, it was observed that several personality factors are affected by the type of parental bonding and can, therefore, be regarded as predisposing factors for depression. It appears that the first few years of a child's life can be regarded as a 'sensitive period' for personality development, which in turn is the base of psychological health. It, therefore, seems that children with affectionless bonding are in greater risk for developing psychopathology. Furthermore, the existence of 'protective' and of 'predisposing' factors for future psychopathology supports the idea of prevention programs for parents and teachers.

The study of attachment and its relation to developmental pathways of normality and psychopathology has made significant advances. Advances have also been made regarding the various ways that attachment processes may affect divergent pathways for different forms of maladaptation, and the present study seems to have added to it. However, longitudinal studies of representative normative populations, high-risk populations, and samples in which there are specific forms of maladaptation are needed to provide a fuller picture of the role of attachment in risk for psychopathology.

REFERENCES

1. Sroufe LA, Carlson AE, Levy KA, Egeland B. Implications of attachment theory for developmental psychopathology. Dev Psychopathol 1999;11:1-13.

2. Bowlby J. A secure base: Parent-child attachment and healthy human development. New York: Basic Books, 1988.

3. Enns MW, Cox BJ, Larsen DK. Perceptions of parental bonding and symptom severity in adults with depression. Can J Psychiatry 2000; 45(3):263-8.

4. Parker G, Tupling M, Brown L.B. A parental bonding instrument. Br J Med Psychol 1979;52: 1-10.

5. Raskin A, Boothe HH, Reatig NA. Factor analyses of normal and depressed patients' memories of parental behavior. Psychol Rep 1971; 29:871-9.

6. Parker G. Parental rearing style: examining links with personality vulnerability factors for depression. Soc Psychiatry Psychiatr Epidemiol 1990;28:97-100.

7. Parker G. Parental representations of patients with anxiety neuroses. Acta Psychiatr Scand 1981;63:33-63.

8. Parker G. Parental characteristics in relation to depressive disorders. Br J Psychiatry 1979;134:138-47.

9. Parker G. Parental rearing style: examining for links with vulnerability

factors for depression. Soc Psychiatry Psychiatr Epidemiol 1993;28:97-100.

10. Beck AT, Rush AJ, Shaw BF, Emery G. Cognitive therapy of depression. New York: Guilford, 1979.

11. Gotlib IH, Hammen CL. Psychological aspects of depression: Towards a cognitive-interpersonal integration. New York: Wiley, 1996.

12. Cattell RB, Eder, HW, Tatsnoko M. Handbook for the 16PF, 4th edition. Champaigh: IPAT, 1970.

13. Canetti L, Bachar E, Galili-Weisstub E. Parental Bonding and mental health in adolescence. Adolescence 1997;32:381-94.

14. Parker G. Parental overprotection: A risk factor in psychosocial development. New York: Grune Stratton, 1983.

15. Parker G. Early environment. In: Paykel ES, ed. Handbook of affective disorders. London: Churchill Livingstone, 1992.

16. Cloninger CR. Personality and psychopathology. New York: Am Psychiatric Press, 1999.

17. Duggan C, Sham P, Minne C. Quality of parenting and vulnerability to depression: results from a family study. Psychol Med 1998;28: 185-91.