A Study of Alexithymia and Parental Behavior to Eating Attitude of Adolescent Girls Associated with Mediating Role of Body Checking Behaviors

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Abstract

Background: Having an appropriate appearance in adolescent girls is one of the important traits of adolescence that is affected by various psychological factors and causes the formation of different eating attitudes and behaviors. The aim of this study was to investigate the mediating role of body checking behaviors associated with alexithymia and parenting behavior to eating attitudes of adolescent girls.

Methods: The research method was cross-sectional, descriptivecorrelation based on structural equations. The statistical samples of the study included all female high school students in Torbat-e Heydarieh, Khorasan Razavi in the academic year of 2018-2019 (N=2832); of them, 390 were selected according to the Slovin formula and multi-stage cluster sampling. They filled out alexithymia questionnaires by Bagby et al., and parental rearing methods by Baumrind, and body checking by Reese et al. The obtained data were analyzed by regression equations using SPSS 23 and Amos 18 software.

Results: The findings showed a positive and significant correlation between the variables of alexithymia, permissive, authoritarian parenting behavior and body checking behaviors with eating attitude; also, there was a significant negative correlation between the variables of assertive and authoritative parenting behavior with eating attitude (P<0.01). Also, eating attitude based on alexithymia, authoritarian and authoritative parenting behaviors could be directly and indirectly predictable through the mediation of body checking behaviors, and the research model was approved. It can be concluded that when alexithymia and parental behavior are combined with body checking behaviors, they have more effects on the intensity of eating attitudes.

Conclusion: According to the results, training parenting methods and emotional skills affect the formation of positive attitudes about the body checking and creating normal eating attitude.

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Introduction

Adolescence and maturity are the most sensitive periods in the girls' life One of their challenges in this time is

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> having a proper physical body and consequently special eating attitude and nutrition.¹ Body Image (internal imagination of appearance who shows physical/ conceptual dimensions and attitude toward it) is a

psychological factor related to alexithymia. Indeed, girls often pay particular attention to their weight and body style and try to cope with these issues and related changes of puberty.² They adopt inaccurate eating attitude within this period; thus, this exposure may cause problems about eating behaviors.3 In this regard, studies have shown that the prevalence of eating disorder has been increasing, so that it has increased by about 2.7% from 2012 to 2015.4 Eating attitude is defined as a set of beliefs, thoughts, sentiments, and behaviors related to food that can affect food preference and health status.⁵ For describing this type of behavior, cognitive-behavioral theories emphasize the role of core beliefs and schemas in the development and expanding of abnormal eating attitude, especially during adolescence.6 Studies have shown that the level of emotions and its expression can affect the eating behavior and related attitudes. For example, various researches have shown that people with eating problems always report a higher level of alexithymia than others.7-9 Sajadi and Dehghani Zadeh also pointed out in a study that there was a significant positive relationship between alexithymia and eating attitude.¹⁰ Multifaceted Alexithymia consists of difficulties identifying feelings (DIF) and distinguishing between emotions and bodily stimuli related to emotional arousal, difficulties describing feelings (DDF) to others, and limited visualization power characterized by the paucity of fantasies. It has externally oriented thinking (EOT), pragmatic, reality oriented, or objective thinking.11 In addition, studies have presented that problematic behaviors of adolescents including eating-related behaviors arise from multiple interactions of individual, environmental, and family factors. Among family factors, parenting behaviors have great importance in transmitting psychological disorders to children.^{12, 13} Bamerind has conceptualized parenting behaviors predominantly in two dimensions of responsiveness/warmth including behaviors related to acceptance, warmth and intimacy against rejection and criticism, and parenting control including controlling and over-supportive behaviors against promoting autonomy.¹⁴ The effect of parenting behaviors on the formation of different behaviors and the occurrence of various problems is undeniable.15 Therefore, alexithymia, as one of the manifestations of emotional/mood behavior influenced by parenting behavior, can be associated with a wide range of emotions such as shame, embarrassment, etc. Studies have also shown that behaviors are affected by emotion directly and indirectly through body shame, appearance anxiety, and cognitive distortion. They lead to the development of body checking behaviors, which also play an important role in the pathology of eating behaviors.¹⁶⁻¹⁸ It can be concluded that body checking behaviors are in fact the beginning of cognitive distortions that cause the maintenance of abnormal eating attitude in people. Body checking behaviors include behaviors to obtain information about body size/shape or comparison of body weight and shape with

others.¹⁹ Thus, a person with eating-related behaviors and attitudes may show a variety of eating behaviors depending on various emotional situations in which he or she grew up, having the ability to identify and describe emotions in the family environment, as well as the influence of public culture on the body and body checking behaviors. Many of studies reveal the necessity and importance of the relationship between this item and other components, but since most of the literature assayed eating attitude without considering other components, identifying the relationship between factors such as alexithymia, parenting behavior, body checking, and eating attitude can help to clarify the overlap of these traits with each other and show which of them would affect eating behaviors, persistence and eventually their treatment. The present study aimed to identify the most important predictors of eating attitude including alexithymia disorder and parenting behavior, also considering the mediating role of body checking. Simultaneously, we consider the role of these factors in predicting as a complex for understanding this structure as well as providing preventive measures and advanced diagnosis methods.

Methods

This is a descriptive-correlational study. The statistical population of this research included 2832 female students in the second year of high school in Torbat-e Heydarieh, Khorasan Razavi during the academic year 2018-2019; of them, 390 were selected based on the Slovin formula²⁰ and multistage cluster sampling method. Four schools (two schools from the city and two from the suburb area) were selected. Then, as regards to the student population (1550 from city and 1282 from suburbs), a sample of 214 individuals from two schools in the city (107 per school) and 176 students from two schools located in suburbs (88 per school) from the tenth, eleventh and twelfth grades of each school were selected. Consent forms were obtained. We requested them to fill out the questionnaires if they were interested in participating in the research. They were filled out in 45 to 60 minutes. Students who quitted the school because of any reason were replaced by others. Before conducting the research, the purposes of test, method of answering the questions and ambiguous points were explained. We tried to encourage them to participate in the research. The researchers also assured the students that their data would remain confidential and would not be available to any individual or organization. Data were analyzed by route analysis, using Amos and SPSS statistical software. The instruments included:

A) Twenty – item Toronto Alexithymia Scale-1(TASE-20) which was created by Bagby et al. in 1994. This scale is a 20-item test that considers three dimensions of difficulty in identifying emotions (7 items), difficulty in describing emotions (5 items), and objective orientation (8 items) measured in a 5-point Likert-type scale (1=strongly disagree to 5=strongly agree). A total score is also calculated from the sum of the scores of 3 subscales of alexithymia. In the main form of this scale, the results of standardization were examined in the research of Bagby et al. in 2001 and Cronbach's alpha coefficients of difficulty in identifying emotions, difficulty in describing emotions and external objective orientation were reported 0.76, 0.79 and 0.78, respectively. Besharat standardized the Toronto alexithymia scale in Iran. Cronbach's Alpha Coefficients for alexithymia, three subscales (difficulty in identifying emotions, difficulty in describing emotions, and externally orientated thinking) were 0.85, 0.82, 0.75, and 0.72, respectively. Result of confirmatory factor analysis confirmed that there was difficulty in identifying emotions, difficulty in describing emotions, and externally orientated thinking in the Persian version of the Toronto alexithymia scale.21

B) Parenting styles questionnaire: This scale was developed by Baumrind in 1991, which measures parenting methods in 30 dimensions and in three factors, of which 10 dimensions are related to the permissive method, 10 to the authoritarian method, and 10 to authoritative approach in child rearing. It is scored in the 5-point Likert scale with strongly agree (0), slightly agree (1), slightly disagree (2), disagree (3), and strongly disagree (4). Thus, the minimum and maximum scores of each component in this scale are 0 to 40.22 The reliability of this scale in the original form using the retest method among mothers was 0.81, for the permissive 0.86 and for the authoritarian and authoritative methods 0.78, respectively. Minaei and Nikrad approved the validity of the scale using exploratory and confirmatory factor analysis in Iran. Moreover, Guttman coefficient was used to determine the reliability and reported 0.75, 0.74, and 0.62 for authoritative, authoritarian, and permissive approaches, respectively.23

C) Eating attitudes test (EAT-26): A questionnaire created by Garner, Olmsted, Bohr, and Garfikel in 1982 and has 26 dimensions, each dimension being scored using a 6-point Likert scale (always, usually, often, sometimes, rarely, and never). This questionnaire describes the behaviors of anorexia, eating concern, overeating and anxiety about being obese in three components: 1) slimming diet (avoiding fatty foods, and obsession with being skinny), 2) overeating and obsession with food (food and overeating thoughts), and 3) Oral control (controlling eating and perceiving others' pressure to gain weight). Responses get scores as "always" (3), "usually" (2), "often" (1) and the other three options obtain a score of zero. A cut-off score of 20 or higher for 26-EAT indicates the possibility of an eating disorder. To evaluate the validity and reliability, the main form of the questionnaire was given to 161 women and its validity coefficient was calculated with a diagnostic sensitivity of 0.40 and a specificity of 0.84; Cronbach's alpha coefficient for each expression was 0.75. Khoadabakhsh and Kiani considered the content validity of the Persian form (EAT-26) as desirable and reported the validity of that 0.91 by using test-retest.²⁴

D) Body Checking Behavior Questionnaire (BCQ): This questionnaire was designed and developed by Reese et al. in 2002. This scale is a 23-item tool that examines attitudes related to general appearance checking (10 questions, range of scores between 10 and 50), checking of specific body parts (8 questions, range of scores between 8 to 40), and specific method for each person (5 questions, scores ranging from 5 to 25) in a continuum of never (1), rarely (2), sometimes (3), nearly often (4), and often (5). Structural validity of the main form scale confirmed with factor analysis and the reliability of the scale was calculated using Cronbach's alpha, so that it was 0.94 for the whole questionnaire, 0.88, 0.92, and 0.83 for general appearance component, the specific body part, and checking dependent specific prevalence per person, respectively.25 Also, in Iran and in a survey, the internal consistency of the whole scale through Cronbach's alpha was 0.94 and the reliability of the scale retest at two-week intervals for the whole scale, components of the general appearance, checking dependent specific prevalence per person, and for checking of specific parts of the body was calculated 0.96, 0.74, and 0.90, respectively.18

Results

First, the normality of the data was confirmed using elongation, skewness, box, and Kolmogorov-Smirnov, and the measurement model of the four research variables was investigated.

Table 1 shows a significant positive correlation between the variables of alexithymia, authoritarian and permissive parenting behavior and body checking behaviors with eating attitudes at the level of 0.01. This means that with the increase of the subjects' scores in the dimensions of alexithymia, body checking behaviors and authoritarian and permissive parenting methods, eating behaviors and attitudes also increased, and vice versa. There was also a significant negative correlation between the variables of authoritative parenting behavior and eating attitudes at the level of 0.01. Therefore, by increasing the subjects' scores in the variable of authoritative parental behavior, the scores of eating attitude decreased and vice versa.

According to Table 2, the RMSEA value was equal to 0.032, so this value is less than 0.1, which indicates that the mean squared error of the model is appropriate and the model is acceptable. Also, the amount of Chisquare with degrees of freedom (2.31) was 1-3, and

Variable	Μ	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Attitudes related to body checking	28.79	9.51	1														
Checking a specific part of the body	18.65	8.01	73 **	1													
Checking dependent a particular method	10.73	4. 81	65**	72**	1												
Body checking	57.91	20.12	92.**	91**	88**	1											
Difficulty in identifying emotions	22.89	7. 02	40**	33**	35**	40**	1										
Difficulty in describing feelings	15. 18	3.60	34**	24**	26**	31**	53**	1									
Orientation of the objective external	25.11	4.79	28**	17**	17**	25**	29**	**25	1								
Alexithymia	63.14	11.81	47**	35**	36**	44**	87 **	72 **	64**	1							
Permissive	21.61	7.04	13**	06	10*	11*	23**	16*	20 **	25**	1						
Authoritarian	27.81	7.79	14**	09*	12*	13 **	27**	20**	23**	29**	79 **	1					
Authoritative	10.85	1.76	-16.**	-05	-03	-12.*	-11*	-09*	-23**	-18.**	-22.**	-16.**	1				
Slimming diet	7.97	6.50	32.**	52**	44**	54**	22**	16**	04	23**	06**	08.	-15**	1			
Overeating and eating concern	10.39	2.38	28**	29**	29**	3*	19**	13**	16**	25**	08	09*	-10*	32**	1		
Oral control	8.65	3.96	13**	14**	22**	14**	16**	17 **	10*	21 **	13**	14**	-14**	14**	21 **	1	
Eating attitude	26.64	9.08	46**	51**	50**	54**	26**	19**	11*	29**	14**	15***	-18**	84**	58**	57 **	1

Table 1: Mean, standard deviation and correlation between alexithymia, parenting behavior and body checking behaviors with eating attitude

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)

Table 2: Indices of fit resulting from data analysis and variables

Test	Description	Acceptable values	Obtained value after correction
x^2/df	Relative Chi Square	3<	2.31
r ²	Chi Square Test of Goodness of Fit	-	286.66
$\frac{x^2}{DF}$	Degrees of freedom	-	124
RMSEA	Root Mean Square Error of Approximation	< 0.1	0.032
GFI	Goodness of fit index	>0.9	0.990
NFI	Normed Fit Index	>0.9	0.987
CFI	Comparative Fit Index	>0.9	0.986

 Table 3: Direct approximation of the model with the Maximum Likelihood (ML) method

Variable	b	b	\mathbf{R}^2	t	P value
Alexithymia with Eating Attitude	0.85	0.26	0.22	3.40	0.000
Permissive with Eating Attitude	0.39	0.31	0.12	4.65	0.000
Authoritarian with Eating Attitude	0.48	0.24	0.11	3.32	0.000
Authoritative with Eating Attitude	-0.52	-0.28	0.14	3.56	0.000
Body Checking Behaviors with Eating attitude	0.44	0.20	0.08	2.98	0.000

the values of FIGFI, CFI and NFI indices were almost equal and greater than 0.9, which show that the model for measuring research variables is desirable.

According to Table 3, the route of alexithymia, parenting behavior and body checking behaviors had a significant direct effect on eating attitudes.

Table 4 shows that the obtained values and coefficient in the indirect route of eating attitudes based on alexithymia and parental behavior mediated by body checking behaviors had significant relationship and confirmed with Maximum Likelihood (ML). Thus, when alexithymia and parental behavior are combined with body checking behaviors, they have more effects on the severity of eating attitudes (Figure 1).

In general, direct and indirect methods predicted 57% of the eating attitude variable.

Discussion

The aim of the present study was to investigate the mediating role of body checking behaviors in the relationship between alexithymia and parenting behavior in adolescent girls' attitude. Findings showed that there was a positive and significant correlation between the

Table 4: Indirect approximation of the model using the Maximum Likelihood (ML) method

Variable	B Direct	B Indirect	R ²	P value
	route	route		
Eating attitude based on the alexithymia with mediating of body checking behaviors	0.287	0.357	0.092	0.000
Eating attitude based on the permissive parenting behavior with mediating of body checking behaviors	0.394	0.427	168/0	0.000
Eating attitude based on the authoritarian parenting behavior with mediating of body checking behaviors	0.270	0.335	0.090	0.000
Eating attitude based on the authoritative parenting behavior with mediating body checking behaviors	-0.256	-0.393	0.100	0.000



Figure 1: The final model of the tested routes with standardized predicted statistics

variables of alexithymia, permissive and authoritarian parenting behavior and body checking behaviors with eating attitudes. There is also a significant negative correlation between the variables of authoritative parental behavior and attitudes toward eating. According to the results, the eating attitude was directly and indirectly predictable based on the alexithymia, permissive, authoritarian, authoritative parental behavior mediated by body checking behaviors.

In accordance with our findings, the results of previous studies have shown that individuals with eating disorders always report a higher level of alexithymia than other people.⁷⁻¹⁰ In addition, other studies have shown that emotion-influenced behaviors

play a role in the formation of eating disorders through emotions and changing attitudes by body checking behaviors directly or indirectly.¹⁶⁻¹⁸ It can be concluded that checking behaviors due to excessive attention to physical condition have led to the formation of cognitive assessments about the body and if the assessment is not consistent with physical reality, it leads to cognitive distortion about eating food and consequently promoting the stability of the abnormal eating attitude. Eating attitude has a negative relationship with permissive and authoritarian parenting behavior and alexithymia, which indirectly intensifies body checking and abnormal eating attitudes.¹⁷ In fact, when adolescents are confronted with permissive parents, they irrationally and and authoritarian

inappropriately deal with life events due to such parenting education. They have difficulty describing their emotions. This issue causes alexithymia. Herein, these adolescents would not be honest in assessing and describing their emotions and their assessments would be illogical.¹⁰ They do not acquire genuine cognition about body size, shape, or weight. Therefore, they do not show normal eating behavior. Conversely, parents who use authoritative methods in their parenting education will teach their children appropriate coping strategies, so that adolescents have the idea that they would be supported in any situation and appearance status. These teenagers will have fewer traits relevant to alexithymia. Honesty in describing and expressing emotions protect them from all kinds of cognitive distortions related to the body and they do not show an abnormal eating attitude to behaviors clearly.

Conclusion

Overall, the findings showed that parents' behavior and their educational methods played an important role in shaping the child's future behaviors. Hence, many of the challenges that families have faced fas to their child's future problems can be solved by training parental rearing practices such as authoritative approaches. This leads to reasonable improvements in expressing the emotions of teenage girls, helps to create a proper body image, and prevents disorders such as anorexia or bulimia nervosa. The literature supports the importance of the relationship between parenting behavior and alexithymia in creating attitudes related to body image and the way adolescent girls feed. Training parenting techniques and emotional regulation methods can be effective in making eating attitudes in adolescent girls.

One of the limitations of this study was the use of a questionnaire solely. Using a questionnaire can lead to incomplete information, but since there is no clinical sample, it may affect less the scope of the information. However, the existence of other methods of data collection, such as clinical interviews, cannot be ignored as a complementary method to self-report questionnaires. It is recommended that non-structured methods such as clinical interviews should be used in similar studies in future.

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