Original Article

Knowledge, readiness, and myths about menstruation among students at the Princess Noura University

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Abstract

Background: Menstruation is a natural part of the female reproductive cycle in which periodic discharge of blood from the uterus exits through the vagina, it is the spontaneous onset of puberty. **Aim:** The study is to assess the level of knowledge, readiness, and myths about menstruation among young Saudi girls in the Princess Noura University, Riyadh. **Materials and Methods:** This cross-sectional study of a convenient sample of 500 students from different colleges at the Princess Nora Bint Abdul Rahman University, Riyadh, Saudi Arabia was conducted between January 2016 and March 2016. A validated questionnaire assessing knowledge, readiness, and attitude of participants was used. Questions assessing beliefs and myths about menstruation were included. **Results:** About 500 students participated in the study, their average age was 21.1 ± 7.8 years and 25.8% of them were from the health colleges. The main source of information about menstruation was the mother in about 60%, whereas only 4% considered doctors and nurses as a source of information. The study shows that the knowledge, attitude, and readiness of participants about menstruation were really poor. The majority (73.4%) of the participants were not able to correctly recognize why girls get their period. Similarly, the percentage of students having a negative attitude about menstruation is 78.4% (370), and <23% were defined to be ready before their first menses. **Conclusion:** The results of the study depict that the respondents lack proper knowledge of information relevant to menstruation. This included the importance of increasing awareness and giving accurate information using scientific sources, such as schools, colleges, or health team members.

Keywords: Knowledge, menstruation, myths, Princess Noura University, readiness

Introduction

Menstruation is a natural part of the female reproductive cycle in which periodic discharge of blood from the uterus exits through the vagina; it is the natural onset of puberty.[1] Puberty is a phase of growth and development in which significant cognitive, psychological, and physical changes take place. For females, the menarche is one of the most memorable and defining moments of adolescence. It embodies a transition from childhood to adulthood, and this transition can be full of anxiety for the early adolescent.[2]

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Menstruation has been surrounded by taboos and myths that eliminate women from many aspects of socio-cultural life. Many cultures hold on different beliefs and myths that restrict women from daily activities[3] and hygienic health practices, which lead to adverse outcomes[4] such as infection.

Studies reported that many girls had lots of misconception about the physiological changes during menstrual periods. Most of this information acquired from their mothers, television, friends, and teachers.[5] Such taboos affect girls' and women's emotional state, mentality, lifestyle, and most importantly health.

Distinctive studies highlighted the importance of exploring the cultural context in menstrual experiences.[6] Demographic

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characteristics play an essential role in the female's knowledge levels and their understandings of menstruation issues. It also plays an important role in their beliefs and behaviors.

Doctors are the principal purpose of contact for determination of regular menstrual issues and other related regenerative morbidities among the population in their locale. A large number of works on amid menstruation have coordinated ramifications on regenerative well-being. For example, not showering within menstruation can prompt drop off in the hygiene of the young lady and this manner prompt the regenerative tract contaminations. Doctors required to be familiar with regular myths identified with menstruation pervasive in his/her locale and treat the individual comprehensively by tending to them moreover. Else, the issue might be dealt with for some time, yet it would keep on repeating with expanding seriousness.[1]

In India, a cross-sectional study was done on 160 participants and results in 32 women (20%) had an idea before menarche regarding menstruation. About 65% of women used only sanitary pad and 30% used only cloth pieces, whereas 5% used both pad and cloth piece. Prevalence of sanitary pad use was significantly higher among those aged.[7]

Another cross-sectional study showed that most of the girls gained information about menstruation from their mothers. Menstruation is still considered as something shameful and young girls face many restrictions. Knowledge regarding menstruation, reproduction, contraception, and diet is still lacking among school girls. Family life skill sessions address these issues very effectively. Most of the girls enjoyed the sessions and were ready for more.[8]

In a qualitative ethnographic study which was done on 612 students, they found that students from higher grades in the survey sought more information and had more questions about menstrual symptoms, abnormal menstruation, myths, health, and beauty. Also, adolescent girls posed more questions about self-medication and home remedies than about seeing a health professional for common menstrual abnormalities. Even girls in low- and middle-income countries may silently suffer some degree of pain, cramping, and discomfort associated with dysmenorrhea.[9]

A cross-sectional study was done in Tamale, Ghana on female university students, found that although the majority of respondents (73.4%) were aware of menstruation before menarche, most of them experienced fear and panic when it occurred. Mothers were the first to be informed when menstruation occurred, although teachers first provided them knowledge on menstruation.[10]

The challenge, of addressing the socio-cultural taboos and beliefs in menstruation, is to understand the environmental and cultural determents, which govern women reactions to menstruation.

Materials and Methods

A cross-sectional study which was conducted in the Princess Noura University between 2015 and 2016 on the female students from the Princess Noura University, after giving verbal consent.

A questionnaire was used to collect the data. It is covering four domains; readiness, knowledge, myths, and attitude:

1. Readiness: Six questions validated from previous literature measure the readiness of female's first menstruation. These questions measure the readiness on a 5-point Likert scale. Some examples from these questions are: "Do you feel that you were physically prepared for your first period? Did you have enough stuff (like a pad) when you got your first period?"
2. Knowledge: Five questions assessing the knowledge about menstruation. These questions evaluated how much did females know about menstruation before they got their periods and the source of their information
3. Myths: These questions are intended to define the commonest myths related to the menstruation as avoiding some foods, some wrong beliefs related to menstruation
4. Attitude: Twelve questions are asking about how do females deal with period and their hygiene level
5. Demographic data: As age, educational level, social class, and marital status will be included.

Data Management and Analysis

Statistical analysis

Descriptive statistics regarding means, standard deviations, median, and interquartile ranges will be used to describe criteria of the studied sample. Analysis of quantitative data by *t*-test and association of qualitative variables by the Chi-square test will be conducted. A P value <0.05 will be considered as statistically significant.

Multivariate analysis will be adopted according to results from the univariate analysis. All statistical analysis will be conducted by the SPSS software (Version 22.0. Chicago: SPSS Inc).

Results

Table 1, the mean age of the sample ($n = 500$) was found (21.1 ± 7.8). The two mean menarche age of the studied sample was (13.1 ± 1.7). About 25.8% of our sample was from the health college, while 74.2% was from the non-health college. Regarding the marital status, the majority of our sample was single, about 9% was married, and only 1.2% of our studied sample was divorced/widowed. The parents working in the medical field constituted only 7.6% of our studied sample. Our data collection were done through the manual distribution of questionnaire in about 70% of the sample, and we used an online submission of questionnaire in about 30% of the sample.

Table 2, the study shows that the knowledge, attitude, and readiness of participants about menstruation are relatively

Table 1: Socio-demographic data of the studied sample

Item	*N* (%)
Age group	
<20	240 (48%)
20 or more	260 (52%)
Age of menarche	
<14	416 (83.4%)
14 or more	83 (16.6%)
College specialty	
Health college	129 (25.8%)
Non-health college	371 (74.2%)
Marital status	
Single	449 (89.8%)
Married	45 (9%)
Divorced/widowed	6 (1.2%)
Do any of the parents work in a medical profession?	
Yes	38 (7.6%)
No	462 (92.4%)
Method of data collection	
Manual	351 (70.2%)
Online	149 (29.8%)

Table 2: Knowledge, attitude, readiness, and source of information among the studied sample

Item	*N* (%)
Knowledge	
Correct/partially correct	240 (26.6%)
Wrong	259 (73.4%)
Attitude	
Positive attitude	130 (21.6%)
Negative attitude	370 (78.4%)
Readiness	
Ready	21.6% (115)
Not ready	78.4% (385)
Source of information	
Mother	66.8% (334)
Doctor/nurse	4.2% (21)
Teacher	37.2% (186)
Internet	21% (105)
Sisters	27% (135)
Cousins	14.2% (71)

weak. The majority (73.4%) of the participants were not able to correctly recognize why girls get their period. Similarly, the percentage of students having a negative attitude about menstruation is 78.4% (370). Not surprisingly, readiness percentage is identical with those of negative attitude since they are strongly related, the statistics show that 78.4% (385) of the participants were not ready.

Table 2 also shows that the primary source of information for the participants about menstruation was the mothers 66.8% (334). Teachers came in second place with 37.2% (186), and surprisingly in the last place are the health professionals such as doctors and nurses by 4.2% (21).

Table 3 shows girls that believe in common myths about the menstrual cycle. The commonest myth believed among participants were drinking cold beverages negatively affect the menstruation (89.6%), showering with cold water harmfully affect their mensuration (85.4%), and carrying heavy objects during the period will cause uterus prolapse. About 70% of participants believe that showering with hot water increases the amount of menstrual blood. Moreover, 252 girls (69.8%) agreed that cutting hair during menstruation stops hair from growing again. Eating pickles (64.6%) and dairy products (27.6%) were considered injurious during menstruation. About 79% of participants agreed that menstruation pain would decrease after marriage and even 66.6% believed that painkiller use during menses is hurtful.

Table 4 shows factors affecting the knowledge, attitude, and readiness of the studied sample. Students of health colleges showed significantly better knowledge of the menstruation when compared to students of non-health colleges (39.5% versus 16.4%, $P < 0.01$) and they were more ready and prepared for their first menses (70.5% compared to 60.9%). Regarding the age, younger students were more prepared than older students (67.9% versus 59.2%), and this difference was statistically significant.

According to the source of information, students whose mothers were the main source of information were more ready, had a better attitude, and better level of knowledge when compared to other students. However, this difference was not statistically significant ($P < 0.05$).

Students who participated in the study via an online survey showed significantly better knowledge and attitude when compared to paper surveys. On the other hand, no significant difference was detected between both groups regarding their level of readiness.

Discussion

The menstrual cycle is a widely acceptable indicator of changes occurring during the adolescent stage. The natural changes that happen in the uterus and ovaries as an essential part of reproduction are accompanied by a change in the physical, psychological, and social aspects of a woman's life. In this study, researchers determined the knowledge, readiness, and myths on this monthly cycle among students of the Princess Noura University.

A relevant literature search revealed that the body of knowledge surrounding women's menstrual cycle remains tainted by age-old myths and taboos and Saudi females are of no exception.

In this present study, the mean age menarche of the respondents is 13 + 1.7 which conforms with a study conducted by Ali and Rizvi (2010) who reported a menarche range of 12–17 years old.

The results of the study highlighted that only 26.6% of the participants had good scores regarding menstrual knowledge

Table 3: Myths about menstruation among the studied sample

Questions	Yes/ maybe (%)
Showering with cold water affects menstruation negatively	427 (85.4)
Showering with hot water increases the amount of menstrual blood	346 (69.2)
Showering in general badly affects your menstruation	243 (48.6)
Menstrual pain decreases after marriage	390 (78.6)
Eating pickles has negative effects on menstruation	323 (64.6)
Drinking hot beverages affects menstruation badly	30 (6)
Drinking cold beverages affects menstruation badly.	448 (89.6)
Exercise affects your menstruation in a bad way	177 (35.4)
Milk and dairy product stop or delay your menstruation	138 (27.6)
Cutting your hair during your period would stop it from growing	252 (69.8)
Carrying heavy objects causes your uterus to prolapse	427 (85.4)
Taking pain killers for menstrual pain is harmful for your menstrual cycle	333 (66.6)

Table 4: Factors affecting the knowledge, attitude, and readiness among the studied sample

Health colleges		**Non-health colleges**	***P***
Knowledge			<0.01**
Poor (%)	78 (60.5)	310 (83.6)	
Good (%)	51 (39.5)	61 (16.4)	
Readiness			0.05*
Not ready (%)	38 (29.5)	145 (39.1)	
Ready (%)	91 (70.5)	226 (60.9)	
Attitude			0.3
Positive (%)	24 (18.6)	54 (14.6)	
Negative (%)	105 (81.4)	317 (85.4)	
Age less than 20 years		**Age 20 years or above**	
Knowledge			0.7
Poor (%)	185 (77.1)	203 (78.1)	
Good (%)	55 (22.9)	57 (21.9)	
Readiness			0.04*
Not ready (%)	77 (32.1)	106 (40.8)	
Ready (%)	163 (67.9)	154 (59.2)	
Attitude			0.06
Negative (%)	210 (87.5)	212 (81.5)	
Positive (%)	30 (12.5)	48 (18.5)	
Mother (source of information)		**Others (source of information)**	
Knowledge			0.3
Poor (%)	225 (76.3)	133 (80.0)	
Good (%)	97 (23.7)	33 (19.9)	
Readiness			0.2
Not ready (%)	115 (34.4)	68 (41)	
Ready (%)	219 (65.5)	98 (59)	
Attitude			0.9
Negative (%)	282 (84.4)	140 (84.3)	
Positive (%)	52 (15.6)	26 (15.7)	
Paper questionnaires		**Online questionnaires**	
Knowledge			<0.01*
Poor (%)	289 (82.3)	99 (66.4)	
Good (%)	62 (17.7)	50 (33.6)	
Readiness			0.3
Not ready (%)	123 (35.0)	60 (40.3)	
Ready (%)	228 (65.0)	89 (59.7)	
Attitude			<0.01
Negative (%)	327 (93.2)	95 (63.8)	
Positive (%)	24 (6.8)	54 (36.2)	

**Significant as *P* value < 0.05

and beliefs which corroborates the findings of a study in Jeddah by Karout.[12] This result may mean that Saudi females like other adolescent girls lack knowledge regarding reproductive health, including menstrual hygiene, which can be due to socio-cultural barriers and restrictions in which they grow up.[11] The lack of proper knowledge about menstruation may lead to a negative attitude and misconceptions about this natural physiological process and may have adverse health effects. This is evident with the result of this study with 78.4% having a negative attitude on menstruation.

When respondents were asked to whom they got their information about menstruation, it is not surprising that 66.8% answered from their mothers which correlate with studies conducted in Jeddah 58.8%,[12] in Iran 55%,[13] and in India 54%.[14] Also, 37.2% received menstrual information from teachers, 27% from sisters, and 21% from the internet.

A similar study was conducted about menstrual knowledge and beliefs among Lebanese adolescents show that 35.5% changed their food habit and 22% omitted cold drinks.[15] A study in Saudi revealed that 50% of the participants had many restrictions regarding food, drink, and activities.[16] These results are relevant to this study as 64.4% of respondents believe that eating pickles has effects on menstruation, 89.6% agreed that drinking cold beverages affects menstruation badly, 35.4% says exercise has a negative effect on menstruation, 85.4% thought that carrying heavy objects during the period will cause the uterus to prolapse, and 70% considered that cutting hair during menstruation stops hair from growing again. These results indicate a lack of scientific knowledge on menstruation. As shown in many previous studies[11,13,15,17] the information and myths toward menstruation are transferring from generation to generation by mothers, no matter what the educational level of participants was.

In the Lebanese study, 66.9% of the participants did not take a shower during the first 3 days of menstruation and 16.5% did not take showers at all during menstruation.[15] In Saudi study, 71.7% of Saudi girls did not take showers during the first 3 days of menstruation.[16] In our study, 48.6% believe that showering, in general, affects your menstruation.

In this study, students of health colleges showed significantly better knowledge on menstruation when compared to students of non-health colleges (39.5% versus 16.4%, $P < 0.01$) and were more ready and prepared for their first menses (70.5% compared to 60.9%). Younger students are more prepared than that of the older students on menstruation, and the difference is statistically significant ($P < 0.01$). This observation may be explained by the fact that menstruation along with other physiologic processes

of the body are discussed in some early courses of the allied health curriculum.

When the source of information was compared, students whose mothers were the main source of information were more ready, had a better attitude, and better level of knowledge than those from other sources. However, this difference was not statistically significant ($P < 0.05$).

Students who participated in the study via an online survey showed significantly better knowledge and attitude when compared to paper surveys. On the other hand, no significant difference was detected between both groups regarding their level of readiness. However, there is no sufficient basis to claim that it is the use of the internet that made these respondents more knowledgeable.

The low level of knowledge, as well as the myths believed by the respondents about menstruation, could be alarming especially on the aspect of reproductive health. Hence, the result of this study can serve as a starting point to intensify health education campaign and programs about menstruation especially among those who are in non-health colleges. This may help empower adolescents to delineate between physiologic and abnormal uterine bleeding.[18]

A study in Bangladesh revealed that after health education, participants reported a significant improvement in "knowledge and beliefs" scores as well as in the overall good menstrual practices. They also said significant improvements in the regularity of their menstrual cycle and fewer complications during menstruation. These results demonstrate the feasibility of implementing a health education program for the adolescents.[19]

Conclusion

The results of the study depict that the respondents lack proper knowledge of information relevant to menstruation. This included the importance of increasing awareness and giving accurate information using scientific sources, such as schools, colleges, or health team members. It is recommended that menstruation be discussed in courses such as sciences to increase the level of knowledge of female students and consequently to improve their attitude toward this physiologic process. Other sources such as media outlets may be used to increase awareness among mothers in the community. This may aid in preventing any future physical problems, increasing self-confidence, and improving quality of life.

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Conflicts of interest

There are no conflicts of interest.

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