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The effectiveness of pubertal health group counseling based on problem-solving, on body image concerns and anxiety in adolescent girls: Study protocol

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Abstract:

BACKGROUND: Body image concerns are accepted as a pervasive problem by a large segment of society. Problem-solving counseling is one of the practical counseling techniques that mainly focuses on improving people's adaptability in stressful situations. We intend to determine the effectiveness of pubertal health group counseling based on problem-solving on body image concerns and anxiety in adolescent girls.

MATERIALS AND METHODS: A semi-experimental study will be conducted on 12–13 years old students in Babol (Mazandaran, Iran). One hundred people were determined as the final Sample size (50 people in each group) and will be selected to enter the study. A multistage sampling method will be used. The students of the intervention group will receive the necessary training in the problem-solving method regarding pubertal health, once a week for six weeks. Students in the control group will not receive education during the intervention period. Sociodemographic questionnaire, Littleton's body image concern, and Zong's anxiety will be used to evaluate students' body image concerns and anxiety. Analyzes will be done by statistical package for the social sciences (SPSS) version 25 software and a significance level of 5% will be considered. Descriptive statistics and frequency percentage will be determined for classification variables. Median, range, and mean along with standard deviations (SD) will be calculated. The Chi-square test, Repeated Measures ANOVA and ANCOVA test will be used in this study. Percentage prevalence for each categorical variable is calculated with 95% confidence interval (CI).

DISCUSSION: The effectiveness of counseling based on problem-solving has been reported in various studies on adolescent puberty health concerns and common adolescent mental health problems, hence its application on girls' body image can be effective.

Keywords:

Adolescents, anxiety, body image, health education, puberty

Introduction

Adolescence is one of the best and most valuable years of life.^[1,2] The World Health Organization has defined the age of 10–19 years as adolescence.^[3–5] According to the 2015 census in Iran, approximately seven

percent of the population are teenagers aged 10–14, of which 48 percent are girls.^[6] Adolescence is a sensitive period in which puberty occurs.^[1,2,7,8]

Puberty is a turning point in the transition from childhood to adulthood.^[8–11] In this relatively short period, adolescents

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experience extensive physical growth.^[12-14] Studies show that 47.9% of adolescents lack education and information about puberty, and 39.9% of them were confused and disgusted with their physical changes in the early stages of puberty.^[15,16]

One of the problems that may appear at the same time as puberty in a person is concern about body image or negative body image.^[11]

At the beginning of adolescence, concern about body image is related to a series of disorders in the field of diet, concern about facial features, skin appearance, fitness, and physical strength in girls. These concerns can be a risk factor for reducing self-esteem and reducing psychological well-being in adolescents.^[17-20]

Structural changes during puberty are considered a crisis for adolescents,^[5] which may cause the continuation of adolescent problems, such as increased anxiety. The results of a study showed that 61.7% of female students experience moderate and severe levels of anxiety during their puberty period.^[21]

In Raghibi *et al.* study (2019), they concluded that the fear of negative evaluation of body image is one of the predicting variables of social anxiety.^[22] Counseling has a great impact on the health of adolescent girls as future mothers.^[2,7,15,23] One of the methods used to solve the problems and concerns of teenagers is group counseling. Group counseling is a two-way process in which a counselor examines problems, concerns, attitudes, and feelings with a group of peers.^[24] Problem-solving counseling is one of the cognitive-behavioral approaches that offers alternative and potentially diverse answers to control problematic situations and increases the possibility of choosing the best and most effective alternative answers.^[24-26] Compared to other cognitive-behavioral methods, problem-solving-based counseling focuses on the present, improving performance for greater adaptation and choosing the most effective strategies instead of focusing on past experiences.^[27] For this reason, it may be more effective than other methods for puberty health counseling.

Study novelty

The effectiveness of counseling based on problem-solving has been reported in various studies on adolescent puberty health concerns,^[24] and common adolescent mental health problems,^[28] but its application on girls' body image has not been investigated. So far, the studies in the field of adolescent health and puberty in girls have been mostly descriptive, and many trial studies have not been conducted in the field of counseling, and considering the importance of midwifery counseling

to solve the problems of puberty, the necessity of studying in this field is undeniable.^[23] Therefore, in the present study, will be intended to determine the effectiveness of pubertal health group counseling based on problem-solving on body image concerns in adolescent girls of Babol (Iran).

Study objectives

The aims of the study are:

- i. To compare the mean score of body image concern in two intervention and control groups immediately and six weeks after the intervention in adolescent girls of Babol City.
- ii. To compare of the mean anxiety score in two intervention and control groups immediately and six weeks after the intervention in adolescent girls of Babol City.
- iii. To determine some demographic characteristics of teenage girls in two intervention and control groups in Babol City.

Materials and Methods

Study design and setting

This study is a semi-experimental study that will be conducted on adolescent girls in Babol (Iran). The study design conforms to the Consolidated Standards of Reporting Trials (CONSORT) [Figure 1].

Study participants and sampling

The research environment includes first secondary girls' schools in Babol city. Twelve-thirteen-year-old seventh-grade female students who are interested and meet the entry criteria are invited to participate in this study, and they are given body image, Zong anxiety, and sociodemographic questionnaires, and those who score low, medium, and high on the image concern questionnaire Littleton bodies (score 38 and above) are considered as participants in the study. The inclusion criteria were students' willingness to participate in the study, parents' consent, school participation, girls aged 12-13 years, living with parents, at least three menstrual experiences, getting the required score from Littleton's Body Image Concern Questionnaire, and the exclusion criteria were a stressful event in the last six months, suffering from a known mental illness, taking psychotropic and anti-anxiety and depression drugs, and suffering from skeletal diseases. The consent form will also be filled out by the parents of the participants. According to the study objectives, the sample size was calculated for all study objectives and the largest sample size was considered. For this purpose, based on the previous study,^[27] about the effect of interventions on reducing girls' body image concerns, taking into account the comparison of the mean and difference of SDs, the confidence level is 95% and the power is 95, and taking

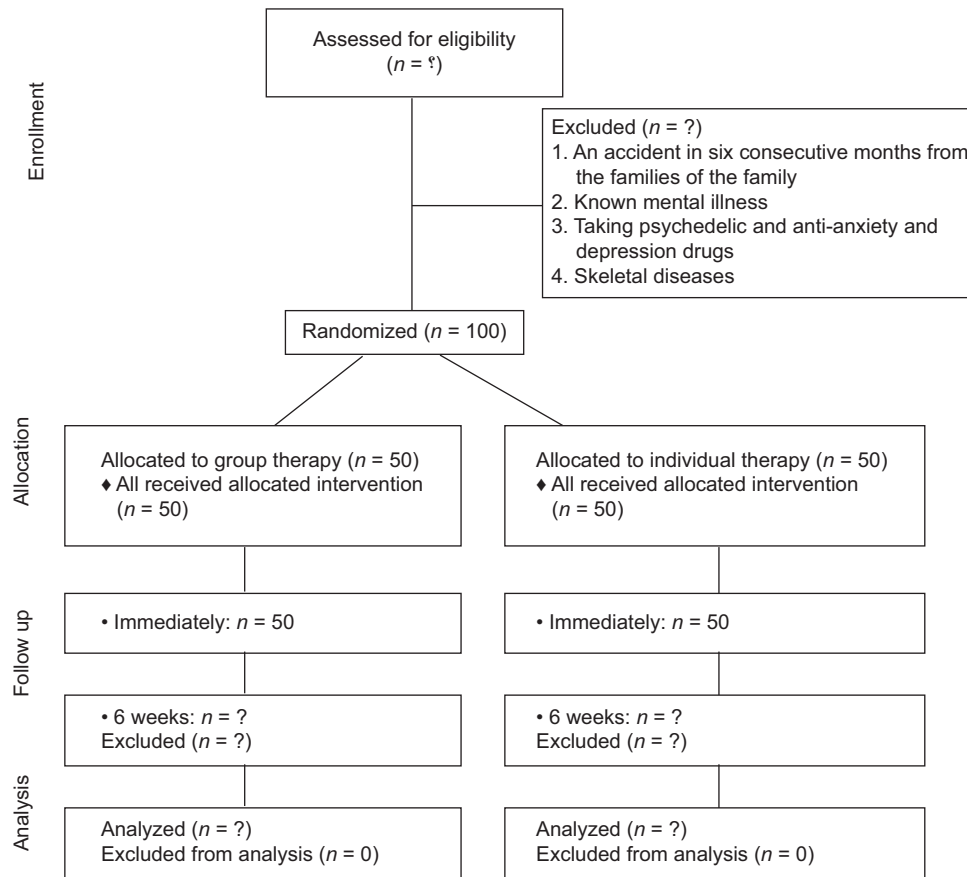


Figure 1: CONSORT diagram

into account the effect size of 1.08, with Using GPower version 3 software, with two-sided assumption, the number of at least 14 people in each group is required, but to perform the final ANCOVA analysis and consider the basic values in the model and check the difference in the results in the analyses considering the basic and minimum values. Two influential variables, the number of 45 samples in each group were taken into consideration, and 100 people were determined as the final volume (number of 50 people in each group) by taking into account the ten percent loss.

$$n = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 (S)^2}{(\mu_1 - \mu_2)^2}$$

Data collection tool and technique

The study will begin after approval and permission from the Education Organization of Babol city. The researcher will go to the schools, introduce herself to the school officials, and explain the objectives of the research to them. Before completing the questionnaires for the seventh-grade students, a meeting will be held for the parents with the coordination of the school principals, and the body image and anxiety questionnaires will be reviewed by the parents with the description of the research objectives, and if the consent form is completed,

it will be presented to their children. For parents who do not come to the meeting, the consent form along with the questionnaires will be sent to them by the students. After choosing the school of the intervention group, the researcher will hold an orientation meeting for the students who were willing to enter the study and the entry criteria. At the beginning of the meeting, he introduces himself and the objectives of the research, and then gives them the questionnaires to complete. In this research, three tools will be used to collect data: (1): The socio-demographic information questionnaire includes questions such as level of education, year of birth, age, education level and occupation status of parents, number of children in the family and previous information in the field of puberty health, source of information, preferred source for obtaining information. (2): Littleton's body image concern questionnaire: This questionnaire was designed in 2005 by Littleton *et al.* and contains 19 questions, each question has five options. It is scored from 1 (never) to 5 (always)^[29]. Iran reported the validity of this test in 2006 based on internal consistency using Cronbach's alpha method of 95%. Entezari SA, S. Mohammad Reza (2013) also reported the internal consistency of this test to be 89% using Cronbach's alpha method. ^[30]: The anxiety questionnaire, the Zong Self-Assessment Anxiety Scale (ASA) was created by

William Zong (1971). This questionnaire contains 20 questions and is measured with a four-point Likert scale (never: score 1, sometimes: score 2, most of the time: score, almost always: score 4)^[31]. Abolghasemi (2012) also reported the Cronbach's alpha of the scale as 0.82^[32].

The primary and secondary outcomes were the mean score of body image concern and anxiety in adolescent girls, respectively.

The intervention content of puberty health in each dimension, is designed based on the educational package of the Ministry of Health, Treatment and Medical Education and the review of available resources, with the advice of a psychologist and based on the problem-solving method. Several specialists confirmed the content validity of the final educational package.

Educational sessions will be held once a week for 90 minutes during six weeks. The content of each session includes the following:

Age of onset of signs of puberty, reproductive system, physical signs of puberty, breast development, menstruation and its health, dysmenorrhea, nutrition during puberty and psychological symptoms of puberty (PMS, methods of dealing with anxiety and reducing worry about body image, identification, emotional issues and emotional, mental disorders, signs of personality development, social, moral development, and intellectual and mental development in different periods of time).

In the intervention group, puberty health counseling and group education based on problem-solving will be conducted by the researcher during six face-to-face sessions using computers, video projectors, and PowerPoint along with lectures and questions- answers. Counseling intervention is designed and implemented in six 90-minute sessions based on problem-solving [Table 1]. In the intervals between face-to-face meetings, the researcher will communicate with the students of the intervention group through social messengers (Soroush or Eitaa) in the virtual form under the supervision of the school's director and vice president of education and will answer their questions about puberty health. The problem-solving steps are:

1. Presenting the problem and encouraging students to clarify unclear points
2. Explanation of the topic by the facilitator
3. Creating brainstorming, group participation, and discussion about the topic
4. Listing the facts and making hypotheses according to the content of the problem and answering the questions in order to better achieve the educational goals.

5. Intragroup agreement on learning objectives and the facilitator's assurance of achieving complete, comprehensive, and appropriate goals (determination of learning topics)
6. Individual and group study of students to collect information from introductory sources
7. Presenting topics determined based on hypotheses, goals, and questions and conducting group discussion
8. Facilitator's summary and evaluation of the presented topics.^[26]

Students in the control group will not receive educational intervention during the period. Both the intervention and control groups received the usual training before the intervention equally by the trained midwives of the health center. This training is offered to all students in one session. At the end of the intervention, ethically, the training package was given to the control group.

Both the intervention and control groups will complete the Littleton Body Image Concern and Zong Anxiety Questionnaire immediately after the completion of the study and six weeks later.

Statistical analysis

For statistical analysis after data collection and ensuring the correctness of data entry, students' descriptive information will be reported using the central average index and standard deviation dispersion index or in the form of numbers and percentages. In order to check the statistical tests, first the normality of the data is checked using the Kolmogorov-Smirnov test, and if it is normal, parametric tests are used. In order to check the relationship between two qualitative variables, the Chi-square test will be used, and if the conditions of the Chi-square test are not met, the Fisher test will be used. Repeated Measures ANOVA test will be used to compare the mean of a quantitative variable in more than two dependent situations. Also, ANCOVA test will be considered to compare the changes in students' anxiety scores after the intervention in two groups, taking into account the measurements before the intervention. All analyzes will be done by SPSS version 20 software. A significant level will be considered for all analyzes ($P < 0.05$)

Data management and monitoring

In order to increase the scientific accuracy and reliability of the data, pre-existing questionnaires whose validity and reliability were proven in previous studies were used.

Ethical consideration

This study was approved by the Ethics Committee of Babol University of Medical Sciences (IR.MUBABOL.HRI.REC.1401.222) and the study protocol was registered in

Table 1: Intervention sessions

Session number (time)	The problem presented	Problem-solving steps
First session (90-minute)	-Explanations about how to hold problem-solving meetings -Generalities of maturity -The age at which the signs of puberty appear -Female reproductive system - Physical signs of puberty	1. Presentation of the problem (generalities and age of onset of puberty signs) 2. Description of the problem 3. Brainstorming 4. Hypothesizing 5. Determining the subject of learning
The time interval between the first and second session		6. Individual and group study (generalities and age of onset of signs of puberty and reproductive system, physical signs of puberty)
Second session (90-minute)	-Menstruation and its hygiene - Dysmenorrhea	7. Sharing content (generalities and age of onset of signs of puberty and reproductive system, physical signs of puberty) 8. Problem-solving, conclusion, and summation
The time interval between the second and third session		1. Presentation of the problem (menstruation and its hygiene, dysmenorrhea) 2. Description of the problem 3. Brainstorming 4. Hypothesizing 5. Determining the subject of learning
Third session (90-minute)	-Psychological symptoms of puberty (PMS) -Nutrition during puberty	6. Individual and group study (menstruation and its hygiene, dysmenorrhea) 7. Sharing content (menstruation and its hygiene, dysmenorrhea) 8. Problem-solving, conclusion, and summation
The time interval between the third and fourth session		1. Presentation of the problem (psychological symptoms of puberty (PMS), nutrition during puberty) 2. Description of the problem 3. Brainstorming 4. Hypothesizing 5. Determination of learning topics
Fourth Session (90-minute)	-Psychological signs of puberty (anxiety and concern about body image)	6. Individual and group study (psychological symptoms of puberty (PMS), nutrition during puberty) 7. Sharing the contents of psychological symptoms of puberty (PMS), nutrition during puberty 8. Problem-solving, conclusion, and summation
The time interval between the fourth and fifth sessions		1. Presenting the problem of psychological symptoms of puberty (anxiety and concern about body image) 2. Description of the problem 3. Brainstorming 4. Hypothesizing 5. Determining the subject of learning
Fifth Session (90-minute)	-Psychological signs of maturity (identification, emotional and emotional issues, mental disorders, signs of personality development, social, moral and intellectual and mental development in different periods of time) - Local customs and beliefs, the orders of the Islamic religion regarding the puberty of girls	6. Individual and group study of psychological symptoms of puberty (anxiety and concern about body image) 7. Sharing content (psychological signs of puberty, anxiety, and concern about body image) 8. Problem-solving, conclusion, and summation
The time interval between the fifth and sixth sessions		1. Presentation of the problem (psychological signs of puberty, local customs, and beliefs, orders of the Islamic religion regarding girls' puberty) 2. Description of the problem 3. Brainstorming 4. Hypothesizing 5. Determining the subject of learning
		6. Individual and group study (local customs and beliefs, orders of the Islamic religion regarding the puberty of girls), psychological signs of puberty (identification, emotional and emotional issues, mental disorders, signs of personality development, social, moral, and intellectual and mental development in the course's of different time)

Contd...

Table 1: Contd...

Session number (time)	The problem presented	Problem-solving steps
The sixth session (90-minute)	-Review past sessions	7. Sharing the contents of local customs and beliefs, the orders of the Islamic religion regarding the puberty of girls, psychological signs of puberty (identification, emotional and emotional issues, mental disorders, signs of personality development, social, moral, and intellectual and mental development in different periods of time) 8. Problem-solving, conclusion, and summation

the Iran Clinical Trial Registry (IRCT20180218038783N3). Questionnaires will be completed after obtaining consent from the samples and their parents. The research samples will be assured of the confidentiality of the information in the questionnaire.

Discussion

One of the problems that may appear at the same time as puberty in a person is concern about body image or negative body image.^[11] Dissatisfaction with body image is accepted as a pervasive problem by a large part of society.^[33] Studies show that evaluation and apparent dissatisfaction reach their maximum during puberty, especially between the ages of 12 and 19.^[10,16,34] Eighty-eight percent of teenage girls feel negative about their body shape and size. Adolescents feel ashamed of their physical appearance changes when they are judged and evaluated by themselves and others.^[35] Problem-solving counseling is one of the practical counseling techniques that mainly focuses on improving the adaptation of people in stressful situations.^[26] The effectiveness of counseling based on problem-solving has been reported in various studies on adolescent puberty health concerns,^[24] and common adolescent mental health problems,^[28] but its application on girls' body image has not been investigated. Regarding puberty health counseling, various trainings have been used, including those based on planned behavior,^[36] health belief model^[37] and lecture-based,^[38] and contradictory results have been seen in the studies.

In our society, due to cultural issues and not belief and religion, most teenagers, especially girls, are deprived of correct and appropriate information related to puberty changes.^[39] So far, the studies in the field of adolescent health and puberty in girls have been mostly descriptive, and many trial studies have not been conducted in the field of counseling, and considering the importance of midwifery counseling to solve the problems of puberty, the necessity of studying in the field of improving the level of students' awareness and reducing their concern and anxiety is undeniable because today's girls will be tomorrow's mothers. The health of mothers guarantees the health of the family and thus the society.^[23]

Abbreviations

CI = Confidence Interval, SD = Standard Deviations.
PMS = Pre-Menstrual Syndrom

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Consent for publication

Not applicable.

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Conflicts of interest

There are no conflicts of interest.

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