
REPRODUCTIVE HEALTH OF KUMAONI RAJPUT WOMEN OF PITHORAGARH

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Abstract: In a developing country like India, reproductive health of women is an indicator of overall health of a population. This places women at the focal point of a population's reproductive health. Reproductive health is a necessary ingredient of health and major element of human development. Present cross-sectional study was designed and conducted among 60 females of Kumaoni Rajput's of Devisuna village of Pithoragarh district of Uttarakhand state. This study focused on reproductive health and nutritional level of females, understanding problems during menstruation, usage of sanitary pads, consumption of supplements during pregnancy, problems after menopause, availability of medical facilities for deliveries, and data regarding knowledge of reproductive health were also collected, which included awareness about contraceptive pills, fertility control injections, and availability of condoms. Pre-structured schedule was used to collect socio-economic, demographic, reproductive health, including, age at menarche, age at menopause, age at first conception, age at last conception, ante-natal care, and delivery practices, nutritional level also, which included anthropometric measurements like height, weight, hip circumference, waist circumference, and dietary patterns. Results reveal that subjects had short reproductive life span, as mean age at menarche (13.9 years), and mean age at menopause (40.7 years). Mean age at first conception (21.8 years) and mean age at last conception (24.4 years) was also calculated, analyzing reproductively active span of subjects. High percentage of married subjects had not taken tetanus injections (53.3%), folic tablets (58.3%) during pregnancies. 31.6 % of deliveries were performed at home and birth done by untrained Dai. Most of the subjects were underweight, as mean BMI was calculated to be 18.5 ± 1.76 , which was low, and mean waist hip ratio (0.8 ± 0.6), mean waist height ratio (0.4 ± 0.04) was also low, indicating malnourishment among subjects. These were mainly due to low socio-economic status, dietary pattern, extremely less knowledge about reproductive health and hygiene among subjects.

Key words: Knowledge about reproductive health, Menstruation, Nutrition level, Reproductive health.

Introduction: The reproductive role of women starts from attaining menstruation, to post menopause period all through period of gestation, birth, breast-feeding and child-rearing (Shankar et al., 2003). Reproductive health is a major part of the health needs of the population in a country like India. Lack of proper health care facilities, ailments, treatments, and irrational beliefs system, are some factors said to be aggravating the health and nutritional problems of people of India, especially rural people (Look et al., 2005). Poor health, poverty, low nutrient level, low knowledge about reproductive health, and problems during, menstruation may effect reproductive axis, causing it depart from eumenorrhoea and move towards amenorrhoea (Ellison and Lager., 1986, Keay., 1998, Ferrin., 1999). In rural areas due to unfavorable circumstances females avoid reproduction to focus on scarce resources for survival improvement in overall condition, and investment in existing offspring, and if they tend to reproduce beyond their rearing capacity and bearing capacity poor reproductive health along with low nutrient level is a hindrance. In particular women's health, lives, security, liberty, autonomy, privacy, equality, discrimination, and education, cannot be protected, without ensuring that women can determine, when, how, and whether to bear children, control their bodies, sexuality, access essential sexual and reproductive health information

(WHO., 2006). Reproductive health within Anthropology is at times amended to reflect the perspective of a particular culture or a population, and this study reflects reproductive health of Kumaoni Rajput women of Pithoragarh, analyzing problems during menstruation, knowledge about reproductive health, and finding correlation between socio-demographic factors and reproductive health variables. The identification of poor medical facilities, level of education, life style patterns, dietary habits, reproductive health data knowledge about reproductive health and reproductive system reflects complete health of women of a particular community. Reproductive data collected and nutritional status analyzed of Kumaoni Rajput women reflect special requirement of health programs for these rural women, and requirement of awareness programs among women to enhance their knowledge about reproductive health. Women are a particularly vulnerable segment of the society and suffer from social, economic, and nutritional deprivation to a far greater extent than men (Amin., 1995). There is evidence to show poor reproductive health exemplified by early age at menarche and early menopause among subjects of the present study. Kumaoni Rajput women had short reproductive span, due to early menopause among subjects who had attained menopause. Infections during menstruation,

unusual bleeding patterns, materials used during menstruation, type of delivery, consumption of supplements during pregnancy, place of delivery, problems after menopause, information about reproductive health among the subjects, awareness about contraceptive pills, condom, fertility control injection, was analyzed for assessing complete state of reproductive health of women in the present study. Most of the subjects with low BMI, Waist-hip ratio, Waist-Height ratio, had problems during menstruation, uneven bleeding patterns, and problems after menopause, indicating low nutritional status among women leading to problems in reproductive health of women. According to World Health Organization (1994), reproductive health relates not only to biological problems, but also issues of empowerment of women, and human rights. This study also studied, issues related with education of women, contraceptive safety and fertility services, maternal health, healthy sexuality. A study conducted by Pati (2003), focused on tribal women's fertility, their social status, tribal people's knowledge on family planning, and women's trend of contraceptive use. A Pakistani study by Ali et al (2010), reported that high level of awareness of menarche as part of growing up and process of indication of sexual maturation but basic knowledge about menstruation was very poor. The study by Busari et al (2000), stated that among 1500 adolescents, the mean age at menarche was 13 years, and most of the girls were using material recommended by their mothers. Studies done in various countries including Bangladesh (Dasgupta et al., 2008), India (Mathews., 2005), Egypt (El-Shazly et al., 1990), Nigeria (Abioye et al., 2000), Saudi Arabia (Maowed., 2001), showed considerable variation in menstruation-related socio-cultural beliefs and practices. These studies concentrated upon female movement, participation in community, and social affairs, dietary pattern, and personal hygiene practices. In India National Population Policy (2000) had set a goal to safe motherhood and empowering women for improving health and nutrition. National Family Health Survey (NFHS) (1998-99) also focused attention on segments of health and scheduled tribal population, who are the most disadvantageous groups, suffering from poor reproductive health and child care (Dey., 2003, Ram et al., 2003). There are few studies on various aspects of reproductive health of rural women in India and there is no study on reproductive health of Kumaoni Rajput women of Pithoragarh district, which is one of the important communities of Uttarakhand state. Therefore, objective of the present study is to analyze reproductive health parameters, knowledge about reproductive health of women, nutritional level of the females of the same

community, and understanding correlation between socio-demographic factors and reproductive health.

Materials and Methods: The Sample: The present cross-sectional study was conducted in Devisuna village of Pithoragarh district of Uttarakhand state. Data on 60 females were collected including married and unmarried women for the present study.

Socio-Demographic data and Reproductive health data: In this study women belonging to rural setting were studied for collecting data, which included aspects such as personal information of every individual subject. Mating pattern, food habits, education system, literacy level, occupational opportunities, and traditional occupations, types of houses, and family types of Kumaoni Rajput women were studied. Literacy rate, number of schools, colleges, and accessibility of the community to attain those facilities depend upon location of the community and government initiatives in that respective area. The Proforma included all these related questions to understand the gaps the existing knowledge.

Socio-economic status was calculated following Socio-Economic status scale by Udai Prateek and G.Trivedi (1964).

Women belonging to 13 years to 48 years of age were considered in the present study. Post-menopausal women were also included. Reproductive health parameters included factors associated with menstruation, menopause, knowledge about reproductive health (measures for birth control), data about delivery pattern, and difference between number of live births and number of conceptions, were also collected.

Anthropometric Measurements: The anthropometric measurements of weight, height, hip circumference, waist circumference, were included in this study to calculate the nutritional level of women. Weighing machine for taking weight, anthropometer for height, and steel tape for hip circumference and waist circumference were used for collecting data.

Age estimation: Age was assured after checking important documents with the subjects. Sometimes for the old members the register maintained in the village since a long time was referred.

Analysis: Mean, Standard Deviation, Anova-test, Chi-Square, Correlation, and Cross-tabulation, were used to calculate various variables of reproductive health and nutritional level of the women. Adiposity Markers like Body Mass Index (WHO.,2004), Waist-Hip Ratio (Willet et al., 1999), Waist-Height Ratio (Ashwell., 2005), were calculated for nutritional level among females of this community.

Results and Discussion: About only 30% of the subjects of the selected population were graduates, majority had studied up to intermediate level (41.7), and remaining were educated till primary level only.

Majority of them were housewives (48.3%), 31.7% were studying, and 20% were doing some work, for supporting family. Occupation of these females included running confectionary shops, teachers at the Anganwadis and schools, and few pursuing jobs at city of Pithoragarh.

76.7% of the families of the selected population were holding some land for cultivation, but extremely few of the families were having a vehicle (12%) of their own, otherwise most of the subjects used public transport for travelling. Only 36% of the subjects were dependent upon government hospital for medical services, otherwise most of the subjects were using traditional methods of curing ailments. None of the subjects were using private clinics and hospitals for medical treatments, especially for delivery. Consumption of alcohol and smoking was found to be nil among females of this community.

Kumaoni Rajput community of Pithoragarh is a rural community, as Devisuna village is situated at high altitude which restricts regular transport facility, due to less motorable roads. The reason for less educated females could be poverty among people of this district, and most of the subjects stated that girls get married at an early age. Extremely less females were independent and working to support their families, as very less of them were well educated. Dependence of females upon traditional methods was observed in other studies also along with other similar results of the present study. Similar studies had been conducted, as study by Kravdal et al (2004), showed that rural women of India possess less education among themselves compared with other urban women. Most of the subjects were living in mixed houses, and reason could be traditional patterns of settlement. Women's autonomy in the family and their status in society, could be observed to play an important role in holding power and authority in the family system, as most of the subjects stated that other took decisions for them. Similar studies by Abioye et al., 2000, Mathew., 2005, Patel., 2006, about women's autonomy.

Table I Reproductive Health Variables

Reproductive Health Variables	Mean±Standard Deviation
Age at Menarche	13.87±.34
Age at Menopause	40.71±18.1
Age at First conception	21.79±2.0
Age at Last conception	24.58±1.3

It is observed from the table 1. that the mean reproductive span of Kumaoni Rajput women is nearly 27 years, which started with mean age at menarche (13.8 years) and ended at the menopause (40 years). The reason could be low socio-economic

status, environmental conditions, low nutritional diet, due to poor living conditions along with entire day, work schedule of subjects at home. Rakshit (1962), observed mean age at menopause at 13 years and 4 months, and Kundalkar (1981), observed mean age at menopause as 13 years and 2 months as reported in the present study. The natural age at menopause depends on various factors like genetics, environment, socio-economic status, reproductive patterns, and dietary patterns along with lifestyle (Sanchez et al., 1995, Ersoy et al., 2005).

Table II Showing Problems encountered by subjects during Menstruation

Problems during menstruation	N	%
Body Ache	45	84.8
Irregular bleeding	3	5.7
Heavy Bleeding	3	5.7
Blood Clots	1	1.9
Uneven Bleeding	0	0
Vomiting	1	1.9
Total	53	100

Maximum subjects reported body ache during menstruation and reason could be low BMI recorded for the subjects in the present study, and work schedule of the females along with the environmental conditions of the place. The menstrual history of most of the women revealed, 38.3% had normal bleeding, 25% had irregular bleeding, 13.3% had heavy bleeding, 11.6% had scanty bleeding, and 11.6% had attained menopause, most of the females had problem of pain in lower abdomen, body-aches during menstruation.

Table III Bleeding Patterns among subjects

Bleeding Patterns	N	%
Normal Bleeding	23	38.8
Irregular Bleeding	15	25
Heavy Bleeding	8	13.3
Scanty Bleeding	7	11.6
Menopause	7	11.6
Total	60	100

Table IV Infections present during Menstruation

Infections during menstruation	N	%
White-discharge	21	35
Redness in Vagina	12	20
Frequent Rashes	10	16
Urine Infection	10	16
Menopause	7	13
Total	60	100

Most of the subjects complained of various infections during menstruation, and most prevalent among them was problem of white discharge. The reason could be unhygienic living conditions, as bathing was not a regular activity. Work schedule of the females included walking long hours for commuting to other

places and also to fill water from streams. Study conducted by Nagar et al (2005), also showed problems during menstruation.

Table V Materials used during menstruation

Materials used in Menstruation	N	%
Sanitary Pad	28	46.6
Cloth	25	41.8
Menopause	7	11.6
Total	60	100

Similar results can be observed in study conducted by Kaur et al (2011), stating usage of cloth among girls of Amritsar city. Menstrual practices are still somewhere guided by cultural norms, and age-old practices that were prevalent among subjects of this study, as their knowledge about menstrual hygiene was shallow. Most of the females were still using cloth during menstruation, and washed them to reuse again. Due to this, many infections and problems were prevalent among females. Females who were using sanitary napkins, were not using them on regular basis.

Table VI Consumption of Supplements during pregnancy

Consumption of Supplements during Pregnancy	Yes		No	
	N	%	N	%
TT Injections	28	46.7	7	11.7
Iron & Folic Tablets	17	28.3	18	30

Due to poverty, lack of proper medical facilities and females were not so much aware about necessity of consumption of Iron and Folic tablets. Those who had consumed, were not using them on regular basis. Most of the subjects stated that due to high altitude settlement pattern, and distance of dispensaries from the village prevented them from availing medical facilities. These rural women require hygiene maintenance, knowledge about child-mother care, pre-natal/ post-natal care for better survival of themselves and their children. Study conducted by Chandrekar et al (2009), among Dhur Gond tribal women, revealed similar results

Table VII Place of Delivery

Place of Delivery	N	%
At Village	16	26.6
Government Hospital	12	20
Private Hospital	0	0

In this community, it was observed that few females still prefer deliveries at village, with the help of local dai, as affordability for delivery in government hospital was very less. This area is inhabited by many tribes also, and Kumaoni Rajput women have an interdependent relationship with women of the few

tribes. A Dai generally helps the woman in delivering a child. Few families with some vehicle could afford to take the ailing women to government hospitals during emergencies. Similar study conducted by Tasmiha Tarafdar (2013), and Santa Rozario (2010), revealed dependence of rural women on traditional methods of delivery.

Table VIII Sources of information about reproductive health

Sources of Information	N	%
Teacher	17	28.3
Peer Group	43	71.7
Mother	0	0
Total	60	100

Table IX Pubertal classes in school

Sources of Information	N	%
Yes	12	20
No	48	80

Table X Sources of Information about Reproductive System

Sources of Information	N	%
Teacher	12	20
Peer Group	48	80
Mother	0	0
Total	60	100

Table XI Awareness about contraceptive pills

Sources of Information	N	%
Yes	14	23.3%
No	46	76.6
Total	60	100

Table XII Awareness about Fertility control injections

Knowledge about Injections	N	%
Yes	2	3.3
No	58	96.7
Total	60	100

Table XIII Knowledge about Condoms

Knowledge about Condoms	N	%
Yes	43	71.6
No	17	28.3
Total	60	100

Kumaoni Rajput's were observed to be living in rural settings of a village, modern facilities are not available for every individual due to socio-economic status of the families. Knowledge about reproductive systems, hygiene, and reproductive health was extremely less among them, as their environment was restricted, traditional barriers for girls and females

about not talking regarding reproduction and health related issues. For Kumaoni Rajput women enlightenment about modern facilities is required along with development of motorable roads for maximum usage of hospitals during emergencies, for healthy and better survival of their children and themselves. Many problems related with reproductive health, menstruation, were faced, which requires a health care program to be initiated in this area for healthy survival of the community, as women’s reproductive health represents health status of the family and society as a whole.

Table XIV Relationship (Correlation) between Socio-demographic variables & Reproductive health parameters

Reproductive Variables	Education	Occupation	Monthly Income	Smoking
Age at 1 st conception	.037	.415**	-.415**	-.415**
Age at last conception	.078	.220	.116	1.00
No of conceptions	-.336	.276	.276	.276
Type of delivery	.108	-.284*	-.284*	-.284*
No of live births	.022	-.339	-.339**	.339**
Place of delivery	.184	-.375**	-.375**	-.375

Table XV Cross-tabulation between Age at Menarche and Body Mass Index

Age at Menarche	Body Mass Index			
	Underweight		Normal Weight	
	N	%	N	%
12-13	3	5	5	8.3
14-15	27	45	25	41.7

Table XVI Cross-tabulation between Body Mass Index and Problems during Menstruation

Body Mass Index	Problems During Menstruation								Chi-Square
	Body Ache		Irregular Bleeding		Blood Clots		Vomiting		
	N	%	N	%	N	%	N	%	
Under weight	26	43	1	2	1	2	0	0	10.75 (NS)
Normal weight	19	32	2	3	0	0	1	2	

Studies reveal that socio-demographic variables like height, age, work status, literacy rate, occupation, contraception practices, and medical facilities, effect reproductive health of the women (Ansari et al., 2012), as in the present study positive correlation was observed among age at first conception and occupation, monthly income, smoking status. Kumaoni Rajput women mostly were non-smokers, so significantly negative correlation between smoking status and age at first conception. Socio-demographic variables had an impact on reproductive health of women of this community, monthly income was significantly negatively correlated with type of delivery, no of live births, place of delivery, showing growth in reproductive variables with growing monthly income. Smoking status was observed to be significantly positive correlated type of delivery and no of live births, explaining non-smoker women had given birth to more healthy infants. 50% of the subjects were underweight, with low BMI, and Table XV shows girls who attained menarche between age 14-15 years were underweight, revealing low nutritional status of the women of this community, as low socio-economic status of the families was observed, less knowledge about nutritional diet especially among married women, intake of unhealthy and less nutritious food was also observed.

Table XVII Anthropometric measurements and Adiposity Indices

Characteristics	Mean±Standard Deviation	F Value
Height (cm)	156.3±4.99	32.8**
Weight (kg)	45.4±4.54	7.2**
Hip Circumference (cm)	84.1±5.60	2.3
Waist Circumference (cm)	68.6±7.51	6.6
Body Mass Index (kg/m ²)	18.5±1.76	3.0
Waist- Hip Ratio	0.8±0.6	6.0
Waist-Height Ratio	0.4±0.04	0.57

Kumaoni Rajput women had low BMI, as mean weight was extremely less, as intake of less nutrient diet along with less of vegetables, fruits and no milk consumption was observed. Consumption of only two meals in a day, and one meal included only tea, before starting daily routine work. The study by Khetarpal (2007), showed low intake of vegetables, fruits, and milk products, and low calorie intake was the reason for under-nutrition as most of the women were malnourished. In the study by Mallikarjun et al (2010), low intake of all types of food, as the reason for under-nutrition, and in the study by Pant (1998), low dietary intake and nutrients, women suffered from CED. Low Waist-hip ratio, and low Waist-height ratio indicating poor health of the females, as high altitude settlement pattern, daily work schedule of the rural women, as it was observed women carried

manure to feed the fields, and cleaning animals, as small cultivations each family had at home.

Conclusion: This study focused attention on reproductive health, nutritional status, and socio-demographic factors, to find out the relationship between socio-demographic factors and reproductive health parameters of the Kumaoni Rajput women, and adiposity markers showing low reproductive health and nutritional level of the females. Females were under-nourished, which effects reproductive health and child-bearing capacity of the females, and their knowledge about reproductive health was very less, poor living conditions along with low socio-economic status. Females of this community require attention of the government for enhancing their knowledge about hygiene, nutritional diet, importance of family planning, for better survival of the women in this community.

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