

Canonical Analysis of Relationships between Coping Strategies and Parental Bonding with Eating Disorders among University Students

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Abstract

Objective: Eating disorders are one of the most problematic psychological issues that are highly associated with mental health disorders such as anxiety and mood disorders, substance abuse disorders, and personality disorders.

Objectives: This study aimed to identify the canonical analysis of relationships between coping strategies and parental bonding with eating disorders in students.

Method: The method of the present study was descriptive-correlational. The statistical population included all female undergraduate students of Kosar University of Bojnord in the academic year 2019. The research sample consisted of 250 students who were selected by convenience sampling from all female students of Kosar University of Bojnord. To collect data, the eating attitude test (EAT-26, 1982), coping with stressful situation questionnaire (CISS, 1994), and parent bonding instrument (PBI, 1979) were used. The collected data were analyzed using canonical correlation.

Results: The Results showed that components of parental bonding, care (0.43, 0.42, and 0.43), and overprotection (0.39, 0.29, and 0.22) were positively related to eating disorders subscales ($P < 0.01$); additionally, from coping strategies' components emotion-oriented (0.12, 0.14, and 0.14) and avoidance-oriented coping (0.24, 0.22, and 0.16) had positive significant relationship with eating disorders ($P < 0.05$). Canonical correlation also indicated the predictive role of parental bonding on eating disorders ($P < 0.001$).

Conclusion: It can be concluded that teaching adaptive coping strategies and parental involvement in treatment interventions can prevent and reduce eating disorders in students.

Keywords: Coping strategies, Parental bonding, Eating disorders, Students

Introduction

Today, eating disorders are considered one of the most problematic mental disorders, and the frequency of these disorders has recently increased. This type of disorder causes problems in physical health and mental functioning (Nasahi, Moini, Rahnajan et al., 2019). The American Psychiatric Association

(2013) has replaced eating disorders in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders. Nutrition and eating disorders are characterized by persistent disorders in eating or behaviors related to eating, which lead to changes in food consumption or absorption and great damage to physical health and psychosocial functioning (Taherpour, Sohrabi, & Zaminani, 2017). Patients suffering from this disorder are preoccupied with physical issues and turn to food to create a sense of peace in themselves, and over time, they learn that eating or not eating can be a means to resolve their unpleasant and ambiguous emotional states (Farrer,

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Fesnacht, & Gulliver, 2016).

Young people, especially females, pay special attention to their body weight and shape for many reasons, including cultural, social, and racial factors (Brunel & Welch, 2017). Early onset, family history, peer influence, ideal body image concepts, and cultural factors all play a role in the formation of this disorder (Bagherzadeh, Hosseini, Foroughi et al., 2021). In a review study conducted on the prevalence and incidence of eating disorders, Houk and Hoken reported a prevalence of 0.3% for anorexia and 1% for bulimia (Hook & Hoken, 2013). Rezaei and Dasht Bozorgi's studies (2018) showed that coping strategies could significantly predict the changes in eating disorders of nursing students.

One of the important factors in the psychological explanation of eating disorders is stressful life events, the main premise was that the more stressful events a person experiences, the more likely he will suffer from various disorders (Rezai Far, Sepah Mansour, Attiz & Kushki, 2018). Stress is a response to a perceived (real or imaginary) threat to a person's mental, physical, and emotional health, which leads to psychological and physiological responses and adaptations (Shams & Babakhani, 2017). The methods people use in dealing with pressures and failures are called stress coping styles, defined as continuous efforts to adapt to an unbalanced situation (Shirvani et al., 2021). In this regard, there are different classifications of stress coping styles, including problem-oriented, emotion-oriented, and avoidance coping styles. The problem-oriented coping style includes searching for more information about the problem, changing the structure of the problem cognitively, and setting priorities (Talqaninejad et al., 2021).

Emotion-focused coping style describes ways in which a person is focused on herself, and her efforts are aimed at reducing unpleasant feelings such as crying and being upset, engaging in fault-finding behaviors, and mental preoccupation. Finally, the avoidant coping style requires activities and cognitive

changes and aims to avoid and escape from stressful situations (Hu, Li, Chow, Hall, & Chong, 2018). The results of studies by Shaighian, Aguilar Vafaei, & Rasulzadeh (2013) showed that weak parental bond in girls has a significant relationship with eating disorders, including anorexia nervosa.

Parental bond is one of the new methods in child rearing, which according to Balbi, is a very common and effective bond in human relationships and plays an important role in personality growth and psychological functions in adulthood. However, different factors and combinations of parental bonding have different psychological consequences (Abassi, Emadian, & Abbasi, 2022). Parental bond has expanded the process of attachment that is being formed between mother and child in the early years. As a result, deep bonds between the caregivers and the child are obtained, which are formed through frequent emotional interactions between the caregivers and the child in a long-term relationship (Mahmoudian Dastanai, Neshat Dost, Amiri, & Manshai, 2019).

The characteristics of parents are stable in two spectrums kindness and warmth against coldness and rejection on the one hand and encouraging freedom of behavior against excessive support and control on the other hand. The unkind controlling parenting style is called weak parental bond in the literature (Tababar Bardbar, Esmaili, & Karzahn, 2021). In this regard, Firozi (2018) reported in research that insecure attachment styles, negative strategies of cognitive regulation of emotions, and concern about body image have a positive and meaningful relationship with symptoms of eating disorder, and secure attachment and positive strategies of cognitive regulation of emotions are indicators of relationship eating disorder. It was negative and significant. In another study, McNeil, Esposito, and Mehlenbeck (2020) showed that when people use ineffective coping styles and are exposed to various types of daily stress, they are more likely to suffer from eating disorders. Also, the results of

this research showed that when people do not have the necessary self-confidence to properly deal with stressful conditions, they are more likely to suffer from problems related to eating disorders.

The studies of Pamis and Koliz (2019) showed that maladaptive coping styles in girls and boys play an important role in predicting eating disorders. McVey (2017) researched the relationship between emotion regulation strategies and eating disorder symptoms and concluded that positive emotion regulation strategies had a negative correlation with eating disorder symptoms, and negative emotion regulation strategies had a positive correlation with eating disorder symptoms. Jones, Harris, and Long's research (2020) showed that the parent-child relationship and unhealthy caregiving behavior have been accepted as important factors in the multifactorial model of eating disorder etiology. Also, Cooper, Ross, and Tamer (2019) found that people with eating disorders have inappropriate close relationships with their parents. Eating disorder is one of the psychiatric disorders that is rooted in psychological, social, and cultural issues.

On the other hand, eating disorders are syndromes related to food, body weight, and inappropriate eating patterns that can lead to life-threatening physically and nutritionally. As a result, examining students' eating disorder, which plays an important role in their health, is of double importance. In addition, identifying factors related to eating disorders can help design programs to reduce eating disorders. Given that coping styles and parental bonding are related to eating disorders the research results are contradictory in the field of the relationship between coping styles and eating disorders. Given that coping styles and parental bonding are related to eating disorders the research results are contradictory in the field of the relationship between coping styles and eating disorders. Few researches have been done on the relationship between coping styles and the relationship between parents and eating disorders: this research was conducted to predict students'

eating disorders based on coping styles and parental attachment.

Method

Participants

The research design was descriptive and correlational. The statistical population of the research included all undergraduate female students of Kousar Bojnord University in the academic year of 2018-2019, 1100 of whom were selected based on Kerjesi and Morgan's table, 285 of whom were selected by convenience sampling. The criteria for entering the research were studying at the undergraduate level of Kousar Bojnord University, the desire to participate in the research, and the exit criteria were unwillingness to participate in the research and incomplete answers to the questionnaires.

Procedure

After receiving the code of ethics from the research organization and coordinating with the relevant officials in the university, an orientation meeting was held for the girls who were studying at the undergraduate level, and the objectives of the research were explained, and then the participants answered the questionnaires of eating disorders, coping styles, and parental bonding. At the end, the questionnaires were collected. Data were analyzed using SPSS-23 software, Pearson correlation, and focal correlation.

Ethical statement

This study was performed on female students of Kosar University of Bojnourd in 2019 after approval by the ethics committee of North Khorasan University of Medical Sciences with the ethics code IR.NKUMS.REC.1399.086. To comply with the ethical issues of the research, a consent form was prepared in which the purpose of the research was explained in general. First, the participants read the consent form and participated in the research if they wished. The subjects were also given the necessary explanations about the confidentiality of the answers

given to the questionnaires and their results.

Measures

Eating disorder: Eating attitude test (EAT) is a self-assessment tool developed by Garner and Garfinkel (1979) that evaluates symptoms and characteristics of eating disorders (Garner & Garfinkel, 1979). EAT has 20 items under the three sub-scales of dieting, overeating and food preoccupation, and oral control. The scoring system is based on a Likert scale and is scored from always to never. The range of scores is 0 to 60. Scores greater than 20 indicate a need for further investigation by qualified experts, and low scores (below 20) can still be consistent with serious eating problems. Cronbach's alpha coefficient in the non-clinical and clinical groups was 0.94. In a study by Babayee, Khodapanahi, and Saleh Sedghpoor (2007) Cronbach's alpha coefficient was 0.86, and they obtained construct validity for the Farsi version of the test. In the present study, Cronbach's alpha was 0.82.

Coping strategies: Coping inventory for stressful situations (CISS) was designed by Endler & Parker (1990) to focus on the identification and comparison of primary coping strategies applied by different people over different types of stressful conditions. Coping strategies of people in stressful situations. Coping strategies in this questionnaire include problem-oriented coping, emotion-oriented coping, and avoidance coping. The test has 48 items; each coping style has 16 items, and the response to each item is based on a five-point Likert scale from never (1) to very much (5). Scores for all items per scale are summed to create the scale scores. The range of scores is 0 to 240. High scores demonstrate a greater utilization of that specific coping behavior. Avoidance coping style is divided into two sub-scales social distraction and social diversion. The Cronbach's alpha coefficients for CISS were calculated by its developers to be 0.92 for problem-oriented, 0.82 for emotion-oriented, and 0.85 for avoidance coping. Shokri et al (2008) reported Cronbach's alpha coefficient for the coping subscale,

0.86 for problem-focused, 0.84 for emotion-focused, and 0.80 for avoidant coping. Validity is found by convergent validity and confirmatory factor analysis. The Chronbach alpha coefficients calculated in this study for coping subscales were: 0.86 for problem-focused, 0.84 for emotion-oriented, and 0.81 for avoidant coping.

Parental bonding: The parental bonding instrument (PBI) was designed by Parker et al. (1979). The PBI measures fundamental parental styles perceived by the child (Parker, Tupling, & Brown, 1979). It is a 25-item inventory with 2 dimensions including care and overprotection. The range of scores is 25 to 100. The reliability of this questionnaire through Cronbach's alpha for care was 0.62 to 0.63, and for over-protection was 0.66 to 0.87. Validity was obtained by construct validity. In a study conducted among the Iranian population, Cronbach's alpha for care was 0.83, and for over-protection was 0.67 (Maktabi, Soltani, Boeshhaghi, & Nokarizi, 2015). In this study, Cronbach's alpha for care was 0.75, and for over-protection was 0.65.

Results

Considering demographic variables, marital status and the age of students can be mentioned. Among 285 sample groups, 192 (71.1%) were single and 93 (28.9%) were married. The average sample age range was 19.75 years. The results of the mean and standard deviations of the research variables (parental bonding, coping strategies, and eating disorders) are shown in Table 1.

The results of correlation matrix between research variables (parental bonding, coping strategies and eating disorders) are shown in Table 2.

* signifiacne of $p \leq .05$; **signifiacne of $p \leq .01$

As Table 2 shows, the relationship between the two components of parental bonding, i.e. care and overprotection, with all three disorders of diet, overweight, and oral control, is positive and significant ($P < 0.01$). In addition, the relationship between problem-oriented strategy and diet was

Table 1. Descriptive indexes of research variables

	Variables	Mean	Standard deviation
Parental bonding	Care	29.48	3.89
	Overprotection	31.93	4.62
	Problem-oriented	49.29	8.52
Coping strategies	Emotion-oriented	47.68	7.41
	Distraction	23.28	3.35
	Social diversion	15.18	2.64
	Diet	38.73	10.96
Eating disorders	Overeating	16.93	5.30
	Oral control	21.61	5.49

Table 2. The results of correlation matrix between parental bonding, coping strategies and eating disorders variables

Variables	1	2	3	4	5	6	7	8	9
1 Care	1								
2 Overprotection	0.41 **	1							
3 Problem-oriented	0.20**	0.12	1						
4 Emotion-oriented	0.01	0.17 **	0.30**	1					
5 Distraction	0.16*	0.23**	0.28**	0.36**	1				
6 Social diversion	-0.04	0.21**	0.28**	0.49**	0.24**	1			
7 Diet	0.43**	0.39**	0.30**	0.12	0.24**	0.08	1		
8 Overeating	0.42**	0.29**	0.06	0.14*	0.22**	-0.07	0.73**	1	
9 Oral inhibition	0.43**	0.22**	0.13	0.14*	0.16*	-0.03	0.51**	0.51**	1

positive and significant ($P < 0.01$). Moreover, the relationship between emotion-oriented strategy and overeating and oral control was positive and significant ($P < 0.05$). Furthermore, the relationship between distraction strategy with all three disorders of diet, overeating, and oral control was positive and significant ($P < 0.05$). However, the social diversion strategy had no significant relationship with any of the eating disorders' dimensions. The canonical or conventional correlation analysis was used to examine the relationship between several

predictor variables simultaneously with several criterion variables (Molavi, 2007).

The canonical correlation results of predictive variables (parental bonding and coping strategies) and criteria variable (eating disorders) are presented in Table 3.

The results of the canonical correlation presented in Table 3 show that, among predictive variables, there is a significant relationship only between care and eating disorder ($P < 0.001$). The statistical power of 0.98 indicates that the sample size (250 people)

Table 3. Results of canonical correlation between predictive and criteria variables

Variables	Value	F	P	Partial Eta Squared	Observed Power	
Care	Wilks Lambda	0.88	7.10	0.001	0.12	0.98
Overprotection	Wilks Lambda	0.97	1.16	0.16	0.03	0.04
Problem-oriented	Wilks Lambda	0.96	2.01	0.11	0.04	0.51
Emotion-oriented	Wilks Lambda	0.98	0.81	0.49	0.01	0.22
Distraction	Wilks Lambda	0.98	0.97	0.40	0.02	0.26
Social diversion	Wilks Lambda	0.98	0.87	0.45	0.02	0.24

is sufficient to show significant relationships. In Table 4, the modified model, canonical correlations between each eating disorder's dimensions, i.e. diet, overeating, and oral inhibition, and predictive variable are shown.

As Table 4 shows, among predictive variables, care ($p = 0.001$) had a significant relationship with all three disorders of dieting, overeating, and oral control. The relationship between overprotection and dieting was

bonding with eating disorders in Kausar University students in Bojnourd. The findings showed a significant relationship between emotional and avoidant coping strategies and parental bonding with eating disorders. These results are in agreement with the findings of Amir Fakhraei et al. (2018), Firoozi (2018), McNeil et al. (2020), Jones et al. (2020), Cooper et al.

In explaining these findings, it can be said that by looking closely at the relationship between the types

Table 4. Canonical correlation results between predictive and criteria variables

Predictive variable	Criterion variable	Degrees of freedom	MS	<i>F</i>	<i>P</i>	Partial ETA Squared	Observed power
Care	Dieting	1	976.70	10.47	0.001	0.06	0.19
	Overeating	1	318.82	14.36	0.001	0.08	0.96
	Oral control	1	400.22	17.32	0.001	0.10	0.98
Overprotection	Dieting	1	439.16	5.29	0.02	0.03	0.63
	Overeating	1	59.273	2.66	0.10	0.02	0.37
	Oral control	1	19.17	0.83	0.36	0.005	0.15
Problem-oriented	Dieting	1	113.42	1.22	0.27	0.001	0.19
	Overeating	1	9.54	0.43	0.51	0.002	0.10
	Oral control	1	21.04	0.91	0.34	0.006	0.16
Emotion-oriented	Dieting	1	31.93	0.34	0.54	0.002	0.09
	Overeating	1	41.37	1.86	0.17	0.001	0.27
	Oral control	1	24.14	1.04	0.30	0.007	0.17
Distraction	Dieting	1	70.30	0.75	0.39	0.005	0.14
	Overeating	1	61.69	2.77	0.10	0.02	0.38
	Oral control	1	11.15	0.48	0.49	0.003	0.10
Social diversion	Dieting	1	23.54	0.25	0.61	0.002	0.08
	Overeating	1	47.28	2.12	0.15	0.01	0.30
	Oral control	1	7.52	0.32	0.57	0.002	0.09

also significant ($p = 0.02$). Other predictors had no meaningful relationship with the criterion variables. The square of ETA shows the common variance of these significant relationships. The statistical power of 0.99 (more than 0.80) indicates that the sample size (250 people) is sufficient to show significant relationships.

Discussion

The purpose of this research was to analyze the relationship between coping strategies and parental

of avoidant coping styles in eating disorders (dieting, binge eating, and oral restraint), better information can be obtained about the psychopathology of this disorder. Based on the findings of this research, the social-behavioral avoidance coping style is the best predictor of eating disorder types with different variance percentages. It seems that avoiding social responsibilities and running away from worrying situations is more common in this type. Therefore, avoiding accepting responsibility and trying to get the support of others is considered the best predictor of morbid overeating, and it can explain part of the

psychological characteristics of sufferers (McNeil et al., 2020). It can also be said that the problem-oriented style includes strategies in which a person searches for more information about the problem, changes the structure of the problem cognitively, calculates, and gives priority to solving the problem. These factors first cause people to deal effectively with stressful events and finally cause the number of eating disorders to decrease by increasing the problem-oriented style.

Also, the emotion-oriented style includes strategies in which the person tries to reduce his unpleasant feelings through anger, discomfort, crying, fault-finding, mental preoccupation, etc., instead of solving the problem, and the emotion-oriented style is usually short. It is effective in the long term, but it is ineffective in the long term, so these factors cause no significant change in the amount of eating disorders with the increase in emotional style. In addition, the avoidance style includes strategies in which the person seeks to escape or avoid the stressful situation and turns to abnormal behaviors such as eating. These factors cause an increase in the rate of eating disorders with an increase in avoidant style (Amirfakhraei, Masoumifard, Esmailishad, DashtBozorgi, & Darvish Baseri, 2020).

On the other hand, weak parental bonding in families with less cohesion, more conflict, and negative parental discipline is associated with eating problems and unhealthy eating styles. In justifying these findings, the basic role of attachment in the formation of many cognitive, emotional, and communication skills and capabilities is mentioned. Many behaviors require skills in one of these three areas. Parental bond is the basis of emotional self-regulation behaviors that regulate the behavior of a person in an emotional situation and facing stress. In general, the lack of a person's parental bond leads to negative emotions. The inability to control negative emotions leads to the use of undesirable emotional strategies, such as overeating (Tabe Bardbar et al., 2021).

Some limitations are required to be considered. Firstly, the present study relied only on self-report questionnaires, so it is recommended that future research use other assessment methods, such as interviews and observations to provide a better

understanding and explanation of students' eating behaviors, coping strategies, and parental relationships. Secondly, because this study was performed on female students at the Kosar University of Bojnord, it is suggested that similar research be designed in other universities. Despite some limitations in the study results, it is recommended that a specific therapeutic program be designed to emphasize the parent-child relationship. Furthermore, developing intervention protocols to educate students in terms of functional and adaptive coping strategies in the face of life stressors would be suggested.

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