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Effect of Planned Health Educational Program on Menstrual Knowledge and Practices among Adolescent Saudi Girls

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Abstract

Objectives: To assess knowledge, practices and quality of life of adolescent Saudi girls regarding menstruation and menstrual self-hygienic care. To find the relation between knowledge, practices and selected variables of quality of life of adolescent Saudi girls regarding menstruation and menstrual self-hygienic care. To evaluate the outcome and impact of health education program on knowledge and practices of adolescent Saudi girls regarding menstruation and menstrual self-hygienic care.

Methods: An experimental study was conducted using pre-posttest design on a (39) Saudi adolescent girl students at the seventh secondary school, Al-Khobar City in the Eastern Province of Saudi Arabia. Two tools used; first tool is structured questionnaire sheet, which was developed by the researcher and revised by three experts in the specialty. This tool used to assess the Saudi adolescent girl students' knowledge and practices regarding menstruation. The second tool was a quality of life scale which developed by World Health Organization. It included questions about quality of life, general daily activities; number of times suffering from pain and negative feelings and ability to study. After that the pretest was done. Data collected and analyzed. Accordingly, the researcher prepared the contents of the health educational program based on the adolescent Saudi girls' level of knowledge and practices. Then the researcher prepared the contents, and then divided and implemented in two consecutive sessions. Immediately after implementing the program sessions, the same questionnaire sheets filled up individually by the participants as an immediate post-test. A comparison between the pre- and post-tests done to identify the effect of planned health educational program on menstrual knowledge and practices among adolescent Saudi girls using the appropriate statistical tests, (SPSS version 23).

Results: The results of the current study demonstrated statistical significant improvements regarding quality of life as (79.2% compared to 86.7%), level of menstrual knowledge scores as (47.36% compared to 94.73%), and self-hygienic care practices score as (94.9% compared to 28.2%), $p < 0.00$.

Conclusion: The present study concluded that statistically significant improvements observed regarding the Saudi adolescent girl's menstrual knowledge, self-hygienic care practices and quality of life after receiving the well prepared, planned and implementation of menstrual health education program.

Keywords: Menstruation; Menstrual health educational program; Menstrual knowledge and practices; Quality of life

Key phrases:

The well-prepared, planned and implemented menstrual health education program has a great effect on the improvement of the Saudi adolescent girl's menstrual knowledge, self-hygienic care practices and quality of life.

Introduction

Adolescence girlhood is a period characterized by a rapid transition from childhood to womanhood. The start of menstruation is one of the most significant changes that occur for girls during the adolescent period [1,2]. Notably, the first menarche occurs between the ages of approximately 11 to 14 years for most girls [2,3]. Poor menstrual practices and inadequate self-care are significant determinants of morbidity and other hurdles among the age group. Some of these issues include abnormal abdominal pain, urinary tract infections, reproductive tract infections, and absenteeism from school [2,4]. In many developing countries, a culture of silence engulfs the topic of menstruation and its related concerns [2]. Taboos and beliefs carried through generations that impart negative notions about menstruation in adolescent girls [5].

Similarly, some religious beliefs are of significant influence on this topic. Consequently, many young girls lacked the proper information about menstrual physiology, psychology and hygienic care. The little information they have originates primarily from mothers, friends, relatives, and books. Nevertheless, this knowledge is inadequate; this establishes the need to have education programs in educational institutions to enlighten adolescent girls on issues surrounding menstruation [2].

Adolescent group represents a very vulnerable group within any population. Therefore, it is vital for the girls to have a sense of comfortable with their bodies. It is vital to inform them about menstrual self-hygienic care practices at the adolescent period to promote their general health and wellbeing and prevent them from susceptible infections that may negatively influence their day-to-day activities [6].

Notably, there is a significant association between education level, economic status, toilets facilities, availability of clean water, sanitary materials with maintenance of menstrual hygienic practices and the adolescent's girl's menstrual knowledge prior to menarche and menstrual diseases [7,8].

Awareness about menstruation and self-hygienic care is a pivotal portion of any health education program prepared for adolescent girls. Thus, they can continue to practice and sustain menstrual self-hygienic practices during their adult lifetime. The ideal model of menstruation and self-hygienic care education curriculum would promote students to evaluate the associations between knowledge, practices, attitudes and promotion of adolescent girl's health [2].

Because there is scarce research examining the impact of menstrual health education program on the knowledge, practices and quality of life among Saudi adolescent girls, this study done.

Objectives of the study

1. To assess knowledge, practices and quality of life of adolescent Saudi girls regarding menstruation and menstrual self-hygienic care.
2. To find the relation between knowledge, practices and elected variables of quality of life of adolescent Saudi girls regarding menstruation and menstrual self-hygienic care.
3. To evaluate the outcome and impact of health education program on knowledge and practices of adolescent Saudi girls regarding menstruation and menstrual self-hygienic care.

Hypotheses

The researcher hypothesized that adolescent Saudi girls have unsatisfactory knowledge about menstruation, and menstrual self-hygienic care; and the preparation, planning and implementation of education program will improve menstrual knowledge, practices and quality of life among adolescent Saudi girls.

Methods

The study conducted using pre-posttest design in the seventh secondary school in Al-Khobar City in the Eastern Province of Saudi Arabia. The approvals obtained from the University of Dammam ethical committee and planning and development department in the Ministry of Education in Eastern Province of Saudi Arabia. All Saudi adolescent girl's students who had achieved menarche, willing to participate in this study and available at the time of data collection were included in this study. The pretest done before preparing the contents of the program. Analysis of pretest data done to identify students' level of knowledge and practices using SPSS, version 23. Accordingly, the researcher prepared the contents of the health educational program about the menstrual knowledge and practices based on the adolescent Saudi girls' level of knowledge and practices. The program implemented in three sessions as follows:

First session

A written informed consent obtained from each Saudi adolescent girl student after complete description of the study objectives and procedures prior to data collection. The instruments for data collection included two tools; first tool was structured questionnaire sheet, which developed by the researcher in Arabic language based on the reviewing of the related literature and revised by three experts in the specialty. This tool used to collect the socio-demographic characteristics, menstrual history and to assess Saudi adolescent girl students' knowledge and practices regarding menstruation. The second tool was a quality of life scale: This scale developed by World Health Organization [9]. It included questions about the following: quality of life, general daily activities questions, number of times suffering from pain and negative feelings and ability to study. After that, the questionnaires distributed and filled up individually by each student as a pre-test, for duration of 30 minutes. Data collected analyzed using SPSS, version 23.

Second and third sessions

The researcher met the Saudi adolescent girl's students, and then they attended the planned health education program regarding menstruation and self-care practices. The contents of the program divided into 2 consecutive sessions given in the same day, each session took about 30 to 35 minutes, separated by a break for 15 minutes. The researcher used the laptop with projector to demonstrate the pictures and video clips that are designed by the researcher and suitable to the contents of each session. Immediately after receiving the well-planned health education program, the same questionnaire sheets filled up individually by the students as a post-test, for a duration of 30 minutes. Then the collected data analyzed using Statistical Package for Social Sciences Program (SPSS), version 23. A comparison between the pre-and post-tests done to identify the changes in the level of knowledge about menstruation and self-hygienic care among adolescent Saudi girls. The researcher used Lectures and group discussions teaching methods during implementation of the health

education program. The researcher used the laptop with projector to teach, illustrate, demonstrate and show the pictures and video clips that are designed by the researcher and suitable to the contents of each session. At the same day, Saudi adolescent girl students received the supported educational materials, which included brochures, CD with videos that included explanations and demonstration of the prepared program contents.

Scoring system

- 1. Considering knowledge:** 15 questions answered by the girl's students, 12 questions given the score of 0 (did not know), one (correct answer). Two questions given the score of 0 (did not know), 1 (incomplete answer) and 2 (complete and correct answer). For the purpose of calculating the total percent scores, the 15 questions given the score of 0 and one.
- 2. Regarding practices:** Nine questions were answered by the girl students, all of them scored 0 (wrong answer), 1 (incomplete answer) and 2 (complete and correct answer).
- 3. As regards quality of life:** 24 questions, each question scored 1-5 Likert scales. Two methods of classifications used. First method; the 24 questions were classified into for sub-items namely; general quality of life (4 questions), general daily activities (13 questions, (question No. 4 negative question)), number of times suffering from pain or negative feelings (3 questions, (question No. 1, 3 negative questions)) and ability to study (4 questions). The three negative questions corrected before addition. The second methods, the 24 questions classified into 6 dimensions namely; general quality of life (4 questions), physical (2 questions), psychological (3 questions), independency (6 questions), social (2 questions), and environmental dimension (7 questions).
- The three parameters knowledge, practices and quality of life were categorized according to the calculated percent score into;
 - Inadequate (<60%).
 - Adequate (60%-80%).
 - Satisfactory (\geq 80%).

Results

Table 1 shows that the mean age of the girls was 15.9 ± 0.4 years. The family income ranged from 8-30 thousand/month with a median value of 13 thousand. The crowding index ranged from 0.3–2.2 with a median value of 0.9. Regarding the Saudi adolescent girl's number of brothers and sisters, their brothers ranged from zero– six with a median value of two and their sisters ranged from 0-8 with a median value of three. The birth order among the girls ranged between 1-11 with a median value of four. The table also reveals that all girls were

single. Just less than half (41%) of girls reported that their mothers have university certificate and working.

Table 1 Mathematical presentation and distribution of socio-demographic characteristics among the Saudi adolescent girls.

Socio-demographic characteristics (No. 39)			
Variables	Min-Max	Mean \pm SD	Median (IQR)
Age (Years)	15.0 – 17.0	15.9 \pm 0.4	16 (0)
Family income (Thousand per month)	8–30	14.7 \pm 6.1	13 (10)
Crowding index	0.3–2.2	1.08 \pm 0.5	0.9 (0.8)
Number of brothers	0–6	2.4 \pm 1.4	2 (2)
Number of sisters	0–8	3.4 \pm 1.9	3 (2)
Birth order	1–11	4.6 \pm 2.4	4 (2)
	No. (39)	%	
Marital status			
Single	39	100	
Mother's educational			
University education	16	41.0	
Secondary education	9	23.1	
Intermediate education	8	20.5	
Primary education	2	5.1	
Read and write	2	5.1	
Illiterates	2	5.1	
Mother's occupational status			
Working	16	41.0	
Housewife	23	59.0	

Table 2 displays the mathematical presentation and distribution of the Saudi adolescent girls according to their menstrual history. The Saudi adolescent girls mean age at menarche was 12.7 ± 1.3 years. Regarding the intervals, (10.3%) had menstrual irregularity, the remaining (35), the menstrual interval ranged from 22-35 days with a median value of 29. Regarding their duration of menstruation, it ranged between 4-9 days with a median value of 7 days. While their changing pads ranged between 2-10 with a median value of 5. Only 8 (20.5%) did not mention any menstrual symptoms, while the rest (79.5%) have menstrual symptoms mostly musculoskeletal pain (80.6%) and abdominal pain (71.0%). Less than one quarter of the girls (23.1%) have medical illnesses including (anemia 7.7% and the remaining 2.6% for

each of the following diseases, thyroid disease, G6PD, low immunity, bronchial asthma, osteoporosis, kidney stone).

Table 2 Mathematical presentation and distribution of the Saudi adolescent girls according to their menstrual history.

Menstrual history (No. 39)			
Variables	Min.-Max.	Mean \pm SD	Median (IQR)
Age at menarche (years)	11.0-16.0	12.7 \pm 1.3	12 (1)
Intervals between menstruation (days) (N=35)	22-35	28.3 \pm 2.5	29 (3)
Duration of menstruation (days)	4-9	6.4 \pm 1.2	7 (1)
Number of changing pads per day	2-10	5.7 \pm 2.3	5 (3)
	No. (39)	%	
Associated menstrual symptoms # (# there is overlaps)			
No symptoms	8	20.5	
Symptoms (No=31)	31	79.5	
Musculoskeletal pain	25	80.6	
Abdominal pain	22	71.0	
Vomiting and loss of appetite	8	25.8	
Breast pain	2	6.4	
Pelvic pain	2	6.4	
Fever	1	3.2	
Medical disease			
No	30	76.9	
Yes	9	23.1	
Anemia	3	7.7	
Thyroid disease	1	2.6	
G6PD	1	2.6	
Low immunity	1	2.6	
Bronchial Asthma	1	2.6	
Osteoporosis	1	2.6	
Kidney stone	1	2.6	

Table 3 demonstrates the impact of menstrual health education program on the total knowledge scores of Saudi adolescent girls. Only (2.6%) had satisfactory knowledge about menstruation in pre-intervention phase compared to the majority of them (92.3%) at post-intervention phase. A statistical significant improvement is observed regarding the

median knowledge score after health education program (47.36% compared to 94.73%) as $p < 0.001$.

Table 3 Distribution of the Saudi adolescent girls according to their overall percent scores for the knowledge about menstruation (Pre-post intervention).

Overall knowledge score	(Pre-intervention (N=39))		(Post-intervention (N=39))	
	No	%	No	%
Inadequate (< 60 %)	30	76.9	0	0
Adequate (60<80 %)	8	20.5	3	7.7
Satisfactory (\geq 80 %)	1	2.6	36	92.3
Mean \pm SD	50.60 \pm 13.03		93.11 \pm 7.55	
Med.(IQR)	47.36 (15.79)		94.73 (10.53)	
Z (P)	Z=5.454 *			
	P<0.001			
Z means Wilcoxon test P: Probability of chance *: Statistically significant				

Table 4 reveals the distribution of the Saudi adolescent girls according to their sources of information about menstruation. The majority of them (82.1%) reported that their menstrual sources of information were their mothers, followed by sisters (33.3%), teachers (23.1%) and the vast minority for books (2.6%).

Table 4 Distribution of the Saudi adolescent girls according to their sources of information about menstruation.

Sources of information about menstruation	No (39)	%
Mothers	32	82.1
Sisters	13	33.3
Teachers	9	23.1
Friends	3	7.7
Books	1	2.6

Table 5 represents the impact of menstrual health education program on the total practices score of Saudi adolescent girls. In the pre-intervention phase, only (28.2%) have satisfactory safe practices, while in the post-intervention phase (94.9%) were more likely to have safe practices. The observed difference between the pre-intervention phase and the immediate post intervention phase was statistically significant, (Z=5.264*, $P < 0.001$).

Table 6 illustrates the impact of menstrual health education program on the overall scores for quality of life among Saudi adolescent girls. The table showed that less than half (41%) had satisfactory quality of life scores in the pre-intervention

phase compared to more than three-quarters of them (79.5%) at the post- intervention phase.

Table 5 Distribution of the Saudi adolescent girls according to their overall percent scores for the menstrual hygienic practices (Pre-post intervention).

Total practices Score	(Pre-intervention (N=39))		(Post- intervention (N=39))	
	No	%	No	%
Inadequate (<60%)	2	5.1	0	0
Adequate (60% ≤ 80%)	26	66.7	2	5.1
Satisfactory (≥ 80%)	11	28.2	37	94.9
Mean ± SD	76.92 ± 11.78		96.01 ± 5.54	
Med. (IQR)	77.77 (16.67)		100 (5.56)	
Z (P)	Z=5.264*			
	P<0.001			
Z means Wilcoxon test P: Probability of Chance *: Statistically Significant				

A statistical significant improvement is observed regarding the median quality of life score after health education program (79.2% compared to 86.7%) as $p<0.001$.

Table 6 Distribution of the Saudi adolescent girls according to their overall percent scores for quality of life (Pre-post intervention).

Total score practices	(Pre-intervention (N=39))		(Post- intervention (N=39))	
	No	%	No	%
Inadequate (<60%)	2	5.1	0	0
Adequate (60% ≤ 80%)	21	53.8	8	20.5
Satisfactory (≥ 80%)	16	41	31	79.5
Mean ± SD	78.3 ± 8.2		85.4 ± 6.8	
Med. (IQR)	79.2 (10.8)		86.7 (10.0)	
Z	Z=5.264*			
P	P<0.001			
Z Means Wilcoxon Test P: Probability of Chance *: Statistically Significant				

Spearman's correlation

Table 7 represents the relation between knowledge, practices, quality of life and characteristics of the Saudi adolescent girls. No statistical significant relationships were observed as $p>0.05$.

Mann Whitney Test

Table 8 presents the comparison of median values for quality of life, knowledge and practices in relation to medical

illness, menstrual irregularity and menstrual symptoms. Lower median scores for quality of life and practices were associated with medical illness and menstrual irregularities.

Table 7 The relation between knowledge, practices, quality of life and characteristics of the Saudi adolescent girls.

Characteristics	Knowledge		Practices	
	r	p	r	p
Age	-0.25	0.1	-0.06	0.7
Birth order	-0.06	0.7	-0.15	0.4
Mothers' education	0.15	0.4	-0.06	0.7
Menstrual history				
Age at menarche	-0.07	0.7	0.09	0.6
Menstruation durations	0.28	0.08	-0.03	0.08
Number of changing pads	0.18	0.3	0.11	0.5
Quality of life	0.16	0.3	-0.02	0.9
Knowledge	-		-0.19	0.3

On the other hand, a high median score for practice was associated with menstrual symptoms. While the median knowledge scores not varied. There are no statistically significant differences as $p>0.05$.

Table 8 Comparison of median value for quality of life, knowledge and practices in relation to medical illness, menstrual irregularity and symptoms.

	Quality of life	Knowledge	Practices
Medical illnesses			
Yes	77.5	47.4	72.2
No	79.2	47.4	77.8
Z (P)	1.535 (0.1)	0.538 (0.6)	1.629 (0.1)
Menstrual irregularities			
Yes	77.5	47.4	75
No	79.2	47.4	77.8
Z (P)	0.603 (0.6)	0.257 (0.8)	0.848 (0.4)
Menstrual symptoms			
Yes	79.2	47.4	77.8
No	79.6	44.7	75
Z (P)	0.209 (0.9)	12.45 (0.2)	0.372 (0.7)

Discussion

Menstruation is a normal physiological process that occurs to all women during their reproductive life. Inadequate hygienic practices during menstruation can affect adolescent girl's health and increase their vulnerability to some Reproductive Tract Infections (RTIs), Pelvic Inflammatory

Diseases (PIDs) and other complications such as Urinary Tract Infection (UTI). Adolescent girls need to practice their usual daily working, social and exercises routine during their menstrual periods. However, some indigenous practices done by girls such as avoiding particular kinds of drinks, foods and activities such as bathing, perform hygienic perineal care will influence their attitudes toward it. Girls often share their parent's beliefs and traditions, some of these traditional practices are beneficial, while some are dangerous, and some are inoffensive. Each Adolescent girls well prepared for their first menstrual cycle [10-12].

Regarding the socio-demographic data, findings of the current study revealed that the mean age of Saudi adolescent girls was 15.9 years, while the mean menarche age founded to be 12.7 ± 1.3 years. This result comes in accordance to the results from other studies conducted in North Indian District, which illustrated that the menarche mean age was 12.84 ± 1.4 years [13]. Another study done at El-Mansoura city [12,14], Egypt, the mean age of menarche was 12.9 years. However, in a study done among Jordanian girls [12,15], the mean age was 13.8 years. While in a study conducted in Alexandria City [12,16], Egypt, it was found that the mean age was 11.9 ± 0.93 years. The observed differences could be due to girl's general health condition, nutritional habits, environmental and socioeconomic factors.

Menstruation plays a critical role in all girls' health. A menstrual health education program is a necessary part of adolescent health education program. Consequently, the program is necessary to attain the needed improvements regarding menstrual knowledge and practices among the adolescent girls. The present study revealed that the Saudi adolescent girls' mean knowledge score was low before implementation of the menstrual health education program, while it plays a critical role in improving their level of knowledge after its implementation. Since it was noticed a statistical significant improvement in their knowledge in post intervention phase. These findings coincided with the results of other studies done in Saudi Arabia, Bangladesh and Egypt. Such results about the lacking in menstrual knowledge before attending the menstrual health education program can be attributed to lack of both formal and informal pre-menarche health education and lack of awareness. Even though, the findings of other studies done regarding menstruation among Saudi adolescent girls, highlighted this topic as a critical requirement for the majority of adolescent girls, as they lacked the scientific menstrual knowledge [2,17,18].

The present study revealed that most of the adolescent girls had almost the same source of information regarding their menstruation as 82.1% of the girls confirmed that they have most of the menstrual information from their mothers; unfortunately, no one had mentioned health care providers as a source of information. This may be due to the maternal traditional role for educating their girls about puberty including menstruation. It is an opportunity for both mothers and girls to discuss such topics, because it could strengthen the mother daughter relationship. In some areas inside Saudi Arabia, they considered menstruation as a top secret and an

inappropriate topic for discussion due to cultural beliefs and sensitivity of the topic, which may lead to lack of accurate, correct and complete information. A study done in Riyadh, Saudi Arabia revealed that 61.5% of girls went to their mothers to get their answers regarding menstrual questions, followed by religious book and Fikgh Al-Sunnah, while peers, teachers and health care providers were the last sources of their information. On the other hand, a study done in El-Mansoura, Egypt summarized that 92.2% of girls their main source of information were mass media followed by mothers [14,17,19]. These sources varied in the way of dissemination of information as the culture in Egypt considered menstruation as an open topic for discussion.

Regarding the menstrual hygienic practices, the present study illustrated that the Saudi adolescent girls mean practice score was inadequate (2.6%) in pre-intervention phase (before implementation of program regarding menstrual practices) compared to 92.3% in post intervention phase. The observed difference was statistically significant. Studies [12,20,21] done in this context, findings were in congruent with the findings of the current study especially in relation to this item as it was indicated a significant improvement in the menstrual practices after implementing the menstrual health education program. The perfect menstrual hygienic practices for example use of menstrual sanitary pads and proper genital area hygienic care are critical throughout menstruation [12,22,23]. While the menstrual hygienic interventions were more likely to be not acknowledged and did not receive satisfactory attention. This is so serious because lack of hygienic care or interventions may lead to infections of the female genital tracts. These infections act as a second leading cause of maternal mortality rate in developing countries including KSA. Therefore, the researcher added this information to the contents of the program and discussed this information with the Saudi adolescent girls.

Menstrual cycle affected the physical, social, school functioning, and emotional wellbeing of girls, there were a great need to have a well understanding on these effects during menstruation. Recently different studies mentioned that adolescent girls who suffer from menstrual problems had a lower score regarding their quality of life compared with those who did not complain from menstrual problems and each one from these menstrual problems impact adolescent girl dimensions of quality of life differently [24].

After observing all of these improvements among Saudi adolescent girls' menstrual knowledge and practices, the menstrual health education program affected the overall quality of life score. As it was observed that less than half (41%) of the girls had satisfactory quality of life scores in pre-intervention phase compared to more than three-quarters (79.5%) of them in post- intervention phase. A statistical significant improvement was observed regarding the median quality of life score after health education program (79.2% compared to 86.7%) as $p < 0.001$. This may be due to the effect of the researcher efforts in covering and explaining all of the dimensions of the quality of life especially the psychological aspect.

According to the 5 dimensions of quality of life regarding menstruation, a major significant improvement seen were more likely to be related to Saudi adolescent girls' physical, psychological and independence dimensions, as (25.6%), (38.5%) and (56%) had satisfactory quality of life scores in pre-intervention phase compared to (82.1%), (79.5%) and (71.8%) in the post- intervention phase respectively. In a study done in this context William [25], its findings concluded negative effect of menstruation symptoms on the overall quality of life, in which the lowest scores observed in general health and social dimensions. Study findings by Gagua et al. [26] demonstrated that adolescent girls with dysmenorrhea had significant lower physical and psychological dimensions of quality of life compared with healthy adolescent. Other study findings by Unsal et al. [27] illustrated the lower physical pain with function and general health, while no differences observed regarding social, emotional and mental dimensions. A study by Lima-Serrano et al. [28] conducted to compare quality of life between Portuguese and Spanish adolescent girls, summarized that the Spanish girls had better general quality of life (physical, psychological, social and environmental dimensions) compared with Portuguese girls. There were no observed statistical significant relationships as $p > 0.05$.

Adolescence is an important phase in a girl's life. It considers a transitional stage from girlhood to womanhood. It will go very smooth if an educational health program assimilated in the school's curriculum. As the results of the current study revealed positive effect of the program on girls' knowledge, practices and quality of life. Therefore, authorities of schools need to develop strategies to meet reproductive health challenges among students' adolescent girls.

Conclusion and Recommendations

The current study proved the objectives and hypotheses of the research in which implementation of educational health program about menstruation improved adolescent girls' knowledge, self-care practices and quality of life. We recommend that a well-planned and prepared continuous menstrual education program integrated in the secondary school curriculum. We should encourage mothers and sisters and invite them to attend all health education programs regarding menstruation and menstrual self-hygienic care.

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