Eating attitudes, body image concept and exercise reasons in female athletes

Vahid Ahmadi[1], Nilofar Khajehdin[2], Ali Asghar Firoozi[3], Sareh Mirshekar[3], Walieh Menati[1]*, Majid Eydi Baygi[3], Ali Seidi[4]

1. Prevention of Psychosocial Injuries Research Center, Ilam University of Medical Sciences, Ilam, Iran
2. Department of Psychiatry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Department of Psychology, School of Psychology and Education, Shahid Chamran University of Ahvaz, Ahvaz, Iran
4. Gilan-e-Gharb Branch, Islamic Azad University, Gilan-e-Gharb, Iran

* **Corresponding author:** Tel: +98 9188412938; fax: +98 8413342887
Address: Prevention of Psychosocial Injuries Research Center, Ilam University of Medical Sciences, Bangananjab Avenue, Ilam, Iran
E-mail: waliehmenati20@yahoo.com
Received 27/11/2013; revised 20/7/214; accepted 13/9/214

Abstract

Introduction: This study aimed at examining body image and eating attitude with regard to reasons of exercising among non-athlete women attending sport centers.
Materials and methods: The present study has an ex-post facto design. 315 female sports center users were selected by multi-phase random clustering and completed the following rating scales: Eating Attitudes Test-26 (EAT-26), Body Image Concern Inventory (BICI) and a set of questions regarding their reasons to exercise.
Results: Pierson correlation showed a significant positive correlation between body image concept and eating attitudes ($r = 0.36$, $p < 0.001$). Independent T-test showed that there were significant differences between reasons of exercising and eating attitude ($p < 0.006$), and also reasons of exercising and body image concept ($p < 0.029$).
Conclusion: Women with higher scores of eating attitude or body image favored exercise more due to shape reasons than health reasons.

Keywords: Eating attitudes, body image concept, exercise reasons, shape reasons, health reasons

Introduction

During the last decade, women have been more involved in sports and physical activities probably due to the consequence of their increased preoccupation with health related issues (1). The psychological and physiological benefits of exercise are well known, and doing exercise is a positive experience for most people because it can increase their self-esteem (2). However, this participation is also associated with body dissatisfaction (3) as well as the development and maintenance of eating problems and eating disorders (4). Also, eating disorder is very important among women doing exercise activities and this issue is relevant to psychological symptoms (5, 6).

It is important to ascertain factors that predict obligatory exercise. A study of collegiate women found that exercising for shape/weight correlated with obligatory exercise (7). Low satisfaction with physical appearance can increase the risk of eating disorders (8). Thus, the study of exercise motives is significant as motives and reasons can have an impact on

exercise behaviors (9). Researchers have demonstrated that the exercise reasons people report are often related to eating disorders (10, 11).

Eating disorders are disorders of eating behaviors, associated thoughts, attitudes and emotions, and their resulting physiological impairments (8). Eating disorders vary among athletes from 1 to 62%, depending on the sample and research methodology (12). The prevalence of eating disorders in Iranian women is similar to Western societies (13). Excessive concern regarding weight, eating and appearance may trigger problems such as anxiety, depression, compulsive eating, and decreasing life quality (3). Body image includes both perceptual and ideational components and may reflect primarily perceptual distortions or combinations of disturbed perception and self-appraisal or both (8).

Most eating disorder experts agree that there is no single ‘‘cause’’ of eating disorders among athletes; rather, the etiology is multi-factorial and encompasses a complex interaction between sociocultural, demographic, environmental, biological, psychological, and behavioral factors (14).

Since no research has been carried out on body image and eating disorder among female athletes in Iran, the overall goal of this research was the evaluation of exercise reasons and its relationship with eating attitudes and body image in female sports center athletes in a southwest city of Iran.

Materials and methods

Participants: Women were recruited from 20 sport centers in a southwest city of Iran. Exercise facilities were provided for all of the participants and they attended fitness and aerobics classes every day. An initial request explaining the research goals and data collection was sent to the sport centers. After approval of the manager, female sports center users were invited to take part in the study and were given questionnaire packs upon entering the building. They were assured that their data would remain anonymous and confidential. Participation was voluntary and all of them provided written informed consent before participation. The questionnaire packs were gathered at the end of their session in the same day. At the same time, the women's height and weight were measured. Of 1000 questionnaires given out, 315 were returned fully completed with a response rate of 31.5%. Participants’ mean age was 29.5 years old (ranging 18-58 years old).

Measures and procedures: Background information included date of birth, participants’ typical exercise pattern (type of exercise, weekly frequency of physical activity and duration mean of each session.

Exercise reasons: Exercise reasons were measured by the question “what is your reason for exercising?” providing 6 possible answers. The answers were grouped in 2 factors. Factor 1 consisted of three variables assessing health reasons to exercise (increasing body strength and muscle size, and sport’s skills improvement) and factor 2 consisted of three variables assessing exercise reasons to keep in shape (lowering the weight, decreasing body fat, and body fitness).

Body image concern inventory: The Body Image Concern Inventory (BICI) is a 19-item self-report scale designed to assess dysmorphic appearance concern (15). For each item, individuals indicated the frequency of the described feeling they had or performed the described behavior on a 5-point Likert scale bounded by 1 (never) and 5 (always). Cronbach’s alpha for the measure in a college sample was 0.93. Factor analysis supported a two-factor structure of two highly correlated factors which are tapping dysmorphic appearance concern and tapping interference in functioning due to appearance concerns. The authors recommended computing a total score; however, both subscales showed adequate internal consistency: dysmorphic concern

α = 0.92, interference due to appearance concerns α = 0.76. In order to support the validity of the measure, scores were found to correlate moderately to strongly with other self-report and clinician-administered dysmorphic appearance concern measures in college samples (15). Finally, the measure successfully distinguished individuals with subclinical eating disorders or body dysmorphic symptoms from individuals with bulimia or body dysmorphic disorder as determined by structured clinical interview (14). The BICI has been validated in the Iranian community (0.93) (16). In another study, the coefficient validity of BICI was 0.85 and a Cronbach's alpha of 0.90 was reported (17).

Eating attitudes test-26: The EAT-26 is a 26-item scale which assesses the symptoms and characteristics of eating disorders and yields an overall score. Questions ask the respondent the frequency of thinking and feeling about food, eating, and their body in disordered ways. Items are rated on a 6-point likert scale, ranging from "Always" to "Never". The three least symptomatic responses (never, rarely, and sometimes) are given a value of 0. A Cronbach's alpha of 0.94 was reported for a sample of women (18). Cronbach's alphas for the current sample were 0.85 for females and 0.78 for males. Validity has previously been demonstrated in the form of correlations between the EAT-26 and similar measures such as those who assess disordered eating in both females and males. In addition, the EAT-26 distinguishes between females and males with and without eating disorders (19).

The EAT-26 is often used to screen eating disorders and a score of 20 or higher is thought to constitute a high likelihood of having an eating disorder (20). The EAT-26 has been validated in the Iranian community by factor analysis which confirmed three factors. A Cronbach's alpha of 0.86 has been reported (21).

Results

The average age of women was 29.5 ± 9.8 years. Also, the average weight of the surveyed women was 65.3 ± 12.3 Kg and the average height was 161.8 ± 6 cm. The women's weight and height ranged from 37-107 kg and 145-180 cm, respectively. The mean BMI of the surveyed women was 25 ± 4.5 ranging from 16.2- 39.6.

As it is shown in table 1, the frequency percentage of BMI was 7% for low weight, 49.5% for normal, 29.5% for overweight, 10.8% for fat weight, and 2.9% for very fat. 32 participants (10.16%) were exercising 1-2 days a week, 105 (33.3%) 2-3 days a week, 105 (33.3%) 3-4 days a week, 20 (6.35%) 4-5 days a week. 19 (6.03%) of participants in this study were exercising less than half an hour, 83 (26.3%) 5-6 and 35 (11.11%) 6-7 days a week. Also, the data showed that 74 (23.5%) of participants did not use any sports facility. The abundance of using other devices is as follows: 23 vibrators, 81 balls, 9 stationary bikes, 107 weights, 17 steppers, 13 dumbbells, 36 treadmills, 18 rings, 18 ski spaces, 56 ropes, 55 sport seats, 14 step bars, and 10 machines.

Table 1.The frequency percent of BMI of the sample study.

	Low	Normal	Over	Fat	Very fat
BMI	7%	49.5%	29.8%	10.8%	2.9%

Correlation analysis showed that there was a significant correlation between body image concerns and eating attitudes (r = 0.36, P < 0.001). As seen in table 3, the mean and standard deviation of exercise reasons (health reasons) on eating disorder

are 13.87 and 7.27, respectively. The mean and standard deviation of the exercise reasons (shape reasons) considering eating disorders are 16.95 and 8.35, respectively. The mean and standard deviation of the exercise reasons (health reasons) regarding body image are 31.27 and 8.16, respectively. The mean and standard deviation of exercise reasons (shape reasons) regarding body image are 34.09 and 9.92, respectively.

Table 2.The mean and standard deviation of exercise reasons with eating disorder and disruption of the body image.

	Exercise reasons	Number	Mean	Standard Deviation
Eating disorder	Health reasons	56	13.87	7.27
	Shape reasons	226	16.95	8.35
Body image	Health reasons	56	31.27	8.16
	Shape reasons	226	34.09	9.92

As it is seen in table 3, independent T-test showed that there were significant differences between exercise reasons and eating attitude ($p<0.006$), and also there were significant differences between exercise reasons and body image concept ($p<0.029$). As a result, women with higher scores of eating attitude or body image favored exercise more due to shape reasons than health reasons.

Table 3.The effect of exercise reasons on eating attitude and body image in female athletes

Exercise reasons	Levine's Test for Equality of Variances					
Eating attitude	Equal variances not assumed	F	Sig.	t	df	Sig.
		0.119	0.730	2.8	94.45	0.006
Body image	Equal variances not assumed	2.128	0.146	2.2	99.35	0.029

Discussion

This study aimed to examine body image and eating attitude with regard to exercise reasons among females exercising in fitness centers. Results indicated that there was a significant positive correlation between body image and eating attitudes. A study showed that about 30% of women with body image disturbance have eating disorders in periods of their life simultaneously (22). The reason is that body image is one of the main concerns of women which can lead to eating disorders. Also, body dissatisfaction ("negative body image") and other hypothesized risk factors are used to predict increases in eating pathology (23). In a linear regression study, about 4% of grade changes were related to changes in eating disorder as a mental image of the score. In other words, these two variables do not interact with each other (24). Indeed, dissatisfaction with body image has been a good symptom for predicting eating disorder in long-term studies. People with a negative body image are more likely to have eating disorders and suffer more from feelings like depression, loneliness, low self-esteem and obsessions relevant with weight loss.

Weight and shape control reasons for exercising were very common and they were related to eating disturbance (25). Based on the obtained results, this study indicated that exercise reasons had a significant impact on eating attitude. Also, the impact of exercise reasons on body image was significant. It is not surprising that exercising to be toned was predictive of obligatory exercise as it also predicted disordered eating (26). Disordered eating and obligatory exercise were also related (27). In a research, exercise motives predicted obligatory exercise and exercising for fitness and obligatory exercise was significantly stronger in women than men. Among women, obligatory exercise was predicted by exercising to improve body tone, fitness, and to enhance mood (28). In a study of collegiate women, it was found that exercising for appearance/weight reasons correlated with obligatory exercise (7). It means that the athletic women's pressure to reduce body weight by coach, relatives and friends makes these women vulnerable to eating disorders (29).

Body image and eating habits in female athletes and non-athletes were evaluated. 60 female athletes participated in this study and their ages ranged from 13-16 years old in 8 different sports as the experimental group, and 60 female non-athletes ageing 16-13 years old as the control group. Results indicated that the majority of athletic women show a positive body image. In other words, they were satisfied with their body image and less interested in lowering body weight. However, the non-athlete group was more likely to show an unrealistic body image and unbalanced eating behaviors (30).

Accurate understanding of the interaction between Body Image Concept, eating attitudes and exercise reasons in women with athletic activity attending gyms provides valuable information for special treatment programs of athletic women. Results of this study showed that there was a significant relationship between eating attitudes and body image. The exercise reasons revealed other aspects of the relationship between eating attitudes and body image. This finding suggests that other factors are involved in the rise of eating disorders in women with athletic activity. There are several limitations in the present study that should be addressed. First, it is difficult to generalize the results to non-Iranians. Second, future studies should examine whether exercise reasons are predictive of obligatory exercise over time. Finally, other variables clearly influence exercise behaviors and should be included in future studies.

To sum up, it is important that researchers and clinicians be aware that doing exercise for weight and shape reasons is not always a health-promoting behavior. Since these behaviors are potentially harmful to one's health and well-being, counselors and doctors can find treatments to successfully resolve these issues.

References

1. Coelho GM, Soares Ede A, Ribeiro BG. Are female athletes at increased risk for disordered eating and its complication? Appetite. 2010; 55(3): 379-78.
2. Sundgot-Borgen J, Torstveit, MK. Prevalence of eating disorders in elite athletes is higher than in the general population. Clin J Sport Med. 2004; 14(1):25-32.

3. Lisa R. Silberstein, Ruth H. Striegel-Moore, Christine Timko, Judith Rodin. Behavioral and psychological implications of body dissatisfaction: Do men and women differ? Sex Roles. 1988; 19(3-4):219-32.
4. Garner DM, Rosen LW, Barry D. Eating disorders among athletes. Child Adolesc Psychiatr Clin N Am. 1998; 7(4): 839–57.
5. Jahangiry M, Asadi F. Relationship of general self-esteem, body-esteem, BMI and eating disorders among athletes and non-athletes girls. J Dynamic Behav Sport Psychol. 2010; 4(2): 335-344.
6. Valizade A, Ariapooran S. Prevalence of Eating Disorders and their Role in Psychological Signs among women with Sport Activities. 2011; 20 (79) :15-23
7. Thome JL, Espelage DL. Obligatory exercise and eating pathology in college females: Replication and development of a structural model. Eat Behav. 2007; 83(3):334–49.
8. Sadock B, Sadock V, Ruiz P. Comprehensive textbook of psychiatry. New York: Guilford Press; 2009.
9. Frederick-Recascino CM. Self-determination theory and participation motivation research in the sport and exercise domain. Rochester NY: University of Rochester Press; 2002.
10. Strelan P, Mehaffey SJ, Tiggermann M. Self-objectification and esteem in young women: The mediating role of exercise. Sex Roles. 2003; 4(8): 89–95.
11. Markland D, Ingledew DK. Exercise participation motives: A self-determination theory perspective. Champaign, IL: Human Kinetics; 2007.
12. Smolak L, Murnen SK, Ruble AE. Female athletes and eating problems: a meta-analysis. Int J Eat Disord. 2000; 27(4): 371-80.
13. Nobakht M. Epidemiological study of eating disorders in the second year of high school students in Tehran. Tehran: Publication of Tehran University; 1999.
14. Brownell KD, Foryet JP. Handbook of eating disorders: Physiology, psychology, and treatment of obesity, anorexia nervosa, and bulimia nervosa. New York: Basic Books; 1986.
15. Littelton HL, Axsom D, Pury CL. Development body image concern inventory. Behav Res Ther. 2005; 4(3): 224-40.
16. Ghaffari M, BassaknezhadS. The relationship between body dismophic fear and psychological disorders at students.J Behav Therapy. 2007; 1(4): 34-41.
17. Ghadakzadeh S, Ghazipour A, Khajeddin N, Karimian N, Borhani M.Body Image Concern Inventory (BICI) for identifying patients with BDD seeking rhinoplasty: Using a Persian (Farsi) version. AesthPlast Surg. 2011; 3(5): 989-94.
18. Garner DM, Garfinkel PE. The Eating Attitudes Test: An index of the symptoms of anorexia nervosa. Psychol Med. 1979; 9(2):273-9.
19. Garfinkel PE, Newman A. The Eating Attitudes Test: Twenty-five years later. Eat Weight Disord. 2001;6(1):1-24.
20. King MB. The natural history of eating pathology in attenders to primary medical care. Int J Eat Disord.1991; 10(2): 379-87.
21. Babaei S, Khodapanahi MK, Salehpoor B. Validity & reliability of eating attitude test. J Behav Therapy. 2007; 6(3): 61-68.
22. Reinking MF, Alexander LE.Prevalence of disordered eating behaviors in undergraduate female collegiate athletes and non-athletes.J Athl Train. 2005; 40(1): 47-51.
23. Stice E, Trost A, Chase A. Healthy weight control and dissonance-based

eating disorder prevention programs: Results from a controlled trial. Int JEat Disord. 2002; 33(2):10–21.
24. Jahangiri M, Asadi F. Relationship between self-esteem and body mass index, physical activity and eating disorders in female athletes and nonathletes. J Motor Behav Sports Psychology. (2009); 4(2):335-44.
25. Gonçalves SF, Gomes AR. Exercising for weight and shape reasons vs. health control reasons: the impact on eating disturbance and psychological functioning. Eat Behav. 2012; 13(2):127-30.
26. Mond JM, Hay PJ, Rodgers B, Owen C, Beumont PJ. Relationships between exercise behavior, eating-disordered behavior and quality of life in a community sample of women: When is exercise 'excessive'? Euro Eat Disord Rev. 2004; 12(2): 265-72.
27. Adkins EC, Keel PK. Does "excessive" or "compulsive" best describe exercise as a symptom of bulimia nervosa? Int J Eat Disord. 2005; 38(1): 24-9.
28. Pritchard ME, Beaver JL. Do exercise motives predict obligatory exercise? Eat Behav. 2012; 13(2):139-41.
29. Sundgot-Borgen J, Torstveit MK. Prevalence of eating disorders in elite athletes is higher than in the general population. Clin J Sport Med. 2004; 14(1): 25-32.
30. Peterson VM. Body image and dieting behaviors: A study of athletes and non athletes. Fitzroy Victoria: Res Service. 2003; 2(1):13-21.