

RAJI TRIBE - STUDY OF REPRODUCTIVE HEALTH OF RAJI WOMEN: A DIMINISHING TRIBE

Hansdeep Kaur Kohli

Research Scholar, Department of Anthropology, University of Delhi

Abstract: BanRaji tribe is one of the smallest tribes of India, and is educationally and economically backward tribe of Central Himalayan regions of Pithoragarh and Champawat districts of Uttarakhand state. According to census of 2011, there is total Raji tribe population of 690 persons in 10 respective villages. From the earliest records to the most recent ones, Raji tribal people are mostly dependent upon forests for their survival, as females of this tribal group collect wood from forests and sell in the market, but now they do some menial jobs at construction sites. Raji tribal group is suffering from starvation, malnutrition, extremely low level of literacy, discrimination, marginalization from the developed society, and this study evaluates reproductive health of Raji women, focusing on various reproductive health parameters, including various factors associated with menstruation, menopause, knowledge about reproductive health, and measures for birth control, data about delivery patterns, and difference between number of live births and number of conceptions and nutritional level were also calculated. Data about socio-demographic variables were also collected, and dietary patterns were also collected, including education, occupation, monthly income, own land, alcohol consumption, smoking habits, staple diet, food consumption, and problem related with menstruation and after menopause problems, along with data related with knowledge about reproductive health facilities, and family health were collected. A pre-structured schedule was used to collect data. Results reveal that subjects had short reproductive span, as mean age at menopause was 33 years, which indicates early menopause, and mean age at menarche was 13.5 years. Mean age at first conception was 18.5 years, and mean age at last conception was 24 years. Most of the married subjects had not consumed (71.3%) folic tablets and had not taken tetanus injections (67.3%), 87.1% of the subjects used cloth during menstruation. 34.3% of the subjects were underweight, and 30% of the subject had low waist-hip ratio, and mean BMI was low (19.1).

Keywords: Knowledge About Reproductive Health, Menstruation, Nutritional Level, Reproductive Health.

Introduction: In India, reproductive health status of women is invisibly bound up with social, cultural, and economic factors, especially in rural and tribal areas (Grace., et al 2000). Certain health problems are more prevalent among women compared with men, and certain are unique to women. The health needs of men and women are different, where women with their physically and socially given roles have more health care needs than men.

Presently where man had set new standards and have a new reach up to satellites, and planets, still there are many societies which are suffering from extreme poverty. Raji tribal people are suffering from malnutrition, as this tribal group constituted around 517 individuals as per census 2001. They are in a transitional stage between hunter-gatherer and pre-agricultural economy. According to census 2011, the population of Raji tribe, has been 690 people in 10 respective villages. Land and forests are the primary economic resources of the Rajis, and due to high altitude settlement pattern of Rajis, they are deprived of many essential requirements of living a healthy and secured life (Pandey et al., 2015). But their subsistence on forests produce and hunting had reduced, they look for other works like labour jobs, working as daily wage laborer at construction sites, cutting wood, and selling in market as observed during fieldwork. Leaving apart their traditional ways of sustenance that was hunting and gathering, many had adopted other means of survival, especially working as daily wage casual laborers. They don't change residence often, as they used to do in search of places with more forests around (Alam et al., 2014). Their settlement patterns are permanent now, as they don't live in caves except for few families, and forests but instead make their houses with mud and few houses were made with cement also (Bisht et al., 2004).

Raji tribe is a small tribe with very less population, and this study focuses upon reproductive health and nutritional status of females of the tribe for understanding reasons behind their lesser population and stagnant growth. They are very low in literacy rate, as still few families are following their own ways of sustaining livelihoods and not understanding importance of education, but they are also encountering change, as finding new ways of sustenance in new environment, is creating a change in their culture. The tribal areas lag woefully

in development and primitive tribal groups continue to be among the weakest and most exploited section of the society (Bora.H., 1991), and Raji tribe is also languishing in lost world without proper educational facilities, health system, and tribe oriented welfare programs (Sharma et al., 2015). Rajis themselves need to understand their requirements, for health facilities, education, as changes observed fieldwork were mainly related with marriage pattern, customs, ceremonial practices, which had been influenced by Hindu community around them but change in perspective of Rajis is required to make them understand the importance of education. Now almost in every village males and females both had left traditional practice of hunting-gathering, and they also practice agriculture although yield is very low. Agriculture is not so prevalent among them, but many among them are following this practice for settled occupational pattern (Kapoor., 2009).

All these factors related with Raji tribal group are reasons behind conducting this study to analysis reproductive health and nutritional status of women of this tribe, along with socio-demographic data for analyzing overall condition of women in this tribal group. Rajis, especially women are engaged in labor jobs, which only get them daily wage earnings, their development need to be understood in terms of social factors which include health, nutrition, and economical factors. All the schemes applied for Rajis had not yielded results, they are still poverty stricken, with extremely less medical facilities, and education level, languishing in high altitudes (Tolia., 2009). Reproductive health data collected and nutritional status analyzed reflect special health needs of Raji women, and also requirement of enhancement of their knowledge about reproductive health, hygiene, and reproductive system. This study analyzes co-relation between socio-demographic factors and reproductive health parameters reflecting health and nutrition level of Raji women.

The understanding of poor medical facilities, level of education, life style patterns, dietary habits, reproductive health data, knowledge about reproductive health and system, reflects reasons behind stagnant growth, languishing status and poor nutritional status of Raji tribe. There is need of special health program for Raji tribal group, as their reproductive health is poor, indicated by early menopause among females, 33 years is the mean age for menopause. They had short reproductive span, and data about infections during menstruation, uneven bleeding patterns, materials used during menstruation, type of delivery, consumption of supplements during pregnancy, place of delivery, problems after menopause, information among subjects about reproductive health, information about contraceptive pills, fertility control injections, condoms, was collected to understand health care requirements of the women of the Raji tribe.

Most of the subjects had low BMI, Waist-Hip Ratio, Waist-Height Ratio, and they were suffering with problems during menstruation, uneven bleeding patterns, as 22.7% of the subjects were suffering from scanty bleeding, indicating low nutritional status and problems in reproductive health of the subjects. According to the study conducted by Brambilla et al (1989), explaining factors affecting age at menopause, indicating level of nutrition among females. Reproductive health and nutrition among women, continues to be a problem of considerable magnitude in most developing countries of the world (Look., 2005). Several studies had been conducted to assess nutritional status of rural and tribal women, concentrating upon several dimensions of reproductive and status and overall health of women (Mandal et al., 2011, Das et al., 2013, Sinha., 2011, Pryer et al., 2006, Shukla et al., 2002). Women have specific health needs related to the reproductive health, as reproductive health is an inter-related concept, women can't be healthy if they have one aspect and miss another one (Fathalla., 1996).

According to World Health Organization, "Reproductive health implies that apart from the absence of disease or infirmity, people have ability to reproduce, and to regulate their fertility (W.H.O., 1995). The reproductive health concept is not limited to mother's only, nor it recognizes childbearing period, but it recognizes special health needs of the women related to their acquisition of the sexual and reproductive capacity (Look., 2005). There is no study on reproductive health of Raji tribal women of Uttarakhand, which is one of the five tribal groups of the state, still living in the pre-agricultural stage, and traditional practices of selling wood in the market and some doing labour jobs. The objective of the present study is to analyze reproductive health and nutritional status of women of a diminishing tribal group, Rajis, and finding a correlation between socio-demographic factors and reproductive health.

Materials and Methods: The present cross-sectional study was conducted in 9 Raji villages of Pithoragarh district of Uttarakhand state. There are total 10 Raji villages but, in this study only 9 were covered that is Altari, Jamtari, Kulekh, Kuta-Chorani, Chifaltara, Ghanagaon, Kimkhola, Madanpuri, Bhaktirwa. Data of 150 females were collected including married and un-married women for the present study.

Socio-Demographic Data and Reproductive Health Data: In the present study of Raji women, 9 villages of Pithoragarh district were covered, for collecting data about reproductive health, knowledge about reproductive health, which included data about age at menarche, age at menopause, age at first and last conception, contraceptive methods, problems during menstruation, problems of uneven bleeding, problems after menopause, infections during menopause. Data about personal information about every subject was collected which included, mating pattern, dietary habits, education system, occupational pattern, literacy rate, traditional occupations, type of houses, monthly income etc. Raji tribe is living in high altitude, away from the mainstream populations of the cities and they don't even interact with other tribal groups prevalent in that area (Bhotias), so data about availability of medical facilities, type of deliveries, place of deliveries, smoking status, alcohol consumption, consumption of milk, vegetables, and fruits were assessed. A pre-structured proforma was used to assess the gap between existing knowledge about Raji tribal women. For analyzing reproductive health age at first conception and last conception, menstrual hygiene, difference between number of live births and number of conceptions were also collected.

Women belonging to 13-80 years were considered as Rajis already has a small population, so each and every subject available was given importance. Socio-economic status was calculated following Socio-Economic Status Scale by Udai Prateek and G. Trivedi (1964).

Anthropometric measurements were taken every subject for calculating nutritional status of women, those were height, weight, hip circumference, waist circumference. Weighing machine for taking weight, anthropometer for height, steel tape for measuring hip and waist circumference, were used for collecting data. For age assurance register maintained in the village was referred, along with checking Aadhar Card and other relevant documents.

Analysis: Statistical tools like Mean, Standard Deviation, Chi-square, Correlation, Cross-tabulation, were used to calculate various variable of reproductive health, and nutritional status. Adiposity markers like BMI (W.H.O., 2004), Waist-Height Ratio (Ashwell., 2005), Waist-Hip Ratio (Willet et al., 1999), were calculated for nutritional level among females of this tribal group.

Ethnography: Raji tribe were recognized as a primitive tribe in the year 1975 by the government of India, and they are socially and economically most under-developed tribal group of the central Himalayan Region of Uttarakhand (Pandey., 2015). They are among 72 primitive tribal groups of India, which live in an extremely under-developed stage (Negi., 2001). Rajis are one of the most under-developed and smallest separate tribal society inhabiting forested pockets in Pithoragarh. They have their distinct traditions, culture, and religious beliefs, and after extensive fieldwork and collection of required data it can be said that, this community entirely depends upon surrounding forests for their daily requirements. Before leaving for the fieldwork profound reading of articles and studies by many anthropologists about Rajis was required but with every secondary data curiosity increases to study them and collect data about them. Ethnographic research methods included in the study were semi-structured interviews, rapport building, participant observation, all these specific aspects of research work cannot be fulfilled with other methods.

Understanding a tribal group or any community, is not only through the secondary data analyses but completely primary data and experiences collection. Social data, which included cultural patterns, food habits, eating patterns, physical activity, religious systems, occupational, opportunities, and their opinion about fading away can be studied and explained only after spending considerable time with them. Participation in their cultural and religious was required, as they couldn't be observed in laboratory or calculated using any formulae, or any survey research.

Results and Discussion: In the present study a total of 150 subjects were included for the analysis of the reproductive health and nutritional status of Raji tribal women. Raji tribe is a diminishing tribe, with a small population, so a sample size of 150 subjects can provide an overview of the entire tribe. According to an NGO "Central Himalayan Environment Association" (local NGO working in Pithoragarh district), working for Raji people, the 9 villages which are included in the study represent 556 individuals currently surviving. Socially, and economically Rajis are backward, vulnerable as geographically they are isolated, living with extreme poverty, and inadequate health facilities (Kapoor., 2008, Kala et al., 2006). Most of the subjects were illiterates, around 62.7% and none of the Raji subject had attained education till the post-graduation level and 91.3% of the subjects were working as casual laborers.

Table 1: Education among Raji Tribal Women

Education	Raji	
	N	%
Illiterate	94	62.7
Less than 5th class	48	32.0
Till 10th class	6	4.0
Till 12th class	1	0.7
Graduate	1	0.7
Post Graduate	0	0.0
Total	150	100

Table 2: Distribution of Subjects According to Their Occupation

Occupation	Raji	
	N	%
Housewife	0	0
Studying	13	8.7
Job	0	0
Labor	137	91.3
Total	150	100

Table 1 shows extremely low level of education among Raji tribal women, as among subjects of this study 62.7% were illiterate, and only 1 subject was graduate. Table 2 shows how maximum subjects were working as casual laborers, and earning extremely less. Raji women were the sole bread winners for their families, and with no education they had to pursue labor jobs at construction sites, building of houses. Now for survival Raji women are finding new ways of earning livelihood, which is supported by labor jobs only, as Raji males are not contributors towards family rearing. It was observed that male members of this tribal group don't contribute their earnings towards their families, and violence towards Raji women was a common factor in this tribe. With poverty stricken and low education level they only pursue labor job to support their family. Due to poverty, girls drop school early, and start working as laborer to support family. Importance of education is well known to them but poverty and lack any support system for this small tribe, languishing and heading towards its extinction, is the reason behind its stagnation.

Table 3: Monthly Income of the Raji women

Monthly Income	N	%
Not working	32	21.3
Less than 1000	81	54
Less than 5000	37	24.5
More than 10,000	0	0
More than 20,000	0	0
Total	100	100

Table 3 explain, how uneducated Raji women, working casual laborers are earning extremely low, and they are the sole bread winners of their families. The reason was observed to be low level of education, and transition from hunter-gatherer stage to working as casual laborer. Due to lack of forest of produce to sustain a living on gathered fruits, and intervention of government on hunting of animals, Rajis had to depend upon low and menial jobs. Few females also cut wood form the forests to sell in the market. That also don't earn them enough to sustain a proper living.

Table 4: Availability of Medical Services

Medical Services	Raji	
	N	%
Government Hospital	0	0
Medicine Man	27	18
Private Clinic	0	0
Home Remedies	123	82
Total	150	100

Due to their settlement at high altitudes, Raji women had to travel to far city of Didihat, Jauljibi, Dharchula to prevail some medical services. 82% of the females were dependent upon home based remedies for all health related problem, including delivery of the child and pregnancy also. Most of the subjects were using local medicinal herbs in the form of local flora for ailments. During fieldwork, it was recorded that even during pregnancy emergencies most of the subjects had used local medicinal herbs as medicines for treatments. The reason was their settlement pattern at high altitudes, and difficult terrain to reach hospital, as there are less motorable roads in this region. The other reason for this disparity among them is poverty to afford treatments

at hospitals. Government hospital was at Didihat city, and Pithoragarh city, which was far from their villages to carry ailing women to hospitals. Raji women preferred medicine man of villages instead of dispensaries and hospitals, and Dai was preferred to deliver the child in the village only, as hospital was not affordable for them. None of the subjects were using private clinics and hospitals.

Table 5: Reproductive Health Variables

Reproductive Health Variables	Mean±Std Deviation
	Raji
Age at Menarche	13.14±3.49
Age at Menopause	33.59±16.4
Age at first conception	18.5±2.8
Age at marriage	15.1±2.3
Age at last conception	24±4.6

It is observed from table 5, that mean reproductive span of Raji women is approximately 20 years, which started at mean age 13 years and ended with mean age at menopause 33 years. The reason was low nutrient diet, low socio-economic status and residing of Raji tribe at high altitude, which required considerable amount of physical activity in routine. Environmental conditions, low nutrient diet were major hindrances, as observed during fieldwork, and causes of low nutrient diet, was poverty and lack of capability of affordability among Rajis. Culture of smoking and drinking of village made Beedis and alcohol was very much prevalent among them, which could be affecting reproductive health of the females. Girls were married in early age, dropping from the school and leading to early pregnancies and other complications related to it, that is the reason for mean age at first conception to be 18 years. With low education level, low socio-economic status with extremely less pursuits of earning a living to be followed, and all these factors affect the health of females of any community more than men as in Raji tribe also, females are the bread winners for the family. In the similar study conducted by Vidhyarthi et al (1977), Saksena.N (1962), Bihan (2014), it was evident that early marriages, even before girls had attained menarche affect their reproductive health.

In the study conducted by Dasgupta et al (2015), among Lodha tribe and a caste group, tribal population were tobacco chewers, and consumers of the black tea, and this study explained overwhelming section of the tribal group having problems of scanty bleeding, and this could have been the reason for the early menopause among Raji women, as it can accounted on them being smokers and drinking alcohol.

Table 6: Showing Problems during Menstruation

Problems during Menstruation	Raji	
	N	%
Body Ache	90	72.7
Irregular Bleeding	6	4.8
Heavy Bleeding	7	5.6
Blood Clots	6	4.8
Uneven Bleeding	5	4
Vomiting	10	8.1
Total	124	100

Table 7: Showing Infections during Menstruation

Infections during Menstruation	Raji	
	N	%
White Discharge	57	38
Redness in Vagina	5	3.3
Frequent Rashes	6	4
Urine Infection	13	8.7
No Infection	69	46
Total	150	100

Table 8: Showing Bleeding Patterns among Subjects

Bleeding Patterns	Raji	
	N	%
Normal Bleeding	95	77.3
Scanty Bleeding	28	22.7
Total	123	100

Most of the subjects complained about various infections and problems during menstruation, as 72.7% of the females were having problem of body ache during menstruation, along with problem of vomiting (8.1%), blood clots (4.8%), heavy bleeding (5.6%), uneven bleeding (4.1%). The reason could be low nutrient diet and

considerable amount of physical activity, which can cause body ache during menstruation, and mal nourishment and culture of consuming alcohol every day among females, could also be a reason behind other problems like heavy bleeding, blood clots. Most of the subjects were suffering from white discharge (38%), and 8.7% were suffering from urine infection. The reason could be unhygienic conditions in which they live, and bathing was also not a regular activity. It was observed, among Raji women that as labor they had to work for long hours doing construction work, and some females used to cut woods in the forests and sell them in market for earning some trivial amounts. 22.7% of the subjects were suffering from problem of scanty bleeding, and the reason could be low nutrient diet and mal nourished status of Raji women. In the similar study by Tanuja et al (1995), similar findings of low nutrient diet and mal nourished status of women effects their reproductive health. Similar findings by Mehra (1995), and Greene (1997), revealed similar results about problems during menstruation, of some girls had excess bleeding and some had scanty bleeding.

Table 9: Usage of Materials during Menstruation

Material usage during Mensuration	Raji	
	N	%
Sanitary Pad	28	12.9
Cloth	122	87.1

Rajis are living in unhygienic environmental conditions, due to extreme poverty and no permanent source of earning a living and no scope of increasing level of education among them. 87.1% of the females confessed of using old cloth during menstruation and washing to reuse it again. Raji women had no source of knowledge about maintenance of hygiene during menstruation, as it was observed that bathing was not a regular activity among them, and they had to fetch water from streams for all their requirements. They could not afford sanitary napkins every month due to their low earning status. Similar studies conducted by Khanna et al (2005), and Quazi et al (2006), showed similar results about usage of cloth among tribal women. Most of the females stated that they can't afford to buy sanitary napkins from market and they don't get from dispensaries also, but they also told about cultural practice of using ashes or either an old cloth during menstruation. The reason was analysed to be low knowledge about hygiene and low socio-economic status, as many infections were prevalent among them during menstruation.

Table 10: Showing Problems after Menopause

Problems after Menopause	Raji	
	N	%
Frequent Infections	17	35.4
Vaginal Redness	10	20.8

35.4% of the subjects were having problem of frequent infections and 20.8% of the subjects were having problem of vaginal redness after attaining menopause, and the reason could be unhygienic environmental living conditions, no proper sanitation facilities, and treatments incurred by subjects after menopause. All the subjects were not aware of some supplements to be consumed, which body requires after menopause. In the study conducted by Das et al (2009), it was observed that compared with urban women, 2.5 times more rural women suffer from hot flushes, body aches, tiredness after menopause. Raji women were dependent upon traditional system of medicine, as there was less affordability of modern medicine due to low socio-economic status, and they could not afford proper treatment of problem after menopause.

Knowledge about Reproductive Health:

Table 11: Showing Knowledge about Contraceptive Pills

Source of Information	Raji	
	N	%
Yes	0	0
No	150	100
Total	150	100

Table 12 Showing Knowledge of Fertility Control Injections

Knowledge about Injections	Raji	
	N	%
Yes	0	0
No	150	100
Total	150	100

Table 13: Showing Knowledge about Condoms

Knowledge about Condoms	Raji	
	N	%
Yes	150	100
No	0	0
Total	150	100

Raji tribal women are living a marginalized life, deprived of basic necessities to sustain a healthy living. Rural environment, along with settlement at high altitude, creates a hindrance for obtaining many medical facilities. They are living a life away from the fruits of development, without any knowledge about hygienic survival. Although dispensaries are available, but they far from their villages, situated near to market or city. Many of the subjects explained its difficult to go dispensaries every time they require any medical assistance. They have extremely less knowledge about methods of family planning. All the subjects were unaware about contraceptive pills, and fertility control injections, but all of them were only aware of condoms, that they got very rarely from dispensaries.

Table 14: Showing Correlation between Socio-Demographic Variables and Reproductive Health Variables

Reproductive Variables	Education	Occupation	Monthly Income	Smoking Status
Age at 1st conception	1.00	1.00	.071	1.00
Age at last conception	.257**	.257**	.103	.257**
No of conception	-.153	-.153	.353**	-.153
No of live births	.036	-.095	-.441**	-.095
Type of delivery	-.095	.036	-.660**	.036
Place of delivery	-.061	-.061	-.457**	-.061

*p<0.05, **p<0.001, ***p<0.001

Table 14, shows correlation between socio-demographic factors and reproductive health variables, explains significantly positive relation between age at first conception and education, occupation, smoking status. As the level of education increases age at last conception also increases, this explains females which were not illiterate didn't conceive their last child in early age. As more females were working, age at last conception increases, and it was observed and analysed that some of the educated girls kept gap between their pregnancies. They didn't conceive their last child in young age, as many subjects explained that due to under-nourished status of their health and lack of resources to rear more children they had kept gap between their children. They also explained that, because of the nuclear family system prevalent among Rajis, and working status of females, to support their families they don't have elders to take care of their children. Most of the Raji women were smokers, and this was a regular activity among them, and there is a significantly positive relation between smoking status and age at last conception. It was analysed during fieldwork, and told by many subjects that they conceived their last child late. It could be attributed to their smoking status, as smoking effects reproductive health of the women. There was a significantly positive relation between no of conception and monthly income, which explains that as monthly income of the females increased there was an increase in no of conception also, but with increase in no of conception there was decrease in no of live births, as shown by significantly negative correlation between two variables. As no of conceptions increased among females due to increase in monthly income, there were less of live births, and the reason could be under-nourished status of Raji women. Another reason could be poor reproductive health of the Raji women.

Raji Women											
Problems during Mensuration											
Body Mass Index	Body Ache		Irregular Bleeding		Blood Clots		Uneven Bleeding		Vomiting		Chi-square
	N	%	N	%	N	%	N	%	N	%	
Underweight	25	17	3	2	3	2	2	1	3	2	6.80 (NS)
Normal weight	64	43	3	2	3	2	2	1	7	5	
Overweight	1	1	0	0		0	0	0	0	0	
Bleeding Patterns											
Body Mass Index	Normal Bleeding		Scanty Bleeding		Heavy Bleeding		Chi-square				
	N	%	N	%	N	%					
Under Weight	36	24	5	3	2	1	4.72(NS)				
Normal Weight	58	39	23	15	5	3					
Over Weight	1	1	0	0	0	0					
Problems After Menopause											
Body Mass Index	Frequent Infections		Vaginal Redness		Chi-square						
	N	%	N	%							
Under Weight	9	6	42	28	2.13 (NS)						
Normal Weight	17	11	81	54							
Over weight	0	0	1	1							

p<0.05*, p<0.01**, p<0.001***

Table 15, shows the cross-tabulation between body mass index and problems during menstruation, bleeding patterns, problems after menopause. 17% of the underweight subjects were having problem of body ache, and along some of the subjects in underweight category were having problem of irregular bleeding, blood clots, vomiting during menstruation. The reason behind this was consumption of low nutrient diet, and living in unhygienic conditions. Raji tribal were completely unaware of hygiene maintenance and reproductive health care. Due to difficult terrain and extreme amount of physical activity required, and bathing was also not a regular activity among them problems among females during menstruation was observed to be a common phenomenon. Even subjects with normal weight, were having problem of body ache, which clearly demarcates low reproductive health among Raji women, and their low nutritive level. Poverty among Rajis was evidently prevalent, as from being hunter-gatherer to pursuing labor jobs explains their despair and diminishing condition. They as population are diminishing but as a cultural entity of being a hunter-gatherer tribe is also diminishing, as there had never been any support from concerned authorities to preserve their identity and work towards creating better health facilities and education awareness among them.

Table 16: Showing Cross Tabulation between Age at Menarche and Body Mass Index

Age at Menarche	Body Mass Index					
	Underweight		Normal weight		Over weight	
Years	N	%	N	%	N	%
12-13	18	12	17	14.7	0	0
14-15	28	18.7	60	40	1	.7

Table 17: Showing Cross tabulation between Age at menarche and Waist Height Ratio

Age at Menarche	Waist Height Ratio			
	Normal		Risk	
	N	%	N	%
12-13	29	19.3	12	8
14-15	62	41.4	26	17.3

12% of the subjects, which had attained menarche between age group of 12-13 years, were underweight, and which had attained menarche between 14-15 years, 18.7% were underweight. In table 17, 8% of the subjects were having low Waist-Height Ratio, which had attained menarche in the age 12-13 years, and 17.3% of which had attained menarche in the age group of 14-15 years. The reason could be early menarche among females, leading to weight loss, as it was analysed during fieldwork, subjects stated loss in weight after menarche. They had very

low nutrient diet, consuming only one meal a day, and no consumption of fruits and milk. Girls start working in fields of neighboring Hindu community, and then labor job, these are very strenuous works, accompanied with low intake of vitamins required in the body, and less meals a day.

Table 18: Showing Anthropometric Measurements and Adiposity Markers

Characteristics	Mean±SD
Height (cm)	150.0±5.55
Weight (kg)	43.1±5.53
Hip circumference (cm)	83.2±6.88
Waist circumference (cm)	65.2±5.80
Body Mass Index (kg/m ²)	19.1±1.83
Waist Hip Ratio	0.7±0.05
WHt.R	0.4±0.03

Raji tribal women are the vulnerable and deprived females, considering their socio-economic status, level of education, poverty, settlement pattern, occupation pursuits available, and nutritional status and along with reproductive health parameters analysed in this study. Raji women had low mean weight, height, Waist circumference, and low Body Mass Index. This analysis of nutritional status of Raji women, evidently explains their poverty stricken low socio-economic status, languishing in the highlands of Himalayas. Their work schedule, routine physical activity and consumption of non-nutrient food, low intake of fruits, and vegetables contribute towards low nutritional level among females. Females are the sole bread winners for the family, as male members of the tribe consume their earnings for drinking alcohol.

Table 19: Showing Distribution of Subjects According to Their Body Mass Index

Body Mass Index	Raji	
	N	%
Normal weight	98	65
Underweight	51	34.3
Overweight	1	0.7
Total	150	100

Table 20: Showing Distribution of Subjects According to their Waist-Hip Ratio

Waist - Hip Ratio	Raji	
	N	%
Normal	105	70
Risk	45	30
Total	150	100

Raji women were underweight, with low Body Mass Index, with 34.3% of the subjects in underweight category, 30% of the subjects having low Waist-Hip ratio, as intake of less nutrient diet along with less of vegetables, fruits, and no milk consumption was observed. Consumption of only one meal a day and that included tea (sometimes), and some chapattis (most of the time prepared 2 to 3 days back). The study by Khokhar et al (2010), Das et al (2006), and Gupta et al (2004), explains similar results of low nutrient diet among rural women leads to deficiency and anemia, and trend of obesity is more prevalent among urban women compared with rural women.

Conclusion: Raji women were observed to be living in rural settings of villages at high altitude. They had been a hunter-gatherer tribe, now they are in transitory stage as with change in environmental conditions, availability of wild animals had reduced along with availability of herbal medicinal plants. Now they pursue labor jobs for survival, females also cut wood in forests to sell it in market. They have started agriculture, but that's in initial stage, they grow Tharur, Kafal locally available fruits, and their seeds are also locally available. Due to intervention of neighboring Hindu community and government authorities, there is reduction on hunting of small animals also, as there had been cases of hunting of domesticated animals. Knowledge about reproductive systems, hygiene, and reproductive health was extremely low, as their environment was restricted with very less education as anganwadis were deserted and anganwadi at Chifaltara village, Madanpuri village has been locked since years. With no scope to development and limited scope of pursuing different occupations they had no source of information regarding reproductive health. Young girls are restricted to talk about reproduction, menstruation, and they have extremely less knowledge about menstruation. They had been taught that puberty is attainment of age for marriage. Young girls had left school and contribute towards financial requirements of the family, through work. The poor reproductive health and low nutritional level were evident among Raji women, and the fading away of the tribe was observed. They are fading away in disparity to sustain a healthy living, with children and mothers surviving a better life.

This study focused attention on reproductive health, nutritional level, and socio-demographic variables of Raji women. Among Raji tribal women of Pithoragarh, socio-demographic factors are one of the reasons behind diminishing size of this tribe, and its stagnant growth. Their reproductive health is poor, which is indirectly effecting their population growth. Females were observed to be under-nourished, which effects their reproductive health, and their poor reproductive health is effecting their population growth. Raji tribe is fading away, and they require attention of the concerned authorities, for their healthy survival. They are living a life without basic necessities of a healthy survival, that is education, medical facilities, permanent earning opportunities. Programs and policies should be formulated as per requirements of the tribe itself, so that with improvement in living conditions they can survive a better and healthy life.

References:

1. Abera V et al. 2003. Menstruation related problems and practices among adolescent high school girls in Addis Abada., (Masters in public health thesis). Addis Adaba university. Pp (11).
2. Abhimanyu K, Fuloria K, Agarwal K. 2012. A comparative study of tribal and non-tribal women in the state of Uttarakhand (India) in the field of women's autonomy, contraceptive used in family planning. Universal Journal of Education and General Studies. Vol 1(5). Pp 148-152.
3. Arora et al .2005. Genetic influences on age at menarche among Punjabi khatri girls. Journal of Indian Medical Association 2005; 111(2): 79-81.
4. Arora. A.K, Singh. A .2000. Menopausal women's profile in rural North India- An integrated qualitative and quantitative study. Adv. Obstet Gynecol. 2000; 52: 309-313.
5. Agrawal. C. 2004. Uttaranchal ke Savidhya Mein. Indian Publishers and distributors. New Delhi.
6. Agrawal. 1995. Uttarakhand Past, Present, and future. New Delhi. Concept Publications Company. Pp 330.
7. Akhter. R.: Environment, Agriculture and Nutrition in Kumaon Region. New Delhi. Marwah Publication. 1980.
8. Anderson M. 1989. The relationship between maternal nutrition and child growth in rural India. P.H.D. Dissertation. Tuft University
9. Ashtiani. F. 2002. Attitudes of female adolescents about dysmenorrhea and menstrual hygiene in Tehran Suburbs. Arch Iranian Med. 5: 219-24.
10. Banerjee S, Amit D, Shinkre R, Patel V. 2011. Under-nutrition among adolescents: A survey in five secondary schools in rural Goa. The national medical journal of India. Vol 24 (1). 2011.
11. Banerjee I, Chakraborty S, Bhattacharya N.G, Bandopadhyay S, Salyad H, Mukherjee D.2007. A cohort study of correlation between Body Mass Index and Age at Menarche in Healthy Bengali girls. Journal of the Indian Medical Association. (105) (2): 75-8.
12. Banerjee S. Amit D, Shinkre R, Patel V. 2011. Under-nutrition among adolescents: A survey in five secondary schools in rural Goa. The National Medical Journal of India. Vol 24(1).
13. Bang R, Bang A. 1994. Women's perceptions of white discharge. Ethnographic data from rural Maharashtra. Har-Anand Publications. New Delhi. Pp 79-94.
14. Basu S.K .1992. Study of socio-cultural, demographic characteristics, maternal and child health and sexually transmitted diseases among the polyandrous Jaunsaris of Jaunsar-Bawar. Dehradun. Mimeo. NIHFW.
15. Basu S, Kshatriya G.K. 1993. Demographic features and health care practices in Dudh Kharia tribal population of Sundergarh district of Orissa. Paper presented at 18th National conference on Human Genetics in Hyderabad.
16. Basu S, Kshatriya G.K. 1997. Fertility and mortality trends in the Kharia tribals of Orissa. Social Change. 27 (1 and 2). P. 114-128.
17. Bharati S. Pal M, Som S. 2012: Temporal trend of Anemia among reproductive-aged women in India. Asia Pacific Journal Public Health. p-98.
18. Bhasin M.K, Nag S. 2007. Demography of the tribal groups of Rajasthan: Dynamics of family planning methods usage. Anthropologist. 2007; (9): 99-106.
19. Bhatt. V. P, Negi. G. C. 2006. Ethno-medicinal plant resources of Jaunsari tribe of Garhwal Himalaya. Uttaranchal Knowledge. Vol 5 (3). Pp 331-335.
20. Bihan. B. A et al. 2013. Polyandrous family: Education and social change. Scholarly Research Journal for Interdisciplinary Studies. Vol (3). Pp 125-130.
21. Biswas R.K, Kapoor A.K (2005): Ethnography study of Sahariya- A primitive tribe of Madhya Pradesh. In: Contemporary studies in primitive tribes. Chaudhary S.K (Ed) (In Press), 2005.

22. Bisht. B.S. 1982. Social structure and organization of Raji tribe of Kumaon. Nainital. Kumaon University. P.H.D. Thesis.
23. Bisht. B.S. 1974. Pithoragarh Zile ke Raji Van Manush (Ban Rawat): Ka ek Sanshipt Parichay. Vanyajati. Vol 22(1). Pp 19-20 (Hindi).
24. Bisht. B. S. 1990. Problem of Socio-economic development of Raji tribe of Kumaon. Indian Council of Social Science Research (Project Report). Delhi.
25. Bisht. B. S. 1993. Raji: A tribe of Indo- Nepal border of Uttarakhand. Delhi. Vivek Prakashan.
26. Bisht. B. S. 1994. The tribes of India: Nepal-Tibet borderland: A study of cultural transformation. Delhi. Gyan Publishing House.
27. Bisht. B. S. 1996. Rajis: Then and Now: A little known tribe of Uttar Pradesh. Man and Life. Vol (22). Pp 133-142.
28. Bora. H. S. 1988. The Rajis: Invisible traders: The study of a primitive tribal group in Uttarakhand. Himalaya Publications. Khatima. Uttarakhand.
29. Bora. H. S. 1991. The forest dwellers of middle Himalayas- Rajis: A primitive tribal group of Uttar Pradesh. Pithoragarh.
30. Bose K, Bisai S .2007. Prevalence of under-nutrition among rural adolescents of West Bengal. Maternity and Child Nutrition. Vol (3):216-21.
31. Brambilla D.J, and Mckinlay S.M .1989. A prospective study of factors affecting age at menopause. J .clin. Epidemiol. 42: 1031-9.
32. Chander Prakash Kala. 2006. Local preferences of ethno-botanical species in the Indian Himalaya: Implications for environmental conservation. Current Science Journal. Vol 93(12).
33. Dasgupta A, Sarkar M. 2008. Menstrual hygiene: How hygiene is, in the adolescent girl?. Indian Journal of Community Medicine. 33(2): 77-80.
34. Dasgupta A, Chowdhary M.E, Ronsmans C, Killewo, J. Anwar I, Gansier K. 2006. Equity in use of home based or facility based skilled obstetric care in rural Bangladesh: An observational study. The Lancet, 367 (9507), 327-332.
35. Das M, Bose K. 2006. Presence of high rates of overweight and obesity among adult Marwaris of Howrah, West Bengal, India. Call Anthropologist. 30. Pp, 81-87.
36. Das M. 2010. Study of nutritional status of Korcu tribes in Betul district of Madhya Pradesh. Stud Tribes Tribals, 8(1): 31-36.
37. Deo.D.S, Ghattargi C.H. 2005. Perceptions and Practices regarding menstruation: A comparative study in rural and urban adolescent girls. Indian Journal community Med. 30: 33-4.
38. Dhingra R, Kumar A, Kaur M. 2009. Knowledge and practices related to menstruation among tribal Gujjar adolescent girls. Ethno-Med, 3(1):43-48. 2009.
39. Fathalla F Mahmood, Allan Rosenfield. 2004. Sexual and reproductive health for all: A call for action. WHO Journal Paper. Sexual and Reproductive Health 6.
40. Fathalla M.F, and Fathalla M.M. 2008. Sexual reproductive health: Overview. International Encyclopedia of Public Health, 695-705.
41. Fathalla M. F. 1990. The challenge of safe motherhood. In health care of women and children in developing countries. Third Party Publishing Co., pp 219-228.
42. Kapoor A.K, Tyagi R, Kapoor S. 2009. Nutritional status and cardio-respiratory functions among adult Raji males: A food-hunter, and gatherer tribe of the Indian Himalayas. Anthropological Science 117(1) : 1-7.
43. Khoker K.K, Kaur G, Sidhu S. 2012. Menopausal age in working Punjabi women of Jalandhar and trend in other Indian populations. Human Biology Review. Vol (1). Pp 292-305.
44. Krishna Kumar Shah, Ramesh Khatri. 2005. Raji: Ek Lapanmukha Adibasi Janjati (Raji: An endangered Indigenous group. Sahitya- Koseli. 15:83-87.
45. Krishna Kumar Shah. 2009. The nouns and norm phrases in Raji language: Un published M.A. Thesis in linguistics. Kathmandu. Central Department of Linguistics. University of Nepal.
46. Kundalkar .1981. Age at menarche for different social groups. Unpublished M.D. Dissertation. University of Pune. India. 1981.
47. Look et al .2005. Sexual and reproductive health: Recent advances. The Lancet and Reproductive Health Series. World Health Organization
48. Mallikarjun B. 2010. Diet and nutritional status of women in India. Journal of Human Ecology, 29(3):165-170.
49. Mandal S. Sinha N.K, Sawanta P, Das S, Bose K. 2011. Anthropometric assessment of nutritional status among college women of Midnapore, West Bengal, India. International Journal of Life Science and Pharma research. Vol 1 (1).
