

# School Teacher's Readiness to Raise Awareness About Menstruation and Cervical Cancer Among Adolescent Girls in Schools of Delhi: A Cross Sectional Study

Aditi Upadhyay<sup>1</sup>, Shomik Ray<sup>2</sup>

<sup>1</sup>Student, Master of Public Health, Indian Institute of Public Health, Delhi,

<sup>2</sup>Associate Professor, Indian Institute of Public Health, Delhi

## Abstract

**Background:** School teachers can play a crucial role in health promotion of adolescent girls by creating awareness. But first teachers should have right information for this. Therefore, this study aims to assess school teacher's readiness to create awareness about menstrual hygiene and cervical cancer among adolescent girls in schools of Delhi.

**Methods:** Public and Private schools of Delhi were selected through convenience sampling. All female teachers from fifth to twelfth standard of each selected school were included in the study. Data was collected through a semi-structured questionnaire. Knowledge was assessed by scoring "1" to right response and "0" to wrong answer/don't know. The open-ended questions were only quoted and validated with the knowledge score.

**Results:** Majority 87.18% of the teachers had good knowledge of menstruation while 65.83% had good knowledge of cervical cancer. A higher proportion of public school teachers were found to have good knowledge of menstruation as compared to private school teachers.

**Conclusion:** Science & physical educations were more knowledgeable than all other subject teachers. Teachers were willing to promote reproductive health of students. Therefore, they can be engaged to impart health education to students.

**Keywords:** Teachers, Knowledge, Awareness, Menstruation, Cervical Cancer

## Introduction

Menstruation, a physiological event that normally marks the beginning of reproductive life, is occasionally viewed as an unclean occurrence in Indian culture. Menstruating girls' daily routines may occasionally be restricted without justification due to inadequate or wrong information about it, which can result in a number of psychological issues. Moreover, a lack of knowledge and awareness leads to poor menstrual hygiene practices, which in turn can lead to genital tract infections (Paria et al., 2014). Not maintaining adequate personal hygiene when on a period is one of the risk factors for cervical cancer, one of the most common cancers in India (Kashyap et al., 2019). The HPV vaccine is one of the interventions suggested for girls between the ages of 9 and 13 years of

age as a major preventative measure in the WHO SEAR (World Health Organization South East Asia Region) strategic framework. In the global strategy to end cervical cancer devised by the WHO (World Health Organization), to be accomplished by 2030, 90% of girls should be immunized with the HPV (Human Papilloma Virus) vaccine by the age of 15 years (Mehrotra et al., 2021). Education about managing menstrual hygiene and cervical cancer vaccination are two critical approaches for promoting reproductive health during early adolescence because the menarche age and the eligibility for the vaccine are the same.

Teachers are among the best individuals to deliver this health education since children spend one-third of their time in school, which provides an ideal setting for preventative interventions and adopting healthy behaviours for lifelong health promotion (Jaicy et al., 2015). Teachers must, however, be knowledgeable in order to impart health education.

### **Aim & Objectives**

**Aim:** To assess the knowledge about menstruation and cervical cancer among school teachers in Delhi and their willingness to play an important role in promoting reproductive health hygiene among their students.

The study aimed to achieve multiple objectives to meet the overall aim.

1. To assess the level of knowledge of secondary school teachers on menstruation & cervical cancer in public and private schools of Delhi.
2. To compare the level of knowledge on menstruation & cervical cancer of secondary school teachers in public and private schools of Delhi.
3. To assess the readiness of secondary school teachers on raising awareness on menstruation & cervical cancer in public and private schools of Delhi.
- 4.

### **Materials & Methods**

A school based cross-sectional study was conducted in public and private schools in two districts of Delhi (New Delhi and East Delhi). The study duration was of six months (Jan'23- June'23).

The two districts of Delhi and the schools from each of these districts were selected through convenience sampling.

Considering confidence interval of 95%, precision of 5% and prevalence of 23.7% from a previous study (Naing et al., 2022). The sample size obtained was 278 whereas the sample size achieved was 281

All female teachers of fifth to twelfth standard of each selected school who were present on the day of data collection and who gave consent for their participation were included in the study.

### **Study tool and data management**

A semi-structured questionnaire was prepared using the literature available (Enebe et al., 2021; Period lesson plan: guide to menstruation for teachers, 2022). The questionnaire was prepared in English. The questionnaire had four sections. First section consisted of sociodemographic details of the participants such as age, religion, type of school, type of studentship, teaching subject and teaching experience. Second section consisted questions on menstruation comprising of nine questions in which eight were close-ended and one open-ended question.

Third section had question on cervical cancer consisting of five questions. The last part had questions on willing of teachers to promote reproductive health consisting of three close-ended and one open-ended question.

**Data analysis**

Analysis was done using STATA 15.1 The knowledge scores were presented as frequency and percentage. Knowledge scores for menstruation- This had eight questions, each correct answer was scored as “1” and wrong answer scored as “0”. A total score of (0-4) was considered as Poor whereas a total score of (5-8) was considered as good.

Knowledge scores for cervical cancer- This had five questions of which three questions were knowledge specific. Each correct answer was scored as “1” and wrong answer/never heard were scored as “0”. A total score of (0-1) was taken as Poor whereas a total score of (2-3) was taken as good.

The scoring system was adopted from a previous study (Bhusal et al., 2020).

Chi-square and logistic regression were performed to find associations and determinants of the knowledge scores where p-value of less than 0.05 was considered significant.

**Results**

The majority (86.50%) of the teachers were Hindus. Nearly an equal proportion of teachers were from co-educational (54.10%) and only girls (46.00%) school. Almost 45% of teachers taught Language & Social science, 23.50% of teachers taught Science & Physical education and 31.00% taught other subjects [Table 1].

**Table 1: Demographic Characteristics of School Teachers of Public & Private Schools of Delhi (N=281)**

General characteristics	Minimum	Maximum	Mean (Sd)
Age (in years)	18	60	36.32 (9.29)
Teaching experience (in years)	1	37	9.92 (8.614)
General characteristics	Total (N= 281) n (%)	Public schools (N=140) n (%)	Private schools (N=141) n (%)
Religion			
1. Hindus	243(86.50)	128 (91.40)	115 (81.60)
2. Non-Hindus	38 (13.50)	12 (8.60)	26 (18.40)
Type of studentship			
1. Co-educational	152(54.00)	60 (42.90)	92 (65.25)
2. Only girls	129(46.00)	80 (57.10)	49 (34.75)
Teaching subject			
1. Language & Social science	128(45.50)	61 (47.70)	67 (52.30)
2. Science & Physical Education	66 (23.50)	29 (44.00)	37 (56.10)
3. Others	87 (31.00)	50 (57.50)	37 (42.50)

**Knowledge scores for menstruation and cervical cancer**

Of the 281 teachers who participated in the study, 87.20% of teachers had good knowledge of menstruation and 12.80% had poor knowledge. While 65.80% of teachers had good knowledge of cervical cancer and 34.20% had poor knowledge.

**Comparison of Menstruation & Cervical cancer awareness score between public & private schools**

More teachers were knowledgeable about menstruation in public schools than private schools and this difference was significant as p-value is less than 0.05, whereas for cervical cancer teachers in private schools were more knowledgeable than public schools however, this difference was not significant [Table2].

**Table 2: Comparison of Menstruation & Cervical Cancer Awareness Score between Public & Private schools. (N=281)**

Awareness score	Public (N=140) n(%)	Private (N=141) n(%)	Statistical test Chi-square(p-value)
<b>Menstruation</b>			
Good knowledge	129 (92.10%)	116 (82.30%)	(0.0134)
Poor knowledge	11 (7.90%)	25 (17.70%)	
<b>Cervical cancer</b>			
Good knowledge	89 (63.60%)	96 (68.10%)	(0.4259)
Poor knowledge	51 (36.40%)	45 (31.90%)	

Religion, type of school, type of studentship and teaching subject were found to be associated with menstruation awareness score. Hindu teachers were 2.55 times more likely to have good knowledge on menstruation than non-Hindu teachers (AOR= 2.55, CI= 1.03-6.29). Teachers teaching in the private school were 0.29 times less likely to have good knowledge on menstruation than public school teachers (AOR= 0.29, CI= 0.12-0.68). Teachers in only girl’s school were 0.32 times less likely to have good knowledge of menstruation than teachers in co-educational schools (AOR= 0.32, CI= 0.14-0.73). Teachers teaching science & physical education were 4.59

times more likely to have good knowledge of menstruation than teachers teaching language & social science (AOR= 4.59, CI= 1.41-14.92) [Table3].

**Table 3: Factors Associated with Menstruation Awareness Score**

Variable	Category	Awareness level		COR (95% C.I.)	AOR (95% C.I.)	P-value for regression
		Good (n%)	Poor (n%)			
Religion	1. Hindus	218(89.70)	25(10.30)	3.55 (1.03-6.29)	2.55(1.03-6.29)	(0.0412)
	2. Non-Hindus	27(71.00)	11(29.00)			
Type of school	1. Public	129(92.10)	11(7.90)	1.00	1.00	(0.0048)
	2. Private	116(82.30)	25(17.70)	0.39 (0.18-0.84)	0.29 (0.12-0.68)	
Type of school	1. Co-educational	139(91.50)	13 (8.60)	1.00	1.00	(0.0070)
	2. Only girls	106(82.20)	23(17.80)	0.43 (0.20-0.89)	0.32 (0.14-0.73)	
Teaching subject	1. Language & Social science	105(82.00)	23(18.00)	1.00	1.00	(0.0272)
	2. Physical education & Science	62 (94.00)	4 (6.00)	3.39 (1.10-10.45)	4.59 (1.41-14.92)	
	3. Others	78 (89.70)	9 (10.30)	1.89 (0.82-4.35)	1.91 (0.79-4.62)	
Variable	Awareness level		COR (95% C.I.)	AOR (95% C.I.)	P-value for regression	
	Good (Mean, Sd)	Poor (Mean, Sd)				
Age (in years)	36.23, $\pm$ 9.36		36.94, $\pm$ 8.90	0.99 (0.95-1.02)	0.95 (0.87-1.04)	(0.3201)
Teaching experience (in years)	9.88, $\pm$ 8.66		10.16, $\pm$ 8.38	0.99 (0.95-1.03)	1.04 (0.94-1.15)	(0.3593)

Teaching subject is found to be associated with cervical cancer awareness score, teachers teaching science & physical education are 2.06 times more likely to have good knowledge of cervical cancer than teachers teaching language & social science [Table 4].

**Table 4: Factors Associated with Cervical Cancer Awareness Score**

Variable	Category	Awareness level		COR (95% C.I.)	AOR (95% C.I.)	P-value for regression
		Good n(%)	Poor n(%)			
Religion	1. Hindus	162(66.70)	81(33.30)	1.30	1.41(0.66-3.00)	(0.3700)
	2. Non-Hindus	23(60.50)	15(39.50)	1.00	1.00	
Type of school	1. Public	89 (63.60)	51 (36.40)	1.00	1.00	(0.8923)
	2. Private	96 (68.00)	45 (32.00)	1.22 (0.74-2.00)	1.03 (0.60-1.78)	
Type of school	1. Co-educational	103 (67.80)	49 (32.20)	1.00	1.00	(0.6209)
	2. Only girls	82(63.60)	47(36.40)	0.82 (0.50-1.36)	0.87 (0.50-1.49)	
Teaching subject	1. Language & Social science	84 (65.60)	44 (34.40)	1.00	1.00	(0.0075)
	2. Science & Physical education	53 (80.30)	39 (19.70)	2.13 (1.04-4.37)	2.06 (1.00-4.21)	
	3. Others	48 (55.20)	13 (44.80)	0.64 (0.36-1.13)	0.62 (0.35-1.10)	
Variable	Awareness level		COR (95% C.I.)	AOR (95% C.I.)	P-value for regression	
	Good (Mean, Sd)	Poor(Mean, Sd)				
Age (in years)	36.8, ±9.62	35.41, ±8.59	1.01 (0.98-1.04)	0.97 (0.91-1.03)	(0.4211)	
Teaching experience (in years)	10.56, ±9.02	8.67, ±7.65	1.02 (0.99-1.05)	1.04 (0.98-1.12)	(0.1507)	

**Restrictions during menstruation**

A total of 253 participants responded to this question, wherein 29.70% of teachers with good knowledge score stated restrictions in responses and 44.40% of teachers with poor knowledge score stated restrictions in their responses.

**Readiness of school teachers on raising awareness on menstruation & cervical cancer**

Majority of teachers (79.8%) who never talked about menstruation to students but were willing to promote reproductive health of their students whereas only 5% of the teachers who had talked about menstruation but were not willing. This difference was significant (p-value less than 0.001)

87.50% had never talked to students about cervical cancer but were willing and 100% had talked to students about cervical cancer and were willing. This is significant with a p-value of 0.002

**Table 5: Readiness of School Teachers to Raise Awareness on Menstruation & Cervical Cancer in Schools of Delhi (N=281)**

	Total (N=281) n(%)	Ever talked about Menstruation n(%)		Ever talked about Cervical cancer n(%)	
		Yes	No	Yes	No
Willing to promote reproductive health of adolescent girls	255(90.80)	192(95.00)	63(79.80)	73(100)	182(87.50)
1. Yes	26 (9.20)	10(5.00)	16(20.20)	0(0.00)	26(12.50)
2. No					

**Discussion**

**Menstruation**

Majority of teachers had good knowledge on menstruation. Public school teachers were more knowledgeable than private which might be because of schemes of government for menstruation in schools. Co-educational teachers were more knowledgeable than only girl’s school teachers, this could be due to teachers being more concerned for girls as the presence of boys can make girls feel uncomfortable talking about menstruation. Teachers of science and physical education were more knowledgeable about menstruation. This finding may be attributable to the fact that both of these disciplines cover reproductive health education. A study comparing the knowledge of female athletes and nutritional science among nutritional specialists and school instructors was

conducted in Japan (Ikari et al., 2022) which found physical health education teachers were more knowledgeable on menstruation than other teachers.

In contrast to a study, where age was found to be associated with knowledge of menstruation, this study did not find age or teaching experience to be a significant factor in association with menstruation knowledge (Yende, 2023).

In the current study, 29.70% of teachers with good knowledge, stated restrictions for girls while they were menstruating. In Nepal survey, 39% of the female teachers said that menstruating women should face restrictions ('RWSSPNepal\_MHM-Teachers\_2018.pdf', no date).

The restrictions stated by the respondents in this study were as follows:

“Don't wash hair”

“Not to worship”

“Not to enter temples and don't touch pickles”

“Avoid citrus fruits”

“First 1-2 days do not lift heavy objects or undergo strenuous exercise”

These are common restrictions in the society which were consistent with a qualitative study done in Delhi by Garg et al (Garg et al., 2021). However, some restrictions mentioned were good practices like

“Avoid junk food during menses”

“Adopt good hygiene”

Few teachers mentioned that they themselves do not practice any restriction but they are aware of them.

“No, it should not be but yes some families do have them”

“Society does have but I don't usually follow them”

### **Cervical Cancer**

65.80% of the teachers had good knowledge of cervical cancer in the present study. While study in Nigeria showed only 41.9% of the teachers had good knowledge of cervical cancer. 63.57% of government and 68% of the private teachers had good knowledge on cervical cancer in this study.

Only the teaching subject was found to be associated with the knowledge score of cervical cancer. Where teachers of science and physical education were more knowledgeable than those of language and social science. This conclusion could be explained by the fact that these subjects include a health component in their curriculum.

### **Readiness of school teachers on raising awareness on menstruation and cervical cancer**

Most teachers, 90.80%, are reported to be willing to promote adolescent girls' reproductive health. While 87.5% of teachers had never discussed cervical cancer with students, 79.80% had never discussed menstruation with students but were willing to promote reproductive health.

Teachers suggested ways in which reproductive health of students can be promoted which are as follows:

“By education, the teachers teaching the children of that age should talk to mother's of children as well”

“By listening to them and their problems openly and without hesitation. Be friends with them so they don't feel shy to ask you anything”

“As a teacher, our first responsibility is self-learning on the correct knowledge on reproductive health issues, the science behind, it's importance for adolescents. The second step will then be creating comfortable and open learning space in the classroom environment for a teacher to discuss it without any shame and for students to receive and understand the knowledge system on reproductive health with perspective of science. Activities such as videos can be shown to students and further discussion on breaking the myths, stigma and taboos surrounding



the reproductive health of girls. Also, making sure that reproductive health of adolescent boys is discussed with the same importance making sure that both boys and girls learn about it together”

“One dedicated period for discussions of such topics in school should be made mandatory”

None of the factors studied in this study was shown to be associated with a teacher's willingness to promote health.

### **Strengths & Limitations**

This is one of the few studies done in India to assess teacher's knowledge of menstruation & cervical cancer. The study validates the quantitative data with the qualitative data. However, there are few limitations of this study such as cross-sectional design, convenience sampling, small sample size so the results cannot be generalized. Also, study was conducted in a metropolitan area which might account for higher levels of knowledge than prior studies.

### **Conclusion**

School teachers have a significant impact on adolescent health promotion. Teachers must be given the right information, and taboos and misconceptions must also be dispelled. It should be taken into account that the government, in addition to ensuring that teachers possess the necessary skills and knowledge, includes school health education in its teacher training programs. The general health of the neighborhood and schools may significantly improve as a result. Teachers of science and physical education must engage in health education workshops for the students and parents.

### **Ethical considerations**

The research protocol was approved by Indian Institute of Public Health Delhi (IIPHD) ethical committee. Each participant provided their written consent after being fully informed.

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Conflict of interest: None

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