

Menarche and the pattern of menstrual cycle among two linguistically cognate tribes of North East India

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ABSTRACT

The paper tries to examine the population variation in the pattern of menstruation between two linguistically cognate tribes of North East India, namely, the Mishing tribe of Brahmaputra river valley (plains) of Assam and the Minyong tribe of the hilly terrains of Arunachal Pradesh. The common belief for the cause of menarche and menstruation is found to be 'a process of blood purification' among the Mishings and 'a sign of virginity' among the Minyongs. The Minyong couples believe that at the time of conception the menstrual blood coagulates in the body of the embryo. The difference between the mean ages at menarche between the tribes is not found to be statistically significant. However, the correlation matrix shows statistically significant relationships between ages at menarche, marriage and first delivery among the Minyong mothers but not among the Mishing mothers. The study shows a declining trend in the mean ages of menarche from the mothers of the older age groups to the younger age groups in both the tribes. Within woman variation is observed in the menstrual cycle length before and after delivery of the first child as well as in the duration of menstruation.

KEYWORDS: Menarche, Menstrual pattern, Cognate, Mishing, Minyong, North East India

INTRODUCTION

Menarche is the most obvious sign of puberty in females. In many cultures, including the Indian culture, the first menstrual period or menarche is considered a vital sign of physical maturation for females and often celebrated with rituals to mark the beginning of the reproductive span. In total, a normal and healthy woman spends around six to seven years of their lives menstruating during the reproductive span (Mahon and Fernandes, 2010). Therefore, it is a priority for women to have the necessary knowledge and cultural environment to manage menstruation hygienically

and with dignity to avoid gynecological ailments and psychological problems. However, in many cultures, menstruation is considered one of the taboos for which the menstruating women are secluded from attending and participating in the religious activities and other works that are socio-culturally considered pious (Garg and Anand, 2015). However, there is no such evidence in Anthropological literature that menstrual taboos originated with one or the other sex (De Laney, *et al.* 1988). Many scholars insist on the fact that there is a kind of relationship between the social status of women and the taboo related during the menstrual cycle in many societies.

It is a matter of concern that in many developing countries, including India, menstrual health issues are not taken seriously and therefore, the adverse menstrual disorders that are important indices of gynecological morbidity receive scanty attention (Garg *et al.*, 2012). Moreover, there is not enough research done on menstrual health issues which may act pivotal in preventing maternal morbidity and mortality in India in general, and North-East India, in particular. Menstrual related discomforts like severe migraine, abdominal pain, breast discomfort, psychological swings and nausea often result in work-related adversity. Many women seem to lack information regarding the collateral effects of menstruation as well as biological understanding of the process. It is important to note here that a very little information is available on the menstrual pattern and issues of the tribes of North-East India. This study will provide information on these two aspects of their life-process among two linguistically cognate tribes of North East India, namely, the Mishing tribe of Assam and the Minyong tribe of Arunachal Pradesh. The Minyongs are one of the tribes that fall within the broader framework of the 'Adi' of Arunachal Pradesh (Srivastava, 1990). It is believed that the Mishing tribe of the present day Assam; erstwhile inhabited the hills of Arunachal Pradesh, presently inhabited by the Minyong tribe. These two tribes belong to the same linguistic family: the Tani family. The Mishings now occupy the Brahmaputra river valley of Assam (plains) whereas the Minyongs occupy the hilly terrains of Arunachal Pradesh. The strong socio-cultural affinities refer that once these two tribes were related socio-culturally. Folktales refer that the Mishings of Assam and the Minyongs of Arunachal Pradesh have evolved from the same stock (Taid, 2012).

MATERIALS AND METHODS

As the two tribes are socio-culturally believed to be biologically related so it may be assumed that the menarcheal age and pattern would be somewhat parallel. Taking this hypothesis in mind, the data for the present study was collected from the rural Mishing women of a village known as Batuwa in Dhemaji situated in Upper Assam and the Minyong women of West Siang of Arunachal Pradesh. A pretested, structured interview schedule was used to obtain data related to the socio-biological characteristics of the subjects, age at menarche, days of menstrual flow, cycle length as well as the knowledge of biological understanding of the process. The data were collected mainly through open-ended interviews. Retrospective technique was used to determine the age at menarche of some women. Various evidences state that recalled age at menarche has lesser chance of being reported wrong as menarche is thought to be an important life event and regarded as a life crisis which is periodical and a continuous process upto menopause. The sample comprised of 194 currently married Mishing women and 200 Minyong women of aged 20-39 years with atleast one living child. It is also intended to study if there is any change in the pattern of menstruation after first delivery of a child as well as the duration of Post-partum Amenorrhoea (PPA). Purposive sampling method was used for selecting the respondents. Women with history of irregular menstruation, those who could not correctly recall their menstrual events and women who have attained menopause were excluded from the present study.

RESULTS AND DISCUSSION

Menarche is a significant physiological and psychological event in a woman's life span. It is also recognized as one of the most emotional life events for females (Grief and Ulman, 1982). The Mishing as well as the Minyong mothers wait patiently and with eager for the day when would their daughters bloom to a beautiful flower with the advent and achievement of puberty. Menarche is regarded as the initiation of the reproductive span in females. The Mishing and Minyong couples feel complete when they can procreate and see their tribe members increasing. The biosocial parameters of the mothers show that the concentration of married Mishing women is the highest in the age group of 30-34 years (38.14%) followed by the age

group of 25-29 years (27.32%); whereas, among the Minyongs, the highest concentration is observed in the age group of 25-29 years (30.50%) followed by the age group of 20-24 years (27.50%). On arranging the mothers on the basis of parity, shows that the highest percentage of the mothers belongs to third and fourth parity in both the populations. It is significant to note here that the highest level of parity is found to be six in case of the Mishing mothers whereas the highest level of parity is observed to be eight in case of the Minyong mothers. Quite a good number of Minyong mothers are observed to be multiparous with seven and eight live births (13.50%). It is pertinent to note here that comparatively larger percentage of Minyong mothers (32.00%) belong to fifth and sixth parity than that of the Mishing mothers (19.07%). This can be explained with the fact that though the Mishing and the Minyong mothers have attained puberty almost at the similar mean age but the Minyong mothers have entered into marriage quite early after attaining menarche, which is not evident among the Mishing mothers. The average age at first marriage of the Minyong mothers is 16.49 ± 0.11 years and it is 22.77 ± 0.12 years among the Mishing mothers ($t=38.53$, $p<0.01$). As a result, the Minyong mothers comparatively enjoy a longer reproductive span than that of the Mishing mothers. The mean age of first delivery of the Mishing and the Minyong women are found to be 23.98 ± 0.12 years and 18.71 ± 0.21 years respectively ($t=21.78$, $p<0.01$). The mean age at last delivery are found to be 38.31 ± 0.10 years and 37.46 ± 0.14 years ($t=0.22$, $p>0.05$) among the Mishing and Minyong menopausal women respectively. Thus, the average active reproductive span (after consummation of marriage) to the last delivery is found to be 18.75 years in case of the Minyong mothers, and 14.33 years in case of the Mishing mothers. The correlation matrix shows statistically significant relationships between ages at menarche, marriage and first birth among the Minyong mothers but insignificant associations among the Mishing mothers between menarche and age at marriage. However, a significant association is evident between age at marriage and age at first birth among the Mishing mothers (Table 3).

Table 2 provides information relating to age at menarche of the mothers according to their current ages. There are certain variations in the mean age at menarche between the mothers classified in the age groups spanning 5 years. The ages at menarche among the Mishing mothers

range from 12 to 16 years and it is 13-16 years among the Minyong mothers. It is evident from the table that the mean age at menarche shows a gradual decline with the decreasing age of the mothers, however, the declining trend is found to be sharper in case of the Mishing mothers. The overall mean age at menarche of the Mishing mothers is found to be 14.08 ± 0.12 years and it is 14.68 ± 0.03 years among the Minyong mothers. The difference between these two means is found to be statistically insignificant ($t=8.87$, $p<0.01$) (Table 2).). Various studies all over the world including India indicate that the mean age at menarche has decreased recently. Tanner (1962) reported that the menarcheal age has started decreasing slowly from 1830 onwards in every reporting country. The studies undertaken on the secular trend of menarcheal age among Indian girls show declining trend of approximately five to six months per decade during the last forty years and that appears to have slowed down now [Bhaskaran and Devi, 2003]. However, the event-menarche-is biological, it is highly associated with genetic factors as well as socio-economic factors, particularly nutrition (Osler and Crawford, 1973; Richardson and Pieters, 1977). The menarcheal age depends on the combined action of genes at many different loci (Tanner 1960, 1962). Improved nutrition of pregnant women as well as during the growing stages of children over the years may partly be responsible for the consistent decline of the menarcheal age (Vaidya *et al.*, 1998). This may be one of the factors responsible for consistent decline in the menarcheal age noted in the present study. This trend is of great significance for obstetric and gynecological practice in those societies where the preferred age at marriage for girls is very low.

The human menstrual cycle lasts on an average 28 days. However, the cycle may shorten as one approaches menopause. Normal menstruation occurs because of the endometrial shedding with the unfertilized egg after ovulation following withdrawal of Estrogens and Progesterone hormones (Speroff, *et al.*, 1999). In the present study, the duration of menstrual flow is observed to range from four (04) days to seven (07) days. It is interesting to note here that the range of days gradually decreases in higher age groups. Moreover, the mean days of menstrual flow clearly show a decreasing trend from the younger age categories to the higher age categories. This trend is in support of biological evidence, which states that the women at the verge of

attaining menopause sometimes may show such kind of a decrease. It is intended to study for the variation (if any) in the ranges and mean duration of menstrual flow and the cycle length before conception of the first child (Table 4) as well as after resumption of postpartum amenorrhoea (PPA) of first child birth (Table 5). The mean duration of menstrual flow and cycle length are found to be 5.81 ± 0.13 days and 31.11 ± 0.21 days respectively among the Mishing mothers, and 5.08 ± 0.21 days and 33.42 ± 0.22 days respectively in case of the Minyong mothers. The difference between the two means of the duration of menstrual flow among the two populations is not found to be statistically significant ($t=0.35$, $p>0.05$). It is pertinent to note here that the mean cycle length (total mean) of 31.11 ± 0.15 days in the present study is marginally longer than the average duration of normal cycle length of 28 days. Certain obstetric speculations are based on the normal cycle length like the most fertile period of the egg or ovum for conception and use of oral contraceptives. This is because the decisions are generally made based on a 28 days cycle length. It is also evident that the mean duration of menstrual flow gradually declines with the increasing age of the mothers. Thus, the younger mothers show higher mean duration of menstrual flow (in days). However, the mean length of menstrual cycle show a consistent declining trend from younger age groups up to 30-34 years and again a sudden increase is noticed in the age group of 35-39 years. Such a trend is obvious in both the populations. The ranges in the duration of menstrual flow as well as the length of menstrual cycle are found to be similar in both the populations (Table 4).

It is an interesting finding that in both of the populations; the majority of mothers have experienced a decrease in the duration of menstrual flow as well as in the length of the menstrual cycle (more than 90 per cent of mothers) after resumption of Post-Partum Amenorrhoea (PPA). The average decrease is found to be approximately one day (0.92 day) in the duration of menstrual flow and 1.2 days in the length of the menstrual cycle among the Mishing mothers; however, a decrease of approximately one day in the duration of menstrual flow and 2.37 days in the length of the menstrual cycle is observed among the Minyong mothers. It is an interesting finding that the duration of menstrual flow has been reduced by 1 day or 2 days after resumption of PPA of first birth in majority of the Mishing (78.87%) and the Minyong mothers (95.00%). In

addition to this, the highest percentage of mothers shows a decrease of 1 day in the duration of menstrual flow post PPA in both the populations. Only a few numbers of young Mishing and Minyong mothers have experienced an increase of one or two days in both the populations. Not a single instance of increase is noticed among the mothers who are above 35 years old in both the populations. An increase in duration is visible in younger age group whereas decrease in duration is visible in the middle aged age groups and above. The average duration of PPA is observed to be 6.8 months among the Mishing mothers and 10.1 months among the Minyong mothers. Though PPA is a biological event but it is strongly associated with the duration of breastfeeding. Menstruation is a physiological process but it is always perceived in the socio-cultural matrix. The experiencing mothers tend to explain the biological phenomenon with their own perception. None of the women know the correct biology behind the process in the study populations. On asking the cause of menstruation, they have provided four reasons: it is a sign of reproductive maturity, it is a process of purifying blood, a sign of virginity and it is a spiritual phenomenon given by God. Majority of the Minyong mothers believe that menstruation denotes virginity and they believe that during a pregnancy, the menstrual blood gets deposited in the uterus. Majority of Mishing women see menstruation as a normal process of purifying the blood. No negative perception regarding menstruation is noticed among the mothers. A considerable number of Mishing and Minyong mothers rightly perceive that it is a sign of reproductive and physical maturity though they are unaware of the actual physiological phenomenon.

CONCLUSION

Menarche is regarded as one of the emotional life events of a female and for her entire family. She is now considered an adolescent with sexual maturity and certain 'dos and don't' which obviously varies from society to society. Restriction to the pious place of the household as well as to other religious activities is observed in both the tribes under study. The Minyongs consider a menarche attained girl to be sexually matured and due to such perception, the ages at first marriage and motherhood are found to be quite lower than that of the Mishings. A statistical association is observed between the age at menarche and marriage among the Minyongs. A declining trend in age at menarche from aged to the younger women is noticed in both the

populations. A very significant result is noticed in the study that both the populations show a decrease in the duration of menstrual flow and in the menstrual cycle after the resumption of post partum Amenorrhea of first child birth. A considerable number of Mishing and Minyong mothers rightly perceive that it is a sign of reproductive and physical maturity though they are unaware of the actual physiological process.

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Table 1: Biosocial Parameters of the mothers

Parameters	Number		Percentage	
	Mishing	Minyong	Mishing	Minyong
Present age-groups (in years)				
20-24	30	49	15.46	24.50
25-29	53	61	27.32	30.50
30-34	74	55	38.14	27.50
35-39	37	35	19.07	17.50
Total	194	200	100.00	100.00
Parity				
1-2	34	30	17.53	15.00
3-4	123	79	63.40	39.50
5-6	37	64	19.07	32.00
7	0	27	0	13.50
Total	194	200	100.00	100.00
Age at first marriage (years)				
>18	7	47	3.61	23.50
18-20	42	79	21.65	39.50
21-23	74	51	38.14	25.50
24-26	40	17	20.62	8.50
27+	31	6	15.98	3.00
Total	194	200	100.00	100.00
*Mean age at marriage (years)	22.77±0.12		16.49±0.11	

*t=38.53, p< 0.01

Table 2: Age at Menarche among the Respondents

Present Age Groups (Years)	Mishing Age at menarche			Minyong Age at menarche		
	No.	Range	Mean	No.	Range	Mean
20-24	30	12-15	13.67±0.14	49	13-15	14.45±0.01
25-29	53	12-16	13.92±0.15	61	13-16	14.23±0.05
30-34	74	12-16	14.04±0.10	55	13-16	14.63±0.01
35-39	37	13-16	14.27±0.14	35	14-16	14.72±0.09
Total	194	12-16	14.08±0.12	200	13-16	14.68±0.03
t=8.87, p< 0.01 (Means)						

Table 3: Correlation matrix between age at menarche, marriage and first birth

Mishing Mothers			
Age of	Menarche	Marriage	First birth
Menarche	1.000	0.161*	0.203*
Marriage		1.000	0.594*
First birth			1.000
Minyong Mothers			
Age of	Menarche	Marriage	First birth
Menarche	1.000	0.078	0.088
Marriage		1.000	0.494*
First birth			1.000

*Significant at 0.01% level

Table 4: Ranges and Mean Duration of Menstrual Flow and Cycle Length Before Conception of First Live Birth

Age Groups (Years)	Mishing women			
	Duration of Menstrual Flow (days)		Length of Menstrual Cycle (days)	
	Range(days)	Mean(days)	Range(days)	Mean(days)
20-24	5-7	6.67±0.11	30-36	32.53±0.22
25-29	5-7	6.14±0.27	30-34	31.22±0.13
30-34	5-6	5.91±0.08	28-32	30.01±0.25
35-39	3-5	4.02±0.21	28-33	30.51±0.11
Total	(3-7)	5.81±0.13	(28-36)	31.11±0.21
Age Groups (Years)	Minyong women			
	Duration of Menstrual Flow (days)		Length of Menstrual Cycle (days)	
	Range(days)	Mean(days)	Range(days)	Mean(days)
20-24	4-7	6.07±0.40	32-36	33.22±0.20
25-29	4-7	5.23±0.17	32-37	33.82±0.11
30-34	4-6	4.81±0.07	30-35	32.11±0.30
35-39	4-6	5.01±0.16	30-35	33.11±0.24
Total	(3-7)	4.78±0.21	(28-36)	33.42±0.22

t =0.35, p>0.05 (Duration of Menstrual Flow)

t =2.31, p<0.05 (Length of Menstrual Cycle)

Table 5: Ranges and Mean Duration of Menstrual Flow and Cycle Length After the Delivery of Last Live Birth and Average Duration of PPA

Age Groups (Years)	Mishing women			
	Duration of Menstrual Flow (days)		Length of Menstrual Cycle (days)	
	Range(days)	Mean(days)	Range(days)	Mean(days)
20-24	4-6	6.02±0.33	28-32	30.13±0.02
25-29	3-6	5.11±0.17	28-34	30.02±0.23
30-34	4-6	5.11±0.22	28-32	30.11±0.20
35-39	3-5	4.00±0.21	26-32	30.32±0.22
Total	(3-6)	4.89±0.27	(28-34)	30.11±0.21
Age Groups (Years)	Minyong women			
	Duration of Menstrual Flow (days)		Length of Menstrual Cycle (days)	
	Range(days)	Mean(days)	Range(days)	Mean(days)
20-24	4-6	5.12±0.23	28-30	29.02±0.28
25-29	3-5	4.03±0.11	27-32	29.82±0.31
30-34	4-6	4.53±0.15	27-33	31.41±0.11
35-39	3-5	3.88±0.33	27-34	29.61±0.44
Total	(3-6)	4.25±0.23	(28-34)	30.05±0.12
AVERAGE DURATION OF PPA AFTER THE LAST BIRTH (Months)	Mishing		Minyong	
	6.8		10.1	

t =0.35, p>0.05 (Duration of Menstrual Flow)

t =2.31, p<0.05 (Length of Menstrual Cycle)

Table 6: Variations in Menstrual Flow Duration among the Mothers in the after Resumption of PPA of First Birth

Age Groups (Years)	MISHING MOTHERS							
	Increase (n=19) (9.79)				Decrease (n=175) (90.21%)			
	1 day		2 days		1 day		2 days	
	No.	%	No.	%	No.	%	No.	%
20-24	6	3.09	3	155	19	9.79	2	1.03
25-29	6	3.09	2	1.03	32	16.49	11	5.67
30-34	2	1.03	-	-	62	31.96	10	5.15
35-39	-	-	-	-	30	15.46	7	3.61
Total	14	7.22	5		143	73.71	30	15.46
Age Groups (Years)	MINYONG MOTHERS							
	Increase (n=10)				Decrease (n=176) (88%)			
	1 day		2 days		1 day		2 days	
	No.	%	No.	%	No.	%	No.	%
20-24	1	0.5	2	1.0	39	19.5	7	3.5
25-29	3	1.5	1	0.5	39	19.5	18	9.0
30-34	2	1.0	1	0.5	38	19.0	14	7.0
35-39	-	-	-	-	27	13.5	8	4.0
Total	6	3.00	4	2.00	139	69.5	37	18.5

Table 7: Reasons provided by the Mothers for the cause of menstruation

Reasons	Mishing women (n=194) %	Minyong women (n=200) %
Sign of reproductive ability and physical maturity	22.16	34.00
Process of blood purification	49.48	7.00
Sign of virginity	15.98	51.00
Phenomenon given by God	12.37	8.00
Total	100.00	100.00