Human Biology Review (ISSN 227 7 4424) 5 (4) 2016
©Human Biology Review Original scientific paper (Kumar and Gautam pp. 361-387)
www.humanbiologyjournal.com Revised and Accepted on July 24, 2016

Menarche, Menopause and Reproductive life span among Schedule caste women of District Banda, Uttar Pradesh

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Citation: Kumar A and Gautam RK. 2016. Menarche, Menopause and Reproductive life span among Schedule caste women of District Banda, Uttar Pradesh. Human Biology Review, 5 (4), 361-387.

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ABSTRACT:

Menarche and menopause demarcate potential reproductive life span among the females. A cross sectional study was carried out on a total of 1493 women belonging to four scheduled caste namely Chamar, Kori, Dhobi and Domar of District Banda of Uttar Pradesh (India). The mean age of the women studied was 34.5 years and they were from 10 to 95 years of age group. The study was conducted during 2014-2015 to assess the nature of menstruation, variation in age at menarche, menopause and reproductive life span among them. A pretested semi-structured interview schedule was used to collect the information about age at menarche, menopause and reproductive life span by door to door survey. The collected data was analysed by using SPSS and MS-excel. The average age at menarche and menopause and span of reproductive life were found 14.3±1.8 years, 44.5±4.5 years and 30.4±4.7 years respectively. There is no inter-caste difference in the nature of menstruation, age at menarche and age at menopause among them.

Key words: Menarche, Menopause, Marital status, Reproductive life span.

INTRODUCTION:

The age at menarche and menopause are two important biological and physiological events, which occurs in the life cycle of every normal female. These are accompanied by many morphological and physiological changes in human body and also influenced by many factors such as socio-economic conditions, nutritional status, geographical location, occupation, food habits, attitude, climate, heredity and education (Biswas & Kapoor, 2003; Dore & Reddy, 2010).

Menarche and menopause have important cultural, social and epidemiology implications therefore attention has been paid by scientist for understanding the causes of age variations in the timing of these events. Although findings are not always similar form one study to another, several factors have been shown to significantly influencing the age at menarche and menopause viz. genetic parameter (Danker-Hopfe and Deibalta 1990; Kaprio et al. 1995; Treolar et al. 1998) socio-economical condition (Belmaker 1982; Luoto et al 1994), general health and life style (Parazzini et la. 1992; Brown et al. 1996), nutritional status (Osteria 1983; Riley 1994; Simondon et al. 1997; Frisch 1983, 1990; Marrodan et al. 2000; Thomas et al. 20001), Seasonally (Boldsen 1992), physical activity (Malina 1983; Baker 1985), and altitude level (Beall 1983; Kapoor and Kapoor 1986; Gonzales and Villena 1996; Gautam 2006; Kshatriya et al. 2009), occupation and area of residence (Kumar and Gautam 2015).

Mean age at menarche and age at menopause vary substantially between women across different countries or across different ethnic groups (Belitz 1977; Gray and Doyle 1983; Hunt and Newcomer 1984; Danker 1986; Ulijaszek et al. 1991; Fllint 1997; Morabia et al. 1998; Gama 2008).

The biological attributes such as Menarche, Menopause and reproductive life span are very important demographic characteristics which influence population dynamics via fertility mortality and so on (Talwar and Pandey, 2004). Therefore here is an attempt to find out the mean age of menarche, menopause and reproductive life span among four scheduled castes women of district Banda of Uttar Pradesh (India). Simultaneously to understand the variations exist within and between the groups.

METHODOLOGY:

The present study is based on a cross sectional study conducted among 1493 females of four scheduled castes namely Chamar, Kori, Dhobi and Domar. They were selected randomly from 1050 household of 35 villages of District Banda of Uttar Pradesh. The villages were selected on the basis of proportional to population size (PPS), for that the villages were listed in descending order as per density of the target group.

The study was conducted during 2014-2015 to assess the nature of menstruation, variation of age at menarche, menopause and reproductive life span among them. A pretested semi-structured interview schedule was used to collect the information by *door to door survey* about age at menarche and menopause alongwith other demographic, anthropometric

and physiological information. The information about age at first menarche was collected using the recall method (Retrospective method). Similarly, the information were collected about the age at menopause by 'Status Quo' as well as retrospective methods, finally reproductive life span was computed for all women who were in menopausal status by subtracting age at menarche form their age at menopause. The collected data was analysed by using SPSS and MS-excel.

The scheduled caste population are deprived section of society and live in very poor condition with many health and nutritional problems. During survey, it was found that the condition of schedule castes were poor and backward. Here is a brief about the caste group studied.

The Chamar

The Chamar is a caste of tanners and menial labourer of northern India. They are found in most of the Hindi speaking belt. The name Chamar is derived from the Sanskrit word 'Charmakara' (a group of leather worker). During recent past they were engaged in traditional works like: Leather worker and shoemakers; but now they are found in a variety of occupations from leather work to blue collar jobs and even at top of politics. But, majority of them are still daily wage earners, followed agriculture etc. The Chamar is still considered impure and he is not allowed to come into the houses of upper castes.

The Dhobi

The Dhobi is one of the professional caste group, engaged in washing cloths and known as 'Washer man'. The Dhobi word is derived from the Hindi *Dhona* and the Sanskrit *Dhav* which mean 'washing'. They were also known as Warthi, Baretha, Rajak, Parit, Chakla etc. In old days, Dhobi were engaged in washing clothes and other traditional jobs, which they still continuing; but now a days, they are involved in other professional works like carpenter, blacksmith, agriculturist, labourer, house servant and other jobs such as government (teacher/policeman/doctor etc.) and non government (contractor/engineer/shopkeeper etc.) jobs. Alongwith, jobs they are also engaged in politics and others decision making service of societies and governments.

The Kori

The Kori are a caste of traditional weavers of northern India. In Uttar Pradesh, the Kori claim their origin from the Brahmin ruler, but in neighbouring state like Madhya Pradesh the Kori were trace their origin from the poet Saint Kabir. The traditional occupations of Kori are weaving, but at present the Kori have completely transformed their traditional occupation and they are doing a variety of jobs like: daily wages labourers,

agriculture, business, government jobs etc. The Indian government provided the various forms of assistance to encourage them economically; the majority of them remain poor. They were need good education and other resources to improve their life standard.

The Domar

The Domar are found in many states of India including Uttar Pradesh. They are also known as Mehtar and have scheduled caste status. They were tracing their origin to Rajah Harischandra and Balmik (ancient poet). The Domar are still employed as sweepers and scavengers. They are found mainly in eastern Uttar Pradesh. The Domar are strictly endogamous caste group, they are Hindu but they have their own religious specialities. The Domar are landless communities. In present circumstances the many urban Domar are employed as cleaners in hospitals and other services like peon, doctors, security guard, household servant etc.

RESULTS

Age at menarche

It is evident from Table 1 that the age at first menarche among studied women varies from 10-19 years. The prevalence of early menarche at the age of 10 and 11 years is very less 0.1% and 1.3% respectively. More than half of population (57.5%), out of which 57.6% of Chamar, 52.2% were Kori, 50.1% of Dhobi and 68.8% of Domar Female were have experienced first menstruation before average age at menarche (14.3±1.8 years) for pooled data. The late age at menarche ≥18 years was found among 2.5 % of them, out of which the concentration of late age at menarche was found among Chamar (1.9%) and Kori (4.2%). Further 40.0% of population of Chamar, Kori, Dhobi and Domar had first menarche within 15-17 years of age. The average age at menarche for pooled data was found 14.3 ±1.8 years, which varies among Chamar (14.19±1.737), Kori (14.48±1.785), Dhobi (14.57±1.710) and Domar (13.92±1.933). Age at menarche wise distribution of females among scheduled castes like Chamar, Kori, Dhobi and Domar was also elucidated with the help of Error Bar diagramme (Figure 1). It is apparent that there is insignificant variation in mean age at menarche among the caste groups.

Table 1: Distribution of females as per Age at Menarche and Caste group

Age at first Menarche	Chamar		Kori		Dhobi		Domar		Total	
	N	%	N	%	N	%	N	%	N	%
10	0		1	0.4	0		0	0	1	0.1
11	12	1.2	3	1.1	1	0.9	2	4.2	18	1.3
12	204	20.2	41	15.5	16	13.8	12	25.0	273	19.0
13	177	17.5	32	12.1	14	12.1	9	18.8	232	16.1
14	201	19.9	65	24.6	27	23.3	10	20.8	303	21.1
15	182	18.0	48	18.2	26	22.4	6	12.5	262	18.2
16	95	9.4	28	10.6	11	9.5	0		134	9.3
17	121	12.0	35	13.3	17	14.7	7	14.6	180	12.5
18	16	1.6	10	3.8	4	3.4	2	4.2	32	2.2
19	3	0.3	1	0.4	0	0	0	0	4	0.3
Total	1011	100.0	264	100.0	116	100.0	48	100.0	1439	100.0
Mean± SD	14.19±1.73		14.48±1.78		14.57±1.71		13.92±1.93		14.3 ± 1.8	

Further, it is observed that the mean age of age at menarche was found to be within the range of other Indian population such has Yadav caste population of Andhra Pradesh (13.44 ± 0.06 years) (Chandrasekhar & Sudarshan 2006). The mean age of Hindu Harijan (Schedule Caste) girls was reported to be 12.23 and for Sikh Harijan girls of Punjab it was 11.88 years (Siddu 2002, Singal and Siddu 1982). Similarly the mean age at menarche of present study was slightly higher than Bidi workers women (13.78±1.12 years) of Sagar District of Madhya Pradesh (Kumar and Gautam 2014); Lohar Gadhiyas women (13.88 years) of Sagar (MP) (Yadav et al., 2002); among Brahmins women of Andhra Pradesh, it was 13.86 years (Laxmi 2002); among Kshatriya women of Andhra Pradesh, it was 13.86 years (Priya et al., 2009). The average age at menarche among Ao Nag girls was reported 14.89 year (Purngula and Sengupta 2002). The average age at menarche among Telaga women of Karnataka was 14.75 year and among women of Punjab it was 14.13 years (Chakravarthi and Renuka 1977). Similarly the mean age at Schedule caste of present study is very close to previous studies like tribal group (Baigas) women it was 13.27 ± 1.44 years (Kshatriya et al., 2010 and Gautam et al., 2008).

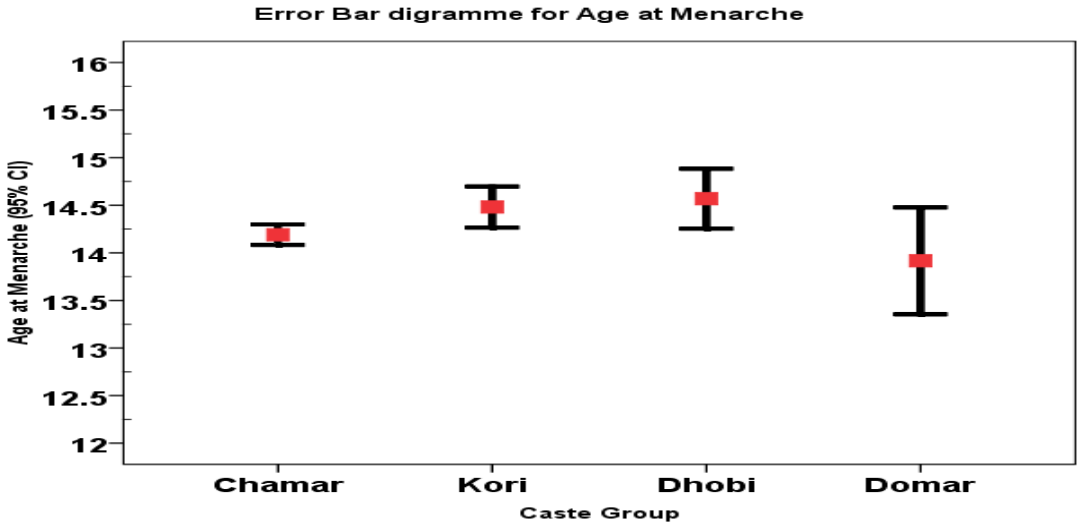

Figure 1. Error Bar Diagmamme showing Age at menarche among the women of four caste group: Chamar, Kori Dhobi and Domar.

Nature of Menstruation

In the present study information were gathered about the nature of menstruation. The findings are presented in Table 2.

Table 2. Distribution of females according to nature of Menstrual cycle, Menopause and Hysterectomy.

Nature of Menstruation	Caste group									
	Chamar		Kori		Dhobi		Domar		Total	
	N	%	N	%	N	%	N	%	N	%
Regular	543	53.7	152	57.6	62	53.4	26	54.2	783	54.41
Amenorrhea	135	13.4	32	12.1	16	13.8	7	14.6	190	13.20
Irregular	72	7.1	17	6.4	6	5.2	4	8.3	99	6.88
Menopause and Hysterectomy										
Menopause	255	25.2	61	23.1	32	27.6	11	22.9	359	24.95
Hysterectomy	6	.6	2	.8	0		0		8	0.56
Total	1011	100.	264	100	116	100	48	100	1439	100

It is apparent that 54.41 % of female had regular menstruation, 13.20% had reported Amenorrhea and 6.88% had irregular menstruation; whereas 25% had reported menopause and 0.56% were reported hysterectomy. Here it should be noted that hysterectomy was reported from Chamar and Kori only.

The distribution of females as per nature of menstruation and current marital status is presented in Table 3.

Table 3. Distribution of participants according to nature of menstruation cycle and their current marital status

Nature of Menstruation	Marital status							
	Unmarried		Married		Widow		Total	
	N	%	N	%	N	%	N	%
Regular	210	99.0	563	48.0	10	15.3	783	54.41
Amenorrhea	0	0	188	16.0	2	3.8	190	13.2
Irregular	2	1.0	95	8.1	2	1.9	99	6.88
Menopause	0	0	318	27.1	41	78.9	359	24.95
Hysterectomy	0	0	8	0.7	0	0	8	0.56
Total	212	100	1172	100	55	100	1439	100

It is apparent from the Table 3 that 99 % unmarried female have regular menstruation and 1% had reported irregular menstruation. Similarly 48.04 % of married female have regular menstruation and 16.04 % had Amenorrhea, 8.1 % had reported irregular menstruation; whereas 27.1 % married women had attained menopause, further 8 (0.7%) married women had reported surgical removed of uterus (hysterectomy). Among widows 78.9% have attained menopause, 15.3% had regular menstruation, 3.8% had Amenorrhea and 1.9% had irregular menarche.

Menopause

Menopause is cessation of menstruation in human female. It occurs during end of 40. It is an end of reproductive life of women, after menopause she cannot bear child. Menopause may interact with or accelerate event of normal ageing. Early menopause may occur because of disease related to decreased estrogens level and may promote increased incidence of osteoporosis, heart disease, diabetes, hypertension breast cancer and autoimmune disease (Mathews et al. 1989; Sowers & La Pietra 1955; Adler 2000).

The age at menopause was determined by 'Status Quo' as well as retrospective methods. The distribution of women as per age at menopause is presented in Table 4.

Table 4: Distribution of women as per Age at Menopause

Age at Menopause	Chamar		Kori		Dhobi		Domar		Total	
	N	%	N	%	N	%	N	%	N	%
32-34	6	2.3	1	1.7	0		0	0	7	2.0
35-39	21	8.2	5	8.6	2	6.5	2	20.0	30	8.4
40-44	90	35.0	23	39.7	9	29.0	2	20.0	124	34.8
45-49	101	39.3	23	39.7	17	54.8	5	50.0	146	41.0
50+ above	39	15.2	6	10.3	3	9.7	1	10.0	49	13.8
Total	257	100	58	100	31	100	10	100	356	100
Mean± SD	44.49±4.65		44.28±4.534		45.10±3.682		43.90±3.985		44.5±4.5	

It is apparent from the Table that 75.8% women attained menopause in between 40-49 years of age with inter-caste difference. More than half 54.8% of Dhobi female were attained menopause at 45-49 years of age, similarly 50% Domar women also attained menopause during same span of life; whereas around 40% of Chamar and Kori were attained menopause during this span. Early menopause i.e. before 39 years of age is also higher among the Domar (20%) whereas late menopause i.e. ≥ 50 years of age was found higher among the Chamar (15.2%). For elucidation of inter-caste difference Error bar diagramme is constructed (Figure 3), which clearly indicated that the difference is insignificant. The average age at menopause for pooled data was found 44.5±4.5 years; although it varies among Chamar (44.49±4.654), Kori (44.28±4.534), Dhobi (45.10±3.682) and Domar (43.90±3.985).

The findings of present study are compared with previous findings such as rural Bidi worker of Sagar, Madhya Pradesh it was 47.4±3.15 years (Kumar and Gautam 2014); among Arya vyshya female the mean age of menopause was reported 45.33 year (Laxmi 1994). Among Lohar Ghadhiyas women of Sagar district, it was 46.4 years (Purngula and Sengupta 2002). Whereas the average age at menopause for present studied women is 44.5±4.5 years. Among Kaling vysya women it was reported 44.11 years (Laxmi 1994). Among Chakli women it is 44.5 years (Babu and Naidu, 1989). Among Ediga women it was 43.94 years (Ramesh 1992) and among Urban Bidi workers of Sagar, Madhya Pradesh it was 40.08±4.92 year (Kumar and Gautam 2014).

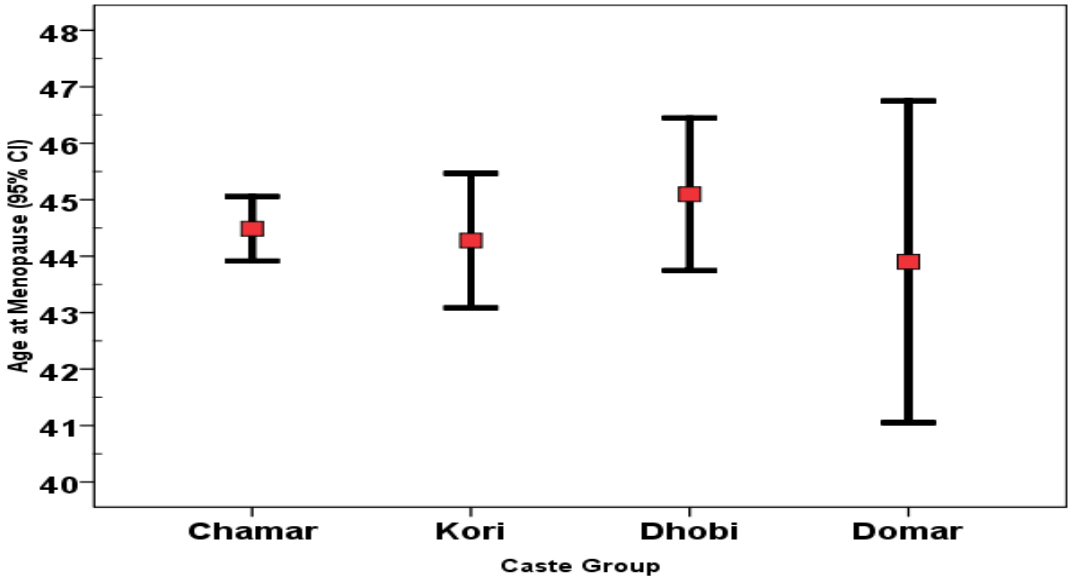

Figure 3. Error Bar Diagmamme showing Age at menopause among the women of four caste group: Chamar, Kori Dhobi and Domar.

Reproductive life span

Reproductive life span is a period of a woman's life in which she can bear child and give birth, she is biological and naturally capable in reproduction. It is a period from her first menstruation to the last one (i.e. menopause). It varies from person to person as well as according to climate and region like extrinsic factors. Reproductive life has an importance in population studies. It can be calculated by using the formula given by Gautam (2006) and followed by Kapoor et al., (2009) and Kumar & Gautam (2014).

Table 5: Distribution of female according to their reproductive life span

Reproductive life span (in years)	Chamar		Kori		Dhobi		Domar		Total	
	N	%	N	%	N	%	N	%	N	%
10-19	6	2.3	1	1.7	0	0	0	0	7	2.0
20-29	99	38.5	27	46.6	12	38.7	4	40.0	142	39.9
30-39	147	57.2	28	48.3	19	61.3	6	60.0	200	56.2
40-49	5	1.9	2	3.4	0	0	0	0	7	2.0
Total	257	100.0%	58	100.0	31	100.0	10	100.0	356	100.0
Mean± SD	30.49±4.720		29.69±4.795		30.61±4.047		30.00±5.033		30.4±4.7	

The distribution of females according to their reproductive life span is presented in Table 5. It is apparent from the Table that more than half (56.2%) of women had reproductive span between 30-

39 years and around 40% of women had 20-29 years of reproductive life span. Remaining 2% had reproductive life span in between 10-19 years and the similar proportion had extended life span of 40-49 years. The inter-caste difference in reproductive life span was found insignificant, which also evident from the Error bar diagramme (Figure .3).The average reproductive life span was found 30.4±4.7 year for pooled data although it varies from 30.61±4.047 to 29.69±4.79.

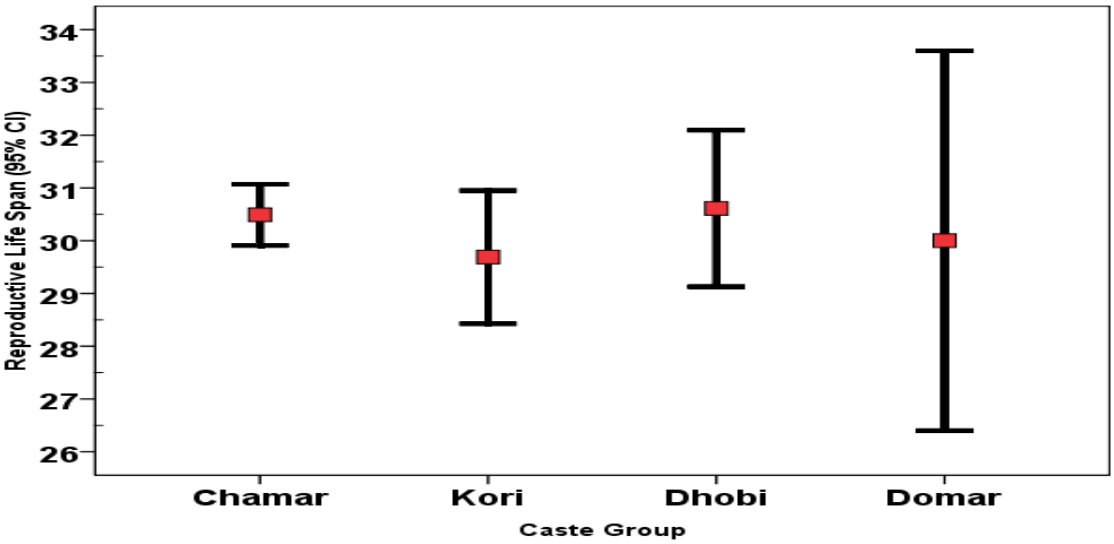

Figure: 4. Error Bar Diagmamme showing reproductive life span among the women of four caste group: Chamar, Kori Dhobi and Domar.

One-way ANOVA test for age at menarche and menopause

To understand the variation of age at menarche and menopause among the participants having different caste group, age group, monthly income, recent health perception, level of education, nature of occupation, working hours, Stature type and BMI on- way ANOVA test was computed and the result was present in Table 6 and Table 7

It is evident from the Table (6 & 7) that there is significant variation of age at menarche among participants, as per current age group, monthly income categories, and level of education and working hours. (F= 5.661, 4.52, 13.32 and 9.21, $p<0.05$). At the same time age at menopause among participant have insignificant variation as per all cited characteristics except current age group, level of education and nature of occupation (F= 5.28, 7.58 and 2.14, $p<0.05$)

Table 6: Differential of Age at menarche among participant as per socio demographical and anthropometric characteristics by One-way ANOVA Test.

Variable	Sum of square	df	Mean Square	F value	P value
			Caste		
Between groups	51.69	3	17.232	5.661	0.001

Within groups	3104.83	1020	3.044		
			Current Age (in Year)		
Between groups	3.45	1	3.453	1.119	0.290
Within groups	3153.07	1022	3.085		
			Monthly Income		
Between groups	27.74	2	13.87	4.52	0.011
Within groups	3128.78	1021	3.064		
			Recently Health perception		
Between groups	2.150	2	1.075	0.348	0.706
Within groups	3154	1021	3.090		
			Level of Education		
Between groups	40.615	1	40.615	13.32	0.001
Within groups	3115.91	1022	3.049		
Occupation					
Between groups	26.92	9	2.992	0.969	0.464
Within groups	3129.60	1014	3.086		
			Working Hours		
Between groups	110.217	4	27.554	9.21	0.0001
Within groups	3046.313	1019	2.990		
			Stature type		
Between groups	2.78	2	1.391	0.454	0.653
Within groups	3076.87	1004	3.065		
			BMI		
Between groups	14.272	2	7.136	2.37	0.097
Within groups	3065.384	1004	3.053		

[1]. Caste = Chamar, Kori, Dhobi and Doamr

[2]. Current age = >15, 15-49, 50+ above

[3]. Monthly Income = <5000,5000-9999, 10000+ above

[4]. Health Perception= Health, Unhealthy, Not Known

[5]. Education level= Illiterate, Literate

[6]. Occupation= None, Student, Housewife, Retired person, Labor, Agriculturist, Private Job Worker/ Servant, Small Businessman, Government Servant and Any Other Job

[7]. Working Hours= None, <5 hours, 5-10 hours, 10-15 hours and >15 hours.

[8]. Stature type= Short(<160.0) , Medium (160.0-169.9) and Tall (170.0-179.9)

[9]. BMI= Underweight (<18.49 kg/m2), Normal 18.5-24.9 kg/m2), Overweight/Obese (>25.0 kg/m2),

Table 7: Differential of age at menopause among participant as per socio demographical and anthropometric characteristics by One-way ANOVA Test.

Variable	Sum of square	df	Mean Suare	F value	P value
			Caste		
Between groups	24.933	3	8.311	0.411	0.746
Within groups	6180.219	305	20.26		
			Current Age (in Year)		

Between groups	207.06	2	103.53	5.282	0.006
Within groups	5998.08	306	19.60		
			Monthly Income		
Between groups	29.772	2	14.886	0.738	0.479
Within groups	6175.380	306	20.181		
			Recently Health perception		
Between groups	39.323	2	19.66	0.979	0.378
Within groups	6165.829	306	20.150		
			Level of Education		
Between groups	149.552	1	149.55	7.582	0.006
Within groups	6055	307	19.725		
			Occupation		
Between groups	253.4	6	42.24	2.144	0.048
Within groups	5351	302	193.707		
			Working Hours		
Between groups	60.06	3	20.012	0.993	0.393
Within groups	6145	305	20.148		
			Stature type		
Between groups	34.700	2	17.350	0.851	0.428
Within groups	6135.03	301	20.382		
			BMI		
Between groups	19.103	2	9.551	0.467	0.627
Within groups	6150.6	301	20.434		

[1]. Current age = >15, 15-49, 50+ above

[2]. Monthly Income = <5000,5000-9999, 10000+ above

[3]. Health Perception= Health, Unhealthy, Not Known

[4]. Education level= Illiterate, Literate

[5]. Occupation= None, Student, Housewife, Retired person, Labor, Agriculturist, Private Job Worker/ Servant, Small Businessman, Government Servant and Any Other Job

[6]. Working Hours= None, <5 hours, 5-10 hours, 10-15 hours and >15 hours.

[7]. Stature type= Short(<160.0) , Medium (160.0-169.9) and Tall (170.0-179.9)

[8]. BMI= Underweight (<18.49 kg/m2), Normal 18.5-24.9 kg/m2), Overweight/Obese (>25.0 kg/m2),

Independent samples *t-test* for age at first birth, pregnancy etc. among pre and post menopausal women

To understand the differential reproductive performance in terms of age at first birth, number of pregnancies experienced, number of children ever born/ surviving, child and foetal loss among pre and post menopausal women independent sample t-test was computed and the findings are displayed in the Table 8

It is apparent from the Table that there is significant variation in reproductive performance as well as child mortality among pre and post menopausal women as all the value of t-test were found

significant difference except age at first birth and foetal loss (t=-14.10, -15.69, -9.646 and -14.28; $p<0.05$).

Table 8: Independent samples *t-test* for reproductive performance and child/ foetal loss among women

Reproductive Variable	Nutritional status	Number	Mean	t value	F value
Age at First Birth	Pre-menopausal	660	19.67	0.978	3.439
	Post-menopausal	336	19.50		
Pregnancies Experienced	Pre-menopausal	659	5.05	-14.10*	0.853*
	Post-menopausal	336	7.69		
Children ever born	Pre-menopausal	660	4.19	-15.69*	2.399
	Post-menopausal	336	6.70		
Surviving Children	Pre-menopausal	660	3.51	-9.646*	0.527
	Post-menopausal	336	4.70		
Child loss	Pre-menopausal	660	0.68	-14.28*	126.95*
	Post-menopausal	336	2.00		
Foetal Loss	Pre-menopausal	660	0.85	-1.706	1.120
	Post-menopausal	336	0.999		

*($p<0.05$).

DISCUSSION

Review on age at menarche reveals that "there is a several evidence that age at menarche has become more progressively earlier during this century in the modernize and highly developed countries" (Datta and Datta 1981).

Here is an attempt to understand the present findings in context of temporal and regional variation of the phenomenon for that the findings are compared with other Indian population; belonging to different period of time and regions and state of the country which is displayed in Table 9 and 10.

It is evident the Table that age at menarche of present studied population (schedule caste) (14.19±1.7) was found higher than previously studied population, except Kinnaura (15.27, 15.31 and 15.36) of Himachal Pradesh (Kapoor et al. 2009); Panjabi women of India

have mean age at menarche 14.31 years (Singh and Ahuja 1980); Women of Algeria (14.3 years) (Riely and Khan, 1993); Participants of Cameron, Czechslovkia, Haiti, Kenya, Malaysia (14.61, 14.6, 15.37, 14.31, 14.4 and 14.2 year) respectively . The findings of present study was found very close to neighbouring and non-neighbouring countries viz. East Germany (14.0 years), (Morabia et al., 1998); Ghana (13.98 years) (Adadevoh et al. 1989); women of Nicaragua (14.0 years).

Here, it should be noted that after passing many decades, the people of India showing variation in age at menopause. The findings of present studied population has average age at menopause i.e. (44.49±4.65 years) which is comparatively higher than previously studied urban Bidi worker (40.08 years); Kinnaura (middle altitude) of Himachal (44.37 years) (Kapoor et al 2009); Bhil of Rajasthan (44.13 years) (Gautam 2006 and Kshatriya et al. 2010) have approximate similar mean value of age at menopause.

Human Biology Review (ISSN 227 7 4424) 5 (4) 2016
Original scientific paper (Kumar and Gautam pp. 361-387)
Revised and Accepted on July 24, 2016

Table 9 The mean age at menarche and menopause among different previous studied population groups

Country/State/District	Population	Age at menarche	Age at menopause	Source
Banda(Uttar Pradesh)	**Pooled data (SCs)**	**14.19 ±1.7**	**44.49±4.65**	**Present study**
Rural Sagar/MP	Bidi worker (urban)	13.78± 1.1	40.08±20.5	Kumar& Gautam 2014; Kumar and Gautam 2013-14 & 2014-2015)
	Bidi worker (Rural)	13.89± 1.1	47.4±3.15	
Himachal Pradesh	Kinnaura (Middle altitude)	15.27	44.37	Kapoor et al. 2009
	Kinnaura (High altitude)	15.36	46.78	
	Kinnaura	15.31	45.41	
Andhra Pradesh	Brahmins	-	45.33	Laxmi 1994
Andhra Pradesh	Yadav	13.44	-	Chandrasekhar Reddy & Sudanese 2006
Mysore	Lingayath	13.19	-	Veena and Bhat, 2009
	Adikarnatakas	13.14	-	
Madhya Pradesh	Lohar Ghadiya	13.88	46.34	Yadav et al. 2002
Panjab	Rural Brahmin	-	48.22	Kaur and Talwar 2009
	Urban Brahmin	-	49.30	
Rajasthan	Bhil	14.01	44.13	Gautam 2006 and Kshatriya et al. 2010
India	Panjabi	14.31	-	Singh and Ahuja 1980
Algeria	-	14.3	-	Grassivaro-Gallo and Floria 1993; Thomas et al. 2001
Argentina	-	12.59	-	Zurlo de Mirottie et al. 1995
Australia	-	13.0	50.4	Morabia et al. 1998; Walsh 1978
Bangladesh	-	15.8	-	Riely and Khan 1993
Belgium	-	13.0	-	Vercauteren and Susanne 1984
Britain	-	13.3	-	Mascie-Taylor and Boldsen 1986
Cameroon	-	14.61	-	Biyong et al 1985
Canary island	-	-	48.6	Sosa Henriquez et al. 1994
Chile	-	13.0	50.0	Morabia et al. 1998
China	-	12.38	49.0	Huen et al. 1997 and Morabia et al 1998
Colombia	-	12.8	50	Pardo and Uriza 1991 and Morabia et al 1998
Congo-Brazza	-	12.0	-	Samba 1982
Congo-Kinshasa	-	13.83	-	Rashid-Tozin et al. 1984
Cuba	-	13.01	-	Jordan-Rodrigue et al 1980
Czechoslovika	-	14.6	51.2	Magursky et al 1975

Denmark	-	13.0	-	Helm and Grolund 1998
Dominican rep.	-	12.6	-	Mancebo 1990
Egypt	-	13.2	-	Attallah 1978
Finland	-	13.2	51.0	Dahlstrom et al. 1984 and Luoto et al 1994
France	-	13.05	52.0	Crognier & Rocha 1979 & Salat-Baroux 1980.
East Germany	-	14.0	-	Morobia et al. 1998
Ghana	-	13.98	48.05	Adadevoh et al 1989 Kwawukume et al. 1993
Greece	-	12.0	-	Pentzos-Daponte and Grefen Peter 1984
Gautemala	-	13.75	-	Khan et al. 1995
Haiti	-	15.37	-	Barmes-Josiah And Augustin 1995
Hungary	-	12.9	-	Dober and Kiralyfalvi 1993
Ice land	-	13.06	-	Macgusson 1978
Indonesia	-	13.0	50.05	Samsudin 1990
Iran/Shiraz	-	-	48.3	Ayatollahi et al 2005
Ireland	-	13.52	-	Hoey et al. 1986
Israel	-	13.29	-	Belmaker 1982
Italia	-	12.2	-	Jamaica NFP, 1988
Japan	-	12.5	49.3	Nakamura et al. 1986 and Kono et al 1990
Kenya	-	14.4	-	Rogo et al. 1987
Malaysia	-	14.2	50.7	Ismael 1994 and Wilson 1985
Mexico	-	12.4	46.5	Gracia- Baltazar et al. 1993
Morocco	-	13.75	-	Loukid et al. 1996
Nepal	-	16.2	46.8	Beall 1983
New-Zealand	-	12.9	-	St. George et al. 1994
Nicaragua	-	14.0	-	Guido et al. 1971
Nigeria	-	15.0	48.4	Okonofua et al. 1990 and Morabia et al . 1998
Norway	-	13.2	-	Nafstad et al. 1995
Papua New Guinea	-	15.8	-	Groos and smith 1992
Peru	-	13.23	-	Soto-Caceres and Guevara Servigon 1988
Philippines	-	13.6	48	Zablan 1988 and Ramoso-Jalbuena 1994
Poland	-	13.63	-	Laska-Mierzejewska et al. 1982
Roumania	-	13.47	-	Stukovsky et al. 1967
Russia	-	13.0	49.0	Balan 1995 and Iampol'skaia 1997
Sardinia	-	12.78	-	Floris et al. 1987
Saudi Arab	Arabian women	-	48.94	Geer at al. 2003
Senegal	-	16.1	-	Simondon et al. 1997s
Somalia	-	14.78	-	Gallo 1975

South Africa	Black women	-	48.2	Walker et al. 1984
Southern Korea	-	13.9	-	Kim et al. 1986
Spain	-	12.31	-	De la Puente et al. 1997
Sri Lanka	-	13.5	-	Balasuriya and Femando 1983
Sudan	-	13.75		Attallah et al. 1983
Sweden	-	13.09	50.9	Furu 1976 and Hagstad 1988
Switzerland	-	13.0	50.0	Morabia et al. 1996
Tahiti	-	12.75	-	Ducros and Ducros 1987
Taiwan	-	13.6	49.5	Chow et al.
Tanzania	-	15.21	-	Hautvast 1971
Thailand	-	12.3	50.3	Piya-Anant et al. 1996 & Tunghaisal et al. 1991
Turkey	-	13.28	47.8	Carda et al. 1998
United Arab Emirates-	-	-	47.3	Rizka et al. 1998
USA	-	12.8	51.3	Kato et al. 1998 and Malina and Bouchard 1991
Venezuela	-	12.68	-	Farid-Coupal et al. 1981
Yemen	-	14.4	-	Yemen Arab Republic Fertility survey 1979
Zambia	-	13.7	-	Katzarski et al. 1980
Zimbabwe	-	13.5	-	Mbizvo et al. 1995

Table 10 The mean age at menarche and menopause among different previous studied population groups (After Datta and Datta, 1981)

Country/State	Time/Duration	Population	Age at menarche	Age at menopause	Source
Banda(Uttar Pradesh)	20014-2015	Pooled data (SCs)	14.19±1.73	44.49±4.65	Present study
India	1500B.C	Indian	-	-	Rgveda
	500 BC.	,,	12	-	Gobhilaputra
	600-500 BC.	,,	10	-	Hiranyakesi
	b. 321 B.C.	,,	12	-	Kautilya
	300-200 B.C.	,,	12	-	Susruta
	200 B.C.- 200 A.D.	,,	12	-	Manu
	100-500 A.D.	,,	10-12	-	Parasara
	200-500 A.D.	,,	>12	-	Vaikhanasa
	500 AD.	,,	12	-	Laugaksi
	500 B.C.-500 A.D.	,,	12	-	Mahabharata
Europe	384-322 B.C.	Europeans	13-14	-	Aristotle
	12-199 A.D.	,,	Around 14	-	Galen
	2nd century A.D.	,,	14	-	Soranus
	4th century	,,	12-14+	-	Oribasius
Southern Asia	1757	-	9-10	-	Haller
Calcutta	1845	Indian	13.2	-	Roberton
Bombay	1845	,,	13.8	-	Roberton
Bangalor	1845	,,	13.2	-	Roberton

Andhra	1973	Rich people	13.1	-	Bai and Vijayalaksmi

All the prehistoric details about age at menarche was surmised by Eveleth and Tanner (1976)

The temporal variation of age at mearche is presented in Table 10. It is evident from the Table that among Indian population, during earily historical or ancient period, the age at menarche was in between 10-12 years; whereas during medieval period it was reported 13-14 years.Among Europeans, during earily historical or ancient period, it was reported 12-14 years. . In this way, the age at menarche have sufficient temporal and regional variation. Similar is also evident for age at menopause.

Conclusion

From the present study, it can be concluded that the mean age at menarche among schedule caste of district Banda was found 14.35±1.8 years, which varies from 13.92±1.9 among Domar to 14.57±1.71 among Dhobi, the Chamar (14.19±1.737) and Kori (14.48±1.785) are in between. The mean age at menopause was found 44.5±4.5 years, which varies 43.90±3.9 among Domar to 45.10±3.68 among Dhobi. The Chamar and Kori have average age at menopause respectively 44.49±4.6 and 44.28±4.5 years. The average age of reproductive life span was found 30.4±4.7 years for pooled data, although it varies from 30.61±4.047 to 29.69±4.795 respectively, among Dhobi and Kori; whereas the Domar (30.00±5.03) and Chamar (30.49±4.7) are in between.

The inter-caste difference of nature of menstruation, age at menarche, menopause and reproductive life span among Chamar, Kori, Dhobi and Domar is insignificant. The one-way ANOVA test indicate that the mean value of age at menarche and menopause have significnat variation as per age cohort, monthly income, occupation, working haour and education level. At the same time the findings of t-test reveal significant difference in average number of pregnancies, chlidren ever born, number of surviving children and number of child death among pre and post menopasul women of district Banda, Uttar Pradesh, India.

Further, it was found that the mean age at menarche among present studied population was higher than Schedule Caste girls of Punjab and previously studied population of anceint period as well as womens of other countries of different period. Similar was found for age at menopause and reproductive life span.

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