

Pre Menarcheal Knowledge and Some Socio- Behavioral Variables: A Community Based Comparative Study on Bengali Women

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Abstract: Menarche is often considered as a significant milestone in the life of a woman. However, in developing countries like India, menstruation is still recognized as a taboo which prevents adolescent girls from getting appropriate scientific knowledge related to physiology of menstruation and menstrual hygiene from her society or surroundings. Lack of formal education and poor socioeconomic condition leads to inappropriate practices of menstrual hygiene with adverse outcomes. A community based cross-sectional comparative study was undertaken among 160 rural and urban women aged 10-60 yrs with the help of a pre-designed, semi structured schedule to assess and compare the menarcheal knowledge and practices associated with menstrual hygiene. The mean age at menarche was found to be higher in rural women than their urban counterpart across all age groups. A definite trend of menarcheal age shifting was also observed. Significantly higher number (52%) of urban women had knowledge about menstruation before menarche and exhibited much better awareness, which seems to be related to a better socio-economic condition and higher level of formal education. The use of sanitary napkins was significantly higher in urban women (72%) whereas majority of rural women (61.8%) still use old clothes as absorbent. Awareness about menstruation and menstrual hygiene can be improved if we acknowledge the issue from the core and act so that women in their menstruating years get proper health education and have better access to low-cost sanitary napkins.

Key words: Menarche, menstrual hygiene, premenarcheal knowledge, Reproductive health, sanitary napkin.

I. Introduction

Puberty is the stage in the growth and development of female characterized by a series of anatomical, physiological and behavioral changes. Typically occurring between 12-14 years of age, it is the period when girls experience their first menstrual bleeding. Menarche, the onset of menstrual bleeding, is often taken as an important sign of sexual maturity in women.^[1,2] The average age at menarche varies greatly between populations. It has been shown to vary from eight years to nineteen years across world.^[3,4] Indian studies have put the value from 12.1 yrs in Bengali girls to 15.4 yrs in girls coming from low socio economic background in Maharashtra.^[5,6] Most sources have argued that average age of menarche has dropped significantly from 1840s till date.^[7] Although purely a biological phenomenon, menstruation is often linked to many false beliefs, misconceptions and unhygienic practices. Pre menarcheal knowledge in adolescence is mostly shaped by socio-economic, cultural and religious factors along with the level of formal education of a girl and her family. It strongly influences the practices associated with menstrual hygiene in women in their menstruating years. Pre menarcheal knowledge and practices associated with menstrual hygiene can be regarded as a significant component of reproductive health and fertility in women in general, as poor menstrual hygiene may not only potentiates infections in the reproductive tract or urinary-tract, sexually transmitted diseases like cervical cancer but also influence infant and child health and survival from prenatal infection.^[8]

With this background the present study was designed to assess and compare the pre menarcheal knowledge, beliefs, practices associated with menstrual hygiene as well as menarcheal age of both urban and rural Bengali women aged 10-60 yrs.

II. Materials And Method

Study design: A community based cross-sectional comparative study was conducted among rural and urban Bengali women aged 10-60 yrs in West Bengal, India in 2015. Out of 20 districts in West Bengal, one (West Midnapore) was selected at random. In West Midnapore there are 29 rural blocks. One block was selected at random and the study was carried out in one of the sub-centre. Data were collected from the 5 villages under this sub-centre. For the urban sample, random sampling was applied to select one Municipal area (Bidhan Nagar) out of 128 municipalities in West Midnapur. Random sampling method was applied to select one ward out of 25 wards in Bidhan Nagar municipality.

Sampling: Taking data from an Indian study in West Bengal, 72.1% of the urban participants had pre menarcheal knowledge, calculated sample size became 149 with allowable error 10% and 95% confidence limit.^[5] We took data from 160 Bengali women, 110 from rural and 50 from urban areas.

Tool and techniques: A pre-designed, pre-tested, semi-structured schedule was prepared in local language (Bengali) to collect information regarding background characteristics of a participant, age at menarche, pre menarcheal knowledge and practices followed to maintain menstrual hygiene. The study was carried out on a 'house to house' basis in both urban and rural areas ensuring one to one interaction with every participant. Informed consents were taken from all participants after explaining them the purpose of the study. Confidentiality of the participants was ensured and no follow-up visit was planned.

Ethical issues: The entire study protocol and schedule was duly approved by Institutional Ethical Committee of Medical College, Kolkata.

Data entry and analysis: Responses from all participants were compiled in Microsoft Excel worksheet and analyzed accordingly. Non-parametric χ^2 tests were performed to find out the degree of association between variables of different groups. P value less than $<.05$ was considered as significant.

III. Results

Among the studied 160 Bengali women, 110 were from rural and 50 were from urban areas. More women in rural areas were in the age group 10-20 yrs. (44.5%) followed by 38.2% in 21-30 yrs. age group, whereas in urban areas it was 28% for 31-40 yrs. age group and 26% for 51-60 yrs. In rural areas 51% followed the Islam religion, while in urban areas majority (96%) were Hindus. 72.7% of rural participants belonged to lower socioeconomic status (class IV and class V of Prasad's scale), whereas 94% urban participants belonged to higher socioeconomic status (class I of Prasad's scale). Mean age at menarche were recorded in different decades of reproductive age groups in both urban and rural areas (Table 2) which showed that there was age shifting towards lower direction (line diagramme) which was more in urban women. Mean age at menarche was 12.06 yrs in urban girls belonging to 10-20 yrs, where as rural girls of the same age group experienced menarche a little later (12.76 yrs). Similar differences in the age at menarche were evident in all other age groups, i.e. 20-30, 30-40, 40-50, and 50-60 yrs.

Table 3 showed that 52.0% of the urban Bengali women had some knowledge of menstruation before menarche compared to only 12.7% of rural women ($p<.000$). Peer group in urban areas was the main source of information (61.5%), where as family members other than mother were the main informants for rural girls (50%). Significant differences in the different areas of premenarcheal knowledge like cause of menstruation ($p<.002$), source of menstrual blood ($p<.000$) were found between rural and urban women. When talking about their first reaction towards menarche, 58% of urban participants reported that they felt scared during menarche. 38% of urban compared to 10% of rural women said that they felt discomfort, but never scared. 21.8% of the rural participants said that they remain indifferent during menarche. When asked whether or not they knew that a woman can become pregnant after menarche, 80% of urban women responded in affirmative compared to 34.5% rural respondents ($p<.000$). Table 4 showed that nearly similar proportion of women (Rural-75.5% vs urban-74%) faced some kind of imposed restrictions during menstruation, specially in religious activity (Rural-91.6%, Urban-100%), followed by cooking & serving food in rural area (15.6%) and playing (18.9%) in urban area. Majority of the rural women (82.7%) compared to urban (42.0%) still considered menstruation as taboo that prohibits female from talking about it openly. It was good to see that none of the urban participants were restricted to attend schools during menstrual period. The number was very low for rural participants (3.6%) also. Significant differences in response between rural and urban participants were also evident when questions were asked about practices of menstrual hygiene ($p<.000$), 72% of urban women use sanitary napkins compared to 22.7% of the rural women. Most of the rural women (61.8%) prefer to use old cloth as absorbent. Both rural and urban women take bath and keep themselves clean during menstrual bleeding (100%). Regarding the site of disposal of absorbent after their use varied between urban and rural areas, 84% of urban participants dispose absorbent in public dustbin where as 68.18% of the rural women bury their absorbents in ground after use. 6.36% of the rural women said that they keep their used absorbent in bathroom (Table 5). Table 6 showed that sanitary napkins use during menstruation significantly varied according to literacy status, socio-economic strata and religion.

IV. Discussion

Menarche is regarded as a vital milestone that profoundly changes a woman's life. Premenarcheal knowledge in women and their menstrual practices are strongly influenced by socio-cultural background, educational status of the individual and religious beliefs. In many instances women, especially the adolescent girls, remain ignorant about actual scientific facts related to menstruation and menstrual hygiene. This may not only result in adverse reproductive health in a woman but may also potentiate the possibilities of prenatal infections. The present study was designed to explore the comparative aspects of pre-menarcheal knowledge and

practices of menstrual hygiene among rural and urban Bengali women aged 10-60 yrs with special emphasis on menarcheal age in different decades of reproductive life. The present study has shown that mean menarcheal age in rural and urban Bengali girls belonging to age group 10-20 were 12.76 and 12.06 yrs respectively. A study by Dasgupta and Sarkar reported the menarcheal age of rural adolescent Bengali girls to be 12.8 yrs which is in agreement with the present study.^[9] Another comparative study by Datta & others in 2012 has shown that mean menarcheal age in rural and urban adolescent school girls in Howrah District of West Bengal were 12.2 and 12.1 yrs respectively.^[5] Differences in the age at menarche between rural and urban population were clearly visible in other age groups (20-30, 30-40, 40-50 and 50-60 yrs) also, might be due to the difference of influence of socio-economic, environmental and behavioral factors in rural and urban area. Women from lower socio-economic stratum tend to have higher pre-menarcheal age in comparison to those coming from higher strata. This is in accordance to a study by Wronka et al in Poland in 2005.^[10] In this current study, a clear evidence of menarcheal age shifting had been observed. Menarcheal age in both rural and urban Bengali women seems to be advancing in a more or less steady way in lower direction. Similar lowering of the age at menarche was reported by Bagga and Kulkarni in a study conducted on Maharashtrian girl in India.^[11]

Findings of our study showed that majority of rural girls were not informed about menarche before and experienced it without any preparation. The awareness level was much higher in Lebanese adolescent girls where 95.4% of the participants said that they had previous information on menstruation.^[12] In a study done in Amritsar city, India in 2012, 61.3% of adolescent girls had awareness about menstruation prior to initiation of menarche.^[13] A similar study in Karnataka, India had shown that 33.27% of the urban and 35.82% and rural school girls had awareness before menarche.^[14] Similar studies with rural girls in Bengal have put the awareness level at 67.5%.^[9] Much lower value of awareness in the present study may be due to a bigger range of age groups (10-60 yrs) among the participants and also the presence of taboo as found in Table 4. In the present study, peer group came out to be the main informant (61.54%) in urban areas followed by mother (34.6%). Whereas in rural areas, the main source of premenarcheal knowledge was other family members (50%). This is quite close to the values reported in a study on Bengali girls in 2012.^[5] Similar study in Nagpur, India reported that mother followed by sisters, friends and teachers were the main source of information.^[15] In a study conducted in Mansoura, Egypt, mass media was the main source of information about menstrual hygiene.^[16] We found that nearly one fourth rural women (22.7%) had no idea that menstruation is a natural physiological process which was different from other studies done in Rajasthan and West Bengal.^[17,18] It is very sad to observe that the knowledge regarding the source of blood during menstruation was very poor among the rural respondents, whereas urban participants correctly identified uterus to be the source of blood which was quite similar to other studies.^[15,18] Participants showed variety of emotional responses during menarche like 'scared', extreme discomfort etc. A Similar study have reported anxiety, embarrassment even sense of guilt among respondents during menarche.^[14] When asked, 80% of the urban women in our study correctly said that a woman cannot conceive before menarche. On the contrary majority of rural respondents (65.5%) said that they have no idea about the relationship between menarche and pregnancy. It is observable from our study that majority of the participants (62%) in urban area feel comfortable to discuss and share information related to physical changes in puberty with their peer group, while rural participant prefer their mothers for discussion and support.

We found that majority of our studied females (both urban and rural areas) faced different kinds of imposed restrictions during menstruation, specially in religious activity, cooking and serving food, playing which was in well accordance with a study in Punjab where similar kind of restriction for visiting religious places and touching sacred books were observed in 72% of the respondents who practiced restrictions.^[13] Inadequate scientific knowledge regarding the physiology of menstruation and presence of taboos in the studied area specially rural area might be the reasons of imposed restrictions. While dealing with hygienic practices during menstruation we found that significantly more urban respondents were using sanitary napkins as compared to their rural counterpart. Similar observations can be obtained from other related studies on practices associated with menstrual hygiene.^[9,13,15] The disposal of used absorbent also varied between urban and rural participants. Reason as expressed by the rural women that they could not use sanitary napkins because of its unavailability in the local market and exorbitant price fully knowing that it would have been more hygienic. Other possible reasons might be some socio-economic factors like literacy status, financial condition or religion had a role in hygienic practices of the studied women, because we found that menstrual hygiene practices were more among literate women, belonging to higher socio-economic strata and Hinduism.

V. Conclusion

Investigators of the present study strongly felt that general awareness about menstruation was considerably poor among participants and the practices of menstrual hygiene were far from satisfactory among respondents particularly in rural areas. Both community based health awareness programme to remove taboos related to menstruation and school based programme on reproductive health specially on areas like physical

changes in time of puberty, normal physiology of menstruation and healthy practices associated with it should be regularly carried out in these areas. Regular counseling through Adolescent Clinics are the other area of intervention to reduce age-old beliefs and superstitions. Sanitary napkins should also be made universally available at low cost to improve the level of menstrual hygiene. Researchers also suggest further study in this field in a wider scale.

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Results

Table 1: Demographic details of the study subjects (n=160)

Variables		Rural (n=110)	Urban (n=50)
		No. (%)	No. (%)
Religion	Hindu	54 (49.0)	48 (96.0)
	Muslim	56 (51.0)	02 (04.0)
Age groups(in years)	(10-20)	49 (44.5)	08 (16.0)
	(21-30)	42 (38.2)	05 (10.0)
	(31-40)	13 (11.8)	14 (28.0)
	(41-50)	02 (1.82)	10 (20.0)
	(51-60)	04 (3.64)	13 (26.0)
Socio-economic status	Class I	05 (4.5)	47 (94.0)
	Class II	09 (8.2)	00 (00.0)
	Class III	16 (14.5)	03 (06.0)
	Class IV	40 (36.4)	00 (00.0)
	Class V	40 (36.4)	00 (00.0)
Participant's Education	Illiterate	14 (12.7)	00 (00.0)
	Primary School	30 (27.3)	02 (04.0)
	Middle School	55 (50.0)	03 (06.0)
	Higher Secondary	06 (5.4)	06 (12.0)
	Graduate	05 (4.6)	18 (36.0)
	Post-Graduate	00 (0.0)	21 (42.0)
Father's Education	Illiterate	52 (47.2)	00 (00.0)
	Primary School	20 (18.2)	03 (06.0)
	Middle School	24 (21.8)	02 (04.0)
	Higher Secondary	06 (5.5)	02 (04.0)
	Graduate	08 (7.3)	28 (56.0)
	Post-Graduate	00 (0.0)	15 (30.0)
Mother's Education	Illiterate	66(60.0)	02 (04.0)

	Primary School	26(23.6)	04 (08.0)
	Middle School	13(11.8)	04 (08.0)
	Higher Secondary	01(0.91)	12 (24.0)
	Graduate	01(0.91)	22 (44.0)
	Post-Graduate	03(2.72)	06 (12.0)

Table-2: Mean Age at menarchae among rural and urban respondents (n=160)

Age group(in years)	Mean age at menarche (years)	
	Urban women(n=50) Mean(± sd)	Rural women(n=110) Mean(± sd)
10-20	11.36(± 0.92)	12.76(±0.89)
21-30	11.55(±1.85)	12.79(±1.58)
31-40	12.64(±0.82)	13.34(±1.02)
41-50	12.50(±1.37)	13.70(±0.01)
51-60	12.97(±1.05)	13.76(± 1.33)

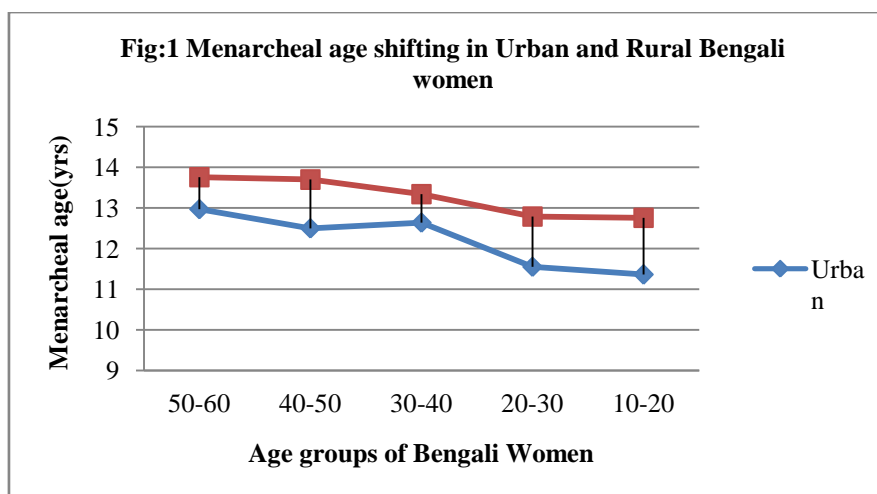


Table 3: Pre-menarcheal knowledge and awareness about menstruation among respondents (n=160)

Variables		Rural (n=110) No. (%)	Urban (n=50) No. (%)	χ ² value	df	p
Premenarcheal knowledge about menstruation	Yes	14(12.7)	26(52.0)	28.27	1	.000**
	No	96(87.3)	24(48.0)			
Source of information before menarche*(positive response)	Mother	03(21.4)	09(34.6)			
	Other family members	07(50.0)	04(15.4)			
	Peer	06(42.8)	16(61.5)			
Knowledge about exact cause of menstruation	Natural	85(77.2)	49(98.0)	9.38	1	.002**
	Don't know	25(22.8)	01(02.0)			
Knowledge about exact source of blood during menstruation	Uterus	03(02.7)	35(70.0)	93.11	2	.000**
	Abdomen	05(04.5)	05(10.0)			
	Don't know	102(92.7)	10(20.0)			
First reaction towards menarche	Scared	75(68.2)	29(58.0)	21.64	2	.000**
	Felt discomfort but not scared	11(10.0)	19(38.0)			
	Indifferent	24(21.8)	02(04.0)			
Awareness that a woman can become pregnant after menarche	Yes	38(34.5)	40(80.0)	28.43	1	.000**
	No	72(65.4)	10(20.0)			
Comfortable to share information about puberty related physical changes with*	Parents	72(65.4)	24(48.0)			
	Siblings	27(15.5)	10(20.0)			
	Peer	15(13.6)	31(62.0)			
	Others	23(20.9)	04(15.4)			
	Did not discuss	01(0.01)	03(06.0)			

*Multiple responses(χ² not done) ** significant

Table 4: Restrictions practiced during menstruation (n=160)

Variables	Rural (n=110)	Urban	χ^2	df	p value
	(n=50)				
	No.(%)	No.(%)			
Not Practiced	27 (24.5)	13 (26.0)	.03	1	.84
Practiced* (Total) :	83 (75.5)	37 (74.0)			
	Religious work	76 (91.6)	37 (100.0)		
	Household work	01 (01.2)	00(00.0)		
	Attending school	03 (03.6)	00(00.0)		
	Playing	05 (06.0)	07(18.9)		
	Cooking serving food	13(15.6)	03(08.11)		
Others	15 (18.1)	00(00.0)			
Presence of Taboo to discuss it openly	91 (82.7)	21(42.0)			

*Multiple responses

Table-5: Menstrual hygiene practices among rural and urban respondents (n=160)

Variables		Rural (n=110)	Urban	χ^2	df	p value
		(n=50)				
		No. (%)	No. (%)			
Type of absorbent	Sanitary napkin	25(22.7)	36 (72.0)	35.38	1	.000
	Old cloth	68(61.8)	10 (20.0)			(sanitary vs other)
	New cloth	10 (09.1)	00 (0.0)			
	Mixed	07 (06.4)	04 (08.0)			
Taking bath regularly during menstruation		110(100)	50 (100)			
Disposal of used absorbent	Public dustbin	09 (08.2)	42 (84.0)			
	Bathroom	07(06.4)	00 (00.0)			
	Bury in ground	75 (68.2)	01(02.0)			
	Domestic refuse	02 (01.8)	07 (14.0)			
	Others	17 (15.5)	00(00.0)			

Table 6: Distribution of participants according to menstrual hygiene practice and selected socio economic variables. (n=160)

Variables	Sanitary napkins as absorbent	Any other materials used as absorbent	χ^2	df	p value
Literacy status Illiterate(n=14) Literate(n=146)	01 (07.2) 59 (40.4)	13 (92.8) 87 (59.6)	4.69	1	.03 (yate's correction)
Socio economic status Class I (n=52) Class II(n=09) Class III(n=19) Class IV(n=40) Class V (n=40)	37(71.2) 04(44.4) 08(42.1) 07(17.5) 05(12.5)	15(28.8) 05(55.6) 11(57.9) 33(82.5) 35(87.5)	42.67	4	.000**
Religion Hindu(n=102) Muslim(n=58)	52(51.0) 08(13.8)	50(49.0) 50(86.2)	21.82	1	.000**