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Predicting Borderline Personality Features on the Basis of Alexithymia and Attitude toward Mother

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Background: Borderline Personality Disorder (BPD) is a serious illness characterized by emotional dysregulation, impulsivity and impaired interpersonal relationship. Yet, few studies have examined borderline personality features, concomitant alexithymia and impaired relationship toward parents in adolescents.
Objectives: This article explored the association between alexithymia and attitude toward mother as predictive factors of borderline personality features in high school sample of students.
Patients and Methods: Three hundred students (150 females, 150 males) with a mean age of 15.72 years, were selected via multistage random sampling. Data was collected by Borderline Personality Features Scale for Children, Toronto Alexithymia Scale and Child's Attitude toward Mother Scale. Analyzing data were performed using canonical correlation.
Results: Structural coefficients showed that the pattern of high scores in borderline personality features correlated with the pattern of high scores in alexithymia and child's attitude toward mother. Therefore, the results showed that combination of low borderline personality features can probably decrease the likelihood of alexithymia and child's attitude toward mother.
Conclusions: Alexithymia and child's attitude toward mother can predict borderline personality features and explain a considerable variance of the survival index.

Keywords: Borderline Personality Disorder; Alexithymia; Mother-Child Relation

1. Background

Borderline Personality Disorder (BPD) is a severe mental disorder characterized by pervasive pattern of instability of moods, interpersonal relationships, self-image and behavior (1). The distinguishing symptoms of BPD are malfunctions in a wide range of neurobehavioral systems, emotional manifests (e.g. marked reactivity), behavioral inhibitions (e.g. impulsivity), cognitions (e.g. paranoia or disruption during serious distress), interpersonal performances (e.g. fear of rejection) and disrupted interpersonal relationships, which are considered as the core of diagnosing mental disorders and distress associated with the disorder (2). Although the etiology of BPD is not well known, many theoretical models emphasize on having negative experiences with primary caregivers. Adverse childhood experiences can help to explain why patients with BPD have difficulty in having attachments, are afraid of being rejected and rely less on others compared with controls (3).

According to Linehan's biosocial theory (1993), symptoms of BPD are caused by two factors rooted in biosocial factors of the individual's childhood; one of these factors is invalidating environment and the other is biological background of emotional instability. Invalidating environment occurs when the closest people to the child (especially parents) frequently criticize, humiliate and punish the child's awareness of his inner experiences (thoughts and feelings) and attribute these thoughts and feelings to undesirable characteristics such as laziness or ignorance. The fourth edition of Diagnostic and Statistical Manual of Mental Disorder says if clinicians find out that frequent behavioral patterns in children are a part of their character not a set of behaviors that children show in particular situations, a diagnosis of personality disorder can be considered for them. However, possibility of this diagnosis for children with borderline personality features provides the appropriate treatment (4).

Also, according to the Linehan's theory, BPD is first an emotional regulation disorder. It is believed that emo-

tional dysregulation is caused by intense emotional reactions, effective emotional experiences and lack of skills to manage difficult emotions. Alexithymia is a structure associated with the ability to regulate emotions. Alexithymia means deficits in emotional processing that involves impaired emotion recognition, expressing feelings toward others and externally oriented style of thinking (5). Berenbaum (1996) also stated in his theory that when people can not identify their emotions, they may fail to use the feedback that emotions generate. Therefore, he believed that as emotional dysregulation is one of the main characteristics of BPD and as the inability to identify emotions is associated with inability to regulate them, BPD is associated with alexithymia. To better understand the overlapping association between alexithymia and BPD, it is necessary to investigate their infrastructure relationship. One common flaw that exists in both conditions is emotional dysregulation characterized by intense emotional reactions, severe and extreme emotional experience and lack of skills to manage strong emotions (6).

Webb and McMurran (6) reported that alexithymia was the only predictor of borderline personality features in a sample of 134 students. Based on the results of this study, the association between these two clinical syndromes that involves detecting, identifying, understanding and communicating with the emotions of others can strengthen a person's ability to control these emotions. Researches have shown that emotions act as a feedback system through which people can regulate their behavior and interpersonal relationships (7).

2. Objectives

The present study was performed due to lack of the domestic researches on the association between alexithymia and attitude toward mother with borderline personality features in a nonclinical sample of under 18-year-old people. Achieving the objectives of the study, from theoretical perspective, would increase knowledge on BPD, and from practical point of view, can be used to identify specific patterns of borderline personality. Therefore, this study aimed to help identify further variables affecting borderline personality features of high school students.

3. Patients and Methods

This was a correlation-descriptive study, investigating the association between addiction potential, suicide ideation and educational performance with borderline personality features in high school students in Shiraz, Fars province, Southern Iran. The data obtained by questionnaires was analyzed with canonical correlation analysis using SPSS-18 (IBM Corporation, New York). Canonical correlation is similar to multiple regression analysis a compound of predict variables is applied to predict criterion variables. The difference lies in the number of criterion variables; in multiple regression there only exists one criterion variable, while in canonical analysis, there is more than one (8).

3.1. Participants

Students from four regions in Shiraz, studying in first to third grades of high school in educational year of 2012 - 2013 (Iranian year of 1391 - 1392) were considered to participate in the questionnaire surveys. The sample included 300 students (half and half males-females) chosen with multistage random sampling. First, two girl's schools and two boy's schools were chosen randomly, then two classes of each were selected by random and finally half of the students of each class were randomly chosen to answer the questionnaires. The age range of the participants was 14 to 18 years, with an average of 15.72 and standard deviation of 0.99. Overall, 45% of subjects studied in the first grade, 41% in the second grade and 14% in the third grade of high school. The average CGPA (Cumulative Grade Point Average) of students in sample was 17.14, SD = 1.92.

3.2. Instruments

Borderline Personality Features Scale for Children (BPFS-C: Crick, Murray-Close, and Woods, 2005): This is a 24-item self-report questionnaire, which assesses borderline personality features in children and adolescents aged 9 - 17 years (9). This measure was adopted from the BOR (borderline) scale of the personality assessments scale (PAI; Morey, 1991), modified for use with youth. BPFS_C is scored on the 5-point Likert scale with responses ranging from 1 "not at all true" to 5 "always true" to valuate affective instability, identity problems, negative relationships and self-harm (10). The BPFS-C has shown good internal consistency in 12 months study by Crick et al. (9), performed on 400 students aged 10 - 12 years, ($\alpha > 0.76$) as well as criterion validity (11) and construct validity (9). Prior research in Iran examining the 22-item instruments with a large community sample (n = 400) of boys and girls in high school showed a high consistency ($\alpha > 0.84$) (12). In the current study, Cronbach's α was 0.83.

Toronto Alexithymia Scale (TAS-20): This is a 20-item self-descriptive statement. Participants were rated on the 5-point (strongly disagree to strongly agree) Likert Scale, each using the five-point Likert scale. The TAS-20 includes three dimensions: DIF, DDF and EOT (13). The TAS-20 has been demonstrated to have good psychometric properties. The internal consistency of each subscale (α = 0.83, 0.77 and 0.73 for the DIF, DDF and EOT subscales respectively) and the TAS-20 total score (α = 0.82) (14). Cronbach's α in Iranian sample of students was 0.87 for total scale and 0.85, 0.84 and 0.80 for DIF, DDF and EOT respectively (15). In the current study, Cronbach's α was 0.95 for total scale and 0.75, 0.54 and 0.40 for DDF, DIF and EOT respectively.

3.3. Child's Attitude toward Mother (CAM: Hudson, 1992)

This is a 25-item self-report scale, which measures the

severity of problems in the child-mother relationship from the child point of view. The items are scored on the 7-point Likert scale ranging from 1 (rarely or none of them) to 7 (most or all of the time). Items are both positively and negatively worded to reduce the response bias, which positive items are reverse scored. High score is the indicator of severe problem in child-mother relationship (16). Cronbach's α of the scale ranged between 0.93 and 0.97 (17). Cronbach's α in the Iranian sample was 0.85 (12) and in the current study was 0.75.

4. Results

Descriptive statistics are reported for main study variables in Table 1. As seen in Table 1, the Mean (SD) scores obtained by the sample (n = 300) on variables of borderline personality features was 58.98 (1.244), alexithymia was 59.153 (9.95) and child's attitude toward mother was 84.290 (11.91).

To investigate the association between borderline personality features with alexithymia and child's attitude toward mother in the total scale and subscales, a matrix for Pearson correlation coefficient was calculated. Bivariate correlations between the studies variables is given in Table 2.

Results from correlational analyses revealed significant relationships between borderline personality features' subscales and child's attitude toward mother, and difficulty identifying feelings and difficulty describing feelings. Alpha coefficients ranged from 0.1 to 0.5 (Table 2).

Focusing on the main study variables, as shown in Table 2, significant positive relationships were found between borderline personality features dimensions, child attitudes toward mother, difficulty identifying feelings and difficulty describing feelings. No significant relationships were found between external oriented thinking style, borderline personality features and child's attitude toward mother. The Pearson correlation demonstrated that high scores of difficulty identifying feelings had the most association with high identity problems' scores.

In the current study, to investigate variables' relationships, canonical correlation analysis was used.

Table 1. Mean and Standard Deviation and Range for Main Study Variables

Variables	Mean	SD	Minimum	Maximum
Borderline personality features	58.983	1.244	31.00	98.00
Affective instability	15.263	3.613	6.00	24.00
Identity problems	14.816	4.190	6.00	25.00
Negative relationships	14.283	3.922	6.00	26.00
Self-harm	14.620	4.120	6.00	28.00
Alexithymia	59.153	9.959	31.00	88.00
Difficulty identifying feelings	20.90	6.17	7.00	34.00
Difficulty describing feelings	15.32	4.10	5.00	25.00
External oriented thinking style	22.92	3.79	8.00	34.00
Child attitude toward mother	84.290	11.916	51.00	122.00

Table 2. Pearson Correlation for Research Variables [a]

Variables	1	2	3	4	5	6	7	8
Borderline personality features								
Affective instability	-							
Identity problems	0.47 [b]	-						
Negative relationships	0.50 [b]	0.47 [b]	-					
Self-harm	0.44 [b]	0.49 [b]	0.53 [b]	-				
Alexithymia								
Difficulty identifying feelings	0.35 [b]	0.45 [b]	0.39 [b]	0.34 [b]	-			
Difficulty describing feelings	0.37 [b]	0.31 [b]	0.30 [b]	0.27 [b]	0.56 [b]	-		
External oriented thinking style	-0.01	-0.03	-0.04	0.01	-0.03	0.12 [c]	-	
Child attitude toward mother	0.26 [b]	0.22 [b]	0.30 [b]	0.29 [b]	0.18 [b]	0.15 [b]	-0.002	-

[a] (n = 300).
[b] Correlations are significant at P < 0.001.
[c] Correlations are significant at P < 0.05.

Alexithymia (difficulty identifying feelings, difficulty describing feelings and external oriented thinking style) and child's attitude toward mother are considered as predictors of borderline personality features (affective instability, identity problems, negative relationships and self-harm) to study the joint multivariate relationship between these two classes of variables. The results of multivariate test of significance for canonical correlation full model are presented in Table 3. Wilks lambda ($P < 0.001$) being statistically significant, explains a relationship between difficulty identifying feelings, difficulty describing feelings, external oriented thinking style, child's attitude toward mother and affective instability, identity problems, negative relationships and self-harm (Table 3). Lambda (λ) is the sign of unexplained variance, consequently 1- $\lambda$is the full model effect size in r^2 matrix. Accordingly, the effect size of three canonical correlation function equals 1 - 0.55 = 0.45. The effect size is the joint variance between two classes of variables that the full model can explain; therefore, the obtained model in this study explains 45% of variance between alexithymia (difficulty identifying feelings, difficulty describing feelings and external oriented thinking style) and child's attitude toward mother with borderline personality features (affective instability, identity problems, negative relationships and self-harm).

However the number of functions obtained in canonical analysis is equal to the number of variables in the smallest class (dependent or independent). In this research, as a result of having four dependent and independent variables, four functions are acquired (Table 4).

In canonical correlation analysis, there is no convenient way to test significance level of functions separately. One way to investigate the issue is to consider the amount of variance that explains each function. As shown in Table 4, canonical correlations square (R^2 C) of functions are 0.33, 0.03, 0.01 and 0.00 respectively Regarding the findings by Sherry et al. (18), functions explaining less than 10% variance are laid away and are not interpreted, then only the first function explaining 33% of joint variance is accepted and other functions are not interpreted.

In addition to the mentioned method, researcher can test the significance level by dimension reduction analysis (Table 5). The test of significance results of cumulative effect of functions 1 to 4 is presented in Table 5, first row. The test checks whether the structure of functions is significant. As mentioned, cumulative effect of functions 1 to 4 (full model) is statistically significant ($P < 0.001$), but the rest of cumulative effect is not significant. Only the first function explains a significant amount of joint variance between two classes of variables.

Results explain a significant relationship between two classes of variables and only the first function explains a significant variance. To find out the role of each variable in functions, standard and structural coefficients of variables are considered. Table 6 presents standard coefficients, structural coefficients and square structural coefficient for dependent and independent variables in the first canonical function.

Following Alpert and Peterson (1972), only variables with minimum structural coefficients of 0.3 are interpreted. Therefore, data presented in Table 6 shows that in the first function, difficulty identifying feelings (SC = 0.61), child's attitude toward mother (SC = 0.42), difficulty describing feelings (SC = 0.29) and external oriented thinking style (SC= 0.06) have respectively more important roles in linear structure of predictor variables. Regarding dependent variables, identity problems

Table 3. Multivariate Test of Significance for Canonical Correlation Full Model

Test Name	Value	F	DF1	DF2	P
Pillais	0.3849	7.85	16	1180	P < 0.001
Wilks	0.5551	10.07	16	1162	P < 0.001
Hotelling's	0.6321	9.03	16	892	P < 0.001

Table 4. Functions Obtained From Canonical Correlation Analysis

Root Number	Eigenvalue	Percent	Cumulative Percent	Canonical Correlation	Square Correlation
1	0.504	90.7	90.7	0.578	0.335
2	0.323	5.83	96.6	0.177	0.031
3	0.016	2.92	99.5	0.126	0.016
4	0.002	0.44	100	0.049	0.002

Table 5. Results for Dimension Reduction Analysis of Canonical Functions

Roots	Wilks L	F	DF1	DF2	P
1 To 4	0.632	9.03	16	892	P < 0.001
2 To 4	0.950	1.66	9	713	0.095
3 To 4	0.981	1.37	4	588	0.242
4 To 4	0.997	0.72	1	295	0.394

Table 6. Standard, Structural and Square Structural Coefficients of Research Variables

Variables	Standard Coefficient	Structural Coefficient	Square Structural Coefficient
Affective instability	0.307	0.768	0.589
Identity problems	0.414	0.820	0.672
Negative relationships	0.354	0.807	0.6511
Self-harm	0.189	0.722	0.521
R^2 C		0.33	
Difficulty identifying feelings	0.619	0.870	0.756
Difficulty describing feelings	0.299	0.702	0.492
External oriented thinking style	0.060	0.058	0.003
Childs attitude toward mother	0.422	0.585	0.342

(SC = 0.41), negative relationships (SC = 0.35), affective instability (SC = 0.30) and self-harm (SC = 0.18) play a role in linear structure of dependent variables.

More specifically, borderline personality features (affective instability, identity problems,negative relationships and self-harm) are predicted by alexithymia (difficulty identifying feelings, difficulty describing feelings and external oriented thinking style) and child's attitude toward mother. Moreover, canonical R square coefficient (R^2 C) is 33%, which determines amount of joint variance between two canonical classes of independent and dependent variables. Furthermore, based on the standard coefficients presented in Table 6, for each the standard deviation increment in affective instability, identity problems, negative relationships and self-harm, the first canonical function score increases as 0.30, 0.41, 0.35 and 0.18 respectively. For each unit, increase in standard deviation of difficulty identifying feelings, difficulty describing feelings, external oriented thinking style and child's attitude toward mother, the score of first canonical function increases to 0.61, 0.29, 0.06 and 0.42 respectively.

5. Discussion

The present study aimed to investigate the role of alexithymia and attitude toward mother in predicting borderline personality features of high school students in Shiraz. The findings suggested that such prediction is possible. Canonical analysis produced a statistically significant function. The findings are explained based on cross loading that is the best way to interpret the conventional functions. Cross loadings of significant function represent that a pattern of high scores of alexithymia and attitude toward mother is correlated with a pattern of high scores of borderline personality features.

Such a finding fits well with Ridings (19), Webb and McMurran (6) views on the association between alexithymia and borderline personality features. Since identifying and distinguishing different emotions experienced by these people are a part of borderline personality features, alexithymia may be conceptualized as a common feature of BPD (19). Therefore, difficulty in identifying, distinguishing, understanding and communicating with feelings and emotions would weaken the ability of an individual with BPD to regulate his or her emotions (6). Emotional dysregulation is a core feature of BPD and alexithymia is correlated with all aspects of emotional dysregulation including impulsivity and negative emotion. For example, alexithymia has a significant positive association with subscales of impulsivity control difficulties and difficulty in handling purposeful behavior that is related to an individual's willingness to engage in impulsive behaviors. Moreover, alexithymia is correlated with subscales of rejection of negative emotion and limited access to emotion regulation strategies, both of which are subscales representing an individual's willingness to engage in negative emotions and are prominent features of borderline personality (19).

In line with Cohen et al. (20), Bandelow et al. (21), and Links et al. (22), we demonstrated that attitude toward mother is associated with borderline personality features. They approved the hypotheses of the present study since they proved that patients with borderline disorder have experienced adverse parenting practices and lack of care associated with affection and have negative attitudes toward their parents. Furthermore, in keeping with Bradley (23), separation from mother before the age of five years has greater frequency in BPD patients. However, separation from mother does not lead to BPD symptoms per se. It is difficult for children to understand the reason of separation and they may blame themselves for the absence of mother. This could have a negative impact on children's mental image of himself or herself and others (24). More specifically, dysfunctional parenting practices and mostly parents' dissatisfaction with children are strong predictors of BPD symptoms. In fact, mother's self-righteous dissatisfaction with child can increase the risk of early separation and make the child feel worthless. In addition, these parental variables in individuals experiencing separations have not reduced symptoms of BPD. Early separations with attachment anxiety (fear of being abandoned) and avoidance (fear of intimacy) are closely correlated, both of which have a great correlation with

BPD symptoms (25). Maternal interpersonal problems (including difficulty in having intimacy, blaming others and being angry with others) overlap with borderline symptoms. Therefore, these properties along with modeling or having potential genetic background can have adverse effects on children (26).

Overall, we did find support for linear combination of psychological variables including alexithymia and attitude toward mother explains the borderline personality features in high school students. Despite its large sample size and noteworthy findings, there are several limitations to the current study possibly impacted our findings. firstly, our sample included 14 - 18 years old high school students, so the results should be generalized cautiously. secondly, TAS-20 was the only scale used to measure alexithymia, which can be considered as a limitation since this scale does not contain daydreaming and fantasy components, these components were excluded in 1994 due to high correlation with social desirability and low correlation with the total scale (27), and the lack of reliability of this subscale has been also observed in several other studies (28). In conclusion, it is suggested to perform further studies with a closer look at these components to clarify the finding of this study better.

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Authors' Contributions

Seyede Fateme Sajadi: analysis and interpretation of data, drafting of the manuscript and statistical analysis. Yadolla Zargar study supervision. Marziye Khodahemati: study concept and design. Zahra Sahraeeyan administrative, technical and material supports. Seyede Forugh Sajadi: data acquisition.

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