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Cross-Sectional study on Prevalence of early menarche and Knowledge about Menstrual Hygiene practicesamong Adolescent Girls in rural Tamil Nadu

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ABSTRACT: Background: Adolescent girls constitute about 1/5th of the total world population[13] and almost 47 percentage of the Indian population.A key priority for the female population is to have the necessary knowledge, facilities and the cultural environment to manage menstruation hygienically and with dignity.

Methodology: A school based cross-sectional study was conducted in a High School in rural setting among female adolescent in classes 8,9,10,11 during August 2018 to October 2018, with objectives to assess the age of menarche and knowledge of adolescent girls about menstrual hygiene, and to assess the contextual factors related to menstrual hygiene practices among adolescent school Girls in rural setting.

Results: The mean age of menarche was 12.20±1.01 years. More than half of the girls(52.6%) reported feeling uncomfortable in school during menstruation.66.5% girls revealed that this was because of no private place to change sanitary pad. 86.5% girls were absent from school during menstruation.Use of sanitary napkins was seen more in 14-15 age groups.Most of the girls(94.80%) used commercially made sanitary pads .The adolescent girls with age of menarche from 13 to 14 years were about 2 times more knowledgeable about menstrual hygiene management than those of age of menarche between 11-12.

Conclusion: This study can bring out the source of knowledge about menstrual hygiene management and the contextual risk factors related to the menstrual hygiene. By understanding the gap in available literature,suggestions could be made for further studies to help the policy makers for reproductive health programs on menstrual hygiene management targeting risk factors, in order to reduce morbidity and mortality among adolescent girls and young mothers.

KEY WORDS: Menstrual hygiene, School health, RMNCH+A, Adolescent health, Menstrual health

I. INTRODUCTION

UNICEF estimates that 1 in 10 school going girls do not attend school during menstruation. Similarly, World Bank statistics indicated that students have been absent from school 4 days every 4 weeks because of menstruation.[1]

The period of life between the ages of 10-19 years has been identified as adolescence[2,3] which is characterized by significant physical, cognitive, emotional and social changes.[4] It is the time when an adolescent's development sets the course for either a healthy or unhealthy adulthood.[1]Existing literature mostly emphasizes on the reproductive process but not on the practical issues faced in the day-to-day.[1]It is also the period when health problems that have serious immediate and long term consequences could first emerge as rapid changes occur before adequate experience of life is achieved.[5,6.] It is a time of vulnerability and thus, health care information obtained from different sources is collectively instrumental in enabling adolescents make healthy decisions.[7]

Adolescent girls constitute about 1/5th of the total world population[8] and almost 47 percentage of the Indian population.[9] They also constitute a vulnerable group, particularly in India where the female child still continues to be neglected.[8] Issues associated with menstruation are

never openly discussed and this burdens the young girls by keeping them ignorant of many of the problems or health care related to this biological function.[10] A key priority for the female population is to have the necessary knowledge, facilities and the cultural environment to manage menstruation hygienically and with dignity.[11]

Addressing menstrual hygiene management directly contributes to the maternal health goal of the Millennium Development Goals (MDG); Goal-5.Poor menstrual hygiene causes Reproductive Tract Infection which is a morbidity that is suffered by many women with hushed silence. Cancer of the cervix, which is the commonest cause of cancer among women in India is another morbidity that can result due to poor reproductive tract hygiene.[12]Due to its indirect effect on school absenteeism (even school dropouts) and gender discrepancy, poor menstrual hygiene and management can also seriously hamper the realization of MDG-2 on universal primary education and MDG-3 on gender equality and women empowerment.[7,12] Taboos and misconceptions regarding menstruating girls and menstrual hygiene results in gender inequality and degradation of women empowerment.[12]

Menstrual hygiene is an issue that is insufficiently addressed in India; hence research projects to understand about the associated factors are becoming apressing need of the society. Knowledge acquired from study of the present population can be used to develop newer and more effective programs and policies, or to evaluate the existing ones. Lack of information, misconceptions and adverse attitudes towards menstruation may lead to a negative self-image among girls which can further increase the perception of menstruation as something shameful that needs to be hidden.[1]

The study was designed keeping in mind the aim to assess the knowledge about Menstrual Hygiene practices and prevalence of early menarche. Specific study objectives were to assess the age of menarche, the knowledge of adolescent girls about menstrual hygiene practices and the contextual factors related to menstrual hygiene practices among adolescent School Girls in a rural setting.

II. METHODOLOGY

A cross-sectional study conducted among adolescent girls attending High Schools in the rural field practice area of a Teaching hospital. During the2018-19 academic year, 1,400 out of the total 3110 students enrolled in classes 8 to 11 were girls. The school attendance log was used as reference for inclusion of participants in the study. The purpose of the study and the dates of visits to the schools were informed to the guardians beforehand and all adolescent girls (10-19 years of age) who were willing to participate in the study were included. Students with learning disability, those who had not attained menarche and those who were absent during the 3 successive visits to the schools were excluded from the study. The study was conducted from August to October, 2018.

Sample Size was estimated using **s**ingle population proportion formula taking the reference proportion of low level of knowledge about menstrual hygiene management as 9.3% from a study by Teklemariam Gultie. Et.al.[13]the required sample size was calculated to be 224 with 5% allowable error and at a confidence level of 99%. By the end of study period, data was collected from a total of 230adolescent girls.

Multistage random sampling technique was used to select the study subjects.First, the population was stratified according to classes 8, 9, 10 and 11; and then further stratified by sections.The number of participants from each section was calculated from the sample size as proportionally allocated to each class and section according to their number of students. Then, frames of students were developed from the student roster of each class in collaboration with instructors of the respective classes. Eligible students were selected using simple random sampling technique from the existing sampling frame. In every step of the selection process,Simple random sampling technique was used.

Data collection:

A pre-tested, structured, self-administered questionnaire was used for data collection. The questionnairewas adapted to the local context and the English version of questionnaire wastranslated to the regional language (Tamil), back-translated and checked for its consistency by experts of both languages. The questionnaire consisted of 4 sections namely, Socio-demographic data including age at menarche, Sources of Information about menstrual hygiene, Knowledge of menstrual hygiene practices and Socio-cultural and environmental factors for the management of menstrual hygiene like access to clean water and toilet.

Statistical analysis

Data was tabulated using Microsoft excel office and analysed using Statistical Package for Social Sciences(SPSS) version 20. Quantitative variables are described in mean and standard deviation, and qualitative variables are expressed as

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proportions. All required statistical tests were applied (Chi square test and crude odds ratio with a 95% confidence interval) and the significance of p value was taken to be $p<0.05$.

III. RESULTS

The data collected from 230 school going girls aged 11 to 17 years are summarized here.28.7% of girls had completed 14 years of age, followed by 24.8% who were 13 years. The mean age of study subjects was 14.24 +/- 1.3years(Standard deviation). 26.5%(61) participants were from 9th grade followed by 25.3%(58) from 8th grade. 83.1% of the study participants followed the Hindu religion while 14% belonged to the Muslim religion and 3% belonged to Christianity. According to ethnicity, majority of adolescents were BC (40.9%) followed by OBC (27.8%), FC (21.7%), ST (8.7%) and SC (0.9%). 73.9%(170) of the participants were living with both parents while, 9.5%(22) were living with a single parent. 8.7%(20) were living with their relatives followed by 7.8%(18) living with friends. 89.13% (205) fathers had completed secondary school education or above(Literacy rate among fathers was 94). Of this 42.6%(98) were employed in a skilled labour, followed by Semi-Professionals (23.0%), Unskilled labour (15.2%), Semi-skilled labour (8.3%), Unemployed (8.3%),and professionals (2.6%).83.04% (191) of the mothers had completed secondary school education or above of which 81.7%(188) were pursuing an unskilled labour, followed by skilled labour (5.2%), Unemployed (4.8%), Semi-Professionals (4.3%) and Professionals (3.9%).

The mean age at menarche was observed to be 12.2 ± 1.01 years. The prevalence of early menarche (menarche before the age of 12 years[21]) was found to be 30.9%(71). 61.8%(142) of the study participants had attained menarche by the age of 12 years.

Table 01 summarizes the socio-cultural and environment factors involved in management of menstrual hygiene among female students. 90%(209) of the participants responded that they access to clean water and 88.7%(204) responded that they had access to a toilet. 86.5%(199) reported missing school during menstruation and 53.9%(124) participants responded that they restrict their physical activities during menstruation.While 89.6%(206) responded that at menarche, their mothers acted as the source of information about menstruation, 7.0%(16 responded friends, 1.7%(4) responded sister and another 1.7%(4) responded that it was their teacher.

The prevalence of commercial sanitary pad use was higher (98.3%) among those aged 14-15 years, which was statistically significant ($p<0.05$)(Table 02). The prevalence of commercial sanitary pads across all age groups was 94.80%.With increasing socio economic status prevalence of sanitary pad use was also found to increase (100%) among class V vs 84.6% among those that belonged to class III, but this difference was not statistically significant ($p>0.05$).

Inmultivariable logistic regression analysis, education status of respondents mothers, and age of menarche were found to be independent predictors of female students, knowledge on menstrual hygiene (Table 03).In this study,mother's education was found to have a statistically significant association with level of knowledge of adolescent girls. The adolescent girls with age 1-14 years at menarche were about 2 times more knowledgeable about menstrual hygiene management than those of age11-12 years at menarche.

IV. DISCUSSION

In the present study, the mean age at menarcheof adolescent girls was found to be 12.2 ±1.01 years. This is similar to the study conducted by Verma P. et.al.,[8]where the mean age of menarche was 12.98(±0.77)years, and lesser than the 13.43±0.83 years reported in a study by Gitanjali Kapoor et.al.[10] Another study conducted by TeklemariamGultie et.al.[13]where the mean age at menarche was reported to be 14.16±1.4 years.This difference could be due to genetics,educational status and standard of living of the people.

The main source of informationabout menstutral hygiene management among adolescent girls was mothers, similar to the reports in a studies by Gitanjali Kapoor et.al.,[10]andVerma Pet.al.,[8]where mothers were reported to be the main source of information.On the other hand, astudy conducted by TeklemariamGultie et.al.,[13] reported that themain source of information were teachers, which could be due to more knowledge and better training.

In the present study,majority (94.80%) of the girls used commercial sanitary pads. This is identical to a study conducted by Rekha Naithaniet.al.,[9]where 94% girls used commercially made sanitary pads during menstruation. This was found to be a little less in the study done by Gitanjali Kapoor et.al.,[10]where 59.09% of the girls use commercially made sanitary pads, while 27.27% and 13.64% used new cloth and old washed cloth respectively. Also, in a study done by

TeklemariamGultie et.al.,[13]almost half(49.18%) of the girls used sanitary pads, while 17.88% and 37.8% used homemade cloth and underwear respectively.Similarly a study done byVerma P et.al.,[8]reported that45.8% of the girls used sanitary pads during menstruation, unlike a study by Vijay agarwal et.al.,[11]in which only 14.8% of girls used commercially available sanitary napkins.

47.4% (109) of the adolescent girls in the present study reported that they do not feelcomfortable in school, mainly because there was no private place to change sanitary pads (66.5%).This is comparable to astudy done in Ethiopia by Teklemariam Gultie et.al.,[13] where39.2% reported being uncomfortable during menstruation . This could be because of the similar non-accessibility of private place in both the places.Similarly a study done by Verma P et.al.,[8]reported62.5% of the girls had similar problems during the period of menstruation.

The present study revealed that 86.5% of the girls were missing school during menstruation, which is much greater than the 28.4% reported in a study conducted by Teklemariam Gultie et.al.[13]Also a study done by Verma P et.al., [8]reported that 31.2% girls were absent from school during menstruation.

This study showed that the level ofmother's education had a statistical significant association with participant's level of knowledge of menstrual hygiene. Therespondents, whose age of menarche was 13-14,weremore likely to have high knowledge about menstrual hygiene managementthan those aged 11-12 years.

V. CONCLUSION

It can be concluded from the present study that the knowledge of female adolescent students about menstrual hygiene management was not satisfactory.The mean age of menarche of the adolescent girls in this study was 12.20± 1.01years and the prevalence of early menarche was 30.9%. The main source of information about menstrual hygiene was reported to be mothers, making it extremely necessary that they are given adequate information about menstruation and menstrual hygiene practices so that the same knowledge can be passed onto the adolescent girls correctly.Lack of sufficient knowledge & awareness among girls regarding menstruation can lead to further risk for reproductive diseases like UTI,etc.This could be due to low level of education among themselves & their mothers.

Reinforcement of menstrual hygiene management is important in india. The government can develop better policies and reproductive health programs for menstrual hygiene management targeting risk factors, in order to reduce morbidity and mortality among adolescent girls and young mothers.This study has highlighted the need of adolescent girls to have accurateknowledge about menstrual hygiene practices and age of menarche information about menstruation and its appropriate management.

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Conflict of Interest: None

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REFERENCES

[1]. World health organization (2012) Introduction to adolescence & adolescent health. Training course in sexual and reproductive health research. Available: http://www.gfmer.ch/SRH-Course-2012/adolescent-health/pdf/Introduction-adolescenceadolescent-health-WHO-2012.pdf. Accessed 2014 February 12.

[2]. World health organization (2013) Progress in reproductive health research. Available: http://www.who.int/reproductivehealth/hrp/progress/58/news. Accessed 2014 Feb.12.

[3]. United Nations, educational, scientific and cultural organization (UNESCO) (2014) Puberty education and menstrual hygiene management. Accessed 2014 April 25. Available: http:// unesdoc.unesco.org/ images/0022/002267/226792e.pdf-puberty.

[4]. National adolescent health information center, University of California (2004) Improving the health of adolescents & young adults. Available. http:// nahic.ucsf.edu/ wpcontent/ uploads/2011/11/ Complete 2010 Guide.pdf

[5]. World health organization (2006) Helping parents in developing countries improve adolescents' health. Switzerland; WHO.

[6]. Loughborough University (2012) Developing knowledge and capacity in water and sanitation; Menstruation hygiene management for schoolgirls in low-income countries.Available: Accessed 2014 April 25.

[7]. Varina T (2007) Menstrual Hygiene: A Neglected Condition for the Achievement of Several millennium development goals. Available: Accessed 2014 April 25. http:// www.wsscc.org/sites/default/files/ publications/ tjon-a-ten-menstrual_hygiene.

[8]. VermaP, Ahmed S, Srivasava R K(2013) Knowledge and practice about

mensturuation among higher secondary school girls .
[9]. Rekha Naithaniet. al., A study on knowledge and practices regarding menstrual hygiene among adolescent girls in Pauri, Uttarakhand Vol. 12, (2017) 25-29
[10]. Kapoor G, Kumar D. Menstrual hygiene: knowledge and practice among adolescent school girls in rural settings. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2017 Feb 19;6(3):959-62.
[11]. Agarwal V, Fancy MJ, Shah H, Agarwal AS, Shah JH, Singh S. Menstrual Hygiene: Knowledge and Practice among Adolescent Girls of Rural Sabarkantha District. Natl J Community Med 2017; 8(10):597-601.
[12]. Sudeshna R, Aparajita D. Determinants of menstrual hygiene among adolescent girls: a multivariate analysis. Natl J Community Med. 2012 Apr;3(2):294-301.
[13]. Teklemariam Gultie., Desta Hailu., Yinager Workineh (2014) Age of Menarche and Knowledge about Menstrual Hygiene Management among Adolescent School Girls in Amhara Province, Ethiopia: Implication to Health Care Workers & School Teachers.

Table 01: Socio-cultural and environment factors for the management of menstrual hygiene among female students

Socio-cultural and environment factors N=230		**Yes N(%)**	**No N(%)**
Access to clean water		209(90.9)	21(9.1)
Access to a toilet		204(88.7)	26(11.3)
Privacy maintained in the toilet		177(77.0)	53(23.0)
Feeling comfortable in school during menstruation		121(52.6)	109(47.4)
Feeling uncomfortable in school during menstruation	No place for disposal of used pads	45(19.6)	185(80.43)
	No private place to change sanitary pad	153(66.5)	77(33.48)
	No water for washing	31(13.5)	199(86.52)
	Had pain or discomfort during menstruation	1(0.4)	229(99.57)
Absent from school during menstruation		199(86.5)	31(13.5)
Menstruation interferes with school performance		114(49.6)	116(50.4)
Physical activities during menstruation		124(53.9)	106(46.1)

Table 02: Association between socio-demographic variables with type of napkins used (n=230).

Socio-demographic variable		**Type of napkin used during menstruation**		
		Clean homemade pad or Cloth N(%)	**Commercial Sanitary pad N(%)**	**P value (Chi square)**
Age group (in years)	**11-13 (n=72)**	8(11.1%)	64(88.9%)	p<0.05
	14-15 (n=115)	2(1.7%)	113(98.3%)	
	16-17 (n=43)	2(4.7%)	41(95.3%)	
Socio economic status(modified B.	**Class I (n=164)**	6(3.7%)	158(96.3%)	P>0.05

G. Prasad scale)	**Class II (n=44)**	3(6.8%)	41(93.3%)	
	Class III (n=13)	2(15.4%)	11(84.6%)	
	Class IV (n=8)	1(12.5%)	7(87.5%)	
	Class V (n=1)	0(0.0%)	1(100%)	
Mother's occupation	**Unemployed (n=11)**	2(18.2%)	9(81.8%)	P<0.05
	Unskilled (n=188)	9(4.8%)	179(95.2%)	
	Skilled (n=12)	0(0.0%)	12(100.0%)	
	Semi-Professional (n=10)	0(0.0%)	10(100.0%)	
	Professional (n=9)	1(11.1%)	8(88.9%)	

Table 03: Knowledge of menstrual hygiene among female students

Variable		**Knowledge of Menstrual hygiene**		**Crude OR [95% C.I]**	**Adjusted OR [95% C.I]**
		High – n(%)	**Low – n(%)**		
Age at Menarche (in years)	**11-12**	10 (7.1)	131 (92.9)	1	1
	13-14	11 (12.4)	78 (87.6)	1.847 (0.750-4.549)	2.462 (0.910-6.661)
Mother's Education	**Illiterate**	4 (13.4)	26 (86.6)	1	1
	Primary	3 (33.4)	6 (66.6)	0.567 (0.095-3.378)	1.214 (0.164-8.966)
	Secondary	6 (5.4)	105 (94.6)	0.176 (0.023-1.288)	0.231 (0.025-2.163)
	Higher secondary	6 (10.1)	49 (89.9)	1.522 (0.289-8.025)	2.096 (0.353-12.430)
	Graduate	2 (7.6)	23 (88.4)	0.710 (0.133-3.782)	1.027 (0.172-6.110)
Father's Education	**Illiterate**	1 (8.3)	11 (91.7)	1	1
	Primary	3 (23.1)	10 (76.9)	0.423 (0.024-7.388)	0.901 (0.040-20.267)
	Secondary	6 (4.8)	119 (95.2)	0.128 (0.012-1.382)	0.299 (0.022-4.139
	Higher secondary	10 (18.9)	43 (81.1)	0.763 (0.088-6.609)	1.354 (0.138-13.335)
	Graduate	1 (3.7)	26 (96.3)	0.165 (0.020-1.368)	0.200 (0.023-1.724)
Ever discussed about MHM	**Yes**	10 (9.7)	93 (90.3)	1	1
	No	11 (8.7)	116 (91.3)	0.882 (0.359-2.166)	0.759 (0.241-2.397)
Learn about MHM	**Yes**	8 (8.7)	84 (91.3)	1	1
	No	13 (9.4)	125 (90.6)	1.092 (0.432-2.749)	1.088 (0.344-3.436)

CI=confidence interval MHM= menstrual hygiene management