

Menarcheal and Menopausal Age Distribution among the Kshatriya Women of North Coastal Andhra Pradesh

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ABSTRACT Menarche and menopause demarcate the limits of potential reproductive life span in the female. A number of studies have conducted on this aspect in different endogamous population of Andhra Pradesh at different time's. For the present work the urban and rural areas of Kshatriya women have been taken to study and this population has not studied previously on this aspect. In the study population it has been observed that, the early menarche in urban area while late menarche more in rural area. The difference of mean menopausal age between rural and urban areas is not significant. The Present data is also compared with other Andhra population.

INTRODUCTION

The Menarche and menopause are two important biological and physiological events, which occur in the life cycle of every normal female. They are accompanied by many morphological, physiological changes in the body. The term menarche introduced into medical literature by Kisch (1910) and the term menopause introduced by Gordanne (1821). The age at menarche and age at menopause vary widely between and within populations and are influenced by multitude of factors, both genetic and environmental. These two are important milestones in the woman reproductive period. The menarcheal age is attainment of sexual maturity after which she is capable of conceiving. The menopause period is also important, as it is marked by the arrest of ovulation and menstruation flow and indicates cessation of reproductive function. The variation in the ages of menarche and menopause aroused interest in the minds of scientists to carry out studies in different populations keeping in view of factors such as genetic, environmental and socio-economic status. A comprehensive review of the many biological factors related to the timing of menarche and menopause presented by Gray (1977). The menarcheal age depends on the combined action of genes at many different loci (Tanner 1960, 1962).

The World Health Organization (WHO) technical report series 1996 stated that the population of post-menopausal population in India was below 70 million in 1990 and will be 100 million in 2000. The menopause occurs between

the ages of 45 years to 50 years. In some women it may be as late as 52 years. The Menopause can lead to mood swings, forgetfulness, and loss of concentration, sleeplessness, and depression. Sweating is another disturbing symptom. The women herself is unable to understand what is happening to her. Due to long standing estrogen loss, the pelvic tissues atrophy and prolapses of uterus and vagina may occur. The osteoporosis is a long-term result of estrogen deficiency. The post-menopausal osteoporosis predisposes to fractures, particularly to hip, the wrist and the vertebrae. Eighty percent of all hip fractures occur in women who are mostly over 65 years.

The objective present paper is to assess the onset of menarcheal age and menopause among the endogamous population, Kshatriyas of West Godavari, East Godavari, Visakhapatnam, and Vijayanagaram, districts of north coastal Andhra Pradesh.

MATERIALS AND METHODS

The data collected from 1500 women belong to Kshatriya caste population. It includes 820 women from the urban and 680 women from the rural areas. Among them 162 women from urban area and 193 women from rural area attained menopause. The necessary statistical analysis has been done to analyze the collected data.

RESULTS AND DISCUSSION

The age at menarche and menopause vary widely between and within the populations and

are influenced by genetic and non-genetic factors. Menarcheal age is an important parameter in bio demographic studies. The frequency distribution of the Kshatriya women, according to age at menarche is given in the table 1. The comparative data available from other castes of Andhra Pradesh, the menarcheal age is in Brahmins -1 was 14.63 (Chakravarthi and Renuka 1970) and in Brahmins-2 it is 13.03 (Sita Laxmi 2002). In the present study of Kshatriyas it is 13.86 and Kshatriyas-2 it was 14.75 (Chakravathi and Renuka 1970). Similarly the menarcheal age in Arya Vysya caste 13.56 (Lakshmi 1994), in Kalinga Vysyas 13.04 (Lakshmi 1994) finally in Trivarnikas it is 13.50 (Lakshmi 1994). In case of Kapus the mean menarcheal age is 13.70 (Chakravarthi and Renuka 1970) and in Reddys it is 13.86 (Chakravarthi and Renuka 1970). Where as in Chakalis it is 13.03 (Babu and Naidu 1989), and in Edigas it is 14.18 (Bhasker et al. 1986), and in Telagas it is found to be 14.76 (Chakravarthi and Renuka 1970). In Vishwabrahmins it is 13.10 (Subba Rao 1996). The mean menarcheal age in Madiga girls it is 13.21 (Babu and Naidu 1989) and in Rellis 13.03 (Ramesh 1992), respectively.

The other reported data on all India basis, the mean menarcheal age of girls belong to Lohar Gadhiyas from Sagar District, Madhya Pradesh found to be 13.88 (Yadav et al. 2002). The mean menarcheal age of Hindu Harijan girls of Punjab reported to be 12.23 and in Sikh Harijan girls it is 11.88 (Siddu 2002). It is reported that both Hindu Harijan girls and Sikh Harijan girls have shown slightly lower menarcheal age compared to other communities of Punjab. The mean menarcheal age of Ao Naga girls of Nagaland is reported to be 14.88 (Purngula and Sengupta 2002).

This shows females of Mangoloid Tribes from North Eastern States of India experience menarche at relatively later age than the Indid (Caucasoids) females.

Robertson (1845) reported the first Indian data on menarcheal age. In the present study, the range distribution of menarcheal age is between 11 and 17 years. Early menarche observed in the urban area than rural area at 11th year (2.07% > 1.18%) 12th year (8.9% > 4.71%). Late menarche is more in rural area (19.26% at 15th year, 7.5% at 16th year and 1.76% at 17th year) than in the urban area (16.7% at 15th year, 4.93% at 16th year and 0.25% at 17th year). Most of the girls attained menarche at age 13 and 14 years with more or less the same frequencies.

The difference between the means of urban and rural areas is statistically significant ($t = 4.2942$, $P < 0.05$). The mean menarcheal age ranges from 13.01% in Chakali (Babu and Naidu 1989) to 14.76% in Telaga (Chakravarthi and Renuka 1970). The mean menarcheal age in the present study is 13.86 in the pooled data of urban and rural areas falls within the range observed in other caste population of Andhra Pradesh.

According to Tanner early maturity of girls may be because of the genetically, psychological and also stress and strain to which they are subjected (1964). According to Mason (1939), chronic under feeding of the pre pubertal female leads to general retardation and even repression of sexual development. The ICMR study says that both diet and hygiene influenced the onset of menarche. The influences of these factors cannot be ruled out in causing differences in between urban and rural areas among the Kshatriya woman of the present Study.

Distribution of Kshatriya women according to age at menopause is given in table 2. The menopausal age distribution among different caste populations of Andhra Pradesh reported as follows. In Brahmin women it is reported to be 48.16 (Sita laxmi 2001) and in kshatriya women it is 46.04 (present study). In Arya Vysya women age at menopause is 45.33 (Lakshmi 1994),

Table 1: Frequency distribution of Kshatriya women by age at menarche

Age	11	12	13	14	15	16	17	Total
Urban No	17	73	224	331	187	36	02	820
%	2.07	8.90	27.32	40.36	16.71	4.39	0.25	100
		Mean = 13.75		and Standard Deviation = 1.0848				
Rural No	08	32	183	263	131	51	12	680
%	1.18	4.71	26.91	38.68	19.26	7.5	1.76	100
		Mean = 13.99		and Standard Deviation = 1.1021				
Pooled No	25	105	407	594	268	87	14	1500
%	1.67	7.00	27.13	39.60	17.87	5.80	0.93	100
		Mean = 13.86		and Standard Deviation = 1.0848				

The t value is 4.2942; $p < 0.05$.

Table 2: Frequency distribution of Kshatriya women by age at menopause

Age	30-34	35-39	40-44	45-49	50-54	55-59
Urban No (162)	-	05	41	85	31	-
%	-	3.09	25.31	52.46	19.14	-
Mean = 46.3827 and Stand Deviation = 3.7179						
Rural No (193)	02	13	55	87	33	03
%	1.04	6.74	28.49	45.08	17.19	1.55
Mean = 45.7564 and Stand Deviation = 4.5248						
U+R No (355)	02	18	96	172	64	03
%	0.56	5.07	27.04	48.45	18.03	0.85
Mean = 46.0423 and Stand Deviation = 4.1872						

T=1.4017; p>0.05

Kalinga Vysya women it is reported as 44.11 (Lakshmi 1994), similarly in Trivarnika women it is reported to be 45.34 (Lakshmi 1994). The mean menopausal age of Chakali women is 44.45 (Babu and Naidu, 1989), while in Ediga women it is 43.94 (Bhasker et al.1986).The Kummari women reported mean menopausal age as 45.89 (Babu and Naidu, 1989). Similarly in Vishwha Brahmin women, age at menopause is 46.18 (Subba Rao 1996). The age at menopause of Madigas is 46.07 (Babu and Naidu 1989) and in Rellis it was reported to be 45.57 (Ramesh 1992). It is observed that Ediga women attained slightly early menopause (43.94) while late menopause reported from Brahmin women (48.16).

The other reported data on all India basis, the mean menopausal age of Lohar Ghadiyas of Sagar district from Madhya Pradesh is reported to be 46.34 (Yadav et al. 2002). Similarly the mean menopausal age of Ao Naga Tribe women found to be 51.33 (Purngula and Sengupta 2002). It appears that North Eastern tribal women may be attaining menopausal stage slightly at later age than other Indian women.

In the present Study, most of the woman attained menopause between 45 and 49 years in both rural and urban areas (45.08% and 52.46%). The most interesting observation in the Study is a considerable number of women (7.78%) in the rural area attained menopause before reaching 40 years of age, while a few of them attained menopause after 54 years. On the other hand, the urban women have attained menopause only between 40 and 54 years of the age. This might be the influence of nutritional diet intake along with other environmental factors among urban women. When compared with other populations such as Chakali (44.45), Ediga (X=43.94) the women of Kshatriya have attained late menopause (X=46.18). It may be due to socio economical difference between the different communities.

REFERENCES

- Babu BV, Naidu JM 1989. A demographic profile of four Andhra caste populations. *Ind J Phys Anthropol and Hum Genet*, 15: 97-102.
- Bhasker S, Vasulu TS, Damoderam K 1986. Demographic structure of Ediga- A backward community of Chittor district, South India. *Ind J Phys Anthropol and Hum Genet*, 12: 51-59.
- Chakravarthi MR, Renuka Y 1977. The trend of age at menarche in India. *J of Soc Res*, 13: 82-94.
- Gray RH 1970. Biological factors other than nutrition and lactation, which may influence natural fertility. Fertility. Paris: INED.
- Kish EH 1910. *The Sexual Life of Women in the Physiological, Pathological and Hygiene Aspects*. London: Rehman Ltd.
- Lakshmi N 1994. *Micro-Evolutionary Genetic Differentiation in Three Endogamous Populations of Andhra Pradesh*. Ph. D Thesis (Unpublished), Andhra University, Vishkapatnam.
- Mason KE 1939 Relation of the vitamins to the sex glands. Chap XXII, In: E.Allen, CH Danforth, EA Doisy (Eds.): *Sex and Internal Secretions*. 2nd Edition, Baltimore: Williams and Wilkinsco, pp. 1149-1212.
- Mazer C, Isreal SL 1946. *Puberty and Adolescence . Diagnostics and Treatment of Menstrual Disorders*. New York: Harper and Row Publishers.
- Purngula, Sengupta Sarthak 2002. Menarche and Menopause Among Ao Naga women of Nagaland, India. *J Hum Ecol*, 13(4): 327-328.
- Ramesh M 1992. *A Genetic Study of the Rellis*. Ph. D. Thesis, (Unpublished), Andhra University, Waltair.
- Robertson J 1845. cited from Banerjee D, Muukherjee, SP 1961. The Menarche in Bengalese Hindu Girls. *J Ind Med Assoc*, 37: 261-270.
- Siddu Sharda 2002. Age at menarche among scheduled caste girls of Punjab. *J Hum Ecol*, 13(4): 323-324.
- Sita Lakshmi D 2002. *A Study on Genetic Demography of Brahmins With Special Reference to Temporal Trends in Consanguinity and Consequences*. Ph. D. thesis, (unpublished). Andhra University, Waltair.
- Subba Rao I 1996. *A Population Genetic Study of the Viswa Brahmins*. Ph. D. thesis (Unpublished), Andhra University, Waltair.
- Susan A Treloar, Do KA, Martin NG 1998. Genetic influences on the age at menopause. *Lancet*, 352 (9134): 1084-1085.

- Tanner JM 1960. Genetics of human growth. *Symp Soc Hum Biol*, 3: 43-56. Oxford: Pergamon.
- Tanner JM 1962. *Growth at Adolescence*. 2nd Edition, Oxford: Blackwell Scientific Publication.
- Tanner J.M 1977. Hormonal, genetic and environmental factors controlling growth In: GA Harrison, JS Weiner, JM Tanner, NA Barricot (Eds.): *Human Biology: An Introduction to Human Evolution, Variation, Growth and Ecology*. 2nd Edition, Oxford: Oxford University Press, pp. 344-345.
- Yadav Ankur, Jain Amita, Sharma AN 2002. Menarche and menopause among semi nomadic Lohar Gadhiyas of Malhon Town of Sagar District, Madhya Pradesh. *J Hum Ecol*, 13(4): 325-326.