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Development the Body Appreciation Training Package and its Effectiveness on Worrying about Body Image and Overweight in Overweight Female High School Students in Isfahan

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ABSTRACT

Objective: The purpose of this investigation was to design a body appreciation training program (focusing on positive body image) and assess its impact on body image concerns and overweight among overweight adolescent girls in Isfahan.

Methods: The study utilized a quasi-experimental approach with pre-test and post-test measurements along with a control group. The target population consisted of overweight high school girls in Isfahan during the year 2021, chosen through cluster sampling from the city's six educational districts. A sample of 40 overweight students was purposefully selected and divided into a control group (20 individuals) and an experimental group (20 individuals). Evaluation tools comprised instruments by Littleton et al. (2005) Body Image Concern Inventory and BMI. A researcher-developed body appreciation package was delivered to the experimental group over 8 sessions lasting 90 minutes each; conversely, the control group did not undergo any interventions. Data analysis was carried out using SPSS-22 software, employing descriptive statistics (mean and standard deviation) and inferential statistics (univariate analysis of covariance).

Results: The outcomes demonstrated a notable statistical difference (P <0.001) in body image concerns between the experimental and control groups. Essentially, the Body Appreciation Training contributed to a decrease in body image concerns among overweight high school girls while it did not have a significant effect on the weight loss of overweight female students.

Conclusions: The discoveries of this research have the potential to inform the development of interventions aimed at mitigating the adverse consequences of obesity and body dissatisfaction among adolescents.

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Introduction

Adolescence constitutes a pivotal and delicate phase of development, often referred to as the "second birth" by psychologists due to its significance (Cox et al., 2011). According to Cox et al. (2011), adolescence stands out as a crucial period necessitating a focus on physical attributes for social acceptance. The issue of body image emerges as a distressing hurdle during adolescence, encompassing various elements such as thoughts, beliefs, emotions, and actions related to one's perceived physical appearance (Golmohamedian et al., 2017). Essentially, body image denotes the internal representation of an individual's external form, encompassing physical, perceptual, and attitudinal aspects (JanNesari et al., 2014). This complex image comprises cognitive, perceptual, and emotional dimensions, leading to discontent when one's mental perception of their body does not align with an idealized self-image (Tylka & Wood-Barcalow, 2015). Cash (2012a-b) posits that body image can be delineated into perceptual and evaluative dimensions, with the former relating to how one's competence is linked to appearance. Evaluation, on the other hand, gauges an individual's satisfaction with their body and appearance. Body image serves as a cognitive representation that influences an individual's self-perception and behavior. It significantly impacts emotions, self-worth, and psychological well-being (Catarino & Gilbert, 2016). Within the realm of body image, dissatisfaction pertains to the adverse assessment of body size, shape, and weight, reflecting a dissonance between actual and desired body image. Instances of body dissatisfaction encompass concerns regarding body shape, weight, specific body features, facial attributes, body proportions, and even skin appearance (Richetin et al., 2012). Overweight conditions represent one of the factors triggering body image concerns among teenagers.

Obesity and overweight is a complex and multifactorial chronic disease in which environmental (social and cultural), genetic, physiological, metabolic, behavioral and psychological factors play a role in its occurrence (Zahedi et al, 2013). Overweight is a range of people's weight that is more than the normal and healthy amount considered for a certain height. Also, overweight indicates amounts of weight that increase the likelihood of developing diseases and other problems related to physical health. For adults, overweight values are determined by using weight and height and calculating the "body mass index" or BMI. To calculate body mass index, weight in kilograms is divided by the square of height in meters (Defining over weight and obesity: center for disease control and prevention, 2014). In most people, this number is related to the amount of body fat.

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There are various ways to determine the amount of overweight and obesity, including the use of waist size, the ratio of waist circumference to hip circumference, body fat ratio and skin thickness. Although other methods may provide a more accurate measure of a person's weight status, the body mass index provides a reasonable measure (National Obesity Observatory, 2009).

The prevalence of overweight has increased significantly over the past two decades and has affected millions of people around the world. According to the report of the World Health Organization (2015), about 2 billion people in the world are overweight, and more than 600 million of them are obese (Pasdar et.al, 2015). In Iran, an estimate of the prevalence of overweight among adolescents is not available at the national level, and the available statistics are obtained from scattered research. Nevertheless, the results of the studies conducted in the past years show the increasing trend of overweight in children and adolescents in many countries of the world, so that overweight in childhood and adolescence can be considered one of the most important health problems of the current decade (Seiedin et.al, 2019).

Since adolescence is an extremely important stage in relation to health, because many health habits and behaviors that are formed in this stage of life have an important effect on health and health behaviors in adulthood. Therefore, adolescence is one of the most critical periods in a person's life (Hemti Muslim Pak et.al, 2016). For this reason, teenagers need education to have a good idea about their body. One dimension of positive body image that has received research attention is body appreciation. Body image has traditionally focused less on identifying, predicting and promoting adaptive body attitudes in describing and predicting negative body image such as body dissatisfaction, body shame. Recent studies have studied positive body image and body appreciation has been one of the main variables in this research (Tylka, 2013). Body appreciation was first explored in Avalos and Tilka's (2006) body acceptance model of visual eating. According to this model, body acceptance by others encourages people to appreciate their bodies and pay less attention to their appearance, which facilitates visual eating.

Hence, there has been a rise in studies on positive body image within the realm of positive psychology, which highlights the strengths and virtues of one's personality. Scholars like Seligman and Csikszentmihalyi have contended that psychology should not solely focus on pathologies and weaknesses; rather, it should concentrate on positive traits of personality to enhance individuals' mental well-being. Moreover, exploring positive body image aids psychologists in comprehending

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how to prevent disruptions in body image by emphasizing body strengths, body appreciation, evaluation of desirable appearance, body self-esteem, and various psychological well-being indicators such as self-esteem, optimism, active coping, positive affect, life satisfaction, and self-compassion (Belton, 2019). From a behavioral perspective, body appreciation significantly correlates with mindful eating (responding to internal hunger and fullness cues) and engaging in physical activities (particularly when the motivation for exercise is not driven by appearance) (Avalos et al., 2005; Tylka & Iannantuono, 2016; He et al., 2020).

Therefore, body appreciation is also examined inversely with body dissatisfaction, social body anxiety, body image avoidance, body shame, body surveillance, and body behaviors. Therefore, body appreciation is not simply tolerating a negative body image or experiencing the feeling of understanding one's attractiveness; Rather, body appreciation includes having a favorable opinion of the body (despite actual weight/body size and perception of flaws), awareness and attention to body needs, engaging in healthy behaviors to care for the body, and protecting the body by rejecting unrealistic media ideals about the body. (Iannantuono & Tylka, 2012). In a variety of body esteem scales, four aspects of positive body image are measured: (a) favorable opinions of one's own body; (b) acceptance of the body despite its defects; (c) respecting the body, especially in relation to its needs and (d) protecting the body, including rejecting unrealistic ideals (Swami et al, 2008).

Tilka and Wood-Barkalow (2015) defined body appreciation as the ability to accept one's body, have a favorable attitude towards it, respect it and reject social ideals that physical appearance is the only form of beauty. Piran (2015) also defined body appreciation as a feeling towards the body, while Bailey et al. (2015) defined this term as a general attitude of love and respect for the body even if there are aspects of it that the person wants to change. Therefore, according to the definitions of body appreciation, body appreciation training, instead of only focusing on things that cause the negative image of the body to disappear, teaches people to change their knowledge and behavior towards the body and to find positive solutions that lead to their well-being and mental health (Lambert et al, 2016); In other words, changing the distance from focusing on body image and moving towards focusing on body appreciation indicates an important change in the way of viewing and dealing with body image. This change indicates a shift away from the emphasis on creating disorders in favor of a general perspective on factors that can positively affect people's

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attitudes towards their bodies (Swami et al, 2019). Body appreciation training provides a way to re-use or reject negative messages, not only emphasizing the elimination of stressors, but also promotes psychological well-being (Bailey et al, 2015).

Research has been conducted in this domain both within and outside of Iran. For instance, Bakisivin and Jankauskin (2020) carried out a study examining the correlation between body appreciation and disordered eating in a large adolescent sample, revealing that body appreciation correlates with higher body mass index levels, while body dissatisfaction and disordered eating exhibit a negative association. Alva et al. (2020) explored the impact of yoga on the appreciation of performance and other facets of positive body image, demonstrating that, contrary to expectations, yoga does not enhance performance and that the appreciation of performance does not act as a mediator for the influence of yoga on positive body image. Additionally, reducing self-objectification and enhancing visualization contribute to an improvement in positive body image. Guest et al. (2019) conducted a study titled "Evaluating the effectiveness of interventions aimed at promoting positive body image in adults," which concluded that various interventions such as intuitive eating, cognitive-behavioral therapy, self-compassion practices, and exercise programs enhance different aspects of fostering positive body image among women. Cox et al. (2019) proposed that body appreciation serves as a mediator between self-compassion and intrinsic motivation for engaging in physical activities, predicting changes in self-compassion, body monitoring, and body appreciation in the anticipated directions.

In another intervention study, Olson et al. (2018) presented a 4-week body acceptance intervention based on cognitive dissonance along with the main components of weight loss treatment to overweight and obese women. This intervention was designed to help resist sociocultural pressures to conform to the thin ideal and reduce the pursuit of thinness, and the results showed that women reported the most significant effects of their intervention on body image (body appreciation) and its potential as a resource in the treatment of body image concerns in obesity. Also, Weaver and Mulgrew (2021), in a study titled the effect of positive appearance and reflective writing practices on body function and response to ideal media exposure in women aged 60-35 years, showed that women who were exposed to images and writing practices had better satisfaction and attitude towards appearance and satisfaction with performance, but no change was observed in body appreciation.

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In domestic studies, Kachoui and Shah Moradi (2018) showed in a research that body mass index has a significant positive relationship with eating disorder symptoms and a significant negative relationship with body appreciation and self-compassion. Sadoughi and Safari Fard (2017) in a study stated that self-compassion significantly moderates the relationship between concern about body image and self-esteem, and in people who have higher self-compassion, the relationship between concern about body image and self-esteem is weaker.

In brief, based on the conducted studies, it can be posited that body appreciation training represents a novel intervention, with the research on body appreciation and positive body image still at a nascent stage and emerging as a recent area of interest. Within this framework, the investigations conducted by the researcher have highlighted the absence of prior studies focusing on imparting body appreciation to adolescents, underscoring a clear research gap in this domain, particularly noticeable in Iran owing to prevailing unhealthy lifestyles and western influences. The escalating rates of overweight and obesity among teenagers in our nation in recent years due to shifting lifestyles (Habibi et al, 2015) emphasize the urgency for interventions that foster body acceptance among adolescents, countering the pervasive influence of social media and foreign outlets on body image perceptions. Despite the increasing significance of this matter in recent times, adolescents grappling with overweight and obesity have been overlooked, making the present study the pioneering endeavor in this realm within Iran. Furthermore, given the adversities associated with being overweight and harboring negative body perceptions, and their implications on the lives and prospects of teenagers, there is a compelling need to deliver requisite training for enhancing health behaviors and crafting preventive or remedial strategies at this developmental stage. Therefore, this study aims to address the research query: does body appreciation training yield a substantial impact in alleviating concerns related to body image and overweight among overweight female students in high schools in Isfahan city?

Materials and Methods

According to the primary research question, the study focuses on exploring the impact of body appreciation education, specifically promoting a positive body image, on the concerns related to body image and overweight among overweight female students. The current study adopts a semi-experimental design of pre-test and post-test nature, incorporating a control group. The statistical

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population under investigation comprises all overweight female students attending high schools in Isfahan city during the year 2021. These students were chosen through random sampling from the six educational districts of Isfahan (Districts 3 and 6). Subsequently, four secondary girls' schools from the second period were selected within these districts. Among the students of these selected schools, 40 overweight students were identified based on their body mass index, which was determined by the researcher in collaboration with the physician from Isfahan Health Center No. 1. The selection of these students utilized a purposeful sampling approach. Furthermore, the control group consisting of 20 individuals and the experimental group consisting of another 20 individuals were matched based on their educational background and weight status.

Instruments

Body Image Concern Scale: Body Image Concern Scale (BICI) by Littleton et al. (2005) was developed and its psychometric properties were evaluated in Iran (Mohammadi & Sajjadinejad, 2016). This scale has 19 items and is self-report. The subject must answer the questions on a five-point Likert scale from 1 (never) to 5 (always). Accordingly, the range of scores is between 19 and 95, and the higher the score, the higher the concern about body image. This tool has good reliability and validity, the reliability of the scale was checked by internal consistency method and Cronbach's alpha coefficient was 0.93. The correlation coefficient of each question with the total score varied from 0.32 to 0.73 and the average correlation was 0.62. The convergent validity of this scale has been obtained by calculating its correlation with the obsessive-compulsive questionnaire and the eating disorders questionnaire, respectively 0.62 and 0.40. In Iran, the validity of the questionnaire was measured in 209 female high school students in Shiraz by two methods of split-half and internal consistency, and coefficients of 0.66 and 0.84 were obtained, respectively. Also, Basaknejad and Ghaffari (2006) after translating the body image concern scale, administered it under the title of fear of body image on 263 male and female students in Ahvaz. The reliability of the questionnaire was reported as 0.93, 0.95, and 0.95 for female students, male students, and all students using Cronbach's alpha method. To calculate the concurrent validity coefficient, the scale of fear of negative evaluation of physical appearance and fear of negative evaluation was used, which obtained correlation coefficients of 0.55 and 0.43 respectively at a significance level of 0.001 (JanNesari et al, 2014).). The reliability coefficient of the mentioned scale in the present study was obtained using Cronbach's alpha of 0.95.

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Overweight: The measure of overweight was acquired through the process of weighing individuals using a digital scale and recording their height, followed by inputting these values into the formula for body mass index. The body mass index formula involves dividing the weight of an individual (measured in kilograms) by the square of their height (measured in meters). The classification of body mass index aligns with the guidelines provided by the World Health Organization, where individuals with a BMI below 18.5 are categorized as underweight. (Zebardast et al, 2015). In the current study, body mass index (between 25 and 30) was used to measure students' overweight.

Method of implementation and analysis: The procedure for conducting the study was structured as follows: Initially, a cohort of 60 students from secondary educational institutions during the second academic term was chosen based on specific inclusion criteria (e.g., having a body mass index ranging from 25 to 30, achieving high scores on the body image concern questionnaire, currently enrolled in the second year of high school, providing informed consent for participation, and not engaged in other educational or counseling programs) and exclusion criteria (e.g., undergoing concurrent counseling sessions, missing more than two sessions, unwillingness to participate, and neglecting homework). Subsequently, 40 students meeting the criteria of elevated body image concern scores and a body mass index between 25 and 30 were selected as the sample and randomly assigned to control and experimental groups, each comprising 20 individuals. The experimental group underwent an eight-session body appreciation training regimen, delivered twice weekly (virtually and online) from February to March 2019, while the control group received no intervention until the study's conclusion. Post-intervention, ethical standards were upheld by extending the intervention to the control group, and ensuring the confidentiality of all participant-related information. Throughout the research process, ethical guidelines were strictly followed, encompassing coordination with educational authorities, school administrators, and teachers, as well as obtaining consent from parents and students. Furthermore, students were briefed on the research objectives, assured of data confidentiality, provided the option to access the research results, and granted the choice to continue or withdraw from the study at their discretion. Data analysis involved utilizing statistical software (version 22 of the social sciences package) to perform descriptive statistics (mean and standard deviation) and inferential statistics (covariance analysis adhering to the assumptions of Levin's and Kolmogorov–Smirnov tests).

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A educational package on body appreciation was curated, drawing from pertinent literature such as works by Bakisivin & Jankauskin (2020), Weinberger & Luke-Sikorski (2020), Gust et al. (2019), Cox et al. (2019), Homan & Tilka (2011), Andrew et al. (2016), as well as the book "Positive Body" authored by Daniels, Gillen, and Markey (2018). This resource, overseen by a supervisor, focuses on fostering positive body image through aspects like body acceptance, appreciation of body function, body health, intuitive eating, media influence on body ideals, and enhancement of body self-esteem.

As per the literature existing in this domain and the sections deliberated for this particular objective of body appreciation, the content covered in these literary works aligns with our outlined points. Consequently, based on the criteria laid out in the literature of this field and the chapters dedicated to exploring this concept, a specific number of sessions were structured. Notably, guidance from group counseling resources suggests a range of 8 to 12 sessions for effective training of groups. Moreover, drawing from the materials derived from these sources and their organization, a suitable number of sessions was designated. Hence, this set number of sessions was deemed appropriate for the training of individuals. Furthermore, various scientific articles have highlighted semi-experimental and interventional studies, particularly in group training sessions, recommending a range from 8 to 12 sessions. Considering these three contributing factors, the number of sessions was calibrated, leading to the implementation of an 8-session training program lasting 90 minutes each for the experimental group. It is essential to highlight that during these educational sessions focused on fostering positive body image, texts such as "Love Yourself: A Positive Emphasis Guide to Loving and Appreciating Your Body" (Louise, translated by Jahid) and "My Lovely Body" (Williamson, translated by Pourazad) were utilized alongside relevant clips and videos like "I am body beautiful: The most bodacious body-positive movies." The validation of the educational package was achieved through endorsement from five professors in the psychology department, yielding an internal agreement coefficient of 0.74, signaling the package's validity. The deliberate selection of expert samples was based on purposive sampling, ensuring the inclusion of the minimum requisite number for content evaluation as outlined by Vakili & Jahangigi (2018).

The description of the content of the meetings is presented in Table 1:

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Table 1. Summary of the content of body appreciation training sessions

Session	Content	Homework
1. Acquaintance and introduction	Conducting the pre-test, introducing and familiarizing the group members with each other, talking about the rules and the time and day of the meetings, expressing the need to appreciate the body and have a positive image of the body.	Practice thanking your body for all it has done for you. Then they were asked to practice these topics at home and report the results at the next meeting.
2. Favorable body opinion is body positive (despite actual weight/body size and perceived flaws)	Replace body judgment with body celebration. Notice how your mood changes based on your mindset on a given day. On days when you really struggle with your body image, find positive or even just neutral words to describe your body. Remove self-deprecating words from your vocabulary and replace them. Talk to your body and body language the way you would talk to a friend. If your nose is big, celebrate it by saying: I have a striking, memorable and commanding nose	Doing and practicing the 4 things mentioned in this meeting and making a list of reasons for liking and not liking your body.
3. Awareness and attention to the needs of the body	The components of positive body image appreciation include respecting, honoring, loving, and showing appreciation for the body's features, functions, and health. It includes praising the body for what it can do, what it represents, and its unique qualities. An inclusive love and respect for the body that allows people to appreciate the unique beauty of their body and the functions it performs for them; Therefore, it is necessary to know the needs of the body, including health and health related to the body.	Consider if you feel better about your body after a week of avoiding negative body talk. If the answer is yes, continue.
4. Change in media idealization	Designate your social media posts to display messages and images that promote self-confidence and a healthy body connection. Remember, don't obsessively check your social media for likes and views - if it's not productive, limit your time on social media. For example, "I appreciate the different and unique features of my body", "I love my body", "I feel beautiful even if I am different from attractive media images", or "beauty and thinness models and actors in my attitude towards My body is not affected."	Members were asked to look at the bodies of the women around them and check their positive points until the next session.
5. Body self-esteem	Live your life. One of the ways to create a healthy relationship with your body is to change your appearance and style. Cut your hair, buy yourself some new clothes, or go through your closet and find something different than what you usually wear. Wear bright colors and patterns or try solid colors. Take inspiration from public figures or people in your life who are confident in their bodies and whose styles you admire, just be careful not to fall into the comparison trap while doing so. The point is to try something new for yourself, not to depend on someone else. Read books about overcoming body shame. A great way to learn new body appreciation tactics is to read the stories of others who have transformed their relationship with their bodies. Avoid diet books or anything that suggests it will change your appearance in any way. Avoid taking advice from people who seem to think too much about body happiness. The pictures on the cover of health magazines do not create a healthy self-esteem, most of them are only about happiness. Don't let these narrow views limit you. Instead of focusing on what you no longer want, focus on what you do want, then write a love letter to your body by creating a positive body image. You can use phrases like, "I feel confident and worthy of love and respect." Or write the exact opposite of every negative thought about yourself to counter it.	Members were asked to view books and clips on the subject and express their opinions.
6. Body acceptance and love and	It is internal positivity that affects external behavior. Start your day with self-praise and direct your thoughts instead of letting negative self-talk begin. For example, start your day by	Every morning when you wake up and every night before you go to sleep, write

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appreciation of body function	thinking, "You are kind. You are smart. You are important." Notice that when you are harsh on your body, immediately replace the positive self-talk with three personal strengths such as kindness, passion, and creativity Use confirmations. For some, using affirmations can be helpful when practicing body positivity. You can use affirmations in a variety of ways, such as saying them out loud to yourself in the mirror with complete conviction. Or by writing and placing them in the areas where you spend your time during the day such as the room, bathroom. Using affirmations is very effective in retraining the subconscious mind to create a better relationship with the body. You could write something like, "My worth is in my honesty and kindness," or "I love and accept my body".	down three things you are grateful for.
7. Taking care of the body through healthy behaviors	Body appreciation is an important variable in targeting activities related to eating behavior, physical activity and drug and cigarette use, tattoos. Yoga and self-care practices Strengthening body image and cultivating positive image Self-compassion and self-compassion means being alert, kind and cultivating self-management Motivating for exercise	Until the next session, practice self-care behaviors and body function using positive visualization and mindfulness.
8. The effect of body appreciation on lifestyle and mental well-being	The psychological well-being of a positive body image is related to many indicators of positive psychological well-being, such as optimism, self-esteem, active coping, life satisfaction, mental happiness, emotional intelligence, and a sense of connection with nature.	Until next week, use positive affirmations and positive self-talk for themselves.
9. Summary	Conducting the post-test, getting feedback from the participants and summarizing the contents of the meetings with everyone's participation.	

Results

Demographic characteristics showed that most of the participating students were in the 11th grade and were 18 years old. Also, the average weight of the students was 75 kg and their height was 155 cm. In Table 2, the results of descriptive statistics (mean and standard deviation) of research variables according to group membership in pre-test and post-test are presented:

Table 2. Descriptive statistics results of research variables

Variable	Control group				Experimental group			
	Pretest		Posttest		Pretest		Posttest	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Concern about body image	48.60	15.71	57.30	16.89	46.05	12.41	26	5.40
Overweight	27.36	1.36	27.34	1.36	26.95	1.39	26.89	1.37

In general, it can be stated that the average scores of concern about body image in the post-test of the experimental group decreased more than the control group; While the average scores of overweight have not changed significantly. To perform the analysis of covariance test to examine

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the research question, it is necessary to comply with a series of assumptions, the results of which are presented in Table 3:

Table 3. The results of Kolmogorov–Smirnov test and Levin test

Variable	K-S (control group)				K-s (experimental group)				Levene's test	
	Pretest		Posttest		Pretest		Posttest		Statistic	P
	Statistic	P	Statistic	P	Statistic	P	Statistic	p		
Concern about body image	0.49	0.96	0.65	0.78	0.82	0.82	0.99	0.27	1.97	0.16
Overweight	0.46	0.98	0.60	0.85	0.64	0.80	0.69	0.71	0.88	0.35

The results of Table 3 show that the data normality test (Kolmogorov–Smirnov test) and the homogeneity of variance results (Levene's test) showed that the obtained significance level is above 0.05; Therefore, the assumptions of the covariance analysis have been met. Results of the covariance analysis test was is given in table 4.

Table 4. Covariance analysis of the effect of body appreciation training on research variables with pre-test control

Variable	Source	SS	DF	MS	F	P	Effect size	Power
Concern about body image	Pretest	1220.68	1	1220.68	12.56	0.04	0.20	1
	Group	909.72	1	909.72	70.67	0.001	0.65	0.85
	Error	4757.59	37	128.63				
	Total	85166	40					
Overweight	Pretest	71.04	1	71.04	1.04	0.001	0.99	1
	Group	0.019	1	0.019	2.87	0.098	0.072	0.37
	Error	0.251	37	0.07				
	Total	87.63	40					

As can be seen in Table 4, the difference between the two experimental and control groups in concern about body image is statistically significant (P<0.05), while it has no significant effect on overweight. In other words, body appreciation training has reduced concern about body image in overweight female students of the second secondary school; While it did not reduce overweight in students. Also, according to the eta coefficient, about 65% of the variance of the variable of concern about body image is related to the effect of training and the implementation of the intervention.

Discussion

During puberty, teenage girls think a lot about their body image. They also compare their bodies with others. A positive body image during adolescence is an important part of having healthy self-

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esteem, and proper education can help teenagers feel positive about their minds and bodies; Therefore, the aim of the present study was to determine the effectiveness of the body appreciation (positive body image) training package created by the researcher on the concern about body image and overweight in overweight female students of high school in Isfahan city. The findings of the research showed that body appreciation training reduced body image concerns in female students, but did not affect the reduction of overweight. According to the research conducted by the researchers to confirm the alignment and non-alignment found in the current research, no research was found directly in this field; But in similar fields and in an indirect and relational way, there have been studies that have been mentioned in the introduction, including Weaver et al. (2021), Bakisivin and Jankauskin (2020), Gust et al. , Cox et al. (2019), Andrew, et al. (2016a-b), Halliwell et al. (2015), Halliwell (2013, 2015), Kechuyi and Shah Moradi (2018), Sassaniet al. (2018). In general, the findings of the mentioned studies have also shown that body appreciation and concern about body image have a significant relationship with each other.

Girls who are unhappy with their bodies may buy or wear clothes that cover the unpleasant parts or emphasize certain parts. This type of covering helps a person to move his self-concept in line with the ideal body image. It is also possible to use the diet as a tool to obtain a desirable body image and close to the ideal body image, while in these sessions, overweight girls were taught to love themselves as they are and focus on their abilities and focus on the capabilities they have. Many advertisements show that some drugs are useful for slimming, and people who go to fitness clubs are faced with many powders and herbs that they are willing to use because they just want to have a beautiful body. However, these actions do not change their attitude, and in order to accept and love their body as it is, they should take care of their body by cultivating positive self-image, self-compassion, and motivation for exercise. In general, one of the positive attitudes that can improve people's body image concerns is the amount of investment that people make in their bodies. Body appreciation refers to how one feels about body image, body care, and body protection. As Oktan (2017), from the University of Trabzon, Turkey, in a study entitled "Investigation of the relationship between self-destructive behavior, body image and self-esteem" concluded that there is a significant relationship between body image and self-esteem of adolescents and that body image and self-esteem are predictors of behavior. Also, Ahadzadeh et al. (2017), in research titled the relationship between body mass index, body image and fear of

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negative evaluation: the moderating role of self-esteem, showed that body mass index has a negative relationship with body image; While no such relationship was found with the fear of negative evaluation. Meanwhile, the negative correlation of body mass index with body image was higher among people with lower self-esteem; While the positive association of body mass index with fear of negative evaluation was significant only among people with low self-esteem; Therefore, one of the things taught in the body appreciation sessions is body self-esteem. Self-esteem needs lead a person to feel confident, valuable, strong, and adequate; But failure to satisfy these needs causes feelings of inferiority, weakness and helplessness in a person.

One of the techniques mentioned for body self-esteem is to focus on what you want instead of focusing on what you no longer want, then write a love letter to your body by creating a positive body image, which this technique allows you to accept that some of the beliefs that They can be wrong about their physical appearance, so they will judge more realistically about their body and its appearance and will look for more logical external evidence about their body and will not be influenced by media and modeling. Also, during the intervention sessions, by showing clips and successful people who are fat or overweight, the attitude of female students regarding the capabilities and abilities of these people was affected and they realized that these people do many things with self-esteem and self-confidence, which makes them self-confident (Avalos et al, 2005). In addition, health behaviors such as regular physical activity and seeking medical care have been found to be associated with increased levels of body appreciation (Andrew et al, 2016). Likewise, body appreciation is considered a potential protective factor for physical and mental health (Tylka & Wood-Barcalow, 2015).

In general, people with high self-esteem are more likely to report fewer negative feelings about their body and appearance and less fear of others' judgments about their bodies than those who are overweight, underweight, or normal weight. They tend to feel positive about their bodies, while people with low self-esteem tend to evaluate their appearance in a negative and critical light. High body self-esteem makes people accept imperfections in their appearance and body and feel that they deserve value and respect for themselves and others regardless of their appearance. In fact, people with high self-esteem appreciate their strengths, invest in their abilities and competencies, and do not lower their self-esteem if they are not satisfied with their appearance. They feel that they are able to express themselves adequately in public even when faced with difficult emotions

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or situations. In other words, self-esteem directly affects people's feelings, thoughts and behaviors related to their appearance. If people feel good about their whole self, especially their body, and care about themselves, they will notice the good things about their body more and respect their body. In fact, people with high self-esteem maintain self-respect, tend to think realistically, and try to cope with concerns about their body image and appearance.

On the other hand, in recent years, the study of body image has shifted from a focus on negative aspects to a broader view of body image, and research suggests that greater levels of body appreciation and body satisfaction may occur when viewing media images of the thin ideal. protect women from its negative consequences (Mulgrew et al, 2021). Since the body appreciation educational package is based on the positive psychology approach, it emphasizes positive cognitive aspects and focuses on changing attitudes and recognizing strengths and positive points instead of emphasizing weaknesses, which made female students participating in the training sessions will bring awareness to the fact that appreciating the body and being satisfied with it is an internal and attitudinal matter and is influenced by one's own thoughts and imagination, and instead of constantly looking for models and ideal people of beauty in social networks and fashion magazines.

Also, in explaining the ineffectiveness of body appreciation training on reducing overweight, it can be stated that body appreciation studies in different body mass index groups have reported an inverse relationship between body mass index and body appreciation for different ethnic groups (Tylka & Wood-Barcalow, 2015b; Razmus & Razmus, 2019). For example, it showed a lower level of body appreciation in overweight/obese people compared to normal weight people. However, there are also studies reporting a lack of association between body mass index and body esteem (Swami et al, 2008; Weinberger & Luck-Sikorski, 2020). For example, the results of Bakisivin and Jankavskin's (2020) research showed that body appreciation scores had a negative relationship with body mass index, body dissatisfaction, and irregular eating behaviors, and had a positive relationship with self-esteem and body performance. Body image concern shows the subjective component of a person's body image and the degree of satisfaction with their body size or specific body parts, while body mass index reports the actual physical measurement of a person's weight and height, which the results obtained confirm the same issue. Since the weight and height of female students did not change significantly during the intervention period, their body mass

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index also changed. In other words, the duration of the intervention was not enough to influence the overweight variable of female students.

On the other hand, according to the theoretical foundations of the research that the main aspect of a positive body image is body appreciation, which is defined as acceptance, having favorable opinions about the body, respect for the body, and resistance to the pressure to internalize stereotypical standards of beauty as the only form of human beauty and appreciation of performance and health are defined, it can be said that in these training sessions, more emphasis is placed on the cognitive aspect and positive image, and less attention is paid to the behavioral and physical aspect that affects overweight, which according to cognitive-behavioral theory first changes in cognition and then behavior, and the number of sessions and duration have been insufficient to reduce overweight. As Andrew et al.'s (2016) longitudinal study showed in adolescent girls, body appreciation prospectively associated weight loss, alcohol and smoking consumption, and increased physical activity after one year.

Also, according to studies, it can be stated that concerns related to body image can be barriers to participating in physical activities in teenage girls to reduce overweight (Radwan et al, 2019), which indicates the insufficient duration of training sessions, because training sessions It has reduced the concern about body image in female students, which was mostly cognitive and attitudinal, but it has not yet had an effect on reducing overweight, which requires more preparation and motivation. El-Ansari, et al. (2014), reported that women with body dissatisfaction were less likely to diet and were at greater risk for developing eating disorders. Wang et al. (2009) also showed that adolescent girls expressed dissatisfaction with weight more than adolescent boys, but perception and dissatisfaction with body weight did not affect their use of weight control methods; Therefore, it is important to understand the role of body appreciation in the formation of adolescent health habits and body mass profile in future studies. Also, making a decision to lose significant weight requires a very strong will and perseverance and continuous and regular exercises that are correct and basic, which in this period of one month due to the intensive volume of meetings due to the conditions of Corona. Also, in these training sessions, weight control was not given to the students due to the lack of experts in the field of fitness and diet therapy in the sessions, and the emphasis of the sessions was on loving and appreciating their bodies as they are.

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Among the constraints of the present study, it can be noted that there was a lack of a follow-up phase due to the Covid-19 pandemic, and the study focused on overweight female students from the high schools in Isfahan city. Caution is necessary when attempting to generalize the findings to other populations. Thus, considering the significant impact of cultural context on attitudes towards overweight individuals, it is recommended that future researchers replicate the study in different urban areas.

Moreover, to ensure the sustained efficacy of research outcomes, it is advisable to conduct follow-up studies. The body appreciation educational program, developed for the first time in this study based on relevant foreign literature, should be utilized in subsequent research to assess its impact on various parameters, thereby identifying its strengths and limitations. Additionally, it is proposed that the body appreciation training program be adapted for use through semi-structured interviews with representative individuals. Recognizing the positive influence of body appreciation training on body image concerns, it is suggested that adolescent counselors, fitness centers, and diet therapy clinics consider implementing the training program as a valuable strategy for addressing body image issues, particularly among adolescent girls. The findings of this study could be leveraged to organize conferences and establish facilities aimed at teenagers dealing with eating disorders, identity issues, and depression, while also enhancing adolescent counseling services and promoting positive psychology interventions for young individuals. Furthermore, informational materials such as brochures or booklets can be created based on the research findings and distributed to overweight teenagers and their parents within school settings.

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Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Islamic Azad University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis and contributed to the article and approved the submitted version.

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