



Unveiling The Dimension Of Eating Attitudes Among Male Adolescents: A Factor Analytic Study

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ABSTRACT

Health related problems such as eating disorders, obesity is found to be related with eating attitudes. In the present study, a non clinical sample of 75 adolescent males (16 to 18 years) of age were incorporated. All the participants were tested on measures of Eating Attitude Test, Multi Dimensional Perfectionism Scale, Barrat's Impulsivity Scale, Locus of Control, Body Esteem Scale, Body Shape Questionnaire and along with their BMI. For the purpose Kelly's (1935) method of principal axis was used for factorization of the correlation matrix to partial out to some extent the influence of the extraneous factors. The 21 variables were inter-correlated by means of product moment correlations and were subjected to factor analysis. Eight factors were found to account for the bulk of 70.92% of variance for males. Factors obtained were body strength, eating attitudes, individual control, parental expectation and control, powerful others, cognitive stability, cognitive complexity and motor aspects.

Keywords: Eating attitudes; Body Image; Cognitive Strength; Motor Control

1. Introduction

The most common explanation in the scholarly literature for the appearance of changing eating attitudes, patterns and behaviors is a result of the "Westernization" or "Modernization" of the society in question. The basic proposition here is that as societies become more western or more modern, the specific attitudes and behaviors associated with eating (i.e. more focus on the self-starvation, bingeing and purging, body image disturbances, intense fear of gaining weight, body esteem or other disordered eating habits as overeating, focus on more of fatty foods, and overall unhealthy eating attitudes and behavior patterns) become meaningful expression of particular cultural features: heightened consumerism, media exposure and saturation, an idealization of self-discipline, an ethos of independence, coupled with the constant seduction to "super size" everything, from fries to televisions. Eating attitudes, described as one's thought, idea, belief and a feeling one holds or a personal preference of a particular person towards several foods or variety of foods. These patterns may give rise to other health related problems like eating disorders and obesity. Eating disorders, namely anorexia nervosa and bulimia nervosa, are characterized by clinical disturbances in body image and eating behaviors. The eating disorders not otherwise specified category reflects many cases of eating disorders that can be quite severe but do not meet the diagnostic criteria for anorexia nervosa and bulimia nervosa.

The prevalence of eating disorders has increased dramatically over the past three decades (Fisher et al., 1995; Kriepe and Birndorf, 2000). In fact, it is the third most common, chronic illness in female adolescents. However, many who display “disordered eating” symptoms do not meet the current DSM-IV-TR (Diagnostic and Statistical manual of mental disorders) criteria for either Anorexia Nervosa or Bulimia Nervosa and may be classified as EDNOS (Eating Disorder not otherwise specified). In fact EDNOS accounts for about 50% of the population of eating disorders (American Psychiatric Association, 2000). Another major and most prevalent health problem related to unhealthy eating attitudes is obesity which is commonly defined as 20% exceed in the desirable weight. Moreover, Obesity appears to be a problem that persists over time and some cases result from metabolic or hormonal disorders, most obese person simply take more calories than they burn. So, it is estimated that 85% of these disorders had their onset during the adolescent period (Journal of American Dietetic Association, 2001). Nowadays, most of the adolescents are consuming foods full of calories but are not involved in physical activities. So they are not able to burn their calories. So the adolescents are always at the greater risk for developing eating disorders.

Wang (2006) investigated the reputation based peer status and weight related behaviors and cognitions for both adolescent boys and girls. The findings revealed weight-related cognitions for girls (concerning obesity) and boys (concerning musculature fitness). Peer-Perceived popularity, but not likeability, was significantly associated with both boys’ and girls’ body size and dieting. Lower levels of popularity were associated with heavier body shapes for girls and with both thin and heavier body shapes for boys. The gender differences in attitudes about fat revealed that women were more likely to restrict food and showed more body dissatisfaction despite the fact that men were relatively satisfied with their bodies. However, men were more likely to show dislike of fat than women. Results even suggested that men and women adopt different cognitive styles or strategies to cope with emphasis on dieting thinness (Arugnette et al., 2006). Eating Attitudes is related to various biological, psychological and sociological factors or variables. (Garner et al., 1982) The biological variables studied in relation are height, weight, age and body mass index (BMI) which is described as the individual’s body weight divided by the square of their height. The psychological variables studied in relation to eating attitudes are perfectionism, impulsivity, locus of control, body esteem and body satisfaction. Perfectionism as described by Frost et al,(1990) is conceptualized as having excessively high standards accompanied by critically stringent self evaluation in the form of doubting one’s actions and being overly concerned with making mistakes. Perfectionists are unduly sensitive to parental criticism and expectations and tend to be preoccupied with an inflated need for order and organization. Impulsiveness may be described as a factor which constitutes the measure of impatience and impulsivity which accounts for greater procrastination and reduced self-control (Barratt, 1995). Locus of control as described by Levenson & Miller (1976) is a continuum and people can be ordered along that continuum. For the sake of convenience, we will refer people as internals or externals. Body esteem constitutes that how a specified person feels about the particular part or function of his/her own body and this describes the self-evaluation which the person makes regarding his own physical features or body (Franzoi & Shields, 1984). The body satisfaction or body image disturbance is a core diagnostic feature of anorexia and bulimia nervosa. These individuals are excessively concerned with body weight and shape and their self –evaluation is unduly influenced by body weight and shape (Evans & Dolan, 1993).

A longitudinal study conducted by Archibald et al., (2002) revealed a direct effect of unhealthy eating on parent-adolescent relationship. For example, Gross et al., (2000) conducted a study examining the perception of parental messages regarding eating and weight and their impact on disordered eating. The results showed that there is a perception by young women with elevated eating disturbance and are concerned with weight and body shape and greater dissatisfaction with current weight that their mothers communicated negative verbal messages about eating and weight. Empirical studies often indicate that impulsivity is correlated with the eating disorders, particularly when there is binge eating behavior (Vitousek & Manke, 1994; Wonderlich & Mitchell, 1997). Furthermore, it has been suggested that body dissatisfaction may be a mediator of the relationship between dietary restraint and the development of eating disorders (Ricciardell et al., 1997).The results of a study revealed that BMI and gender had significant main effects on Eating behaviors and attitudes(Heaven et. al., 2001). Latzer et al, (2001) conducted a study in an attempt to determine the scope of the problem among 38 adolescent girls (aged between 2-17 years) and their significant others, found that 85% of adolescent girls were dissatisfied with their figure, 63% were considering a diet, and 60% were afraid of losing control over their weight. 55%

of significant others did not think that EDs were more prevalent in families with fallacious attitudes about physical build and eating and 50% thought that pubescent girls should be encouraged to diet. Extensive studies have been conducted to explore the issue of body image in females (e.g. Silverstein, Perdue, Peterson, & Kelly, 1986; Stice, Spangler & Agras, 2001; Yamamiya, Cash, Melnyk, 2005). Studies on males' body image were considerably less when compared to the females' body image, but attention to it has increased over the past ten years (e.g. Edwards & Launder, 2000; Leit, Olivardia et al, 2004).

Mordin et al., 2005 studied the Gender related differences in variable of importance of food intake. The results showed that food reflection and aversions were more common in women 69% and 38% respectively than in men. The study by Shisslak et al., (2006) examined the links among body mass index (BMI), weight control practices, binge eating and disordered eating among middle school girls. The results showed that both the prevalence and frequency of weight control behaviors increased as BMI increases, but binge eating was reported approximately equally by girls across the BMI spectrum.

Several studies have shown high prevalence of overweight and obesity in adolescents girls (Musaiger *et al.*, 2016) which coupled with rapid socio-cultural changes puts them at risk for developing various eating disorders such as Anorexia nervosa, Bulimia nervosa, frequent dieting, binge eating and partial syndromes (Latzer, Azaiza, & Tzischinsky, 2014; Mousa, Al-Domi, Mashal, & Jibril, 2010).

2. Methods

In the present study, a non-clinical sample of 150 adolescents (75 males and 75 females). The purpose of the study was to obtain first hand information about how they think, act or view their day to day eating patterns or attitudes and only the generalized findings would be reported to educators and researchers concerned with the provision of optimal environmental conditions that induced those eating patterns or attitudes. The age of the sample ranged between 16 to 18 years with the mean and standard deviation of 16.39 and 0.91 respectively. The age range of the sample is given in table no.1.

Table no. 1
Age range of the Subjects (M=75)

Age (in years)	Male
17-18	1
16-17	33
15-16	41
N	75
Mean	16.46
S.D	0.52

2.1 Measures

All the participants completed a set of six questionnaires such as:-

- a) **Eating Attitude Test – EAT -26 (Garner et al, 1982).** The scale is designed to identify eating habits and concern about weight with its three subscales:
 - (i) Dieting Subscale (DS)
 - (ii) Bulimia and Food Preoccupation (BF)
 - (iii) Oral Control (OC)

- b) **Multi Dimensional Perfectionism Scale (Frost, 1990).** The scale has been adopted to examine the presence of perfectionism in adolescents .It is a self-report questionnaire which consists of following subscale:
 - (i) Concern over Mistakes (CM)
 - (ii) Personal Standards (PS)

(iii) Parental Expectations (PE)

(iv) Parental Criticism (PC)

(v) Doubts about Actions (DA)

(vi) Organization (OG)

The scales named Doubts about action and Parental criticism are not included in the study.

- c) **Barratt's Impulsivity Scale (Patton et al., 1995)**. This scale is most widely used self-report measure of impulsive personality traits. It includes subscales namely:
- (i) Attention (AT)
 - (ii) Motor (MO)
 - (iii) Self Control (SC)
 - (iv) Cognitive Complexity (CC)
 - (v) Perseverance (PR)
 - (vi) Cognitive Instability (CI)
- d) **Locus of Control (Levenson and Miller, 1976)**. This is a likert type scale with three subscales namely:
- (i) Powerful Others (PO)
 - (ii) Chance Control (CO)
 - (iii) Individual Control (IC)
- e) **Body Esteem Scale (Franzoi & Shields, 1984)**. This scale is used to access the subject's feelings about his/her body parts and functions. It has three factors, each for males and females respectively:
- (i) Physical Attractiveness (PA)
 - (ii) Upper Body Strength (US)
 - (iii) Physical Condition (PC)
 - (iv) Sexual Attractiveness (SA)
 - (v) Weight Concern (WC)
 - (vi) Physical Condition (PC)
- f) **Body Shape Questionnaire (BS 16-A Evans and Dolan, 1995)**. The scale is widely used to access body dissatisfaction and subject's actual feelings regarding his/her appearance.
- (g) **Body Mass Index (BMI)**. This is a ratio of the individual's body weight by the square of their height. The formula used for Indian population which produces a unit of measure of kg/m².

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height (m}^2\text{)}}$$

2.3. RESULTS AND DISCUSSIONS

Factor Analysis:

As the main purpose of the present study was to know the eating attitudes of male adolescent in relation to perfectionism, impulsivity, locus of control, body shape and body esteem. Though the inter correlations suggested most of these correlates, yet they do not provide a very clear cut information. As the correlations are influenced by a large number of uncontrolled factors, so factor analysis was applied as it can partial out at least to some extent, the influence of these extraneous factors.

The 21 variables were inter-correlated by means of product moment correlations and were subjected to factor analysis for 75. Choosing a talent root 1.00 as the cut off point for the number of factors to be extracted (KAISER, 1973). Eight factors were found to account for the bulk 71.29% of variance in common for females.

The Eight factors for male adolescent corresponding to the extent roots were extracted using the varimax rotation procedure (Kaiser, 1958). Structure obtained by rotating the axis until each row of the factor matrix has one zero and each column of the factor matrix has zeroes, where the p is the number of factors. For each pair of factors, there are several variables for which the loadings on one is virtually zero and the loadings on the other is substantial, and if there are many factors, then for each pair of factors, there are many variables for which both loadings are zero (Thrustone 1947). A factor loading of 0.40 or above is considered to be significant. The rotation was done with the hope that the new factors would be less difficult to interpret. The rotated factor matrices seem to satisfy reasonably well the criterion of simple structure. The commonality h^2 gives the proportion of the variance for each of the original variables presented in the last column of the tables 3 and 4. The values of h^2 for each variable on the un-rotated and rotated factors matrices for 75 subjects are practically the same. Minor discrepancies were due to the rounding of the values.

Table – 2: EIGEN VALUE FOR THE PRINCIPAL COMPONENT ANALYSIS

Factors Eigen Value % Contribution Cumulative %

M	M	M	M
I	3.67	17.46	17.46
II	2.82	13.41	30.86
III	1.79	8.54	39.41
IV	1.65	7.86	47.26
V	1.41	6.72	53.98
VI	1.31	6.23	60.21
VII	1.22	5.79	66.00
VIII	1.03	4.92	70.92



TABLE – 3: UNROTATED FACTOR MATRIX (MALE)

S. No	VARIABLES	I	II	III	IV	V	VI	VII	VIII	h ²
1.	Parental Expectation Control (PEC)	-0.01	0.38	-0.45	0.35	0.01	0.48	0.21	-0.18	0.78
2.	Organization (O)	-0.12	0.51	-0.13	-0.18	-0.33	0.48	-0.15	0.00	0.69
3.	Personal Standards (PS)	-0.01	0.37	-0.45	-0.53	-0.13	0.25	0.00	0.24	0.77
4.	Concern Over Mistakes (CM)	-0.40	0.50	-0.45	0.21	0.00	-0.01	0.12	0.17	0.70
5.	Attention (A)	0.13	-0.19	0.01	-0.14	0.00	0.11	0.67	0.26	0.60
6.	Motor(M)	0.22	0.36	0.1	0.41	0.00	-0.28	0.24	0.46	0.71
7.	Self Control (SC)	0.00	0.41	0.49	0.01	-0.48	0.12	-0.01	-0.01	0.66
8.	Cognitive Complexity (CC)	-0.01	0.00	0.51	-0.48	0.12	-0.29	0.27	0.01	0.67
9.	Perseverance (P1)	0.12	0.43	0.19	-0.26	0.01	-0.01	-0.14	-0.43	0.52
10.	Cognitive Instability (CI)	-0.14	0.13	-0.38	-0.19	0.63	0.00	0.19	-0.34	0.77
11.	Body Satisfaction (Total 1)	-0.33	0.34	0.37	0.29	0.00	0.21	0.37	-0.01	0.64
12.	Powerful Others (P2)	0.37	-0.27	-0.17	-0.16	0.18	0.35	-0.32	0.42	0.70
13.	Chance Control (C)	0.18	-0.69	0.00	0.26	0.19	0.43	-0.16	0.00	0.82
14.	Individual Control (I)	0.30	0.59	0.00	0.28	-0.15	0.31	0.27	-0.31	0.80
15.	Bulimia (B)	-0.73	0.01	0.14	0.14	0.35	0.11	-0.01	0.01	0.73
16.	Dieting Subscale (DS)	-0.68	0.01	0.37	0.19	0.18	0.29	-0.20	0.12	0.81
17.	Oral Control (OC)	-0.64	0.00	0.23	-0.01	0.33	0.00	-0.14	0.01	0.61
18.	Physical Condition (PC)	0.70	0.38	0.12	0.16	0.36	0.00	0.00	0.00	0.80

19.	Physical Attractiveness (PA)	0.81	0.28	0.22	-0.01	0.13	0.10	-0.01	0.01	0.82
20.	Upper Body Strength (UBS)	0.67	0.44	0.19	0.00	0.35	0.01	0.00	0.00	0.82
21.	Body Mass Index (Total 2)	0.16	0.23	-0.11	0.55	-0.01	0.00	-0.29	0.00	0.49
	% Contribution	17.4	13.4	8.54	7.86	6.72	6.23	5.79	4.92	70.9

TABLE – 4: ROTATED FACTOR MATRIX (MALE)

S. No	VARIABLES	I	II	III	IV	V	VI	VII	VIII	h ²
1.	Parental Expectation Control (PEC)	0.10	0.03	0.17	0.76	0.18	-0.22	-0.23	0.13	0.78
2.	Organization (O)	0.02	0.04	-0.22	0.69	-0.03	0.30	0.02	-0.26	0.69
3.	Personal Standards (PS)	-0.09	-0.16	-0.48	0.57	-0.34	-0.07	0.23	-0.06	0.77
4.	Concern Over Mistakes (CM)	-0.19	0.15	-0.42	0.47	0.17	-0.19	-0.29	0.32	0.70
5.	Attention (A)	-0.03	-0.21	0.17	0.03	0.05	-0.06	0.57	0.45	0.60
6.	Motor(M)	0.34	-0.03	-0.23	-0.06	0.15	0.12	-0.18	0.68	0.70
7.	Self Control (SC)	0.17	0.05	-0.12	0.14	0.32	0.69	0.03	-0.14	0.66
8.	Cognitive Complexity (CC)	0.15	0.26	-0.01	0.00	0.01	0.14	0.74	-0.11	0.67
9.	Perseverance (P1)	0.34	-0.04	-0.28	0.03	0.29	0.01	0.03	0.49	0.52
10.	Cognitive Instability (CI)	0.10	0.10	-0.10	0.15	0.12	-0.82	0.07	-0.17	0.77
11.	Body Satisfaction (Total 1)	0.09	0.41	-0.08	0.26	0.55	0.17	0.15	0.19	0.64
12.	Powerful Others (P2)	0.19	-0.06	0.17	0.04	-0.79	0.00	0.04	0.04	0.70
13.	Chance Control (C)	-0.02	0.10	0.78	-0.12	-0.42	-0.05	-0.05	0.00	0.82
14.	Individual Control (I)	-0.09	-0.32	0.83	0.00	0.06	0.00	0.05	0.02	0.80

15.	Bulimia (B)	-0.22	0.80	-0.08	0.06	0.10	-0.15	-0.02	0.04	0.73
16.	Dieting Subscale (DS)	-0.16	0.86	0.04	0.09	0.05	0.17	0.00	-0.03	0.81
17.	Oral Control (OC)	-0.21	0.69	-0.18	-0.14	0.03	-0.13	0.09	-0.08	0.61
18.	Physical Condition (PC)	0.86	-0.16	0.00	0.00	-0.02	-0.06	-0.10	0.11	0.80
19.	Physical Attractiveness (PA)	0.81	-0.32	0.00	-0.03	-0.16	0.17	0.06	-0.03	0.82
20.	Upper Body Strength (UBS)	0.89	-0.13	-0.05	0.05	0.00	-0.02	0.00	-0.02	0.82
21.	Body Mass Index (Total 2)	0.22	0.03	0.08	0.15	0.02	0.16	-0.61	0.13	0.4
	% Contribution	17.46	13.41	8.54	7.86	6.72	6.23	5.79	4.92	70.9

Interpretation of Factors: Factor I (Body Strength)

VARIABLE	LOADINGS
Upper Body Strength	0.89
Physical Condition	0.86
Physical Attractiveness	0.81

The factor is named as body strength as it yields high loadings on this factor. This means that males always tend to maintain their muscular strength and lead to have proper body build in order to have agility and physical coordination. The studies in accordance to this factor are proposed by Wang (2006) in which he stated that male adolescents always remain concerned about their musculature, fitness body shape and appearance. The results indicated by Cash et al. (2005), report the similar findings about appearance, fixing, unhealthy weight control and concerns about body shape. Even Mendelson et al., (2001) reported similar findings.

Factor II (Eating Attitudes)

VARIABLE	LOADINGS
Dicting Subscale	0.86
Bulimia	0.80
Oral Control	0.69
Body Satisfaction	0.41

As the loading on all the three subscales of eating attitudes are high, thus the factor is named as eating attitudes. This shows that males, who are more restrictive about their diet plans, try to avoid high caloric food and are observed with the thought of being thin. They show bulimic reactions or tendencies and are concerned about body shape and image.

Factor III (Individual Control)

VARIABLE	LOADINGS
Individual Control	0.83
Powerful Others	0.78
Personal Standards	-0.48
Concern over mistakes	-0.42

As the factor assumes high loadings on the individual control so it is named such. The loadings in the factor indicate that males have more control over themselves and at times are controlled by powerful others or significant people around them, therefore they don't set very high standards for themselves and others and even don't pay over emphasis on precision, order and organization.

Factor IV (Parental Expectation and Control)

VARIABLE	LOADINGS
Parental Expectation and Control	0.76
Organization	0.69
Personal Standards	0.57
Concern over mistakes	0.47

The factor is named as parental expectations and control and it hold high loading. This shows that perfect individuals confront with their parental expectations and demands, they are precise and organized, set high standards for themselves in order to achieve their goals and are unduly sensitive to parental criticism and expectations.

Factor V (Powerful others)

VARIABLE	LOADINGS
Powerful others	-0.79
Chance Control	-0.42

The factor as having high loading is named as powerful others. This shows that males and neither controlled by chance factors nor are they controlled or manipulated by powerful or significant others in their life.

Factor VI (Cognitive Stability)

VARIABLE	LOADINGS
Cognitive Instability	-0.82
Self Control	0.69

As the loading are high on cognitive instability because of negative sign on the variable the factor is named as cognitive stability. This means that males who are cognitively stable show more self control and they can stick to one thought or an activity.

Factor VII (Cognitive Complexity)

VARIABLE	LOADINGS
Cognitive Complexity	0.74
Body Mass Index	-0.61
Attention	0.57

As the factor loaded high on cognitive complexity so it is named accordingly. This means that individuals who are more interested in complex problems or puzzling through problems are more attractive and thoughtful about other problems as compared to body weight and shape.

Factor VIII (Motor)

VARIABLE	LOADINGS
Motor	0.68
Perseverance	0.49
Attention	0.45

As loading is high on one of the subscales of impulsiveness, therefore it is named as motor. These individuals show impulsive behaviour and heightened mental activity which makes them loose their attention and therefore they don't stick to a particular job and show inability to think about a particular situation.

CONCLUSION

After conducting factor analysis on male sample the data has generated eight factors namely body strength, eating attitudes, individual control, parental expectation and control, powerful others, cognitive stability, cognitive complexity and motor aspects. This signifies that males tend to maintain their muscular strength and lead to have proper body build in order to have agility and physical coordination. They are restrictive about their diet plans, try to avoid high caloric food and show bulimic reactions or tendencies and are immensely concerned about body image and set high standards for themselves and others and even don't pay over emphasis on meticulousness, order and organization. Though males show cognitive complexities and are at times show perplexities in their perceptive behavior and show impulsive patterns which makes them loose their attention, therefore they don't stick to a particular job and show inability to think about a particular situation yet they remain stable and show self control and stick to one thought or an activity.

Future Directions

1. Provision of early screening of the eating disorder in adolescents is highly needed for particular treatment procedures.
2. Future research is needed to develop intervention programs to control eating disorders among adolescents.
3. Awareness regarding appropriate nutrition in relation to body weight is needed among adolescent students.

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