

## Proposing a causal model of body image perception with eating disorders by depression mediation in Iranian youth

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### Abstract

Conception of individuals of their own physical influence on their psychological health and nutritional plans. The purpose of this paper is to determine the causal relationship between eating disorders and body image perception with depression meditation in adults. The sample of the study consisted of 200 Iranian freshman students who were selected by the random multistage method. The correlational research method was kind of path analysis approach. The research instruments included a questionnaire of eating disorder of Coker and Rogers, Ten Fischer Image questionnaire and Beck depression measurement inventory. The results indicate that the proposed model is fitted the data. Furthermore, the analysis of the direct and indirect paths show that body image perception is directly affected by mediation of depression on eating disorders. and the overall relationships using the boot strap method has been at the significant level of  $p < 0.05$ . so individuals who have more dissatisfaction in body image more probably suffering from eating disorders. Accordingly, we conclude that with the correct treatment and understanding of physical image perception of disorders, we can prevent peoples' involvement with mental disorders such as depression and eating disorder. And also we can benefit from treatments of physical image perception disorder for treating people with depression and eating disorders.

**Keywords:** Anorexia, Bulimia, Depression, Eating disorders, Youth

### Introduction

Psychologists and sociologists believe, peoples' appearance today not only is a biological and psychological phenomenon, but it is also influenced by social factors and evaluating people's appearance is affected by the ideals of society [1]. Epidemiologic researches show that culture with emphasis on the ideal of thinness for girls and for boys muscular limbs, increase

the risk of syndrome to worry about young people's weight [2]. Body image perception is an attitude that individuals have toward their own bodies and react accordingly [3]. These individuals, according on different situations, feel different emotional, they feel inner shame when comparing themselves to others and at lower levels, they feel external embarrassment

and social anxiety due to fear of being judged by others, depression and frustration because of failure in achieving their ideals and standards of beauty, social isolation and interpersonal conflicts [4]. Thus, because of the high association of this disorder with depression, suicide risk increases in people [5].

People with impaired body image perception, especially in situations where their artificial flaws are exposed, feel more uncomfortable and anxious and intimate relationship at this time becomes distorted or interrupted. Therefore, these people have great difficulty in social adjustment and tendency to social inhibition [6]. They also have problems in their quality of life, social functioning, physical and mental health, vitality and limitation of role (due to their lack of emotional health) [5]. The study of their thoughts and mental ruminations shows that they are constantly involved in their thoughts with comparing their own image with that of an ideal image or with other people and are worried about the future [4]. Dissatisfaction with the body image is associated with problematic eating behaviors and attitudes. Also continuing dissatisfaction with the body image perception after treatment of eating disorders is a reliable prediction of recurrence of overeating. Therefore, one of the stable and noticeable factors in predicting eating disorders is the body image perception [7].

Eating disorder is a mental and psychological disorders, including anorexia nervosa is a bulimia nervosa and in both disorders the person is inordinately worried about his/her body shape and its weight [8]. When people internalize slimness as an ideal image, body dissatisfaction increases and these people get involved in greater instances of their attitudes and behaviors regarding eating disorders, too [9,10]. Therefore, there is a relationship between individuals' body shape and their eating disorders [11] and this relationship is mediated by the perception of their body image disturbance associated with them [12,13]. Thus, interventions to improve body image reduce their diet plans [14]. Moreover, the results show that individuals with eating disorders [15], experience different

psychological problems such as depression and anxiety. Other important findings indicate a relationship between exposure to stress provoking factors and experiencing negative emotions which come into existence with eating disorder and beginning to overeat [16] and multiple theories indicate the relationship between eating disorders and reducing the negative regulation of emotion [17]. These findings also confirm that positive emotional experience can predict increase in overeating in such individuals [18]. Depression is a disorder characterized by loss of energy and interest, feeling of guilt, difficulty with concentration, anorexia, suicide, and changes in activity level, cognitive ability, speech, speed, appetite and other biological rhythms [19]. On the other hand, researches show the association of depression and impaired the body image perception, so that one can use depression as a predictor of depression it self [20]. Depression might result from impaired body image perception and or its association with body dysmorphic disorder and it is cured by treatment of the misshapen body and in such cases one should place the early detection in the perceived body image disorder [5]. The result confirms the relationship between emotional regulation and depression along with eating disorders and people with eating disorders especially, bulimia experience a lower temper compared to those of the control group [21,22].

Besides, it has been observed that some individuals, when experiencing stress producing environments, as of choosing a confrontational style resort to overeating, although, utilizing this strategy has negative consequences [23]. Thus, the results confirm the association between body image dissatisfaction with eating disorders [24,25] and depression [26].

Adopting an unrealistic and on the wake of it, dissatisfaction with body image [8] leads to experience of negative emotions [17]. such as shame, depression, feelings of guilt in the individuals. Hence, it is expected that by increasing the perception of body image

dissatisfaction of other psychological disorders such as depression and eating disorders start in the individual and or intensifies [24-26], so in order to predict or prevent disorders like depression and eating disorders which are ever increasing in societies, it is necessary that dependent variables and their causal relationship be studied. According to the research literatures and significance of early intervention to prevent the spread and its becoming chronic, the aim of this study is to answer this question whether there is a causal relationship between the perception of body image and eating disorders and mediation of depression among Iranian students.

### Method

This research has used correlation and path analysis. The statistical population of this research consisted of the freshman students of Khuzestan Islamic Azad University (Iran), 2013-2014, who were between 24-35 years (taking this into consideration that the young students were regarded). The number of participants were 200 individuals. It is desirable to consider 10 to 30 participants' paths for each analytic design path chosen, given that there are seven paths in the proposed model, the number of participants was 200 and they were selected by stratified random selection method. This is meant to state that among 32 fields, 10 strings were randomly selected and then among the classes of each field one class was randomly selected so that the desired sample for the researcher was gained. To collect the data, the following instruments were used:

1. Eating disorder inventory of Ahvaz: This questionnaire has been made by Coker and Roger. This questionnaire categorizes eating disorders into two categories of psychological compulsive disorder and bulimia anorexia and examines them [27]. The questionnaire is scored as yes (1) and no (2) in which higher score indicates high levels of disturbance [28]. in the present study, cronbach's alpha and split-half reliability estimation method for eating disorders were calculated as 0.77 and 0.70 for mental compulsive disorder and bulimia,

respectively. The reliability for anorexia was calculated as 0.66 and 0.70 and for bulimia it was calculated 0.71 and 0.88 which is an acceptable reliability.

2. Fischer Body Image Questionnaire: This questionnaire consists of 46 items in which each material has a value of 1-5 (very unsatisfied to very satisfied). Getting the score of 46 indicates impairment and above 46 shows health. This questionnaire has made by Fisher [29]. In the present study, Cronbach's alpha and split-half reliability of the questionnaire with 97.0 and 87.0 respectively were determined to be acceptable [30].

3. Beck Depression Inventory: This questionnaire was developed by Beck et al. as a scientific scale for measuring depression [31]. This questionnaire consists of two forms of 21 and 13 questions in which individuals' depression vary from 0 to 3. In the present study the 13 questions is utilized. In the present study, Cronbach's alpha and split-half methods of testing reliability were used and the calculated reliabilities were respectively 0.88 and 0.84 which are acceptable.

### Results

The results obtained from the measures of central tendency and dispersion values of variables are presented in Table 1.

To examine the causal relationship of perceived body image and eating disorders (compulsive disorder, bulimia and anorexia psychiatric mental) through the intermediary of depression in youth, and path analysis method was used. It should be mentioned that all inferential statistical calculations to analyze data were done by using software package SPSS-21 and AMOS-16 were used:

1. There exists a causal relationship between the perception of body image and eating disorders among young people through the mediation of depression.

- 1.1. There is a causal relationship between the perception of body image and youth mental disorder, bulimia, via mediation of depression.

- 1.2. There is a causal relationship between

**Table1** Mean and standard deviation scores of youth in the variables

	Mean	Standard Deviation	Minimum	Maximum
Physical image conception	171.07	33.29	68	230
Depression	4.48	5.25	0	31
Bulimia	6.39	3.28	1	15
Anorexia	2.74	2.09	0	9

**Table2** Correlation coefficients between variables

		1	2	3	4
1	Physical Image Concept ion	-	-0.380*	-0.343*	-0.317*
2	Depression	-	-	-	0.457*
3	Bulimia	-	-	-	0.252*
4	Anorexia	-	-	-	-

the perception of body image and youth mental disorder, anorexia, through depression mediation.

In order to examine the hypothesized patterns, the relationships between the variables were evaluated using regression analysis to estimate the maximum likelihood (ML). Before checking path analysis coefficients, validity of original patterns were studied. To determine the validity of the proposed models use was made of a combination of validity indices. (1) Chi- square ratio (x2) and  $p < 0.05$  value, (2) chi- square ratio (x2) and degree of freedom,

(3) goodness of fit index (FTI), (4) adjusted good fitness index, (5) comparative fitness index, (6) incremental fitness index, (7) bentler-bonett index or normalized fitness index, (8) tucker-lewis index and (9) the root mean square error of approximation.

As shown above, considering the fitness indices particularly relative to chi-square root which equals 58.1 (criterion less than 5), goodness of fit index to 0.990, adjusted goodness of fit to 0.990, comparative goodness index equals 0.946, incremental goodness index to 0.990, normalized fit index to 0.975 and the root

**Table 3** Model fitting of data based on fitness indices

Index	$\chi^2$	Df	$\chi^2 / df$	GFI	AGFI	IFI	TLI	CFI	NFI	RMSEA
Value	6.32	4	1.58	0.990	0.946	0.991	0.963	0.990	0.975	0.054

mean square error of approximation equals 0.054 which indicates that the proposed model has a good fitness. Moreover, all the coefficients of the existing path among variables in the model were significant at  $p < 0.05$  level.

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square error of approximation equals 0.054 which indicates that the proposed model has a good fitness. Moreover, all the coefficients of the existing path among variables in the model were significant at  $p < 0.05$  level.

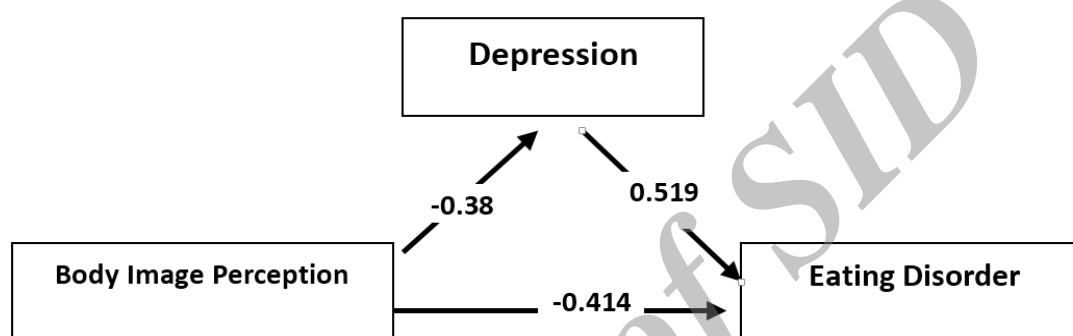
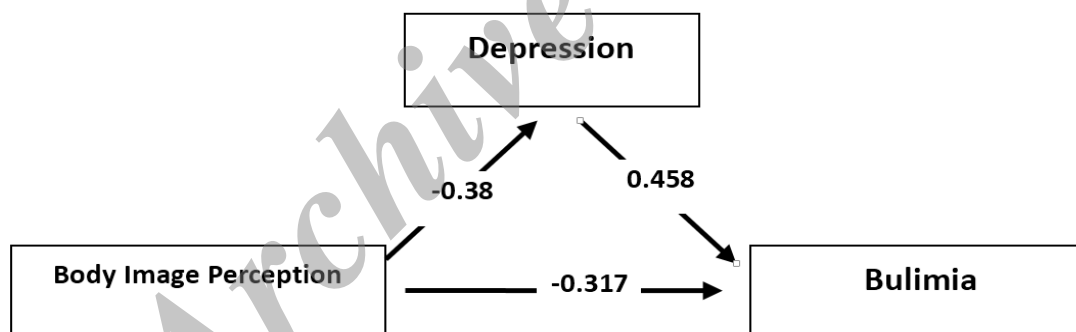
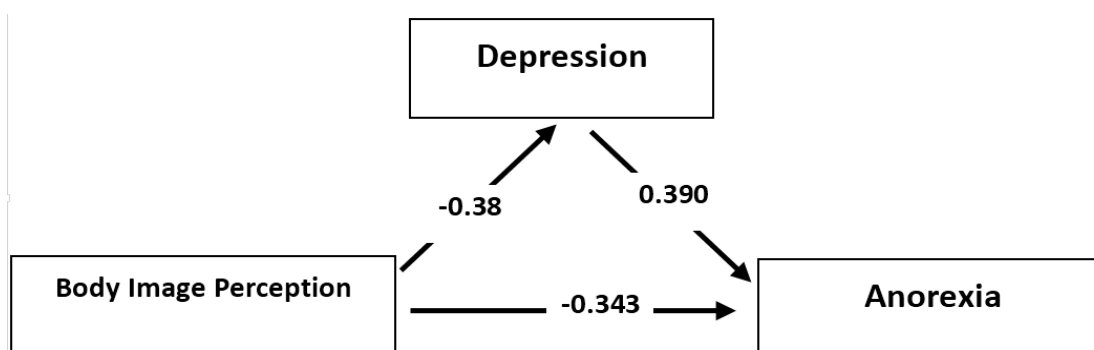
With regard to the fitness index models listed in Table 3 and taking the results of Boot Strap method into consideration, the research hypotheses are confirmed.

## Discussion

The results indicate that the proposed

**Table 4** Structural model: direct paths and standardized coefficients in the final model

Kind of path	Path	Coefficients	Significance Level
Direct	Physical image perception→Depression	-0.23	<0.05
	Physical Image Perception→ Eating Disorder	-0.33	<0.05
	Depression→Eating Disorder	0.22	<0.05
	Disorder →Eating Bulimia	0.49	<0.05
	Eating→ Disorder Anorexia	0.52	<0.05
Indirect	Physical Image Perception→ Depression Eating Disorder	0.126	<0.05
Total	Physical Image Perception → Depression → Eating Disorder	0.496	<0.05

**Figure 1** A single figure indicating the mediatory relationship between the perception of image and eating disorders mediated through youth depression**Figure 2** A single figure indicating the mediatory relationship between the perception of body image and eating disorders mediated through bulimia, youth mental compulsive disorder**Figure 3** A single figure indicating the mediatory relationship between the perception of body image and eating disorders mediated through anorexia and mediation of depression



**Table 5** The effect of direct, indirect and total perception of physical image and eating disorder of youth through mediation of depression

Exogenous Variable	Path	Boot Strap Value	Standar Error	Boot Strap		Significance Level	
				Lower Limit	Upper Limit		
Body Image Conception	Eating Disorder	Direct	-0.012	0.003	-0.017	-0.007	0.007
		Indirect	-0.004	0.002	-0.007	-0.002	0.009
		Overall	-0.016	0.003	-0.022	-0.011	0.007
	Bulimia	Direct	-0.02	0.006	-0.033	-0.011	0.007
		Indirect	-0.05	0.002	-0.009	-0.002	0.011
		Overall	-0.027	0.006	-0.037	-0.016	0.009
	Anorexia	Direct	-0.010	0.004	-0.017	-0.004	0.005
		Indirect	-0.005	0.002	-0.008	-0.002	0.007
		Overall	-0.015	0.004	-0.026	-0.008	0.009

As shown above, direct standard path coefficient, indirect and total perception of

Physical image → Depression → Bulimia and physical image → Depression  
 → Anorexia → Using Boot Strap method was significant at  $p < 0.05$  level.

models fit the data and also analysis of direct and indirect paths showed that body image perception directly and indirectly, via mediation of depression affects eating disorder (bulimia and anorexia). So conception of body image has affected eating disorders indirectly and by mediation of depression with the total coefficient of 0.496. The findings of the study were in line with those of Trinidad and Ferreira [12] cooley et al. [16] Marco, Perpignan and bulta [7], kafka [11], philips [5] ken koay [24] and brunner [6]. Nowadays the media and cultures of many societies emphasize on slimness and body fitness and in many of these societies perfection as a sample in many respects, particularly body image is highly adored and might be the final goal for many individuals. This causes many individuals to think that they are expected to be physically fit, thus they might feel less satisfied with themselves and their lives and it seems their ability to satisfy themselves and their lives is decreasing[1]. And as a result, their vulnerability

to a wide range of anxiety conditions and depression increases. Moreover, individuals who are dissatisfied with their body image perception due to having ideals and high standards in their minds and their repeated failure in achieving such goals, they will experience negative feelings of excitement such as inner shamefulness or self- hatred, outer shamefulness and feelings of social anxiety and helplessness. Thus, the result of all these events, the disorder of increase in frustration and embarrassment, results in a high degree of co-morbidity related with depression and suicide risk [4].

People suffering from body deformities, due to their having many problems in social adjustment and their tendency for social inhibition [6], and impairment in their interpersonal relationships, fear of rejection, embarrassment and low self-esteem[5] are highly susceptible to depression. This is despite the fact that distorted image of physiques of such people can also often lead

to their involvement with eating disorders [7]. This is particularly true about obese people who think that their bodies are not physically fit and leads to their insistence on anorexia and slimness[16]. People with anorexia often in spite of their weight loss regard themselves as obese and have a distorted image of their bodies [6]. Due to this reason, people with eating disorders are observed as individuals with no sense of personal identity and self- esteem. In this regard, it seems depression in individuals with eating disorders is relatively widespread. Their deformity will lead to feelings of depression and anxiety [5]. Also, unlike people with bulimia, individuals with anorexia are aware of their abnormal eating habits which lead to further increase in the latter group's feelings of depression and guilt [11]. Based on the results of the present research and clarification of the relationships and the predicting role of the variables of physical image perception and depression for eating disorders in youth, it is suggested that similar researches must be done on other population samples by considering the use of the obtained findings in clinics and counseling centers to prevent the expansion and rise in harms due to psychological disorders. Of the limitations of this study one can state, with regard to this point that the obtained results of this research is related to the population of students of Science and Research University of Khuzestan, thus generalizing it should be done with caution. Also the evaluated structural model in this research is observing the structural relationship among several factors dealing with eating disorders and there are numerous factors correlated with the component but their role has not been studied in this research.

## Conclusion

The results of the present research show that the variable of physical image perception can influence the youth which lead to their suffering from eating disorders. And this influence can be mediated by depression in the young individual or without their depression experience. The results are important from the additive point of view because identification

of predictive variables of eating disorder can help the psychologists and psychiatrists in reducing the symptoms of disorder and related treatments.

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## Contribution

Study design: M M, FN, PA, A H and MM.

Data collection and analysis: MM, FN.

Manuscript preparation: MM, FN

## Conflict of Interests

"The authors declare that they have no competing interests."

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