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Original Research Article

Assessment of knowledge regarding menstruation and sanitary absorbents among young women of Haryana

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ABSTRACT

Background: Aim of the study was to access the knowledge regarding menstruation and sanitary products among young women from rural, urban and slum areas of Gurugram and Nuh.
Methods: A comparative cross-sectional study was conducted among 240 young women of Gurugram and Nuh districts of Haryana, India with the help of a pre-designed semi-structured interview schedule. Data were analyzed using MS-Excel. Chi-square test, Pearson's correlation and two sample t-test were used as statistical tools to analyze the data.
Results: The overall level of knowledge regarding menstruation was found to be poor among 84.2 percent of women from Nuh and 49.2 percent from Gurugram. The findings of the study revealed that education of respondents and their mother, occupation of respondent, socio-economic status, mass media exposure and religion etc. were highly significantly associated with level of knowledge regarding menstruation. Knowledge regarding menstruation was found positively correlated with menstrual hygiene practices (r=0.545** in Gurugram and r=0.270* in Nuh) and with the general perceptions regarding menstruation (r=0.500** in Gurugram and r=0.256* in Nuh) respectively. A significant difference was observed in the knowledge regarding menstruation of women from rural, urban and slum areas of Gurugram and Nuh.
Conclusions: Women still lacked of proper knowledge about this crucial phenomenon of their body which leads to various unhygienic menstrual practices and misconceptions about menstruation. Knowledge of young women can be improved through education interventions on menstruation and its importance in their life.

Keywords: Adolescent, Knowledge, Menstruation, Menstrual hygiene practices, Sanitary pads

INTRODUCTION

Menstruation is a ubiquitous and natural occurrence for females during their reproductive years.[1,2] Menstruation begins throughout the adolescent era, which is marked by significant physiological and emotional changes.[3] Females prepare and adjust themselves to control their menstrual bleeding in a safe and hygienic manner during their adolescence.[3,4] This is also a good moment for females to enroll in various contexts, such as high schools, in order to begin planning for their adult lives. However, due to lack of proper information, the majority of young girls enter puberty (maturity) without having prepared themselves.[5] Most women are hesitant to talk about "menses" since it is a societal taboo subject, and young girls may lack access to relevant information.[4,6] Even the limited information they obtain from religious institutions, classmates, and family members is frequently selective and laced with misconceptions.[7] Adolescent girls in rural areas typically have a lack of knowledge about menstruation, as well as traditional habits rooted in their socio-cultural environment.[8] Menarche brings with it a low degree of awareness, as well as unpleasant and chaotic events.[9-12] Due to societal prohibitions, rural

teenagers do not have access to accurate information, and their parents do not discuss these concerns openly.[13] It frequently results in a loss of self-expression and mobility.[14] According to a study, the majority of adolescents have incorrect information and views about menstruation. Even individuals with knowledge tend to use inappropriate menstrual hygiene management due to difficulties such as insufficient menstruation sanitary products and a lack of mental or physical support.[15]

METHODS

The research was carried out in the Haryana state of India. Districts were chosen on the basis of female literacy rate in Haryana, Gurugram was chosen from the districts with the highest female literacy rate (77.6% as per census 2011, India), whereas Nuh was chosen from the districts with the lowest female literacy rate (37.6% as per census 2011, India). The research was conducted in Gurugram and Nuh's rural, urban and slum areas, respectively.

Data collection

A total of 240 respondents (40 each from rural Gurugram and Nuh, 40 each from urban Gurugram and Nuh and 40 each from slum areas of Gurugram and Nuh) were surveyed using a pre-designed interview schedule. Questions were framed about socio-economic and personal profile of respondents, knowledge about menstruation and sanitary products. Respondents were selected randomly in three age groups viz., 15-18 years, 19-24 years and 25-30 years so that data can be collected from young women of different age groups. Verbally consent of information was provided by each participant.

Data analysis

Data were analyzed by using MS-Excel. To assess the knowledge of participants, frequency and percentage were used. Knowledge of participants was assessed on a three-point scale of full knowledge, partial knowledge and no knowledge. Chi-square test was used to analyze the association between socio-economic variables and level of knowledge of women regarding menstruation. Pearson's correlation was used to find the correlation between knowledge and other aspects of menstruation. Area-wise differentiation in Gurugram and Nuh was done by using paired two sample t-test.

RESULTS

Socio-economic profile of respondents

The socio-economic profile of respondents revealed that 35.0 percent of respondents were from age group 25-30 years and belonged to scheduled caste (46.3%). The perusal of results indicated that 40.4 percent of respondents were having medium size family and 61.2 percent belonged to nuclear family. It was observed that 67.5 percent from urban Gurugram and 15.0 percent from urban Nuh had educational qualification of graduation ad above while 35.0 percent of women from both districts were illiterate. Majority of women's mothers were found illiterate. It was found that 62.5 percent of respondents were married and nearly half of women (50.8%) were Muslim religion as Nuh is a Muslim dominated district. It was noticed that 27.5 percent of participants (52.5% from urban Gurugram and 37.5% from urban Nuh) were students and 16.3 percent were employed/self-employed. Majority of participants had low socio-economic status (48.0%) and low mass-media exposure (52.5%) because of the inclusion of participants from slum areas.

Knowledge regarding various aspects of menstruation

General knowledge about menstruation of women from Gurugram and Nuh

The general knowledge regarding menstruation of respondents from Gurugram and Nuh is represented in Table 3. The findings in table describe about the respondents' general understanding of menstruation and its related various aspects. It was observed that respondents had full knowledge about average age at menopause (58.3% from Gurugram and 48.3% from Nuh) followed by about dietary intakes (30.8% from Gurugram and 25.8% from Nuh) and about menstrual hygiene management during menstruation (30.0% from Gurugram and 15.8% from Nuh) and about post- partum hemorrhage (22.5% from Nuh). In terms of partial knowledge of women, it was found that participants had partial knowledge of menstruation before menarche (48.3% from Gurugram and 34.2% from Nuh) followed by about menarche's importance in a woman's life (39.2% from Nuh and 37.5% from Gurugram) and 34.2 percent had knowledge about menstrual hygiene management from both districts. However, it was noticed that majority of respondents had no knowledge about various aspects of menstruation. It was observed that respondents from Nuh had no knowledge about link of menses with PCOD (96.7%) followed by menstrual disorders (89.2%), control of menses by hormones (87.5%), cause of occurrence of menstruation (78.3%) and about organ responsible for menstrual blood (76.7%). Similarly, respondents from Gurugram had no knowledge about link of menses with PCOD (75.0%) followed by about menstrual disorders (73.3%), about the control of menstruation by hormones (61.7%) and correlation of menstruation and reproductive health (57.5%).

In terms of the area-wise differentiation of respondents' knowledge of menstruation, the findings of the study revealed that in rural areas, women's knowledge of different menstrual aspects was low, with the exception of full knowledge of the average age at menopause (72.5 percent from Gurugram and 55.0 percent from Nuh). In terms of knowledge of respondents from urban regions, it was observed that a greater number of urban women than those from rural areas were fully aware of these aspects

of menstruation. The participants from urban Gurugram and Nuh had a significant difference in knowledge, with respondents from Gurugram having a higher level of knowledge. Table 1 shows the significant findings of the study, which revealed that most slum women were unaware of most aspects of menstruation. One-third of women in slum areas had only partial knowledge about menstruation before menarche, the importance of menarche in women's lives, the average age at menopause, the link between menstruation and pregnancy and menstrual hygiene management. The data analysis revealed that, on average, respondents from Gurugram had a greater level of knowledge about various aspects of menstruation than respondents from Nuh district.

According to the findings of the study, females still have a lack of understanding about this important bodily phenomenon, which leads to numerous misconceptions about menstruation, which has a direct impact on attitude toward menstruation and menstrual hygiene. The poor knowledge of respondents regarding this crucial physiological phenomenon calls for a necessary intervention among the respondents from Nuh and slum area of Gurugram.

Table 1: General knowledge about menstruation among women from Gurugram and Nuh.

Knowledge about menstruation		Rural			Urban			Slum			Total		
		FK	PK	NK	FK	PK	NK	FK	PK	NK	FK	PK	NK
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N	N (%)	N (%)	N (%)	N (%)	N (%)
Before menarche	G	02 (05.0)	20 (50.0)	18 (45.0)	04 (10.0)	20 (50.0)	16 (40.0)	00	18 (45.0)	22 (55.0)	06 (05.0)	58 (48.3)	56 (46.7)
	N	03 (07.5)	13 (32.5)	24 (60.0)	01 (02.5)	14 (35.0)	25 (62.5)	00	14 (35.0)	26 (65.0)	04 (03.3)	41 (34.2)	75 (62.5)
About organ of menstrual blood	G	11 (27.5)	13 (32.5)	16 (40.0)	21 (52.5)	10 (25.0)	09 (22.5)	00	01 (02.5)	39 (97.5)	32 (26.7)	24 (20.0)	64 (53.3)
	N	00	8 (20.0)	32 (80.0)	09 (22.5)	11 (27.5)	20 (50.0)	00	00	40 (100.0)	09 (07.5)	19 (15.8)	92 (76.7)
Cause of occurrence of menstruation	G	08 (20.0)	13 (32.5)	19 (47.5)	19 (47.5)	15 (37.5)	06 (15.0)	00	02 (05.0)	38 (95.0)	27 (22.5)	30 (25.0)	63 (52.5)
	N	02 (05.0)	04 (10.0)	34 (85.0)	08 (20.0)	11 (27.5)	21 (52.5)	00	01 (02.5)	39 (97.5)	10 (08.3)	16 (13.3)	94 (78.3)
Menarche's importance	G	12 (30.0)	17 (42.5)	11 (27.5)	21 (52.5)	11 (27.5)	08 (20.0)	00	17 (42.5)	23 (57.5)	33 (27.5)	45 (37.5)	42 (35.0)
	N	06 (15.0)	14 (35.0)	20 (50.0)	04 (10.0)	20 (50.0)	16 (40.0)	00	13 (32.5)	27 (67.5)	10 (08.3)	47 (39.2)	63 (52.5)
About Menstrual Hygiene Manage-ment	G	14 (35.0)	16 (40.0)	10 (25.0)	22 (55.0)	10 (25.0)	08 (20.0)	00	15 (37.5)	25 (62.5)	36 (30.0)	41 (34.2)	43 (35.8)
	N	08 (20.0)	16 (40.0)	16 (40.0)	11 (27.5)	15 (37.5)	14 (35.0)	00	10 (25.0)	30 (75.0)	19 (15.8)	41 (34.2)	60 (50.0)
Reproduc-tive health & its connection with menses	G	07 (17.5)	11 (27.5)	22 (55.0)	19 (47.5)	13 (32.5)	8 (20.0)	00	01 (02.5)	39 (97.5)	26 (21.7)	25 (20.8)	69 (57.5)
	N	02 (05.0)	08 (20.0)	30 (75.0)	01 (02.5)	09 (22.5)	30 (75.0)	00	00	40 (100.0)	03 (02.5)	17 (14.2)	100 (83.3)
Link of menses with pregnancy	G	12 (30.0)	14 (35.0)	14 (35.0)	22 (55.0)	08 (20.0)	10 (25.0)	00	15 (37.5)	25 (62.5)	34 (28.4)	37 (30.8)	49 (40.8)
	N	04 (02.5)	17 (42.5)	19 (47.5)	06 (15.0)	15 (37.5)	19 (47.5)	00	12 (30.0)	28 (70.0)	10 (08.3)	44 (36.7)	66 (55.0)
Link of menses and PCOD	G	02 (05.0)	09 (22.5)	29 (72.5)	09 (22.5)	10 (25.0)	21 (52.5)	00	00	40 (100.0)	11 (09.2)	19 (15.8)	90 (75.0)
	N	01 (02.5)	02 (05.0)	37 (92.5)	00	01 (02.5)	39 (97.5)	00	00	40 (100.0)	01 (00.8)	03 (02.5)	116 (96.7)
About menstrual disorders	G	04 (10.0)	08 (20.0)	28 (70.0)	08 (20.0)	12 (30.0)	20 (50.0)	00	00	40 (100.0)	12 (10.0)	20 (16.7)	88 (73.3)
	N	02 (05.0)	02 (05.0)	36 (90.0)	01 (02.5)	08 (20.0)	31 (77.5)	00	00	40 (100.0)	03 (02.5)	10 (08.3)	107 (89.2)
About safe period	G	07 (17.5)	12 (30.0)	21 (52.5)	26 (65.0)	06 (15.0)	08 (20.0)	00	00	40 (100.0)	33 (27.5)	18 (15.0)	69 (57.5)
	N	02 (05.0)	09 (22.5)	29 (72.5)	04 (10.0)	10 (25.0)	26 (65.0)	00	00	40 (100.0)	06 (05.0)	19 (15.8)	95 (79.2)
About ovulation period	G	07 (17.5)	16 (40.0)	17 (42.5)	19 (47.5)	10 (25.0)	11 (27.5)	00	00	40 (100.0)	26 (21.7)	26 (21.7)	68 (56.6)
	N	03 (07.5)	11 (27.5)	26 (65.0)	07 (17.5)	10 (25.0)	23 (57.5)	00	00	40 (100.0)	10 (08.3)	21 (17.5)	89 (74.2)

Continued.

Knowledge about menstruation		Rural			Urban			Slum			Total		
		FK	PK	NK	FK	PK	NK	FK	PK	NK	FK	PK	NK
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N	N (%)	N (%)	N (%)	N (%)	N (%)
Controlled by hormones	G	07 (17.5)	10 (25.0)	23 (57.5)	10 (25.0)	19 (47.5)	11 (27.5)	00	00	40 (100.0)	17 (14.2)	29 (24.2)	74 (61.7)
	N	01 (02.5)	04 (10.0)	35 (87.5)	02 (05.0)	08 (20.0)	30 (75.0)	00	00	40 (100.0)	03 (02.5)	12 (10.0)	105 (87.5)
About average age at menopause	G	29 (72.5)	05 (12.5)	06 (15.0)	30 (75.0)	07 (17.5)	03 (07.5)	11 (27.5)	16 (40.0)	13 (32.5)	70 (58.3)	28 (23.4)	22 (18.3)
	N	22 (55.0)	04 (10.0)	14 (35.0)	26 (65.0)	09 (22.5)	05 (12.5)	10 (25.0)	17 (42.5)	13 (32.5)	58 (48.3)	30 (25.0)	32 (26.7)
Kal chutna or post –partum haemorrhage	G	09 (22.5)	13 (32.5)	18 (45.0)	05 (12.5)	11 (27.5)	24 (60.0)	08 (20.0)	11 (27.5)	21 (52.5)	22 (18.3)	35 (29.2)	63 (52.5)
	N	12 (30.0)	09 (22.5)	19 (47.5)	08 (20.0)	11 (27.5)	21 (52.5)	07 (17.5)	13 (32.5)	20 (50.0)	27 (22.5)	33 (27.5)	60 (50.0)
About dietary intakes	G	18 (45.0)	08 (20.0)	14 (35.0)	12 (30.0)	20 (50.0)	08 (20.0)	07 (17.5)	09 (22.5)	24 (60.0)	37 (30.8)	37 (30.8)	46 (38.4)
	N	11 (27.5)	09 (22.5)	20 (50.0)	15 (37.5)	10 (25.0)	15 (37.5)	05 (12.5)	10 (25.0)	25 (62.5)	31 (25.8)	29 (24.2)	60 (50.0)

FK- Full Knowledge, PK- Partial Knowledge, NK- No Knowledge, G- Gurugram, N-Nuh

Table 2: Knowledge of respondents about sanitary products and menstrual hygiene.

Knowledge about sanitary products and menstrual hygiene		Rural			Urban			Slum			Total		
		FK	PK	NK	FK	PK	NK	FK	PK	NK	FK	PK	NK
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Poor hygiene can lead to health issues and infertility	**G**	09 (22.5)	08 (20.0)	23 (57.5)	17 (42.5)	10 (25.0)	13 (32.5)	0	04 (10.0)	36 (90.0)	26 (21.7)	22 (18.3)	72 (60.0)
	N	04 (10.0)	05 (12.5)	31 (77.5)	07 (17.5)	11 (27.5)	22 (55.0)	0	02 (05.0)	38 (95.0)	11 (9.2)	18 (15.0)	91 (75.8)
Change time of pad should not be more than 5-6 hrs	**G**	13 (32.5)	13 (32.5)	14 (35.0)	26 (65.0)	08 (20.0)	06 (15.0)	0	02 (05.0)	38 (95.0)	39 (32.5)	23 (19.2)	58 (48.3)
	N	03 (07.5)	08 (20.0)	29 (72.5)	07 (17.5)	09 (22.5)	24 (60.0)	0	0	40 (100.0)	10 (08.3)	17 (14.2)	93 (77.5)
Sanitary napkins has chemical absorbent	**G**	12 (30.0)	15 (37.5)	13 (32.5)	18 (45.0)	21 (52.5)	01 (02.5)	0	03 (07.5)	37 (92.5)	30 (25.0)	39 (32.5)	51 (42.5)
	N	03 (07.5)	14 (35.0)	23 (57.5)	05 (12.5)	10 (25.0)	25 (62.5)	0	0	40 (100.0)	08 (06.7)	24 (20.0)	88 (73.3)
Reusable clothes can cause diseases if not washed properly	**G**	11 (27.5)	19 (47.5)	10 (25.0)	20 (50.0)	15 (37.5)	05 (12.5)	03 (07.5)	08 (20.0)	29 (72.5)	34 (28.3)	42 (35.0)	44 (36.7)
	N	05 (12.5)	12 (30.0)	23 (57.5)	08 (20.0)	13 (32.5)	19 (47.5)	02 (05.0)	06 (15.0)	32 (80.0)	15 (12.5)	31 (25.8)	74 (61.7)
Chemical absorbent in pad can cause cancer if pad is not changed frequently	**G**	06 (15.0)	13 (32.5)	21 (52.5)	13 (32.5)	19 (47.5)	08 (20.0)	0	02 (05.0)	38 (95.0)	19 (15.8)	34 (28.3)	67 (55.8)
	N	01 (02.5)	11 (27.5)	28 (70.0)	02 (05.0)	08 (20.0)	30 (75.0)	0	0	40 (100.0)	3 (2.5)	19 (15.8)	98 (81.7)

FK- Full Knowledge, PK- Partial Knowledge, NK- No Knowledge, G- Gurugram, N-Nuh

Knowledge of women about sanitary products and menstrual hygiene

Women use different types of sanitary absorbents during their menstrual period as they still lack adequate knowledge about the proper usage of sanitary pads and ill-effects of not maintaining hygiene practices related to sanitary napkins or cloths as absorbent during their menstrual period. The assessment of knowledge of respondents about sanitary products and menstrual hygiene is described in Table 2. The results of the study revealed that, in Gurugram; 32.5 percent participants (65.0% from urban and 32.5% from rural area) were having full knowledge that changing time of pad/cloth should not exceed 5-6 hours and 28.3 percent (50.0% from urban and 27.5% from rural area) had full knowledge and 35.0 percent had partial knowledge about poor maintenance of reusable clothes can cause various infections related to vagina and uterus. It was observed that 60.0 percent respondents had no knowledge about poor menstrual hygiene can lead to reproductive health issues and infertility (90.0% from slum areas and 57.5% from rural areas) and about presence of chemical absorbent in pad can cause uterus cancer if pad is not changed frequently (95.0% from slum areas and 52.5% from rural area).

On the other hand, in Nuh, it was found that only 12.5 percent women (20.0% from urban and 12.5% from rural area) were having full knowledge and 25.8 percent had partial knowledge about the fact that poor maintenance of reusable clothes can cause various infections related to vagina and uterus. It was also observed that 9.2 percent respondents (17.5% from urban and 10.0% from rural area) had full knowledge that poor menstrual hygiene can lead to reproductive health issues and infertility. Further assesement revealed that overwhelming majority of respondents from Nuh had no knowledge about the usage and facts about sanitary products and effect of poor menstrual hygiene on reproductive health.

Knowledge level of women about menstruation and menstrual hygiene

The findings of Table 3 indicate the overall level of knowledge regarding menstruation and menstrual hygiene among respondents from Gurugram and Nuh. The results indicated that majority of participants (84.2% from Nuh and 49.2% from Gurugram) had low level of knowledge regarding menstruation and menstrual hygiene followed by moderate level of knowledge (31.7% from Gurugram and 9.2% from Nuh) and 19.2 percent from Gurugram and 6.7 percent from Nuh had high level of knowledge regarding menstruation and menstrual hygiene.

Table 3: Level of knowledge of respondents regarding menstruation and menstrual hygiene.

Level of Knowledge	Rural		Urban		Slum		Total	
	Gurugram	Nuh	Gurugram	Nuh	Gurugram	Nuh	Gurugram	Nuh
Low (26-40)	16 (40.0)	31 (77.5)	03 (07.5)	30 (75.0)	40 (100.0)	40 (100.0)	59 (49.2)	101 (84.2)
Moderate(41-56)	17 (42.5)	06 (15.0)	21 (52.5)	05 (12.5)	0	0	38 (31.7)	11 (09.2)
High (57-72)	07 (17.5)	03 (07.5)	16 (40.0)	05 (12.5)	0	0	23 (19.2)	08 (06.7)

Table 4: Association between socio-economic variables and level of knowledge regarding menstruation and menstrual hygiene.

Variables	Coefficient of contingency C-value	χ^2 value
Age	0.34	21.65**
Caste	0.34	21.12**
Family size	0.21	7.47
Respondent's education	0.65	119.25**
Respondent's mother education	0.39	28.80**
Respondent's father/husband education	0.31	16.71*
Marital status	0.23	9.21
Religion	0.41	33.36**
Respondent's occupation	0.52	59.60**
Occupation of respondent's mother	0.26	11.87*
Occupation of respondent's father/husband	0.25	10.32*
Average annual income of family	0.27	12.43*
Mass-media exposure	0.31	16.50**
Socio-economic status	0.47	46.38**

**Significant at 1% level of significance, *Significant at 5% of level of significance

Association between socio-economic variables and level of knowledge regarding menstruation

The results in Table 4 describe the association of the socio-economic variables with the level of knowledge regarding menstruation and menstrual hygiene. As the knowledge of participants from slum areas was low, they were excluded from the analyses of association. The findings of the study revealed that age, caste educational qualification of respondents and their parents, occupation of respondent, socio-economic status, mass media exposure and religion were having highly significantly associated whereas occupation of respondent's parents and annual income of family were found significantly associated with level of knowledge regarding menstruation. It was observed that family size and marital status were not associated with level of knowledge regarding menstruation

Correlation between knowledge and various other aspects of menstruation as per women of Gurugram and Nuh

Correlations among knowledge of respondents and various attributes of menstruation in Gurugram and Nuh are presented in Table 5. Correlation was assessed by estimating Pearson's correlation coefficient. It was found that Knowledge of respondents of Gurugram and Nuh was positively significantly correlated with the menstrual hygiene related practices (based on personal hygiene and type of absorbents used) followed by participants during their menses (r=0.545** in Gurugram and r=270* in Nuh). Significant positive correlation of knowledge was also found with general perceptions of participants regarding menstruation (r=0.500** in Gurugram, r=0.256* in Nuh). The positive correlations inferred that with the increase in knowledge of respondents, there was improvement in their menstrual hygiene practices and general perceptions regarding menstruation.Further, it was found that there was significant negative correlation between knowledge of respondents and myths/taboos believed by them regarding menstruation (r= -0.716** in Gurugram, r= -0.396** in Nuh). Negative correlation indicated that low knowledge of respondents resulted in high or strong myths/taboos regarding menstruation and with the improvement in knowledge level regarding menstruation, there will be decrease in the myths/taboos that are believed by the respondents.

Area wise differentiation of knowledge regarding menstruation among respondents of rural, urban and slum areas of Gurugram and Nuh

The area wise comparison of knowledge related to menstruation among respondents of rural, urban and slum areas of Gurugram and Nuh was done by using paired two sample t-test for compare means. The findings of the study were described in Table 6.

Table 5: Correlation among various attributes regarding menstruation.

Variables	Coefficient of correlation	
	Gurugram	Nuh
Knowledge vs. Practices regarding menstrual hygiene	0.545**	0.270*
Knowledge vs. General perception regarding menstruation	0.500**	0.256*
Knowledge vs. Myths/taboos regarding menstruation	-0.716**	-0.396**

**Significant at 1% level of significance, *Significant at 5% level of significance

By comparing the knowledge regarding menstruation of women, it was observed that knowledge had highly significant difference in urban Gurugram and urban Nuh, significant difference in rural Gurugram and rural Nuh whereas was found insignificant in slum areas of Gurugram and Nuh. It was concluded from the findings that as there were difference in mean values of knowledge among the respondents from urban and rural areas of Gurugram and Nuh resulting in significant differences of knowledge while the mean values of knowledge of women from slum areas of Gurugram and Nuh was not noticeable different, resulting in insignificant difference of knowledge regarding menstruation among participants.

Table 6: T-test for the comparison of knowledge regarding menstruation of rural, urban and slum areas of Gurugram and Nuh

Area	T-stat value	Mean Value	
		Gurugram	Nuh
Urban Gurugram and Urban Nuh	6.06**	52.60	39.72
Rural Gurugram and Rural Nuh	4.04*	44.77	36.52
Slum Gurugram and Slum Nuh	1.93	30.77	29.75

**- Significant at 1% level of significance, *- Significant at 5% level of significance

DISCUSSION

The results of the present study indicated that majority of participants had adequate knowledge about average age at menopause followed by dietary intakes; menstrual hygiene management during menstruation (30.0% from Gurugram) and about post- partum haemorrhage (22.5% from Nuh). In terms of partial knowledge of respondents, it was found that women had partial knowledge of menstruation before menarche followed by menarche's importance in a woman's life and about menstrual hygiene management from both districts. However, it was noticed that majority of respondents had no knowledge

about link of menses with PCOD followed by menstrual disorders, control of menses by hormones, cause of occurrence of menstruation, about organ responsible for menstrual blood, correlation of menstruation and reproductive health, about safe period and ovulation period from both districts. The results were in consistence with the other studies in which it was reported that more than three-fourth of the participants had no knowledge about of the cause and source of menstrual bleeding. It was found that 49.5 percent had knowledge about good menstrual hygiene and its impact on reproductive health.[16-18] It was reported that 29.0 percent girls had adequate knowledge about menstrual hygiene, only 15.0 percent girls had knowledge about reproductive health and only 10.8 percent had knowledge about safe period, about role of hormones in controlling menses, menstrual disorders and cause and source of menstrual bleeding.[17-22] This reveals that most of the teachers are not talking about reproductive system in schools.

Regarding the knowledge of sanitary products and menstrual hygiene, it was observed that women from urban Gurugram had slightly better knowledge about usage of sanitary products than those of rural areas. It was found that more than three-fifth of participants of Nuh had poor knowledge about sanitary products, their chemical composition and ill effects of using them for long time without changing frequently. Women from slum areas were found having very little or no knowledge about effect of poor menstrual hygiene like not changing pads/cloth frequently can cause reproductive infections and fertility issues. The results were supported by a study in which it was reported that more than 80.0 percent of participants did not know that RTIs and other reproductive infections can be caused by poor menstrual hygiene practices.[23] The prevalence of Reproductive Tract Infection and Urinary Tract Infection was more among cloth users.[24] The lack of proper knowledge about sanitary product usage in our study area could be attributed to the fact that some of the respondents from Nuh's rural and slum areas did not use any absorbent at all and thus did not have knowledge about sanitary product usage. Another reason for poor knowledge about sanitary products could be attributed to the low literacy rate and little awareness of women in Nuh and slum areas of Gurugram. In terms of understanding the level of knowledge regarding menstruation and menstrual hygiene, the present study indicated that in Gurugram, nearly half of participants were from low, one-third belonged to medium and one-fifth were having good level of knowledge. The respondents from rural and urban areas of Gurugram had good level of knowledge but respondents from slum areas were having low level of knowledge. Majority of women from Nuh (84.2%) had low level of knowledge regarding menstruation and menstrual hygiene. The effect of education was seen in the assessment of level of knowledge. Other studies also reported that satisfactory level of knowledge regarding menstruation among women was seen in urban areas due to their education level.[25-27] The reason for the low level of knowledge regarding menstruation and menstrual hygiene in Nuh could be attributed to low literacy of women, low socio-economic status and strong and rigid beliefs about the misconception of menstruation in the research area. It was observed that 71.3 percent of fe male students had poor knowledge regarding their menstruation and 68.3 percent had poor knowledge of menstruation.[28,29]

The level of knowledge regarding menstruation and menstrual hygiene was found significantly associated with age, educational qualification of respondents and their mothers, educational qualification of respondent's father/husband, occupation of respondent, socio-economic status, mass media exposure and religion in the present study. The results were in accordance with the findings of a study which revealed that there was significant positive association between good knowledge of menstruation and educational status of mothers, having mass-media exposure and vice-versa.[30] Education of participants and their parents were significantly associated with the level of knowledge regarding menstruation in various other studies related to menstruation.[30-38] There was significant association between religion and education of participants with level of knowledge regarding menstruation.[26]

Knowledge of women regarding menstruation and menstrual hygiene in the present study was found positively correlated with menstrual hygiene practices and general perception of women regarding menstruation. The findings of the study were in accordance with the results given by various other researchers who reported that poor level of knowledge of menstruation was significantly correlated with poor menstrual hygiene practices and perceptions regarding menstruation and vice-versa.[39-44] Knowledge regarding menstruation of respondents was found negatively correlated with the myths that are prevalent in society related to menstruation in the present study. Negative correlation indicated that inadequate knowledge and negative perception results in high prevalence of misconceptions and myths regarding menstruation. The results were supported by other studies in which it was observed that majority of participants had negative attitude towards menstruation and only one-fourth had good scores of knowledge which further resulted in high myths and misconceptions regarding menstruation.[45,46] The reason for this could be attributed that 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. Studies showed that participants' inadequate knowledge and perception was related to their mothers' lack of or improper knowledge of menstruation and its biological process, and that they may subsequently pass on false information about menstruation, resulting in a high incidence of restrictions and taboos in adolescents.[38,47-49]

Concerning the area wise comparison of knowledge regarding menstruation among women from rural, urban and slum areas of Gurugram and Nuh respectively, the present study indicated that knowledge was found significantly different in areas mentioned above. The reason for these findings could be attributed the difference in education level, religion, culture and beliefs about menstruation of the respondents from Gurugram and Nuh, due to which the significant difference between knowledge about menstruation was noted. It was observed in other researches that education of respondents and their parents impact the knowledge of young women about menstruation.[28,32-35,50,51]

CONCLUSION

Knowledge of majority of young women was found low and inadequate about their bodily phenomenon of menstruation in Gurugram and Nuh respectively. Improper and inadequate knowledge about menstruation leads to various misconceptions and poor menstrual hygiene practices among young girls and women in society. It is suggested that school going girls should be imparted knowledge through school curriculum about menstruation and good menstrual hygiene practices. Parental support should be provided to young girls in managing the menstruation with ease and safety. Misconceptions about menstruation should be removed by organising educational campaigns in rural and slum areas so that women from these areas can enhance their knowledge about menstruation and manage their menstruation in easy and dignified way.

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