

PROVDING THE TRAINING AEROBIC MODEL BASED ON SELF DETERMINATION THEORY ON INTRINSIC MOTIVATION, PERSISTENCE AND BODY IMAGE ON OBESE WOMEN

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ABSTRACT: The aim of this study was to compare the effects of two aerobic exercise methods (traditional - based on considering the basic psychological principles) on body mass index, intrinsic motivation, sport persistence, and body image among obese women. This research is a quasi-experimental study with a pretest-posttest design. Thirty six obese women with an age range of 30 to 35 years and body mass index higher than 30, were selected through available sampling method, and were divided into experimental and control groups with random arrangement. Both groups participated in aerobics classes for twelve weeks, three sessions per week, and one hour per session. In order to measure the basic needs satisfaction, intrinsic motivation, sport persistence, and body image the following questionnaires were used, respectively; the Basic Needs Satisfaction Scale (Johan et al., 2011), the Intrinsic Motivation Inventory, the Sport Persistence Questionnaire (Aghaghazvini et al., 2014), and the Body Image Concern Inventory (BICI; Liteiton & RadeckiBreitKopf, 2008). The validity and reliability of all four questionnaires have been examined and confirmed in Iran. The results of the covariance analysis indicated the superiority of the experimental group in the basic needs satisfaction, intrinsic motivation, sport persistence, and reduced body image concerns. Hence, it is suggested that the basic needs are taken into consideration to increase intrinsic motivation and sport persistence as well as reducing body image concern.

KEYWORDS: Self-Determination Theory (SDT), Basic Needs, Intrinsic Motivation, Sport Persistence, Body Image, Aerobic, Obesity.

INTRODUCTION

According to the World Health Organization (WHO) in 1997, obesity has been reported as one of the 10 most common health problems in the world. In 2005, the number of overweight adults in the world, was 937 million, and the number of obese people was 396 million. This number has doubled compared with that in 20 years ago (Barzin et al., 2011). Obesity threatens the individuals' physical, mental, and social health, and underlies many diseases (Zeighami Mohammadi & Mojdeh, 2012). One of the most common psychological problems among obese people, is a defective body image. Body image is often defined as a degree of satisfaction with physical appearance (size, shape and general appearance), which has two independent

dimensions; perceptual (an estimation of the body size) and visual (an individual's understanding and feeling about the body) (Rowe et al., 1999; Thompson, 1990). This image forms from birth and changes throughout life (Barzin et al., 2009). Changes in the body image are due to visible or invisible changes in the body, which can greatly affect an individual's personality (Amidi et al., 2006). Due to the importance of the body image in social communication and interpersonal relationships, specialists have conducted multiple studies in this regard, whose results show that some individuals' minds are constantly preoccupied with their physical appearance (Borzekoeski & Bayer, 2005). In their studies, McCabe et al (2001) found that the individuals who had a high body mass index, were more dissatisfied with their body image (Pasha et al., 2008), to the extent that these individuals think about their body image for hours, and by changing their makeup, wearing various types of clothes, and putting themselves in certain positions, try to cover their apparent defects. Exercise and physical activity have been recommended as a therapeutic method to improve the body image in obese people (Fisher & Thompson, 1994).

Even so, more than half of those who begin physical activities, do not continue their activities more than six months (Bock et al., 2001). Recently, some theory-based studies have been conducted on sport persistence, some of which were based on self-determination theory. This theory has been introduced by Deci and Ryan (1985- 2000), and raises the three basic needs; autonomy, competence, and relatedness as the determinants of motivation. The fundamental axis of the self-determination theory, is the difference between the autonomous motivation and controlled motivation. A behavior is autonomous, when an individual, by feeling a sense of determination and having the opportunity to choose, starts or continues the behavior (Gagne & Deci, 2005). Perception of competence means an individual's perception of his or her ability to perform a behavior (Bauer & Mulder, 2006), and the perception of communication means an individual's perceived communication with others in the community or group in which he or she participated (Deci & Ryan, 2000). From the perspective of self-determination theory, motivation for the persistence of an activity will be retained, when an individual's psychological needs are satisfied. In other words, the degree to which these three psychological needs are satisfied, will determine the type of motivation, direction and persistence of desired behaviors. A number of researchers have used the self-determination theory to increase motivation for weight control. For example, Silva et al (2011) have studied the effects of two types of general health training sessions (traditional training, and training based on considering the basic needs), on the amount of physical activity and reduction in body mass index. In this study, the first group was given 29 sessions of general health training (e.g., a low-calorie diet, stress management, and performing physical activities), and the second group was given the same training as well; but the training basis in the second group, was to consider the basic needs, based on the self-determination theory. For example, the decisions of those who participated in the second group, were supported during program execution, and they were encouraged to find their motivations for treatment, and we tried to reduce external controlling factors, such as gifts and external supervision on changes in their behavior.

The findings showed that the group that underwent the motivational interview based on the self-determination theory in addition to general health training sessions, lost more weight than the control group did, and also had more intrinsic motivation for weight control (according to Aghaghazvini et al., 2014). However, most of these studies have measured the effect of motivational interviews based on the self-determination theory, on the increase in individuals' physical activities, and only a study by Aghaghazvini et al (2014), has measured the effect of changes in the coach's teaching method based on considering the basic needs, on sport persistence. The question that arises here is that whether training based on the self-determination theory approach, can affect other psychological variables, such as body image, and whether exercise based on the self-determination theory approach is applicable in other athletic disciplines. Measuring the effect of exercise based on self-determination theory, on body image, is well worth studying; because, due to socio-cultural emphasis of today's society on physical fitness, and social pressures with regard to being slim, body dissatisfaction has increased especially among women (Pope et al., 2000). Increased body dissatisfaction is associated with mental disorders, such as: reduced self-confidence, depression, and social anxiety (DehestaniArdakani et al., 2011). If by creating an atmosphere in which psychological needs are met, a coach can improve body image in obese people, and increase their interest in persistence in physical activities, he or she has taken an effective step to control weight and improve body image in obese people. Accordingly, the aim of this study is to determine the effect of an aerobic exercise course based on considering the basic needs, on basic needs satisfaction, intrinsic motivation, sport persistence, and body image concern.

MATERIALS AND METHODS

This research is a quasi-experimental study with a pretest-posttest design. Thirty six obese women with an age range of 30 to 35 years and body mass index higher than 30, were selected through available sampling method, and, with random arrangement, were divided into two groups; traditional aerobic exercises and aerobic exercises based on considering the basic needs. Both groups participated in aerobics classes for twelve weeks,

three sessions per week, and one hour per session. The intensity and type of exercises were the same in both groups. The only difference was related to the method of presenting the exercises; such that one group performed aerobic exercises while considering the basic needs, and the other group in a traditional manner.

The research tool

In this research, in order to measure the basic needs satisfaction, intrinsic motivation, sport persistence, and body image the following questionnaires were used, respectively; the Basic Needs Satisfaction Scale (Johan et al., 2013), the Intrinsic Motivation Inventory, the Sport Persistence Questionnaire (Aghaghazvini et al., 2014), and the Body Image Concern Inventory (BICI; Liteiton & RadeckiBreitKopf, 2008). The validity and reliability of all four questionnaires have been examined and confirmed in Iran.

The Basic Needs Satisfaction Scale

The "Basic Needs Satisfaction in Sports" Scale (Johan et al., 2011) was used to measure the three basic needs: autonomy, competence, and relatedness. This questionnaire consists of 20 items that measure the three needs; autonomy, competence, and relatedness, and has been set up based on a 7-point Likert spectrum, from completely disagree (1 point) to completely agree (7 points). In this study, Cronbach's alpha coefficient for the autonomy subscale was calculated 0.7, competence 0.84, relatedness 0.74, and for the entire questionnaire 0.87.

The Intrinsic Motivation Inventory (IMI)

This questionnaire consists of nine items and the three subscales; interest/enjoyment, perceived competence, and effort/importance that Badami, Vaez Mousavi, Wulf, and Namazizadeh (2011) extracted from the Intrinsic Motivation Inventory (IMI; McAuley et al., 1987). The sum of the scores obtained from the three subscales, represents the level of intrinsic motivation. This questionnaire has been rated based on a 7-point Likert scale, from 1 (completely disagree) to 7 (completely agree). Using Cronbach's alpha coefficient method, the reliability coefficients for the three factors of this questionnaire; interest/enjoyment, perceived competence, and effort/importance have been reported as 0.9, 0.8, and 0.81, respectively (Aghaghazvini et al., 2014).

The Sport Persistence Questionnaire

This questionnaire has been designed by Aghaghazvini et al (2014), and its validity and reliability have been approved. This questionnaire has 8 items, and has been set up based on a 5-point Likert spectrum, from 1 "not at all" to 5 "very much".

The Body Image Concern Inventory (BICI; Liteiton & RadeckiBreitKopf, 2008)

This questionnaire is a paper-based, self-report questionnaire, including 19 terms, and has been rated based on a 5-point Likert scale, from 1 (never) to 7 (always). The score that each subject can obtain in this scale, would be between 95 and 19. In Iran, Basaknejad and Ghaffari (2007) reported the validity of this test as 95% based on the internal consistency by Cronbach's alpha. And Entezari and Alavizadeh (2012) reported the internal consistency by Cronbach's alpha for this test to be 89% (Entezari & Alavizadeh, 2012).

The method of collecting information

By posting notices in the "physical education expertise" section in Isfahan Department of Education District 3 and the gyms under the supervision of this district (which were holding aerobic exercise courses), the researcher invited all the obese women who matched the inclusion criteria (age range of 30 to 35 years, body mass index higher than 30, and first time of participating in aerobic exercise) to participate in the study. Thirty six women with these characteristics declared their readiness to attend the classes. These women were divided into two groups of 18 members. In the introduction session, the participants' height and weight were measured, and they completed a consent form.

Before and after the exercises, the participants filled out the following questionnaires; the Basic Needs Satisfaction Scale, the Intrinsic Motivation Inventory (IMI), the Sport Persistence Questionnaire, and the Body Image Concern Inventory (BICI). The participants participated in the aerobics program for 12 weeks, three sessions per week, and about one hour per session.

The timing of each session was as follows: 5 minutes warm-up (with initial concentration and respiration), 35 minutes aerobic exercises (exercise with rubber bands, weights, sticks, fitness steps and/or gym balls), 5 minutes cooling and stretching, and 15 minutes local movements.

The type and intensity of exercises were similar in both groups, and the only difference was related to the method of presenting the exercises.

To design the exercise according to the three needs: "autonomy", "competence" and "relatedness", the opinions of Deci and Ryan who raised the self-determination theory, the aerobics coaches, and specialists in motor behavior and sport psychology were taken, and the exercise protocol was approved by Deci and Ryan and specialists in motor behavior and sport psychology. In the self-determination based exercise group, the following methods were employed to satisfy the basic needs:

- To satisfy the sense of autonomy, the first exercise session was allocated to introducing the individuals and helping them choose their goals.

- Each session, one of the ladies voluntarily became responsible for counting the movements, so that their sense of independence or autonomy could be satisfied.

- At the coach's discretion, the participants were given the authority that in the case of designing a perfect and interesting aerobics program, they can voluntarily undertake conducting the exercises for half of the class time, and offer their workout programs to the other participants.

- Upon completion of the aerobic exercises, the participants stated their new experiences and information, for 5 minutes, about the presentation of contents related to mental health and strategies to promote mental health.

- A full-length mirror was placed in front of the entrance door of the club to show the individuals thinner and taller; thus satisfying their sense of competence.

- To satisfy their sense of competence, the participants were provided with notebooks to record their information, and it was explained for them how to complete them. Such that, the participant recorded her goals for attending the exercise class, time of entry and exit, and the rate of progress in the exercises. A table was drawn at the end of the notebook, according to which each person evaluated her efforts.

And also a list of those who attended all the classes last month, was recorded.

- To establish a relationship between the group members, the exercises were performed two by two or in a circular form.

- To satisfy the need for relatedness, interesting text messages and beautiful images with the contents of "Sports = Health = Value" were sent to the participants via SMS, Viber, and WhatsApp, three times a week.

- Three types of relationships were considered, to satisfy the need for relatedness: the relationship with God, relationship with other participants, and relationship with the coach.

- To establish a relationship with God, the exercise sessions began with a prayer. These sentences included phrases such as: "O' God grant me peace to accept the things I cannot change, courage to change the things that I can change, and insight to feel the difference between these two." "O' God, help me keep my strong will until achieving a desirable weight." "I am losing weight easily and without difficulty."

- During the course, with the coordination of the coach and participants, the program of Iftar (breaking the fast) was held twice and the program of breakfast once beside the Zayandehrood river, to satisfy the sense of relatedness among the individuals.

- To establish a relationship with the coach, the coach remained there for 20 minutes after the completion of the class, and answered the participants' questions. And eventually she shook hands with the participants and saw them off.

- At the end of the course, some cards were granted to the participants to remind them of the benefits of aerobic exercise. A few aerobic exercise movements, in the form of pictures, were presented in these cards.

Data analysis methods

- Also, the weighing was done once every two weeks. The weighing was done before the start of the class at 9 am; after 3 hours of going without food. The results were recorded in the individuals' personal information notebook, and the false feedback was used for reducing an individual's weight in order to satisfy their sense of competence. And it was decided that, in two stages (once at the middle of the course, and once at the end of the course), those who got grades higher than seventy percent, receive a free massage session (for one hour) and a free session of working with the machine (for one hour).

Descriptive and inferential statistics were used for analyzing the data. The analysis of covariance (ANCOVA) was used to determine the effect of the aerobic exercise model based on considering the basic needs, on basic needs satisfaction, intrinsic motivation, sport persistence, and body image among obese women. These analyses were carried out using SPSS software version 22, at a significance level of 0.05.

- In addition, in order to instill a sense of competence in the participants, a board visible to everyone was used to announce a list of those who were present at all the sessions a week ago?

RESULTS

Table and Figure 1 show the statistical indicators related to the research variables.

Table 1. The mean and standard deviation of the research variables.

Statistical Index variables		Aerobic Exercises Based on Considering the basic needs		Aerobic Exercises Based on traditional	
		Mean	SD	Mean	SD
body mass index	Pre test	30.16	1.70	30.15	1.34
	Post test	29.46	1.75	29.93	1.29
on basic needs satisfaction	Pre test	99.75	14.13	100.78	10.48
	Post test	114.68	10.40	102.42	10.39
Intrinsic Motivation	Pre test	52	6.67	52.64	3.79
	Post test	59.43	2.39	52.57	3.56
sport persistence	Pre test	30.06	6.39	30.50	3.58
	Post test	33.43	4.01	30.71	2.86
body image	Pre test	43.62	11.40	31.37	4.44
	Post test	43.21	14.02	44	16.20

Table 2. An estimation of covariance analysis to compare the mean variables of the research between the two groups.

variable	group	Mean	Variance	SS	df	MD	F	Sig
body mass index	experimental	29.46	0.180	1.73	1	1.73	7.25	0.012
	control	29.94						
on basic needs satisfaction	experimental	114.94	0.074	1220.15	1	1220.15	17.76	0.000
	control	102.14						
sport persistence	experimental	33.53	0.215	63.51	1	63.51	8.92	0.006
	control	30.61						
body image	experimental	31.26	0.483	1238.39	1	1238.39	17	0.000
	control	44.14						
Intrinsic Motivation	experimental	59.50	0.077	365.62	1	365.62	47.38	0.000
	control	52.49						

The results indicated the superiority of the experimental group; the group of aerobic exercises based on considering the basic needs, in the basic needs satisfaction, intrinsic motivation, sport persistence, and reduced body image concerns. Therefore, aerobic exercises based on considering the basic needs, are recommended for reducing body image concerns, and enhancing intrinsic motivation and sport persistence.

DISCUSSION AND CONCLUSION

Obesity is one of the most important health problems in the world. Changes in lifestyle such as consuming high-fat and high-energy foods and decreased physical activity have led to increasing growth of obesity and weight gain in developed and developing countries. Obesity has negative effects not only on women's physical health, but also on their mental health (Mohammadi & Mojdeh, 2012), and it is also considered one of the most important causes of body dissatisfaction, such that, researchers consider body dissatisfaction on the borderline between obesity and depression. Women's physical and mental health will result in the health of children, family, society, and future generations. Thus, it is important to pay attention to women's physical and mental health. To achieve this purpose, long-term adherence to behaviors such as participating in physical activities for succeeding in weight management, is necessary. In fact, motivation for weight management plays an important role in the persistence of healthy behaviors and changes in bad behavioral habits such as overeating and lack of mobility. Therefore, researchers have decided to find methods to increase motivation for sport persistence (Aghaghazvini et al., 2014). Accordingly, the aim of this study was to determine the effect of aerobic exercise

based on considering the basic needs, on intrinsic motivation, sport persistence, and body image among obese women.

The findings of the present study showed that the effect of aerobic exercise based on considering the basic needs, on body mass index, was significant, and the body mass index has decreased more in the experimental group. These findings are consistent with the findings of studies by Silva et al (2011), Johan et al (2011), Pourvaghari (2013), and Afzalpour et al (2012).

In another study, Johan et al (2011) investigated the effect of close friends and social support on weight management in obese and overweight women based on the self-determination theory. In this study, four questionnaires were completed online by 235 women with an average age between 27 and 39 years. The validity of the questionnaires was examined by a committee at the University of Great Britain. The participants' weight and height were reported by themselves, and accordingly their BMIs were measured between 24.58 and 30. The participants were asked to introduce the closest person to themselves, who they think affect their diet and physical activity. The results suggested that the level of motivation and behavioral regulations including proper diets and physical activities have a positive and significant effect on weight management. Similarly, the body mass index of those who had a good emotional relationship with their close friends, decreased more. Of course, the participants should not have felt as if they are being controlled by their close friends in their diet programs and physical activities. The more decreased body mass index in the experimental group, may be related to their greater interest in the exercises and consequently their greater efforts to do the exercises. According to the findings of the present study, the degree of interest and efforts (the subscales of intrinsic motivation) has been more in this group.

The more decreased body mass index in the experimental group is inconsistent with the findings of the study conducted by Aghaghazvini et al (2014), who measured the effect of aquatic exercise while considering the basic needs, on body mass index and did not see a significant difference in reduction in body mass index between the two groups. This inconsistency may be due to different executive protocols and/or different organizational atmospheres of sports and their natures. For example, it seems that relatedness and social support, as one of the components of basic needs, are higher among the participants in aerobic exercise than in swimming, and higher in swimming than in martial sports.

Another finding showed that the aerobic exercise based on considering basic needs, has had a significant effect on the basic needs satisfaction and all of its three subscales (autonomy, competence, and relatedness), intrinsic motivation and its subscales (perceived competence, interest and efforts), and sport persistence. This finding can be justified by findings from the studies conducted by Kinnaefick et al (2014), Fenton et al (2014), Hejazi et al (2014), Coastworth and Conroy (2009), Lim et al (2009), Jahangiri et al (2013), Salari and Badami (2014) and Homayooni and Badami (2014). Fenton et al (2014) showed that the coach's autonomy-supportive behavior is related to the daily physical activity pattern in young male soccer players, and interventions based on the self-determination theory increase physical activities from moderate intensity towards daily intense activities. Stephen (2011) showed in a study that, in order to lose weight and keep it for a long time, in addition to diet and physical activities, it is necessary to satisfy the three basic needs (autonomy, competence and relatedness). Hejazi et al (2014), and Jahangiri et al (2013) showed that the basic needs predict intrinsic motivation. Hollembeak and Amorose (2005) studied the effect of the coach's behavior on intrinsic motivation among athletes from various sport disciplines (American football, tennis, gymnastics, softball, volleyball, basketball, track and field, golf, baseball, swimming, diving, and soccer), and concluded that a coach's behavior has a significant effect on an individual's perceived competence, independence, and relationship with the other members, and is an indicator for predicting intrinsic motivation. And MacDonald (2010) has stated that motivational climate is under the influence of coaches' behavior, and considered the coach's motivational-supportive climate as a cause for increase in motivation. And Salari and Badami (2014), and Homayooni and Badami (2014) observed a significant positive relationship between the coach's supporting the basic needs and achievement motivation. And Lim et al (2009) and Jahangiri et al (2013) have pointed out the positive relationship of motivation with the intensity and duration of physical activities among students. Kinnaefick et al (2014) have stated that satisfaction with the needs for competence and relatedness plays a role in changing a behavior, and independence in adherence to a behavior. And also Coastworth and Conroy (2009) showed that the basic needs satisfaction, by increasing the athletes' intrinsic motivation, can lead to a sport commitment, and a higher sport commitment can play a positive role in sport persistence. Also Almagro et al (2012) measured the ability to predict persistence based on the perceived motivational climate, basic needs satisfaction, and intrinsic motivation among young basketball players. The findings of this study showed that perceived motivational climate, satisfaction with the basic psychological needs; competence, and relatedness, and intrinsic motivation, positively and significantly explain sport persistence. In their studies, Farmanbar et al (2011), Duda et al (2001), Pelletier et al (2001), and Fenton et al (2014) showed a positive relationship between autonomous motivation and the desire to persist in physical activities. According to these studies, motivation is the key to doing everything in sports, which determines a direction for one's athletic behavior and makes them persist in it.

To summarize, in line with the findings of the previous studies, the finding of the present study showed that the basic needs satisfaction, intrinsic motivation, and sport persistence were higher in the experimental group. From the perspective of the self-determination theory, the social environment has a significant effect on changing the level of motivation (Deci & Ryan, 2000), and the degree of the basic needs satisfaction (independence, competence and relatedness) determines the type of motivation, and the direction and persistence of a behavior (Sarrazin et al., 2002). The higher intrinsic motivation and sport persistence in the experimental group can be justified according to the self-fulfilling prophecy theory, Bandura's social-cognitive theory (1986, 1997), Harter's competence motivation theory, and expectancy \times value theory. According to the self-fulfilling prophecy theory, people behave consistently with other people's behavioral expectations. Using positive normative feedback in the present study, the researcher has confirmed the behavior of the participants in the self-determination based exercise group. This confirmation has affected the individuals' feelings and beliefs, and their feeling of competence and subsequently intrinsic motivation has increased. According to Bandura's social-cognitive theory (1986, 1997), one's belief in their own ability will increase the probability of adopting that behavior. According to Harter's competence motivation theory, individuals are innately motivated to be competent in all areas. The individual's perception of their own competence creates positive or negative emotional feelings, and subsequently the motivation changes. The more the motivation increases, the more the individual is encouraged to try next steps. Conversely, if their efforts lead to the perception of failure or rejection, then negative emotions and decreased competence motivation will be obtained (Vaez Mousavi & Mosayyebi, 2007). In the present study, the experimental group had higher levels of perceived competence. They made greater efforts and were more interested in doing the exercises, and in general, their intrinsic motivation was higher. Also, according to the expectancy \times value theory, a tendency to perform a task, is the product of the two cognitive structures; efficiency expectancy and value. Efficiency expectancy is an individual's belief in their ability to perform that behavior, and value is a predicted satisfaction that an individual obtains by performing that behavior. If only efficiency expectancy is high or if only value is high, the individual's tendency to perform that behavior will relatively decrease (Mohammadi & Sajadinejad, 2005). It seems that, in the experimental group, efficiency expectancy has increased due to the increased sense of competence. Similarly, due to the increased sense of autonomy and relatedness, the value of the behavior has also probably increased. Therefore, the higher level of sport persistence in this group compared with that in the control group, is not unexpected.

Another finding of the present study showed that aerobic exercise has caused a significant decrease in body image concern, in both groups. This finding is consistent with the findings of most of the studies having noted that, as body mass index decreases body image concern decreases too, such as: studies by Golian et al (2014), Anjadani et al (2013), Blowers et al (2006), Amirkhizi et al (2011), Basharpour et al (2014). In their studies, Mazzeo (1999), Vander Wal & Thelen (2000), Vander Wal (2004), and Rierdan and Koff (1997) showed that people who have a body mass index higher than average (who are overweight) are more dissatisfied with their appearance and weight, thus concluding that there is a significant relationship between body mass index and body image (Parsamehr et al., 2014).

In their studies, Mohammadi and Sajadinejad (2005), and Friedman & Brownell (1995) showed that obese and overweight people enjoy lower self-esteem and satisfaction. Now, since self-esteem is the result of an individual's self-assessment in different areas such as; scientific, sports, social, physical, family, and so on, and according to the present study; the more self-esteem increases, the more the individual's self-assessment and/or according to the expectancy theory; an individual's estimation of his or her ability to perform a specific activity becomes positive, and subsequently perceived competence, as one of the components of the basic needs, increases and causes the individual's body image satisfaction to increase (Cash et al., 2004), also, with intrinsic motivation increasing, an individual further enjoys the activity he or she is performing, and this leads to his or her persistence in the activity he or she is performing (Jahangiri et al., 2013).

Another finding of this study showed that the effect of aerobic exercises based on considering the basic needs, on body image concerns, is significant, and body image concerns were lower in the experimental group. The researcher did not find any study on the effect of aerobic exercises based on considering the basic needs, on reducing body image concerns. But given that the exercise improves physical perceptions such as physical self-worth (feeling of pride, satisfaction, happiness and self confidence) (Eskandarnejad, 2013), and according to studies by Deci and Ryan (2000), who believe that the energy, resulting from the basic needs satisfaction, empowers self, which means with the following needs; autonomy, competence, and relatedness being satisfied in individuals, they will feel the sense of agency, and subsequently their feelings of satisfaction will increase (Cash et al., 2004), it seems that, since the sense of competence is higher in the experimental group than in the control group, thus the members of the experimental group are more satisfied with their body image.

Conflict of interest

The authors declare no conflict of interest

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