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Effect of Menstrual Hygiene Education Based on Peer and Small Group Teaching Methods on Hygiene Behaviors in Female Adolescents: A Comparative Study

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Abstract

Menstrual hygiene education in adolescence is an important factor to prevent fertility problems. The present study aimed to compare the effect of menstrual hygiene education based on peer and small group teaching methods on hygiene behaviors in female adolescents. This randomized controlled clinical trial was performed on 90 high school students in 2018. Three high schools in Mashhad, Iran, were allocated to three groups by drawing lots. The peers and small groups were provided with educational content within a month and over four sessions, respectively. Moreover, the control group received routine education. The data were collected by a researcher-made questionnaire before and after the intervention and analyzed by SPSS software (version 16) using the analysis of variance, as well as Chi-square and Kruskal-Wallis tests. According to the Kruskal-Wallis test, the three groups were homogeneous regarding age ($P=0.12$). Furthermore, the mean scores of hygiene behaviors in the intervention groups (after the intervention) were significantly higher than in the control group ($P<0.001$) and higher in the peers than in the small groups ($P<0.001$). It is recommended to employ peer teaching on menstrual hygiene by health planners.

Keywords: Adolescent, Hygiene behavior, Hygiene education, Menstruation

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Introduction

Menstrual hygiene is an important aspect of adolescent health that determines health status in adulthood (1). Alimoradi and Simbar (2014) pointed out the weakness of information resources provided for female adolescents (2). The failure to proper functioning of health may predispose a person to pelvic inflammatory disease, which causes many socioeconomic problems (3). Mobin et al. (2014) showed that 53% of female adolescents did not bathe during menstruation, and 37% of them did not clean after each toilet during this period (4).

Menstrual hygiene and self-care are important aspects of adolescent health that determine adulthood health status (1). In this regard, education is useful in order to raise awareness. Due to the problems in this age group, education should lead to their active practice of self-care (5). The evidence has shown better outcomes of interactive learning programs (1, 6). One of the interactive teaching strategies is small group teaching with positive features, such as active participation and direct contact. Mamianloo et al. (2014) showed that small group teaching was more effective in increasing awareness and health literacy than speech (7). This type of training enhances interpersonal emotion regulation (8).

On the other hand, due to the importance of the role of friends during adolescence, peer teaching can be effective in menstrual hygiene education. In this method, health issues are conveyed in a simpler language (1, 9). Parsa et al. (2015) demonstrated that peer teaching is more effective in the promotion of menstrual hygiene in girls than speech (1).

However, the active participation of students is not used in designing educational programs in traditional ways (5). Furthermore, there has been a high prevalence of menstrual problems (10), and a more preferential teaching method for adolescents remains ambiguous (5). In addition, no studies have been conducted on the issue up to now. With this background in mind, the aim of this study was to compare the effect of menstrual hygiene education based on peer and small group teaching methods on hygiene behaviors in female adolescents selected from the high schools of Mashhad, Iran.

Methods

This randomized controlled trial was conducted on the study population of female adolescents chosen from the high schools of Mashhad within three groups in 2018. Three high schools were selected from district 6 by drawing lots as a random block. The reason for choosing a single district was to achieve the greater homogeneity of the selected high schools. Due to the possibility of distributing information among students in the three groups, it was impossible to randomly allocate the study participants individually. Therefore, each high school was assigned to one of three study groups by drawing lots. A grade-7 class and grade-8 class were chosen from all the high school classes. All the subjects who met the inclusion criteria were enrolled in the study.

The sample size was estimated according to the results of a pilot study on 30 participants (10 students in each group) using the formula for comparing the means of population. In this regard, a confidence interval of 95% and test power of 80% were reported based on the mean scores of hygiene behaviors for peer (90.4 ± 6.3) and small (85.3 ± 7.4) groups (the comparison of the two groups provided a higher estimate, so it was considered as the criterion), including 32 subjects in each group.

Considering 10% sample attrition, 32 subjects per group were recruited to the study. Two subjects were excluded from the intervention and control groups (two students in the intervention groups due to lack of menstruation during the study and two students in the control group due to unwillingness to continue the study). Therefore, data analysis was carried out on 30 subjects from each group.

The inclusion criteria were being Iranian, resident of Mashhad, and single, with regular menstrual cycles (within the range of 21-35 days [11]) and physical and mental health (i.e., no history of medical diseases, such as diabetes, thyroid disorders, Cushing's syndrome, pituitary tumors, genital tract diseases, endometriosis, ovarian cysts, and nonuse of psychiatric drugs). The exclusion criteria were the students who missed more than one training session, lack of student access, no menstruation during the study, and participation in menstrual hygiene training classes during the study.

Sampling was performed within September to November 2018 after making research preparations, obtaining the approval from the Regional Committee of Medical Ethics of Mashhad University of

Medical Sciences, coordinating with the department of education, explaining the study design and objectives to managers, obtaining consent from the participants and parents, and ensuring the confidentiality of information. Data collection tools included the registration form of the inclusion and exclusion criteria, demographic profile questionnaire, and researcher-made questionnaire on menstrual hygiene behaviors in domains of personal hygiene, nutrition, physical activity, pain relief, and psychological support.

Since there was no comprehensive questionnaire covering all five areas of the study, a researcher-made questionnaire was designed with the items reviewed and extracted from several studies, including studies conducted by Thakre et al. (2015) (12), Adika et al. (2013) (13), Shakiba et al. (2017) (14), and others. Content validity index (CVI) and content validity ratio were used to determine the validity of this questionnaire. The CVI of the questionnaire was calculated to be 0.8. The reliability of the questionnaire was determined using internal consistency based on Cronbach's alpha coefficient on ten participants. Cronbach's alpha coefficient of 0.78 showed the desired reliability of the questionnaire.

The five domains of the questionnaire included personal hygiene (8 items), nutrition (8 items), physical activity (6 items), pain relief (6 items), and psychological support (6 items) about menstruation. The questions were scored based on a 4-point Likert scale, including always (score 3), sometimes (score 2), rarely (score 1), and never (score 0). The scores of items in each domain were summed separately, and a higher score indicated a higher level of hygiene behaviors.

The study objectives were explained to the students. The inclusion criteria were fulfilled through the relevant assessment forms. The demographic profile questionnaire was completed by eligible students. The pretest was performed for the examination of hygiene behaviors. The educational content in three groups included general tips on menstruation and genitals, personal hygiene, nutrition, physical activity, pain relief, and psychological support during menstruation.

In the peer group, firstly, 10 interested students were selected to teach other classmates. The educational content was explained by the researcher in two sessions of 45-60 min in 2 consecutive days. The three subjects with the highest scores of the questionnaire were chosen to transfer the educational content during the unemployment period to 4-7 of their classmates in a month.

In the small groups, training classes were held in four sessions of 45-60 min per week. The group members were gathered in one class and divided into groups of 3-4 by drawing lots. Each group included an observer and a reporter. In each session, the discussion was based on the presented booklet, and then, the conclusions were presented to the whole group. The control group received only routine high school education by a health instructor in the classroom. After the end of the first and second periods of menstrual bleeding, the questionnaire was again completed separately by the subjects of all three groups.

The data were analyzed using SPSS software (version 16). The normal distribution of quantitative variables was reviewed by the Kolmogorov-Smirnov test. In addition, the homogeneity of the three groups was evaluated using the Chi-square test for qualitative variables, one-way analysis of variance (ANOVA) for quantitative variables with normal distribution, and Kruskal-Wallis test for quantitative variables with nonnormal distribution. Furthermore, the repeated measures ANOVA was employed for intragroup comparison and two-way ANOVA at a confidence interval of 95% and significance level of 0.05.

Results

The students were homogeneous in three groups in terms of age, age at the first menstruation, educational level, as well as maternal and paternal educational levels (Table 1). According to the results of the Kruskal-Wallis test, the three groups were homogeneous regarding the mean score of menstrual hygiene behaviors before the intervention ($P=0.26$). At the end of the first ($P<0.001$) and second ($P<0.001$) menstrual cycles, there was a statistically significant difference between the three groups, indicating the effect of education in promoting menstrual hygiene behaviors.

The repeated measures ANOVA showed a significant difference in the mean score of hygiene behaviors based on the group and assessment time ($P<0.001$). The group ($P<0.001$) and time ($P<0.001$) had a significant effect on the scores of hygiene behaviors. The interaction of the two items had a significant impact on the scores of hygiene behaviors ($P<0.001$). Bonferroni post hoc test showed a significant difference in the stages before the intervention with the end of the first cycle

Table 1. Demographic characteristics of 7- and 8-grade female students in two intervention groups and control group

Demographic characteristics	Small groups (n=30)	Peer group (n=30)	Control group (n=30)	P-value
Mean age (year)	13.5±0.6	13.8±0.5	13.6±0.6	P=0.12*
Mean age of first menstruation (year)	11.6±0.9	11.9±0.7	11.7±0.9	P=0.42*
Educational level n (%)				
Grade 7	17 (56.7)	17 (56.7)	16 (53.3)	P=1.000**
Grade 8	13 (43.3)	13 (43.3)	14 (46.7)	
Maternal educational level n (%)				
Primary school	3 (10.0)	2 (6.7)	1 (3.3)	P=0.49***
Secondary school	2 (6.7)	3 (10.0)	3 (10.0)	
High school	15 (50.0)	19 (63.3)	13 (43.3)	
Academic degree	10 (33.3)	6 (20.0)	13 (43.3)	
Paternal educational level n (%)				
Primary school	1 (3.3)	1 (3.3)	0	P=0.057***
Secondary school	5 (16.7)	3 (10.0)	2 (6.7)	
High school	14 (46.7)	16 (53.3)	8 (26.7)	
Academic degree	10 (33.3)	10 (33.3)	20 (66.7)	

*: Kruskal-Wallis test; **: Chi-square test; ***: Fisher's exact test

Table 2. Mean scores of menstrual hygiene behaviors before the intervention as well as at the end of the first and second menstrual cycles in female students of grades 7 and 8 in three groups

Groups	Small groups (n=30)	Peer group (n=30)	Control group (n=30)	Intergroup test results Kruskal-Wallis test
Score of menstrual hygiene behaviors	Mean±standard deviation	Mean±standard deviation	Mean±standard deviation	P=0.26
Before intervention	48.3±6.1	44.1±9.7	45.1±8.4	
At the end of first menstrual cycle	74.7±9.2	84.6±7.3	51.5±1.0	
At the end of second menstrual cycle	84.5±8.5	93.3±5.7	52.2±1.0	P<0.001
Repeated measures analysis of variance		Total effect		P<0.001
		Group effect		P<0.001
		Time effect		P<0.001
		Interaction effect		P<0.001

(P<0.001), before the intervention with the end of the second cycle (P<0.001) and the end of the first cycle with the end of the second cycle (P<0.001; Table 2). The two-way ANOVA demonstrated no significant relationship between demographic profile (Table 1) and score of menstrual hygiene behaviors based on the groups (P>0.05; Table 2).

Implications for Practice

The obtained results of the present study revealed that the overall score and score of the dimensions of menstrual hygiene behaviors (at the end of the first and second menstrual cycles) in the peer group were higher than those reported for the small group. According to the findings of this study, the peer and small group teaching approaches were more effective strategies to promote menstrual hygiene behaviors in female adolescents, compared to the routine strategy.

Regarding menstrual hygiene education, it is recommended to apply participatory teaching methods appropriate to the age of adolescents, such as the peer and small group teaching techniques. In addition, it is suggested to perform further studies to compare the effect of menstrual hygiene education in the form of peer and small groups on menstrual hygiene behaviors in various regions with different socioeconomic levels.

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Conflicts of Interest

The authors declare that there is no conflict of interest and collaboration with any institutions or organizations in this study.

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