The effectiveness of puberty mental health training on fear of body image and adjustment in high school male students

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Journal of Research & Health
Social Development & Health Promotion Research Center
Vol. 3, No. 1, 2013
Pages: 269-277
Original Article

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Received: 29 April 2011
Accepted: 21 Jun 2012

How to cite this article: Bassaknezhad S, Ataie Moghanloo V, Mehrabizadeh Honarmand M. The effectiveness of puberty mental health training on fear of body image and adjustment in male students. *J Research Health* 2013; 3(1): 269-277.

Abstract

Adolescence is fraught with physical and psychological changes, including trait level changes in major domains of personality. Trying to adapt a person with physical and emotional mood changes may cause a negative influence on the development of mental disorders in adolescents. Thus, a plan should be developed for awareness in relation to these modifications until the needs of adolescents in the sensitive period are met. The purpose of the quasi-experimental study was to investigate the effect of puberty mental health training on fear of body image and adjustment in male second graders at high schools in Ahvaz. This study attended by 30 students (15 in experimental and 15 control groups) who had a fear of body image and low adjustment. We used multi-stage random sampling method. For the boys of the experimental group, mental health training were designed and implemented in eight sessions for two months. After the meetings, the two variables of fear of body image and adjustment were measured with Littleton, Axsom, and Pury body image concern inventory and Sinha and Singh Adjustment Inventory for high School Students. Difference in mean scores of fear of body image ($P<0.001$) and adjustment ($P<0.001$) in case group was statistically significant compared with the control group. The education with planning and better coordination between psychologists and schools for all students in the puberty age be implemented so that to prevent and control the crises, which may endanger the future of the juvenile, proper action should be taken.

Keywords: Body Image, Mental Health, Puberty, Student

Introduction

Adolescence is defined as a stressful period with great sensitivity to stress, and puberty is a turning point in transition between childhood and adulthood [1]. Puberty is one of the most critical periods of anyone's life. In this period, adolescents have contradictory interests and desires. Although they tend to be with their friends, they like solitude [2]. Other signs of puberty include major hormonal changes which probably play a main role in emotional instability. Evidence actually shows that simultaneous to these changes in adolescence period, depression, fear and anxiety appear in them due to risks of changing and social evaluations. Males are considered at the culmination of their aggression, maladjustment, and delinquency, and drug abuse increases during this time [3].

A problem which may appear in an individual simultaneous with puberty is the concern about body image or negative body image called fear of body image. Body image is a multi-factorial and diverse structure which includes the mental evaluations of body. This involves the cognitive and behavioral evaluations of size, beauty, appearance, function, unsuitability of body curves, and health of different parts of the body. Studies have shown that evaluations of body malfunctioning reach their maximum during adolescence and puberty, and this is a regular dissatisfaction [4]. It is a worrisome problem since a disturbed body image may bear deep intolerable psychological outcomes [5]. Moreover, during puberty, dissatisfaction toward the physical appearance increases because the changes in physical norms such as weight gain during puberty confront with social prescribing and idealism in relation to physical attractiveness [6].

Another variable whose problematic form often appears with puberty is the adolescent's maladjustment in educational, emotional, and social fields. Maladjustment refers to a change or return in behavior or emotions which occurs in response to a special environmental change in one's life. Due to the fact that the adolescents may not understand the occurring change properly, maladjustment during puberty is seen in various forms such as excessive shyness and embarrassment, anxiety, depression, aggression, and unusual behaviors which are not specific to one individual [7]. Behavioral and self-concept maladjustments are more observed during adolescence, hence, they are more under scrutiny [8]. Common behavioral problems of adolescents are classified into two broad categories: internal problems and external problems. External problems are identified with externalizing behaviors which hurt others and is inconsecutive. Internalized problems and maladjustment behaviors involve behaviors like depression, anxiety, somatization, and inhibitory behaviors [9].

Various strategies have been employed in order to increase adjustment of students. Results obtained by Dortaj, Masaebi, and Asadzadeh [10] showed that training anger management skills to male and female students reduced their aggression and increased their level of adjustment. Based on the results of the study by Nabours, Raynold, and Wist [11], providing life skills training program to 61 high school students resulted in promoting their educational, personal, and interpersonal performance and relationship with peers. Another study was carried out to increase the social adjustment of students, in which, due to the shyness of students during the puberty period, the effect of assertiveness methods on the mentioned variable was examined and proved [12]. Studies have shown that mass media are influential in increase or decrease of girls' and women's concerns about their weight and body image through appropriate or inappropriate trainings, whilst social-cultural and personal factors are also involved in those concerns [13]. In a study by Rasouli, Amin, and Tavafian [14] in Iran, the consolidated health training program had a positive effect on the knowledge, attitude, and nutritional performance of female middle school students in Bojnourd city (East north of Iran). The effectiveness of puberty health training program on knowledge, attitude, and general health of adolescents was also reported in a study by Keramati, Esfandiyari, and Mahjoub [15].

Furthermore, scholars have studied the effect of cognitive-behavioral therapy on 30 young women with normal weight and negative body image but without eating disorders and the results proved the effectiveness of this type of therapy in young women with negative body image [16]. A study by James, Pam, and Jeff [17] also showed the effectiveness of the cognitive-behavioral therapy in treatment of negative body image and its psychological symptoms, self-esteem, and overeating and its subsequent feeling guilty in 51 women. In one study [18] on male adolescents, MacCabe, Ricardly, and

Karants came into the conclusion that the body image health training program decreased negative emotions, and misunderstanding about body image in the post-test and follow-up.

During pubertal development in adolescents that leads to the sensitivity to stress and tension [19], the individual responds to the internal changes with impatience and anxiety and acts inconsistently. Therefore, studying the effectiveness of puberty mental health training on that variable is of special importance. Besides the problems mentioned above, inaccessibility to adequate training on problems with puberty health, especially through safe and planned information resources, is one of the important problems facing the adolescents. Thus, it is necessary to examine the following hypotheses in the present study.

1. The puberty mental health training reduces the fear of body image among male students.
2. The puberty mental health training increases the adjustment in male students.

The results of the present study can be used by families, the educational system, all people, and the centers and organizations which are somehow in connection with adolescents.

Method

The research population included all the male second grade students studying in high schools of Ahvaz, Iran, in 2011-2012. The sample of this part of the study involved 30 male second grade students who were selected using multi-stage cluster sampling. Regarding the confidence interval of 95%, statistical power of 80%, maximum error of 5%, and the mean and standard deviation of the two populations, minimum sample size for the adjustment variable and the fear of body image variable was obtained as 26 and 30 students, respectively. The sample size of 30 students was determined as the minimum sample size for both areas. To do sampling, Upon receiving permission from the Education Department, prior to beginning the training program, the researcher(s) referred to the public high schools for boys in the four districts of Ahvaz for completing the questionnaires. 5 high schools were first selected randomly from each district of the four districts of the Education Department in Ahvaz, then, 3 classes were randomly selected from each high school. After that, the adjustment test was performed on 568 male students and then 150 students had one standard deviation less from mean were selected. In the next step, the body image concern inventory was given to the 150 maladjusted students and then 30 students who obtained one standard deviation higher than mean in the body image concern inventory were selected. The 30 students were randomly divided into two experimental and control groups. This quasi-experimental research was conducted in a "pretest-posttest with the control group" design.

The 8-session intervention (an hour and a half) was performed on the experimental group. The schedule of the sessions was as follows:

The first session: studying physical characteristics during puberty; the second session: studying the behavioral characteristics during adolescence and puberty; the third session: studying the temperamental characteristics during adolescence and puberty; the fourth session: defining and explaining aggression and the way it occurs during adolescence and in any people in the group; the fifth session: methods of managing anger and aggression and presenting adjustment methods along with teaching relaxation; the sixth session: how to create the body image in mind and training how to create a positive image of physical appearance; the seventh session: establishing a positive social relationship with parents, friends, and the society, and the eighth session: examining the adolescents' understandings about themselves and the way of controlling negative thoughts and being adjusted to the social environment [20 & 21].

Respecting the medical and research ethics, the questionnaires and their educational

contents were verified by Faculty Research Committee, and the Security, Research, and Consultation Units of Education Department. Moreover, it is noteworthy that a written consent was taken from the parents of the selected students for participation in the intervention sessions. Also after performing the post tests, a meeting with the presence of all participants was held in one of the schools and the questions of the control group about the research and its educational content and other procedures were answered appropriately in order to respect the research ethics and also thanking both the experimental and the control groups.

In this study, the questionnaires of concern about body image and adjustment of high school students were used.

The body image Concern Inventory (BICI): This self-report paper-and-pencil questionnaire contains 19 items and was first introduced and validated by Littlton, Oxam, and Pouri [22]. The students had to answer the questions within the five-point Likert scale as the range of the answers was between 1 (never) and 5 (always). Results of the study by Littlton, Oxam, and Pouri [22] on a sample of university students showed that reliability of the questionnaire using Cronbach's alpha was 0.93. Furthermore, the validity coefficient of the questionnaire was reported as 0.83 through correlation with self-report scale of body dysmorphic disorder. In Iran, Bassak nejad and Ghafari [23] determined the reliability of the questionnaire, using Cronbach's alpha, for female, male, and total students as 0.93, 0.95, and 0.95, respectively. The fear of negative evaluation of physical appearance and fear of negative evaluation scales were used for determining the validity coefficient. The correlation coefficient of fear of body image and fear of negative evaluation of physical appearance scales was 0.55 ($R=0.55$) at the significance level of $P<0.001$. Furthermore, the correlation coefficient of fear of body image and fear of negative evaluation scales was 0.43 ($r=0.43$) at the significance level of $P<0.001$ [23]. Based on the above results, the body image Concern Inventory enjoys favorable psychological features.

The adjustment of high school students questionnaire: This questionnaire is a self-report paper-and-pencil instrument which was introduced by Sinha and Singh in 1993 and translated to Persian language by Karami in 1377 [24]. The questionnaire separates the high school students (14-18 years old) with favorable adjustment from the students with poor adjustment in terms of three factors including emotional, social, and educational adjustment (each with 20 items). The final questionnaire contains 60 items selected from the initial 100 questions through factor analysis. Sinha and Singh performed the questionnaire on 1950 high school students (1200 boys and 750 girls) and determined the validity of the total adjustment questionnaire, using three methods of split-half, test-retest, and Kuder-Richardson formula 20, as 0.95, 0.93, and 0.94, respectively. The questionnaire can be graded manually. The answers showing adjustment are assigned zero and the rest are assigned 1. In Iran, the construct and content validity of the questionnaire have been proved by three professors of consultation, psychometrics and statistics. The professors confirmed that the questionnaire is valid for measuring the adjustment of high school and pre-university students in three emotional, social, and educational fields. The total score of the questionnaire indicates individual's general adjustment modes [24]. In the present study, the Cronbach's alpha was used to determine the reliability of the questionnaire as the Cronbach's alpha for elements of emotional adjustment, social adjustment, and educational adjustment was determined as 0.91, 0.85, and 0.89, respectively. The Cronbach's alpha for the total score of the questionnaire comprised 0.88.

Results

Table 1 shows the mean and standard deviation of dependent variables of fear of

body image and adjustment in the experimental and control groups in pre-test and post-test separately.

Table 1- *Mean and standard deviation of the scores for fear of body image and adjustment in the experimental and control groups*

Variables	Statistical indexes	Experimental group		Control group	
		Pre-test	Post-test	Pre-test	Post-test
Fear of Body image	Mean	81. 53	20.33	81. 20	80.47
	Standard deviation	5. 55	1. 291	3. 78	4. 068
Adjustment	Mean	56. 2	7. 33	54. 8	54. 93
	Standard deviation	1. 821	1. 345	2. 513	2. 314

As seen in the Table 1, mean and standard deviation of the pre-test and post-test scores of the fear of body image in the experimental group comprised 81. 53, 5. 55, 20.33, and 1. 291, respectively, and those in the experimental group comprised 81. 20, 3. 78, 80.47, and 4. 068, respectively. Mean and standard deviation of the pre-test and post-test scores of adjustment in the experimental group were 56. 2, 1. 821, 7. 33, and 1. 345, respectively, and those in the experimental group comprised 54. 8, 2. 513, 54. 93, and 2. 314, respectively.

In order to examine the effect of the experimental intervention, the multivariate analysis of covariance (MANCOVA) was carried out on the post-test scores by controlling pretests of the study (fear of body image and adjustment). Table 2 shows the results of MANCOVA on the post-test scores, controlling the pretests.

Table 2- *The summarized results of MANCOVA for comparison of the post-test means of fear of body image and adjustment by controlling pretests in the case and control groups*

Effect	Test	Value	F	Hypothesis df	Error df	P-value
Group	Pillai's trace	0.997	4066. 88	2	25	0.001
	Wilks' lambda	0.003	4066. 88	2	25	0.001
	Hotelling trace	325. 35	4066. 88	2	25	0.001
	Roy's largest root	32. 35	4066. 88	2	25	0.001

Table 2 shows that there is a significant difference between the case and the control groups in terms of at least one dependent variable (fear of body image and adjustment). To analyze the difference point, the one-way ANCOVA was performed on the dependent variables within MANCOVA. The results of the analysis are shown in Table 3. Table 3 shows the results of the one-way ANCOVA within MANCOVA for comparison of posttests of both dependent variables (fear of body image and adjustment) by controlling pretests in the experimental and the control groups.

Table 3- *The results of the one-way ANCOVA within MANCOVA on mean post test scores of both dependent variables (fear of body image and adjustment) by controlling pretests in the experimental and the control groups*

Effect	Dependent variable	Total square	Degree of freedom	Mean square	F	P-value
Group	Fear of body image	24391. 24	1	24391. 24	2. 824	0.001
	Adjustment	15758. 51	1	15758. 51	5. 868	0.001

The results in Table 3 show that the one-way ANCOVA for the fear of body image variable was significant (F=2935. 02 and P=0.001). To understand the difference, mean post-test scores of the experimental and control group must be simply compared together in terms of the mentioned dependent variables. Based on the results in Table 1, mean post-test total

score for the fear of body image in the experimental and the control group were obtained as 20.33 and 80.47, respectively, which indicated the fear of body image in the experimental group was reduced in post-test. In respect to the post-test total score of adjustment, mean score in the case and control groups comprised 7. 33 and 54. 93, respectively, which showed the adjustment of the experimental group increased significantly compared to the control group. The hypotheses 1 and 2 of the study on the effectiveness of puberty mental health training in reduction of fear of body image and increase of adjustment among male second grade students of high schools in Ahvaz was proved.

Discussions

As shown in tables 2 and 3, the hypotheses 1 and 2 of the present study were proved. According to the above hypotheses, the effectiveness of puberty mental health training on the fear of body image and adjustment and also on each of these dependent variables (fear of body image and adjustment) was proved. In fact, puberty mental health training reduced the fear of body image and increased the adjustment of male second grade students of high schools in Ahvaz. Improvement of behavioral and motivational problems is one of the effects of puberty mental health training. When those problems are resolved, the negative feedbacks received from peers, family, educational environments, and other people in the society will be reduced and consequently, the adjustment of students in different areas of life including the educational adjustment at school will increase [25]. Moreover, the communicative skill training program which was a part of the puberty mental health training helps students to increase their adjustment to the surrounding world and its changes emotionally, socially, and educationally, through establishing positive relations with their parents, sister, brother, teacher, and classmates [26].

In addition, the puberty mental health training package has been formulated in a way to enhance variables which improve the mental health by preventing those behaviors that decrease mental health [27]. In this program, some skills have been embedded for adolescents to identify the changes occurring in their body and mind and the way to handle the changes appropriately has been presented to them.

Since body image is a complex construct associated with the individual's perceptions and attitudes of him/herself especially of the physical appearance, aspects like body satisfaction, appearance self-schema, internalized ideals of appearance and its associated excitements are important in treating and training body image and are better to be embedded in the content of treatment or training. It seems that taking account of those items is one of the reasons for the effectiveness of the training on fear of body image among students. The present study showed that the adolescents accepted the physical changes willingly and prepared themselves gradually to adjust to the changes during the training sessions. This increases the physical self-esteem of an individual as he/she will feel more positively about the physical changes. The focus of the training program was on the changes and positive feelings toward oneself during sessions. During the training program, the adolescents discovered that at the onset of puberty, they might have a negative feeling toward their body image besides the probability of aggression in interpersonal relations. They learned to accept the fact that they change with time by increasing their knowledge about the physical changes.

Given that the mentioned training package was formulated for the first time, a review of similar training packages show that such trainings reduce the likelihood of repeating misbehavior in adolescents [15]. Moreover, those trainings prepare the individual's mind to accept the physical changes through making changes in the individual's attitudes

and reducing the probable verbal and behavioral aggression, and consequently, remove the individual's misunderstandings of his/her face and limbs which occur due to the hormonal changes, growing bones, secretion of sexual hormones, etc. and protect the individual from low self-esteem and eating disorders [28 & 29].

Kelly emphasized on various training programs for increasing students' knowledge during puberty. UNESCO also emphasized on providing flexible, long-term, stable, intersectional, strategic, and collaborative training programs besides integrating life skills and health training skills with school curricula [15]. What increased the effectiveness of the puberty health mental training on the study variables is the increased knowledge of the participants since the effectiveness mechanism of this type of training is associated with its final mission which is awareness and prevention [30 & 31].

In respect to the effect of the training on students' adjustment, it can be concluded that training adolescents, especially boys, along with explanations about their rules and expectations develop their independence accompanied with a sense of responsibility, in many ways: first of all, these methods provide opportunities for autonomy of adolescents which is accompanied with guidelines of parents and teachers who are interested in communicating with adolescents. Secondly, these methods encourage adolescents to adjust themselves to the parents and teachers and authorities of the school. However, this adjustment should be more centered on love and respect, not negligence, for adolescents on the part of the adults.

Moreover, on the seventh and eighth sessions, attempts were made to introduce methods of establishing an effective and positive relationship with parents, friends, and the society to the adolescents and also to improve the students' emotional intelligence in dealing with puberty and others' reaction. It was also tried to inform the students of self-analysis governing processes. Furthermore, the participants were assisted to understand their relationships with others better than before and organize and utilize their emotions and excitements which are necessary in interpersonal relations and experiences. Therefore, the emotional intelligence improves the mental health and consequently makes the ground for emotional well-being, improvement of interpersonal relationships, and social adjustment, and helps people to more successful in different aspects of life. Due to lack of suitable places for training and also appropriate trainings for this class of society, it is better to establish more effective relationship between families and schools. Schools can establish such a relationship through holding classes for training parents, and improve the students' knowledge and attitudes through enriching the teachers' training programs and employing specialists as consultants, health educators, and social workers at school.

Conclusion

Many physical, mental, social problems and unsafe behaviors root in adolescence and the critical period of puberty. Thus, addressing the problems and puberty health training needs of adolescents, especially boys which have been less paid attention than girls in this regard, and also identifying effective and safe information resources are of special importance in order to train problems facing adolescents in this stage of life and help them to pass this critical and stressful stage of life without stress and with high level of mental health. The results of this study showed that puberty mental health training reduced the fear of body image and increased adjustment among male second grade students of high schools in Ahvaz.

The limitation of this study is that the results could not be generalized over female students, other levels of education, and other cities. Therefore, a similar study is recommended to be performed on different samples, levels of education, cultures, and cities. Researchers are recommended to run specific training

workshops for parents and provide them with information on puberty mental health alone or within parenting practice training in order to take action toward improvement of children's learning ability. It is suggested to localize the individual and group training techniques and adjust them to various cultures in order to make the training more effective and attractive.

Acknowledgements
This study has been extracted from the first author's M Sc thesis in the field of Clinical Psychology. The authors appreciate the General Department for Education and principals, teachers, and students of the schools in Ahvaz, who patiently assisted.

Contributions
Study design: S BN
Data collection and analysis: V AM
Manuscript preparation: M MH

Conflict of interest: "The authors declare that they have no competing interests."

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