

Body Weight Concerns and Antifat Attitude in Iranian Children

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Date of Submission: May 26, 2014

Date of Acceptance: Oct 21, 2014

How to cite this article: Garousi S. Body Weight Concerns and Antifat Attitude in Iranian Children. *Int J Prev Med* 2014;5:1587-93.

ABSTRACT

Background: There is increasing evidence that children are showing body image issues in recent years. Body image disturbances in childhood must be taken seriously. The thin ideal is becoming more prominent in Asian countries; however, there is little research examining how this issue affects Iranian children. This study explores body weight concerns and associated factors among children in Iranian elementary schools.

Methods: This study was conducted in 500 elementary schools. An assessment of body image and antifat attitudes was undertaken using the figure rating scale. In addition, body mass index (BMI) and demographic variables were assessed.

Results: Nearly, 27.4% of children were underweight, and 13.3% were obese. There was a significant difference between the mean score of body dissatisfaction (BD) between boys and girls ($P < 0.05$). There were no differences between BD and education of parents, age, and academic grades. In girls, antifat attitudes were significantly related to BMI.

Conclusions: The results of this study demonstrate the paramount importance of undertaking further research in order to identify the predictive factors of body concerns and its consequences among Iranian children. In addition, researchers must plan prevention and educational program for these children.

Keywords: Antifat, body weight concerns, children, Iran

INTRODUCTION

Body image is a multidimensional issue comprising cognitive, perceptual, and behavioral aspects, which begins early in life.^[1,2] There are different theories for the explanation of body image disturbances. Based on the objectification theory, children, like adults, internalize the social values and schema of attractiveness, success, and power. These schemas are advertised by the Western media, such as action figures, and toys include which thin women and masculine men. The mass media influences children's beliefs, attitudes, and behaviors. Cognitive-behavioral theories^[3] explain how feelings and behaviors can affect body image disturbances.^[4] However, it seems that the bio-psychosocial model can provide a better explanation. Based on this model, body mass index (BMI)

is considered as an important predictive factor in body satisfaction and related behaviors such as dieting.^[5] One of the most important psychological determinants for body image dissatisfaction is self-esteem and negative affect about body.^[5] A number of social contributing factors, such as role models and pressure from external sources, can influence body image disturbance. Researches argue that these models can explain the body image concerns and body dissatisfaction (BD) experienced by children as well as adults.^[5] Body image concerns and a desire for an ideal body (thinness for women and masculinity for men) began as a predominately Western phenomenon. Thinness is perceived as the ideal and thin individuals are considered to be smart, successful, and attractive.^[6] There is increasing evidence that this phenomenon now exists in other cultures.^[7,8]

An antifat attitude can be defined as discrimination toward obese or overweight people. Research shows that children aged between 7 and 11 years believe that obese children are lazier and unhappier than thin children. Also, they believe that obese children are less liked by others including their parents.^[9,10] In another study, approximately 40% of children aged between 7 and 10 years believe being thin is important for both genders.^[11] The preference for thinness is an important variable in the development of self-esteem and body satisfaction.^[12] Different studies focusing on children reveal that weight gain is associated with higher negative body image. This relation is more significant in girls and Asian ethnicity.^[12]

Body image dissatisfaction and concerns about having the ideal body is recognized as a health problem. Body image dissatisfaction can be harmful to people of all age groups; however, it can be especially harmful during childhood. BD can result in eating disorders,^[13] low self-esteem,^[14] depression and anxiety,^[15,16] poor interpersonal skills during childhood,^[17] unhealthy body change activities, and susceptibility to suicide.^[18,19] BD has been reported as a serious risk factor for unsafe weight reduction methods, severe exercise, and use of drugs for weight reduction or muscle enhancement.^[20] The side effects of these methods may be more harmful during childhood than other ages as they may impact growth.

Several studies argue that the foundation of one's body image and the ideal body is developed

during childhood.^[9] This body concern, at this age, could be due to increasing awareness about body, weight status, and desire for attractiveness.^[9] These factors, in addition to external pressure from family, peer groups, or the media could induce BD.^[21]

The ideal female body is thin, while the ideal male body is muscular. The rate of childhood BD varies according to different studies.^[21] Rolland *et al.* found that thin boys desire to be larger, but only 44% of thin girls desire to be larger.^[22] Other studies also emphasize that more boys than girls harbor a desire to be larger.^[23] Therefore, in order to achieve the ideal body, weight management strategies differ between boys and girls. Girls follow strict diets and use weight reduction pills, while boys prefer to use muscle enhancing products such, as steroids and creatine, increase their food intake, and engage in heavy exercise.^[24] The majority of research about Asian children focuses on immigrant children such as Asian-Americans.^[5]

In Iran, limited research exists about body image and associated issues, especially during childhood and adolescence.^[25-27] Some of the researches illustrate that BD and eating disorders are increasing in Iran.^[28] This study has been designed on account of the serious health consequences of BD, and the fact that this phenomenon begins in early childhood. This study evaluates antifat attitudes and body weight concerns and their relationship with gender, age, academic grades, parental education, and BMI in elementary (preadolescent) school children.

METHODS

This cross sectional study was undertaken in Kerman, one of the largest cities in Iran. Five-hundred elementary school students, including 242 girls and 248 boys, participated in this study. These students were selected from schools in different urban areas. Schools were selected based on their geographic location and socioeconomic factors. Informed consent was obtained from the children and at least one of their parents.

Measures

Assessment of body image (shape) was done using children's Collins Body Figure Rating Scale (BFRS, 1999).^[29] Psychometric properties of this scale in children were approved. There were two arrays of pictures of children for boys and girls. These figures

were ranging from thin (1) to very obese.^[7] Children were asked to select one of the pictures that they think more suitable for these statements: (1) Which one is like you? (current body image) (2) which one do you look like? (desired or ideal body image).

Body dissatisfaction was considered as subtracting the Ideal body from the current body. The subjects were classified into three groups based on absolute number: No BD (BD = 0), mild dissatisfaction (BD = 1), and moderate (notable) dissatisfaction (BD > 1). BD of zero indicates that subjects' current and ideal shapes were the same. Cut off 1 was selected to ensure adequate sample size in mild and moderate BD groups.^[28]

In this study BD was considered as body weight satisfaction.

Body mass index

Body weights were measured by Seca scale and height using a Leicester height measure. BMI was calculated using kg/m². BMI was divided to four categories: underweight (<5th percentiles), normal weight (5th and 85th percentiles), overweight (85th and 95th percentiles) and obese (>95th percentiles) for girls and boys.^[30] One national study had showed that these cutoff points are appropriate to be used for Iranian children and adolescents.^[26]

Antifat attitude

Two additional questions about desire for friends were asked (using children's BFRS): (a) which one do you think has more friends? (b) Which one do you like to be a friend with?

Other demographic variables were included gender, age, educational grade, and parental education.

Data analysis

Statistical analysis was done using SPSS 16 (Statistical Package for Social Sciences), and significance considered 0.05 level. For descriptive analysis, we used central tendency and dispersion (mean \pm standards deviation). Chi-square tests, one-way analysis of variance, *t*-test, Pearson and Spearman correlations and nonparametric tests were used for additional analysis.

RESULTS

Approximately 48.4% (242) of students were girls. The mean age of participants was

9.7 \pm 1.94 years. The minimum and maximum age was 6 and 14 years, respectively. The mean weight of participants was 32.40 (\pm 12.01) in girls and 31.78 (\pm 9.41) in boys; there was no significant gender difference. In addition, there was no significant gender difference in terms of height (girls = 135 cm \pm 18.44, boys = 134 cm \pm 15.72 [$P > 0.05$]). Nearly 27.4% of children were underweight, and 13.3% of children were obese. Approximately 43.6% of children were in a healthy weight range. Table 1 shows the selected demographic characteristics and BMI status based on gender.

There was a significant difference in BMI (categorized) between boys and girls ($P < 0.05$). Although there was a significant relationship between BMI and age ($P < 0.05$) and academic grades ($P < 0.05$) for both genders, there was a significant relationship between BMI and maternal education ($P < 0.05$) for girls. There was a significant difference in the current body image score for girls (3.79 \pm 1.45) and boys (4.31 \pm 1.31) ($P < 0.05$). In addition, there was a significant gender difference related to ideal body images (3.45 \pm 1.45 for girls

Table 1: Selected characteristics of respondents

	Number	Percentage	Significance
Gender			
Girl	242	48.4	
Boy	258	51.6	
Maternal education			
Below diploma	214	42.8	
Diploma	171	34.2	
University	115	23	
Paternal education			
Below diploma	214	42.8	
Diploma	123	24.6	
University	163	32.6	
BMI status			
Girls			
Thin	77	31.8	$P < 0.05$
Normal	91	37.6	
Overweight	35	14.5	
Obese	37	15.4	
Boys			
Thin	57	22.1	
Normal	122	47.3	
Overweight	42	16.3	
Obese	28	10.9	

BMI=Body mass index

and 4.32 ± 1.36 for boys [$P < 0.05$]). Further, there was a significant difference in BD (subtracting the ideal body from the current body) between boys and girls ($P < 0.05$). The categorization of BD is summarized in Table 2. There was no relationship between BD and education of parents, age, or academic grades. However, there was a significant relationship between BD and BMI ($df = 2, P < 0.05$).

Antifat attitudes were assessed by two additional questions relating to selecting friends: “who do you think has more friends?” (S3) and “who would you like to be friends with?” (S4). Tables 3 and 4 summarize the images that were selected by both boys and girls. Results demonstrate a significant difference in the manner in which boys and girls answered these questions ($P < 0.05$). Boys selected images of larger children more than girls.

The selection of figures (antifat attitudes) had no relationship with boys’ BMI, however, thinner girls (lower BMI) selected images of thinner children. Thinner girls harbored more negative antifat attitudes.

Correlation between some of variables was shown in Table 5. According to the results, boys

with higher BD assessed obese children as being more friendly ($r = 0.141, P < 0.01$); however, they preferred to be friends with thinner children ($r = -0.21, P < 0.01$). Although girls with higher BD preferred to be friends with thinner children ($r = -0.208, P < 0.01$), there was no correlation between girls’ BD and their selection of friends ($r = 0.125, P > 0.05$).

CONCLUSIONS

This study demonstrates that boys experience greater body satisfaction than girls. Many studies report that girls have a greater desire to be thin than boys.^[31] In some of the studies, 60% of girls expressed a desire to be thin versus 38% of boys.^[32] Also, studies focusing on Asian children highlight the same gender difference.^[32] One national study in Iran, highlights children’s desire to be thin, especially girls.^[26] In a survey conducted as part of the aforementioned study, approximately 25% of children and adolescents believed they were of normal weight, while 50% of children and adolescents believed they were obese.^[26] Other studies have highlighted that girls desire a thin body more than boys. While many adolescent girls desire to be thinner,^[13] boys desire to be larger.^[33] Socio-cultural messages about manhood are associated with a strong and muscular body especially, in Asian cultures. In Iranian culture, men are expected to be brave and protect women; therefore, it is not surprising that boys desire to be larger.

Some studies argue that gender differences in perception of body size based on the figure rating scale may be due to boy’s desire for masculinity.^[34-36] As these figures are designed to represent silhouettes

Table 2: Categorization of BD based on gender

Gender	BD	Number	Percentage	Significance
Girls	Satisfied	125	51.7	$P < 0.05$
	Mild BD	58	24	
	Moderate BD	59	24.4	
Boys	Satisfied	171	66.3	$P < 0.05$
	Mild BD	57	22.1	
	Moderate BD	30	11.6	

BD=Body dissatisfaction

Table 3: Responses to the question “Which one do you like to be friend with?”

Figure	1		2		3		4		5		6		7	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Gender														
Boys	18	7	13	5	39	15.1	66	26.5	76	29.5	21	8.1	25	9.7
Girls	19	7.9	23	9.5	59	24.4	75	31	37	15.3	12	5	17	7

Table 4: Responses to the question “which one do you think has more friend?”

Figure	1		2		3		4		5		6		7	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Gender														
Boys	9	3,5	17	6,6	42	16,3	67	26,	65	25,2	29	11,2	29	11,2
Girls	16	6,6	32	13,2	55	22,7	84	34,7	42	17,4	8	3,3	5	2,1

Table 5: Correlation between some of variables and antifat attitude based on gender

Gender	Age	Grade	S3	S4
Girls				
Grade	0.952**			
S3	0.000	0.013		
S4	0.004	-0.002	0.126	
BD	0.089	0.094	-0.125	-0.208**
Boys				
Grade	0.964**			
S3	0.147*	0.122*		
S4	0.128*	0.142*	0.213**	
BD	0.069	0.049	0.141*	-0.201**

*Correlation is significant at 0.05 level, **Correlation is significant at 0.01 level, S3=Which one do you think has more friend?, S4=Which one do you like to be friend with?. BD=Body dissatisfaction

ranging from thin to obese (small versus large), masculinity is ignored in this scale; consequently, boys select silhouettes with larger bodies.

Body mass index is introduced as a risk factor of BD in adolescents and adults, especially for women.^[37] Data about this correlation in children are controversial. Some studies have found that perception of body type has no relationship with BMI.^[38] Research undertaken by Davison *et al.* demonstrates a correlation between BMI and BD in preschool girls.^[39] In this study, nearly 27% of children were underweight, and 13% of children were obese. In a previous study, approximately 17.3% of Iranian children and adolescents were underweight, and 17.7% were overweight or obese.^[26] This difference may be due to the younger age group and smaller sample size of this study. This study reveals a relationship between BMI and BD for both genders. Given the high rates of childhood obesity and its impact on BD and eating disorders, serious preventive planning is required which encompass school-based programs.

Messages about the ideal body affect individuals, especially children, via the media, their family, and peer groups. The desire to be accepted by family and friends can cause body concerns and a preoccupation with achieving an ideal body.^[21,23] Parental reactions and attitudes toward the appearance of their children can lead to BD among children. The opinions of parents have a greater impact on elementary school children than younger children.^[40,41]

Researches argue that children have negative opinions regarding their overweight peers (antifat attitudes).^[31,42] Overweight children have lower antifat attitudes than other children.^[37-39] Parents' antifat attitudes may be associated with children's antifat attitudes.^[42-44]

Understanding the reasons children harbor antifat attitudes is important to ensuring the success of interventional programs.^[44] Children that are exposed to negative messages about weight are prone to developing negative attitudes toward obese individuals, regardless of their BMI.^[45]

In a study conducted by Cramer and Steinwert, children aged between 3 and 5 years viewed thin or average pictures of children as being "nice."^[46] While Cramer and Steinwert's research did not highlight any gender differences in this regard, Holub observed more negative attitudes toward obese people in preschool girls than boys.^[42] Some researches argue that antifat attitudes in children have no relationship with BMI.^[1,42,46] This study found a relationship between BMI and girls perception of children with more friends. However, the selection of friends had no relationship with BMI for both genders. This finding emphasizes the body image disturbances issues experienced by girls. According to the relationship between BMI and BD, social and familial messages about thinness have a greater impact on girls than boys; this may explain by boys' desire to be larger. Studying antifat attitudes among young children is important. Children must receive information about how to lead a healthy lifestyle. It appears that body image concerns and its consequences, such as eating disorders, are increasing in Asian cultures, including in Iran.^[28] One Iranian study has shown that the number of girls who are overweight or obese is greater among those with highly educated mothers.^[47]

Therefore, it is necessary to study the predictive factors of obesity and body image disturbances and associated behaviors (such as body management strategies) among Iranian children and families. Healthcare planners, researchers, educators, and parents are concerned about body image issues and its consequences in childhood. It is recommended that Asian countries work to identify the related risk factors particularly, during childhood. Identifying the risk factors of body image and related issues will be helpful in terms of developing preventive and therapeutic protocols.^[48]

Given the limitations of this study, it is recommended that future studies further explore body image concerns and its associated behaviors or consequences among Iranian children.

ACKNOWLEDGMENTS

The author sincerely thanks Dr. Behshid Garrusi for her cooperation and guidance.

REFERENCES

1. Smolak L. Body image in children and adolescents: Where do we go from here? *Body Image* 2004;1:15-28.
2. Tremblay L, Limbos M. Body image disturbance and psychopathology in children: Research evidence and implications for treatment. *Curr Psychiatry* 2009;5:62-72.
3. Noll SM, Frederickson BL. A meditational model in king self-objectification, bodyshame, and disordered eating. *Psychol Women Q* 1998;22:623-36.
4. Neziroglu F, Khemlani-Patel S, Veale D. Social learning theory and cognitive behavioral models of body dysmorphic disorder. *Body Image* 2008;5:28-38.
5. Ricciardelli LA, McCabe MP, Holt KE, Finemore J. A biopsychosocial model for understanding body image and body change strategies among children. *J Appl Dev Psychol* 2003;24:475-95.
6. Furnham A, Nordling R. Cross-cultural differences in preferences for specific male and female body shapes. *Pers Individ Dif* 1998;25:635-48.
7. Xu X, Mellor D, Kiehne M, Ricciardelli LA, McCabe MP, Xu Y. Body dissatisfaction, engagement in body change behaviors and sociocultural influences on body image among Chinese adolescents. *Body Image* 2010;7:156-64.
8. Cachelin FM, Veisel C, Barzegarnazari E, Streigel-Moore RH. Disordered eating, acculturation, and treatment seeking in a community sample of Hispanic, Asian, Black, and White women. *Psychol Women Q* 2000;24:244-53.
9. Smolak L. Body image development in children. In: Cash TF, Pruzinsky T, editors. *Body Image: A Handbook of Theory, Research, and Clinical Practice*. New York, NY: The Guilford Press; 2002. p. 65-73.
10. Tiggemann M, Wilson-Barrett E. Children's figure ratings: Relationship to self-esteem and negative stereotyping. *Int J Eat Disord* 1998;23:83-8.
11. Shapiro S, Newcomb M, Loeb TB. Fear of fat, disregulated-restrained eating, and body-esteem: Prevalence and gender differences among eight-to ten-year-old children. *J Clin Child Psychol* 1997;26:358-65.
12. Duncan MJ, Al-Nakeeb Y, Nevill AM. Body esteem and body fat in British school children from different ethnic groups. *Body Image* 2004;1:311-5.
13. Khor GL, Zalilah MS, Phan YY, Ang M, Maznah B, Norimah AK. Perceptions of body image among Malaysian male and female adolescents. *Singapore Med J* 2009;50:303-11.
14. van den Berg P, Thompson JK, Obremski-Brandon K, Coovert M. The Tripartite Influence model of body image and eating disturbance: A covariance structure modeling investigation testing the mediational role of appearance comparison. *J Psychosom Res* 2002;53:1007-20.
15. Stice E, Hayward C, Cameron RP, Killen JD, Taylor CB. Body-image and eating disturbances predict onset of depression among female adolescents: A longitudinal study. *J Abnorm Psychol* 2000;109:438-44.
16. Friedman MA, Brownell KD. Psychological correlates of obesity: Moving to the next research generation. *Psychol Bull* 1995;117:3-20.
17. Davison KK, Birch LL. Predictors of fat stereotypes among 9-year-old girls and their parents. *Obes Res* 2004;12:86-94.
18. Kim DS, Kim HS. Body-image dissatisfaction as a predictor of suicidal ideation among Korean boys and girls in different stages of adolescence: A two-year longitudinal study. *J Adolesc Health* 2009;45:47-54.
19. Gustafson-Larson AM, Terry RD. Weight-related behaviors and concerns of fourth-grade children. *J Am Diet Assoc* 1992;92:818-22.
20. Calderon LL, Yu CK, Jambazian P. Dieting practices in high school students. *J Am Diet Assoc* 2004;104:1369-74.
21. Smolak L, Levine MP, Schermer F. Parental input and weight concerns among elementary school children. *Int J Eat Disord* 1999;25:263-71.
22. Rolland K, Farnill D, Griffiths RA. Children's perceptions of their current and ideal body sizes and body mass index. *Percept Mot Skills* 1996;82:651-6.
23. Ricciardelli LA, McCabe MP. Children's body image concerns and eating disturbance: A review of the literature. *Clin Psychol Rev* 2001;21:325-44.
24. McCabe MP, Ricciardelli LA. Body image and strategies to lose weight and increase muscle among boys and girls. *Health Psychol* 2003;22:39-46.
25. Maddah M, Nikooyeh B. Obesity among Iranian adolescent girls: Location of residence and parental obesity. *J Health Popul Nutr* 2010;28:61-6.
26. Kelishadi R, Ardalan G, Gheiratmand R, Majdzadeh R, Hosseini M, Gouya MM, *et al.* Thinness, overweight and obesity in a national sample of Iranian children and adolescents: CASPIAN study. *Child Care Health Dev* 2008;34:44-54.
27. Garrusi B, Garousi S, Baneshi MR. Body image and body change: Predictive factors in an Iranian population. *Int J Prev Med* 2013;4:940-8.

28. Garrusi B, Baneshi MR. Eating disorders and their associated risk factors among Iranian population-A community based study. *Glob J Health Sci* 2012;5:193-202.
29. Collins EM. Body figure perceptions and preferences among preadolescent children. *Int J Eat Disord* 1999;10:199-208.
30. Center for Disease Control. (2000). Growth Chart: United States. Available from: www.cdc.gov/mmwr/preview/mmwrhtml/rr5909a1.htm. [Last accessed on, 2010 1 Jun].
31. Welch C, Gross SM, Bronner Y, Dewberry-Moore N, Paige DM. Discrepancies in body image perception among fourth-grade public school children from urban, suburban, and rural Maryland. *J Am Diet Assoc* 2004;104:1080-5.
32. Li Y, Hu X, Ma W, Wu J, Ma G. Body image perceptions among Chinese children and adolescents. *Body Image* 2005;2:91-103.
33. Zaborskis A, Petronyte G, Sumskas L, Kuzman M, Iannotti RJ. Body image and weight control among adolescents in Lithuania, Croatia, and the United States in the context of global obesity. *Croat Med J* 2008;49:233-42.
34. Lo WS, Ho SY, Mak KK, Lam TH. The use of Stunkard's figure rating scale to identify underweight and overweight in Chinese adolescents. *PLoS One* 2012;7:e50017.
35. Deleel ML, Hughes TL, Miller JA, Hipwell A, Theodore LA. Prevalence of eating disturbance and body image dissatisfaction in young girls: An examination of the variance across racial and socioeconomic groups. *Psychol Sch* 2009;46:767-75.
36. Stockton MB, Lanctot JQ, McClanahan BS, Klesges LM, Klesges RC, Kumanyika S, *et al.* Self-perception and body image associations with body mass index among 8-10-year-old African American girls. *J Pediatr Psychol* 2009;34:1144-54.
37. McCreary DR. Gender and Age differences in the relationship between body mass index and perceived weight: Exploring the paradox. *Int J Mens Health* 2002;1:31-42.
38. Musher-Eizenman D, Holub S, Edwards-Leeper L, Persson A, Goldstein S. The narrow range of acceptable body types of preschoolers and their mothers. *J Appl Dev Psychol* 2003;24:259-72.
39. Davison KK, Markey CN, Birch LL. A longitudinal examination of patterns in girls' weight concerns and body dissatisfaction from ages 5 to 9 years. *Int J Eat Disord* 2003;33:320-32.
40. Keery H, Boutelle K, van den Berg P, Thompson K. The impact of appearance-related teasing by family members. *J Adolesc Health* 2005;37:120-7.
41. Holt KE, Ricciardelli LA. Weight concerns among elementary school children: A review of prevention programs. *Body Image* 2008;5:233-43.
42. Holub SC. Individual differences in the anti-fat attitudes of preschool-children: The importance of perceived body size. *Body Image* 2008;5:317-21.
43. Jaffe K, Worobey J. Mothers' attitudes toward fat, weight, and dieting in themselves and their children. *Body Image* 2006;3:113-20.
44. Al Sabbah H, Vereecken CA, Elgar FJ, Nansel T, Aasvee K, Abdeen Z, *et al.* Body weight dissatisfaction and communication with parents among adolescents in 24 countries: International cross-sectional survey. *BMC Public Health* 2009;9:52.
45. Davison KK, Markey CN, Birch LL. Etiology of body dissatisfaction and weight concerns among 5-year-old girls. *Appetite* 2000;35:143-51.
46. Cramer P, Steinwert T. Thin is good, fat is bad: How early does it begin? *J Appl Dev Psychol* 1998;19:429-51.
47. Ghavamzadeh S, Khalkhali HR, Alizadeh M. TV viewing, independent of physical activity and obesogenic foods, increases overweight and obesity in adolescents. *J Health Popul Nutr* 2013;31:334-42.
48. Adams K, Sargent RG, Thompson SH, Richter D, Corwin SJ, Rogan TJ. A study of body weight concerns and weight control practices of 4th and 7th grade adolescents. *Ethn Health* 2000;5:79-94.

Source of Support: Nil, **Conflict of Interest:** None declared.