REVIEW OF LITERATURE
CHAPTER II
REVIEW OF LITERATURE

Introduction

Sociology of medicine or medical anthropology is comparatively a new development in India, but some exploratory studies have been made on different facets of tribal health. There are three categories of persons who have contributed or have shown a keen interest in this field, (a) anthropologists and sociologists, (b) medical scientists, and (c) health administrators.

The present review study is mainly based on (a) published works, (b) unpublished research works, (c) ongoing research projects and (d) seminars and conferences on this topic.

Thus, the review was made mainly through covering different journals and monographs, for interview or getting replies on the research activities done or for ongoing research projects on this field, the different university departments, research institutions or government departments including the different state tribal research centres engaged or connected with such studies were covered. The reviews of the literature commonly reflect the following key concepts.

1. Theoretical, conceptual and methodological issues.
2. Health, food habits and environment.
3. Tribal concept of disease and healing sociocultural aspects.
4. Medicine, health and community organizational issues.
5. Interaction of traditional and modern medical practices.
6. Tribal medicine and modern use.

The role of social science in the field of medical science has also been stressed by a number of scholars but there are only a few specific studies on tribal health care. A number of conferences or seminars were also held to review the role of behavioural science in health education.
Elvin has shown a great interest in tribal health and medicine and made a number of studies on tribal communities where some informations about tribal health and medicine are available. In the ethnographic studies made on tribal communities by S. C. Roy, D. N. Majumdar and others, some data on tribal health and medicine are also available.

Most of the studies made on tribal communities have indicated the importance of understanding the sociocultural dimensions of health and disease. A number of deities are often associated with diseases or disease is connected with the interference of supernatural agency and nature of treatment in such cases is also made accordingly. In fact, there is a great need to understand and identify the cause of illness as the nature of treatment is intimately connected with the cause identified. Some of the studies on tribal health have also indicated the importance of understanding sociocultural dimensions. The decline in population or low growth rate and low fertility are sometimes due to sociocultural factors. It has been noted that some of the social practices like marriage of a man with a much older women may be one of the reasons of low fertility.

Among most of the tribal communities, a number of specialists are there from whom services are taken at the time of illness. Sometimes, the priest and the medicine-man are different persons. Sometimes the same person performs duties in both the fields. This perhaps indicates the close relationship between cultural aspects and disease and treatment. In all the tribal communities, these specialists occupy a special high position in the society and one is required to undertake training to acquire the art of treatment performing the magical rites. The dependence and confidence on traditional medicine-man or magician are often responsible for the nonacceptance of modern medicine due to a number of socio-psychological factors. As the traditional medicine men and people share the common cultural tradition, the tribals have more faith in them. The attitude of modern medicine men towards the traditional beliefs and practices is also responsible for the lack of conviction on them by the tribals. In fact, often the modern doctors show little respect for the cultural traditions of the tribals. Quite often it is said that the tribals are so traditional-oriented that they do not use the modern facilities. Perhaps there is a need to examine it properly. Some studies have indicated the strong faith in traditional method of treatment, but again a number of studies have shown that the two methods of treatment, traditional and modern, operate side by side in the
situation. In fact, the inadequate nature of modern facilities available in most of the tribal areas are often responsible for the lack of faith in modern treatment. Sometimes, the tribals are not properly treated by the doctors resulting into their lack of faith in modern methods of treatment.

Reproduction, Abortion and Women's Health

Gabrielle Dietrich (1992): The question of women's health seems to be cast in adjunct to reproduction, at least as far as the Indian state is concerned. For the feminist movements in the city of Mumbai, women's health are inextricably connected with issues around sexuality, reproduction and the social and legal control of these. In fact, it has been stated in an internal critique that the need of feminists to discuss sexuality seems to have emerged from debates around fertility and fertility control.

Government Central Press (1994): The Government will initiate and support all efforts to promote an awareness among the public that the family welfare and population policies of the state will succeed only if women are empowered to decide on the issues related to the health of their families. She should specifically be empowered to decide on issues regarding the size of the family and the health interventions affecting the children.

Nivedita Menon (1995): There are different trajectories to the question of population control for the west and for India. In the west, the issue of abortion is linked to the "right to self determination" and "the individual woman's right to choose". In the west, feminists supporting abortion (still not legalized in many western countries) articulate their position in terms of the rights of the woman. On the other hand, anti abortionists also speak in the language of rights, claiming that their focus is on the "rights and personhood of the foetus".

Amer Jessani & Aditi Iyer (1994): In contrast, in India, the liberalisation of abortion was not linked to feminist activism. Health activist Amar Jessani and Aditi Iyer suggest three possible reasons for this: This might partly (though not wholly) be attributed to the absence of a strong feminist current within the (women's) movement during the 1960's and early 1970's... Secondly, anti abortion votaries in India are not as belligerent or as strident as their counterparts elsewhere...
thirdly, the low priority may be engendered by the unawareness of the fact that legalization has not been buttressed by safe and humane abortion services.

AIWP (1994): There is, as is obvious even from this bald rendering of the provisions, a scope for misuse. The contexts within which most women undergo MTPs includes a general sense of shame surrounding extending to married and to single women. Many married women conduct MTPs without the knowledge of their family members, at times their husbands. For single women, the need for secrecy is even more pressing. Not only do they face a greater degree of social control, the abortion carried out may well he failing out of the purview of the MTP act. Given this, the register can easily become a tool for blackmail in the hands of unscrupulous medical practitioners and medical staff.

Elaine Lessner (1992): Another concern of feminists has been that most of the contraceptive methods listed above are aimed at women, absolving men of any responsibility towards contraception. Elaine Leissner looks at four existing, but little known contraceptive methods for men. These include: non surgical vasectomy, permanent and temporary contraception by injection, wet heat method, ultra sound methods. All these are non-hormonal methods.

Lissner goes on to say, "Have you ever wondered why you have never heard of these? Research bias plays a large part. Male directed funding agencies find reasons not to fund research on male contraception. Male researchers are reluctant to tamper with the male body. As a result, the public is not aware of alternative methods."

Sahay .K.B (1996): Activist's hold that not only is the population policy in India misogynist, it is in essence racist, communal and anti-poor. In other words, it aims to control the numbers of some groups. For instance, population control enthusiasts have suggested that Muslim populations in some parts of the country grow at a higher rate than other communities.

MHFW (1994): Health activists argue that the use of coercive methods by the state will have disastrous effects not only on individual women, but on the country as a whole. In a letter written by 16 women's organizations to the Minister for Health and Family Welfare in 1994, it is reiterated
that the "new trend of introducing hazardous, long acting, provider-controlled, hormonal methods of contraception have been opposed by women's organisations for several reasons." These include the side effects on women, such as heart problems, depression, menstrual irregularities and effects on future fertility. There are possibilities of the immune system being affected. Besides, these contraceptives need sophisticated methods for screening and monitoring users, which are not available in India. Even more seriously, they can be misused as they can be and are administered without a woman's consent. Nor is removal in case of complications easy or possible. Control is therefore vested not in the woman as in the case of barrier methods, but with medical practitioners, and ultimately with the state.

Manimay Dasgupta (1997): Studies have demonstrated that son preference is not uniform, but varies according to regions, religions and communities. A survey conducted in seven districts in India by the Population Research Centre, Chandigarh reveals that a larger segment of Hindu and Sikh women compared to a substantially smaller proportion of Muslim women have strong son preference and a greater desire to know the sex of the foetuses.

Ruth Macklin (1995): In the mid 1990's, the debate was revived again, when the Central Government announced its decision to pass a law banning sex determination, on the lines of the Maharashtra legislation. Some expressed the view that such a ban was both unethical and would be counter productive. A medical practitioner pointed out that the Maharashtra legislation had not improved the status of women, nor had it prevented women from undergoing the tests. It had merely driven the practice underground. She added that it was her opinion that legal prohibition of sex determination was unethical, as it was tantamount to infringing on the reproductive rights of women.

Aryind Kala (1994): A related opinion expressed by a Bombay based journalist was that no state had the right to compel women to bear an unwanted child. He wrote: "A ban on sex determination will impose unwanted pregnancies on women. Nor can the law be enforced because no society can shut away an available technology from people."
Ravinder R.P (1992): In 1994, the Pre-natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act was passed in Parliament. Between 1988-1994, Punjab, Haryana and Rajasthan followed the example set by Maharashtra to pass laws banning sex determination tests. In February 1987, the central committee on sex determination was set up by the central government headed by Rajiv Gandhi. The committee submitted its report, on the basis of which a bill was framed. The bill, which replicated many of the loopholes of the Maharashtra Act, was introduced in the Lok Sabha in 1990, but was not passed until 1994.

One of the primary problems with this bill, as with the state law, as far as activists were concerned, was the clause that the woman undergoing the test would be subjected to punishment. A member of the committee, an activist of the FASDAP, submitted a note of dissent to this clause in the bill. The report stated that a woman's choice to undergo the test is a result of subtle and not so subtle pressures exerted on her by her family, community and society. It is not a conscious choice, so it is unjust to pronounce her guilty under this Act. Punishment... would mean further victimizing the victim of oppression and equating her with the oppressors, so such a woman should not be punished." Under the Central law, all those contravening the law, including the doctors, the family members and the woman herself, are subject to a uniform punishment, i.e., three years imprisonment and a fine of Rs. 10,000. Given this, even if a woman had indeed been pressured by her family to undergo the test, she would be unlikely to report them if she too would be punished.

Sengupta Amit (1992): The Central act too invests the responsibility of implementing the Act with two officials appointed by the state government, i.e., with members of the Appropriate Authorities Committee and the Advisory Committee. The composition of both is left somewhat ambiguous. Like the Maharashtra Act, the central act does not allow a private citizen to access the courts directly if he or she comes across a violation of this Act; all complaints are to be routed through the Appropriate Authorities Committee, who has the final authority whether to follow up a complaint.
Govt. of India (1991): As with the Maharashtra State law, the framers of the central Act see themselves as undertaking a near revolutionary step. The statement of objects and reasons of the bill reads as follows: "Sex determination tests are being operative for the past so many years in the country. Many people have earned a lot of money by operating such centres. The tests are now increasingly used by parents and medical practitioners for pre-birth sex determination with the intention of aborting the female foetus. If this is allowed to continue, it will result in distorted male female ratio in the country. It is high time that such legislation is brought forward to ban such tests in the country. Hence, this bill."

Adair L. S (2001) 'Size at birth predicts age at menarche'. This study examines the relationship of intrauterine growth, measured by size and maturity at birth, to age at menarche, while also considering a wide range of other factors that may affect maturation. The research is motivated by the current debate about the importance of the prenatal environment as a determinant of later disease risk. METHODS: Data were collected during the Cebu Longitudinal Health and Nutrition Survey. This community-based study has followed a cohort of several thousand Filipino infants since their birth in 1983 to 1984. Participants live in urban and rural communities of Metro Cebu, the second largest metropolitan area of the Philippines. The analysis sample includes 997 girls 14 to 15 years of age. The main outcome measure is age at menarche, determined from girls' self-report of the month and year of first menses. Factors that influenced age at menarche were identified using Weibull parametric survival time models. The main exposure variables of interest included weight and length (measured by trained field staff) and gestational age (assessed from mother's reported date of last menstrual period, augmented by clinical assessments at birth). The analysis also takes into account a wide range of other factors that are likely to affect age at menarche. These include the girls' early postnatal growth rates, premenarcheal body composition (body mass index and skinfold thicknesses measured at 8 years), current diet (measured by two 24-hour dietary recalls), and socioeconomic conditions of the household in which they live. We also assessed the contribution of maternal characteristics, including age at menarche, height, and nutritional status while pregnant with the study child. RESULTS: The median age at menarche calculated from the hazard model is 13.1 years, with 50% of girls attaining menarche between 12.4 and 13.9 years. Earlier menarche is characteristic of girls who live in urban, higher socioeconomic status households, as indicated by higher maternal education, better housing quality, and possession
of assets, such as a TV or refrigerator. Age at menarche is significantly associated with birth characteristics. Although birth weight alone was not significantly related to age at menarche, girls who were relatively long and thin at birth (>49 cm, <3 kg) attained menarche ~6 months earlier than did girls who were short and light (<49 cm, <3 kg). This effect of thinness at birth is most pronounced among girls with greater than average growth increments in 6 months of life. The effects of birth size are not modified when body mass index and skinfold thicknesses at 8 years are taken into account. Effects of birth size on age at menarche also remain significant when maternal nutritional status during pregnancy and the girl’s current diet and socioeconomic indicators are taken into account. CONCLUSIONS: The study provides additional evidence of fetal programming of later health outcomes by showing that future growth and maturation trajectories are established in utero. Furthermore, rapid postnatal growth potentiates the effects of size at birth and is related independently to earlier pubertal maturation.

Safe Motherhood: Knowledge, Attitudes and Practices during the period of maternity

De Silva, W.I (1996): The study was undertaken in six Public Health Midwife (PHM) areas in the division of the Beruwala Medical Officer of Health (MOH) in the Kalutara district of Sri Lanka. The total population of the Beruwala MOH area was estimated to be 1,36,000 in 1994, and areas selected for the present study comprised 9,764 persons. After examining the registers of pregnant women in each selected PHN’s area, ten women with pregnancy duration of seven months were selected randomly from each area and followed up subsequently.

The study thus planned was to follow-up sixty women through pregnancy, delivery and the postpartum period. The restriction to six weeks (42 days) after delivery implied the definition of postpartum period has been criticized on the grounds that several pregnancy-related problems could last beyond the six-week postpartum period.

Campbell, O; Graham ,W.J (1991): Therefore, the study was extended to the end the third month postpartum, and thereby, some information relating to the infant was also gathered. Thus, information on maternal health was gathered in sequence: first, at the seventh month of the pregnancy; second at the sixth week after the delivery; and finally at the end of the third month.
following delivery. However, the study was restricted to the data pertaining to the first and second round surveys only. By the time of the second round, two women were missed (unable to be traced due to internal migration) from the original sample of 60 women, and another case was also dropped because she had had a stillbirth.

The study was qualitative and more explanatory in focus, and gathered information by using 'how,' and 'why' type questions. How and why questions are posed when the investigator has little control over events, and the focus is on a contemporary phenomenon within the real life event. Most households in the study area did not enjoy permanent source of income since the men were employed as casual laborers, carpenters, masons, traders and shareholders of the gem industry. There were only a few permanent workers in the area, whose families enjoyed a somewhat higher living standard than others.

**MPPI (1991):** The biggest problem during pregnancy is that of malnutrition and though the women receive special care, a significantly large percentage of mothers deliver low birth weight infants. The clinical records of the study areas showed that about 23 per cent of newborn infants were underweight at the time of birth (less than 2.5 kg). Indepth interviews revealed that neither illiteracy nor traditional customs and practices contributed to the lower nutritional status, but it was the poor economic status, which was inadequate to fulfill the minimum low requirements of the women.

Anemia among pregnant and lactating mothers is found to be over 60 per cent in Sri Lanka, and the clinical data of the study area was no different from the national estimate. Apart from its detrimental effects on maternal health and birth capacity, anemia is closely associated with low birth weight. The usual medical explanation is that low birth weight babies are the result of the poor nutritional status of the woman during pregnancy.

Many mothers know that they ought to eat vegetables, fruits, milk and king coconut during pregnancy, but whether they can do so or not depends on their household income. Midwives constantly encourage pregnant women to consume leafy vegetables because they are readily available in their locality. The respondents were able to state many reasons for having to consume
these additional foods to build up blood and to gain energy which could help an easy delivery, growth of the foetus and diet must be sufficient for two persons. However, nuclear families with both parents working have brought marked changes in dietary patterns in Sri Lanka. Housewives resort to easy-to-prepare, convenient foods, and snacks are getting more popular and are eaten by many people throughout the day; and though adequate in calories, they contain little vitamins and minerals.

De Silva, M (1993): During pregnancy some foods believed to augment breast milk production were the most popular ones under the 'kiri' category. The prefix 'kiri' refers to those food varieties assumed to be beneficial for nursing mothers. Thriposha was the only food, which was added newly to the diet. The MCH clinics provide two packets of 'thriposha' program, a supplementary feeding program of the government, which caters to the needs of children and lactating and pregnant women who are at risk. It is a food supplement formulated to reduce the incidence of energy-protein malnutrition, nutritional anemia and xerophthalmia. Pregnant women consume 'thriposha' with sugar and rasped coconut about three spoons per day, though some avoid it as they find it unpalatable. Most believe that 'thriposha' is good for building the woman's strength and for the growth of the baby, as also for rebuilding the worn-out tissues of the mother and giving her energy. Supplementary feeding programs are the most common forms of nutrition intervention in developing countries. Despite the relative popularity of such programs in Sri Lanka, the results have been disappointing.

Gutierrez YM (1999) Cultural factors affecting diet and pregnancy outcome of Mexican American adolescents. The study was conducted to describe the cultural beliefs, nutrition knowledge, food intake, and attitudes about weight gain of Mexican American adolescents, and their relationship to pregnancy weight gain and infant's birth weight. A convenience sample of 46 pregnant adolescents, who were self-identified Mexican American primigravidas aged 13-18 years were recruited from 6 San Francisco Bay Area and San Jose clinic sites. Data were collected over an 18-month period from Winter 1994 to Spring 1995. Results showed that acculturation affected nutritional knowledge, attitudes about weight gain during pregnancy, and the psychosocial and educational level of pregnant Mexican American adolescents. There were no differences in the quality of diet and pregnancy outcomes, gestational weeks at delivery, or birth weight among acculturated, versus
the nonacculturated adolescents. Both benefited from cultural protective factors related to their
dependence on the family for emotional, economic, and social support. Nutrition recommendations
should emphasize the importance of maintaining traditional food habits and nutritive value
information of American foods.

study considers why antenatal care (ANC) programs for adolescents may need to be improved in
areas where a high proportion of first pregnancies are to young girls. DESIGN: Descriptive data on
the characteristics of 615 adolescents (aged 10-19 years) who attended for a first antenatal care
visit at two rural hospitals in southern Malaw are given. For the 41.5% who came for a supervised
delivery, details of their pregnancy care and delivery outcome are provided. The Chi-square test is
used for determining significant differences between age and parity groups and logistic regression
for an analysis of low birthweight. RESULTS: Fifty-two percent of girls were nulliparous, 24.5%
were < or =16 years and 73.3% were illiterate. Prevalence of anemia, malaria and HIV infection
was high. Girls who were nulliparous, illiterate, made early antenatal care visits or gave a history of
stillbirth or abortion were less likely to attend for delivery. Few primiparae required an assisted
vaginal delivery or cesarean section but primiparae had more adverse birth outcomes. Forty percent
of primiparae <17 years gave birth to low birthweight babies as did 28.3% of multiparae. In a
logistic regression (all adolescents) low birthweight was correlated with literacy (p=0.03) and
number of antenatal care visits (p=0.01). CONCLUSIONS: Pregnancy morbidity and adverse birth
outcomes were common in spite of antenatal care attendance. This partly reflects poor management
of malaria during pregnancy. In areas like Malaw, where childbearing starts early, girls in their
first pregnancy need good quality care and careful monitoring if problems are not to be perpetuated
to a second pregnancy. Many girls start pregnancy with HIV and schistosomal infections that
indicates the need for programs before girls become pregnant.

Abel R, et al (2001) A multistage sampling technique was used to select 845 pregnant women
from two blocks in Vellore district. Haematological measurement of haemoglobin (Hb) was done
on all women and serum ferritin (SF) on a subsample of 445. The prevalence of anaemia (Hb <11
g/dl) was 56.6%, 70.2% and 69.5%, respectively among the first, second and third trimester
women. The mean Hb of 10.7 g/dl was significantly higher among the first trimester than among
the second and third trimester women, which was less than the recommended value of 11 g/dl. Iron deficiency (SF <12 microg/L) was significantly (P< 0.05) more among the third trimester women than among the first. The high prevalence of anaemia in each trimester in pregnancy indicates the need for iron supplementation as early as possible starting from the fourth month of pregnancy.

**Childbirth practices**

Khandekar, J (1993): Childbirth is a normal physiological process, which can become pathological due to the adoption of certain practices and consequently affect the health and survival of the newborn. Good antenatal and postnatal care and trained assistance at the time of delivery are thus very important to ensure child survival. A trained midwife or doctor delivered the pregnant women followed-up in this study in an institution; none of the deliveries took place at home. It should be noted that, on average, about 85 percent of the total registered births in Sri Lanka occur in government medical institutions. Some women, in fact, claimed to have discussed the place of delivery with their elders, though the entire decision depended on them, and was influenced by their previous experiences. Attendances at antenatal clinics, visiting family doctors or even obstetric consultants were mostly done alone by the women. When she fell sick or developed symptoms of confinement, she did not wait for her husband, but accompanied by one of her relatives or neighbours, went to the hospital immediately.

Hirve SS, Ganatra BR. (1994) Determinants of low birth weight: a community based prospective cohort study. The study aimed at identifying and quantifying determinants of low birth weight (LBW) by following a community based prospective cohort of pregnant women in 45 villages in Pune district. In the 1922 live births born to mothers without a chronic illness, in whom birth weight was available within 24 hours, the cumulative incidence of LBW (< 2500 g) was 29%. The unadjusted relative risks for LBW were significantly higher for lower socio-economic status (RR = 1.71), maternal age less than 20 years (RR = 1.27), primiparity (RR = 1.32), last pregnancy interval less than 6 months (RR = 1.48), non-pregnant weight less than 40 kg (RR = 1.3), height below 145 cm (RR = 1.51), hemoglobin less than 9 g/dl (RR = 1.53) and third trimester bleeding (RR = 1.87). Multivariate logistic regression analysis showed that the adjusted odds ratio for LBW decreased with increasing gestational duration, non-pregnant weight, parity and rising education level of the
mother. Socio-economic status, non-pregnant weight, maternal height, and severe anemia in pregnancy had substantial attributable risk per cent for LBW (41.4%, 22.9%, 29.5% and 34.5%, respectively). The findings suggest that selectively targeted interventions such as improving maternal education and nutrition, specifically anemia, wider availability of contraception to delay the first pregnancy and to increase pregnancy intervals may help in identifying and ensuring adequate care for those women at greatest risk of LBW.

Nielsen BB, et al (1997) This study examines patterns of neonatal mortality among rural mothers in Salem district, Tamil Nadu state, India. Data were collected during August-September 1995 in a catchment area of 30 health subcenters. The sample includes 1321 women who had delivered within the preceding 6 months. The aim was to determine the extent of excess female neonatal mortality. The instrument was pretested, and other reliability checks were made. Findings indicate that 20% (261) of the mothers had experienced the death of one or more children. The mean age of the women was 22 years, the average number of pregnancies was 2.3, and the average number of live-born children was 1.8. The mean age of first-time mothers was 20.2 years. The mean age of multiparous women was 23.9 years. There were 268 live-born babies, 68 stillbirths, 275 postnatal deaths, 280 spontaneous abortions, and 60 induced abortions. The stillbirth rate was 13.5/1000 births. The perinatal mortality rate was 42.0/1000. The early neonatal mortality rate was 28.9/1000. The late neonatal mortality rate was 6.6/1000. Of the 1321 deliveries in the prior 6 months, 99% were singleton births. 51.7% were boys, and 48.3% were girls. 98.6% were live-born, and 1.4% were stillbirths. 4.0% of live-born infants died postnatally, of which 64% died in the first 7 days and 13% died between 8 and 28 days. 23% died 1 month or more following birth. There were 11 sets of twins, of which one each died in the early and late neonatal period. In the one set of quadruplets, all infants died in the early neonatal period. The relative risk of death among daughters was 4.36 compared to sons. Primiparous women did not experience excess female neonatal mortality. Risk of female neonatal death was higher among multiparous women with no living sons compared to women with at least one son. This study did not find a shorter birth interval after the birth of a girl. The preference for sons should be addressed through a holistic societal approach.
Status of Tribal Women in India

D'Souza (1990): The tribals are more backward not only compared with the General Population, but also compared to the Scheduled Caste, the other acknowledged backward social group with constitutional protection. He has examined the effects of planned developmental intervention in the tribals from 1961 to 1981. He has concluded that twenty years of intervention has not made any significant impact in improving the conditions of the tribals.

i) The tribals in post-Independent India
In fact, the conditions of tribals in post-independent India has, in many ways, worsened. This has been discussed in a special issue of Social Change entitled Status of the Tribals in India (1993, vol. 2&3). The tribals are the most adversely affected ethnic group due to developmental projects of dams, factories and mines. They constitute 8 percent of the national population, but about 40 percent of displaced persons due to developmental projects are tribals.

Singh K.S (1993): The pace of commercial exploitation of the resources of tribal land which accounts for nearly 20 percent of the country's space with 8 percent of its population living on it has assumed a disturbing dimension. The tribal's rights in basic resources such as land, forest and water in fact in the entire environment have been seriously eroded, as non-tribal peasants, traders, businessmen and other categories of aliens have moved into tribal land, with the opening up of tribal areas, and with industrialization.

ii) The tribals are predominantly rural (92.6%)
They are overwhelmingly illiterate. The literacy rate of the tribals is 23.63 (1991). This is lower than that of the general population (52.21) and is even lower than that of the Scheduled Caste population (30.6), another backward social group with constitutional protection. The literacy rate of the rural tribal female is 12.74 percent, which is lowest of all the social groups.

iii) The tribals are the poorest social group. In 1987-88, 52.6 percent of the tribals were below the poverty line as compared to 44.7 percent of the Scheduled Castes and 33.4 percent of the general population (Table 4, Singh, A.K. 1993, p.34).
The health status of the tribals is lower and inferior compared to that of the general population. Several studies have suggested higher infant mortality rate, higher fertility rate and greater malnourishment.

iv) The tribal groups are engaged in various occupations: hunting, shifting cultivation to settled agriculture and rural crafts. A very negligible percent are engaged in non-agricultural activities.

**TABLE : 4**

Percentage of Population below the poverty line

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Population</th>
<th>Scheduled Castes</th>
<th>Scheduled Tribes</th>
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<tbody>
<tr>
<td>1977-78</td>
<td>51.2</td>
<td>64.6</td>
<td>72.4</td>
</tr>
<tr>
<td>1983-84</td>
<td>40.4</td>
<td>53.1</td>
<td>58.4</td>
</tr>
<tr>
<td>1987-88</td>
<td>33.4</td>
<td>44.7</td>
<td>52.6</td>
</tr>
</tbody>
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The UN International Year of the Indigenous Peoples

Singh, K. S; and Burman Roy, B. K (1993): The United Nations has declared 1993 as the International Year of the Indigenous Peoples, the Government of India has not signed the ILO Convention 169 of 1989 and has not accepted that the tribals in India are the Indigenous Peoples as discussed by K.S. Singh and B.K. Roy Burman in Status of the Tribals in India (Social Change, 1993, Vol. 23 Nos. 2 & 3). Notwithstanding the political difficulties in the definition of the Indigenous Peoples, there is no doubt that the tribals are among the earliest settlers in India if not the original settlers. The Hindi word Adivasi, literally means the first habitants. The UN International Year of the Indigenous Peoples is an appropriate occasion to review the Status of the Tribals of India and also the Status of the Tribal Women.
Health status of tribal women

Basu S., (1993): A comprehensive review of the health status of tribal women has been prepared by Basu. His paper discusses, inter alia, the following dimensions: sex ratio, age at marriage, fertility and mortality, life expectancy, nutritional status, maternal mortality, mother and child health care practices, family welfare programmes and sexually transmitted diseases. The main conclusions of the paper are:

* Higher infant mortality rate in the tribals compared to the national average,
* Low nutritional status of the tribals,
* Lower life expectancy in the tribals than the national average,
* High incidence of Sickle Cell disease (HBss) and Glucose-to-Phosphate Enzyme Deficiency (G-6-80) in some tribal groups,
* Higher fertility rate in tribal women compared to the national women compared to the national average.

Chatterjee (1993): has reported increase in the incidence of diseases with increase in so-called "development". He has compared this incidence of diseases in the tribal population living in three different environments: (I) Forest-based, (ii) Denuded Forest Area, and (iii) Industrially polluted area. The incidence of disease is lowest in the first and the highest in the third.

Educational status of tribal women

The low educational status of tribal women is reflected in their lower literacy rate, lower enrolment rate and higher dropouts in the school. The literacy rate of the tribal population as well as Scheduled Castes and general population for three decades (1961-1991) are given in table 5A. The following major trends can be seen from Tables 5A and 5B:

* The literacy rate of tribals is lower than that of general as well as SC population.
* The literacy rate of the rural tribal female is the lowest of all groups.
* There is gender bias in the literacy of tribal population as in other groups, the female literacy being lower than the male literacy. Though there has been five-fold increase in the literacy of tribal females it still is much lower than the national average for the females (39.29).

**TABLE 5A**

**Literacy rates among General, Scheduled Caste and Scheduled Tribe Population:**

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<tbody>
<tr>
<td>Total</td>
<td>36.23</td>
<td>52.21</td>
<td>21.38</td>
<td>30.06</td>
<td>16.35</td>
<td>23.63</td>
</tr>
<tr>
<td>Male</td>
<td>46.89</td>
<td>64.13</td>
<td>31.12</td>
<td>40.24</td>
<td>24.52</td>
<td>32.50</td>
</tr>
<tr>
<td>Female</td>
<td>24.82</td>
<td>39.29</td>
<td>10.93</td>
<td>19.03</td>
<td>8.04</td>
<td>14.50</td>
</tr>
</tbody>
</table>

**Source:** Primary Census Abstract General Population, Scheduled Castes and Scheduled Tribes, 1981, 1991.

**TABLE 5B**

**Literacy rates among Scheduled Tribes and General population, 1961-1991**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tribal Male</td>
<td>13.04</td>
<td>17.09</td>
<td>24.52</td>
<td>32.50</td>
</tr>
<tr>
<td>Tribal Female</td>
<td>2.89</td>
<td>4.58</td>
<td>8.04</td>
<td>14.50</td>
</tr>
<tr>
<td>General Male</td>
<td>34.44</td>
<td>39.45</td>
<td>46.89</td>
<td>64.13</td>
</tr>
<tr>
<td>General Female</td>
<td>2.90</td>
<td>18.70</td>
<td>24.82</td>
<td>39.29</td>
</tr>
<tr>
<td>Rural Tribal Female</td>
<td>2.62</td>
<td>4.06</td>
<td>6.81</td>
<td>12.74</td>
</tr>
<tr>
<td>Rural General Female</td>
<td>8.42</td>
<td>13.08</td>
<td>17.96</td>
<td>30.62</td>
</tr>
<tr>
<td>Total Tribal</td>
<td>7.99</td>
<td>10.89</td>
<td>16.35</td>
<td>23.63</td>
</tr>
</tbody>
</table>

The relative ratio of tribal-girls and non-tribal-enrolled for every 100 boys is given in Table 6 (Rama Rao, 1990). The data relates to four years: 1965-66, 1970-71, 1975-76, 1980-81). Though the enrolment ratio for girls has been increasing in both the tribal and non-tribal groups, the ratio for tribal girls is much lower than that for non-tribal at all given periods of time in classes I-V as well as classes VI-VIII.

Table 6: Relative Enrolment Ratios of girls per 100 boys for tribals and non-tribals:

<table>
<thead>
<tr>
<th>Year</th>
<th>Classes I-V</th>
<th></th>
<th>Classes VI-VIII</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ST</td>
<td>Non-ST</td>
<td>ST</td>
<td>Non-ST</td>
</tr>
<tr>
<td>1965-66</td>
<td>38.6</td>
<td>57.9</td>
<td>27.3</td>
<td>37.3</td>
</tr>
<tr>
<td>1970-71</td>
<td>41.2</td>
<td>60.7</td>
<td>31.5</td>
<td>41.6</td>
</tr>
<tr>
<td>1975-76</td>
<td>45.9</td>
<td>62.5</td>
<td>37.2</td>
<td>46.2</td>
</tr>
<tr>
<td>1980-81</td>
<td>48.7</td>
<td>64.2</td>
<td>38.2</td>
<td>49.9</td>
</tr>
</tbody>
</table>


The drop-out rates for classes I-V, I-VIII and I-X for boys and girls are given for tribal and non-tribal population in Table 7. It can be seen from the Table that the dropout rates for tribals are higher than those for the non-tribal at all three levels of schooling. The dropout rates for girls are higher than those for boys in tribal as well as general population. The dropout rate for tribals at the secondary level is as high as 87 percent and for the girls it is almost 90 percent. Consequently, there is a negligible percent (0.06%) of tribal women in institutions of higher education.
Table 7: Drop-out rates of girls and boys for tribals and non-tribals, 1988-89

<table>
<thead>
<tr>
<th>Class</th>
<th>Total Population</th>
<th>ST Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
</tr>
<tr>
<td>Class I-V</td>
<td>46.74</td>
<td>49.69</td>
</tr>
<tr>
<td>Class I-VIII</td>
<td>59.38</td>
<td>68.31</td>
</tr>
<tr>
<td>Class I-X</td>
<td>72.68</td>
<td>79.46</td>
</tr>
</tbody>
</table>

Source: Working Papers, NCW.

Singh and Ohri (1993): In their paper entitled Educational Status of Tribal Women in India (1993, Social Change) have suggested the following measures for the improvement of the educational status of tribal women:

- On the basis of data related to education available from various sources, identifying tribal groups for initiating innovative educational programmes at the micro-level
- Conducting State wise and district-wise surveys of causes of non-enrolment of girl children in tribal communities in order to achieve the goal of universalization of elementary education
- Studying the problems of dropouts among tribal girls in school
- Examining occupational mobility among tribal women as a result of modernization, education and social change
- Evaluating ongoing integrated tribal development programme in tribal areas under the tribal Sub-plans through performance appraisal with reference to improvement in social and economic status of the people
- Health modernity,
- Use of science and technology in agricultural / horticultural production, and
- Environmental conservation
- The role of mass media in educational development of tribals needs to be assessed
Oraon (1993): has reported high rate of non-enrolment in the Oraon tribal female school students in Chotanagpur, due to the fact that the girls are required to work in the house. Ambasht (1993) has argued that culturally appropriate learning materials be prepared for the tribal students to help them achieve Minimum Level of Learning.

**Employment status of tribal women**

A very large majority of the tribals (almost 90%) are engaged in agriculture; their other economic activities being food gathering (including hunting and fishing), pastoral, handicrafts, trade and commerce, and industrial labour. Rarely are they engaged in only one occupation. The employment status of tribal women may be considered in terms of their work participation, agriculture, forests, non-agricultural activities and impact of development programmes.

**Work participation**

The work participation rates among tribals are higher than those among Scheduled Caste and general population (Table 10).

**TABLE 10**

<table>
<thead>
<tr>
<th></th>
<th>General</th>
<th>SC</th>
<th>ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>51.62</td>
<td>52.60</td>
<td>56.66</td>
</tr>
<tr>
<td>Female</td>
<td>13.99</td>
<td>18.46</td>
<td>28.18</td>
</tr>
</tbody>
</table>

Though the work participation rate among tribal women has been increasing over a period of time (1971-1991), it is lesser than that for the tribal males, but higher than that for the general female (Table 11).
TABLE 11


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>General</td>
<td>52.6</td>
<td>12.1</td>
<td>51.6</td>
</tr>
<tr>
<td>ST</td>
<td>55.0</td>
<td>20.8</td>
<td>56.7</td>
</tr>
</tbody>
</table>


Though the work participation among tribals is greater than among the general population, within the tribals it is again the males who have a higher work participation rate than the females, as in the general population.

Agriculture

Through an overwhelming majority of tribal men (85%) and women (91%) were involved in agriculture, there were more cultivators among tribal males while more tribal women were agricultural labourers (Table 12).
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
</tr>
<tr>
<td>I. Cultivators</td>
<td>68.2</td>
<td>64.9</td>
<td>63.0</td>
<td>42.7</td>
</tr>
<tr>
<td>II. Ag. Labourers</td>
<td>18.4</td>
<td>2.3</td>
<td>27.3</td>
<td>49.0</td>
</tr>
<tr>
<td>III. Livestock,</td>
<td>---</td>
<td>---</td>
<td>2.3</td>
<td>2.4</td>
</tr>
<tr>
<td>forestry, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV. Mining and</td>
<td>4.1</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>quarrying</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V. Manufacturing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processing,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>servicing and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>repairs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Household Industry</td>
<td>2.1</td>
<td>2.9</td>
<td>0.9</td>
<td>1.3</td>
</tr>
<tr>
<td>b) Other than</td>
<td>0.9</td>
<td>0.5</td>
<td>1.2</td>
<td>0.9</td>
</tr>
<tr>
<td>Household Industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI. Construction</td>
<td>0.4</td>
<td>0.2</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>VII. Trade &amp;</td>
<td>0.4</td>
<td>0.4</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Commerce</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIII. Transport,</td>
<td>0.5</td>
<td>0.1</td>
<td>0.2</td>
<td>$</td>
</tr>
<tr>
<td>Shortage and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IX. Other services</td>
<td>5.0</td>
<td>1.0</td>
<td>2.0</td>
<td>$</td>
</tr>
</tbody>
</table>
The major role that women play in agricultural operations has been discussed by Roy Burman (1998). In the slash and bum cultivation, women join in felling and burning trees, making holes with digging stick, sowing seeds, weeding and harvesting. In plough based cultivation, transportation, weeding, winnowing and dehusking is done entirely by women while harvesting and threshing are done by both men and women. Generally the ploughing is done by men but in some tribal societies, women do the ploughing too.

**Tribal women are denied property rights**

Mawar (1993): In their study of Gonds in Madhya Pradesh found that most tribal women were illiterate and tied to a primitive economy. Their income level can be increased by raising their literacy level, and giving them training for income generating activities.

**Profile of a tribal woman**

The overall picture of the tribal woman that emerges from the existing materials has the following features:

- The literature on tribal women is substantially romantic and grim economic realities have been completely ignored
- The tribal woman is a working woman and works harder than tribal men and women in any of the social groups
- The tribal woman is illiterate
- The tribal woman is not healthy
- There is high fertility and greater incidence of malnutrition among them. Haria drinking is almost hundred percent.

The status of the tribal women is characterized by over-work, invasion of sexually exploitative market forces in tribal society, illiteracy, sub-human physical living conditions, high fertility, high malnutrition and near absence of modern health care facilities. The low health and educational status adversely affects the economic status.
Health Care Services in Tribal Areas

Rao Dharma, M (1996): Public policy for the welfare of tribals living in the scheduled areas of Andhra Pradesh was based on the belief that “the basic purpose of development is to enlarge people’s choices ... to create an enabling environment for people to enjoy long, healthy and creative lives... that if economics expand but human lives dry up, there can be very dangerous political and economic explosions”. Following the outbreak of Naxalite violence in the tribal belt of Srikakulam district in 1972, major initiatives for the development of tribals were introduced. Policy largely consisted of focusing on education and economic development of tribals with a view to shelter them from exploitation and increase their incomes for enabling them to enjoy a better quality of life. Since the First Five-Year Plan, an amount of Rs 894.18 crore has so far been spent in these scheduled areas by the tribal welfare department, with another Rs 100 crore NCAER (1991) being mobilized from other departments. While there is no comparative data available to assess the extent to which these efforts have helped in the alleviation of poverty levels among tribals, it is believed that some among them would have benefited from the expansion of irrigation facilities, the introduction of cash cropping, increases in purchase price of minor forest produce and extension of agriculture credit facilities, etc. With the establishment of schools, literacy levels have gone up from 5.34 percent to 17.16 percent during the decade 1981-1991.

Not withstanding the above, if quality of life is to be measured in terms of reducing premature mortality among children and women, or in terms of good health so as to live to one’s full potential, then the tribal policy falls short in not having been able to integrate health care in the overall development paradigm. To assume that increased incomes would automatically lead to healthier lives is not always true—the associated factors such as access to timely health care services, clean drinking water and sanitation, information and knowledge, have to also form a part of the package. In other words, enhancing of education and income levels become meaningful only when combined with these other inputs.
Epidemiological Status in Tribal Areas

NCAER (1992): The tribal sub-plan areas is spread over nine districts and consists of about 33 tribes and 22 lakh of the total 42 lakh ST population in the state (A.P). Available evidence suggests that poverty is the prime cause for ill health, persistent morbidity and early death. However, lack of access to right foods: iron, protein and micro-nutrients such as iodine and vitamins, is the principal cause for the very high incidence of nutritional deficiency diseases: anaemia, diarrhoea, nightblindness, goitre, etc. These factors combined with lack of access to basic health care services is the main reason for the unexceptionally adverse differentials with the more developed parts of the state: maternal mortality is eight per 1000, (going up to 25 among some tribal groups) as against four per 1000 for the state; infant mortality rate is 120-150 per 1000 compared to 72 per 1000, and while it is nine per 1000 crude death rate, with 30 percent under-five mortality for the state, among some of the major tribal groups such as Savaras, Gadabas and Jatapus, the death rate is as high as 15-20 per 1000 with over 50 percent of deaths of children under five. Longevity of life is lower; there is evidence of a faster decline in the sex ratio during the decade 1981-91 and an unacceptably high level of about 75 percent stunting/wastage among children. Under TB and malaria, the tribals suffer disproportionately to their population - the rate of incidence of TB among tribals is estimated to be double and under malaria, case incidence is estimated to be over 18 per 1,000, mostly of the P Falciparum variety, accounting for 75 percent of the state’s total deaths on account of malaria.

NCAER (1994): Accordingly, for every 3000 population a sub-centre (SC) was established and for every 20,000 population a primary health centre (PHC) as opposed to the norm of 5,000 and 30,000 respectively for the non-tribal areas. Accordingly, as on today, there are in the tribal areas, 111 PHCs (a four-fold increase from 32 during 1982) and 823 SCs, (an eight-fold increase from 108 during 1982) along with 29 mobile medical units (MMU), 21 hospitals and 18 dispensaries. Thus, against one PHC for every 40,000 population in the plains areas, there is one for every 7,772. Likewise, for every 7,000 persons one sub-centre in the non-tribal areas, there is one for every 1,251. There are an estimated 277 doctors, 1,720 health workers and 260 health supervisors working in the tribal areas.
In reality, however, the positive aspects of this impressive spread of infrastructure has got negated by the highly dispersed nature of the populations. The PHCs and sub-centres have been so located that the distances to be covered (in these areas this means by foot) average about 272 kms and 37 kms with the highest going up to 465 and 50 kms respectively. Similarly, the average number of villages / habitations that have to be covered by a PHC and a sub-centre are about 73 and 10, with a high of 1,461 and 379 respectively. Thus, though manpower availability purely in terms of ratios do not seem to be adverse, the siting of the facilities, and poor communications, has resulted in making distance and physical access a major barrier for the utilisation of health care services.

Likewise, as per a detailed survey of the facilities established in the tribal areas, undertaken by the department of family welfare during 1994-95, none of the 29 MMUs are functioning, 66 percent of the PHCs require repairs to make them usable, 30 percent have no electricity (affecting vaccine potency), 62 percent have no labor rooms or water supply (making institutional deliveries impossible), and 19 percent are located in thatched huts, one-roomed buildings, sheds, etc, forcing the large number of the 16 staff members to be at home. While 80 percent PHCs have no BP apparatus, virtually none have any weighing machines or blood testing equipment, making ante-natal check ups only notional. 53 percent PHCs have no operation theatre and of the remaining, in 22 percent the theatres have no equipments and therefore are unutilized.

In the case of sub-centres, which are a 100 percent centrally funded programme, 87 percent are in rented accommodation, which in tribal areas would only mean a portion of a thatched hut. Even in the remaining 13 percent sub-centres, 50 percent require major repairs and are unoccupied. While 8 percent of the remaining 50 percent have some facilities such as examination table, etc, only 1 percent have water facility and 6 percent electricity. Based on these findings one can quite safely assume that by and large the sub-centres are non-functioning and only a statistic - the odd ones being those which are located on the roadside villages /growth centres, etc.

**NIRD (1990):** Unable to afford being sick for long, the tribals find it less expensive to seek private care, which has a measure of certainty, prompt service, better quality of medicines, and in some cases, such as Mission hospitals availability of inpatient facilities for treating fevers, minor
surgeries, etc. In a majority of cases the pattern of health seeking behaviour ranges from obtaining early relief at affordable rates-Rs. 2 per tablet, Rs 5 for consultancy and Rs 10 for an injection, to treatments entailing minor accident cases, surgeries, pregnancies, etc, necessitating, outlays going up to about Rs 1,000 at a time. Referrals for anything beyond, i.e. to the district hospital or the district TB centre necessitating any high cost diagnostics/treatment and incidental expenditures are out of reach. In such cases, most leave the outcomes to time and fate, leading one to believe that tribals are fatalistic or ignorant. This assumption is borne out by a baseline survey conducted in 12 roadside villages of Maredumilli tribal area of East Godavari district of Andhra Pradesh. As per this study it emerge that among the 405 households interviewed, there were 420 morbidities observed. Of these 420, only 279 were treated and 95 cured.

**Rao K. Mohan, et.al. (1990): Role of Private Sector:** It is normally assumed that the non-functioning of the public health system would result in the proliferation of the private sector. This has not happened. Low incomes resulting in low ability to spending on health care is the main reason for the poorly developed private sector in the tribal areas. Private care in the tribal areas consists of a few qualified practitioners, some quacks and government health workers by and large concentrated in the relatively better developed areas. Most of the unqualified practitioners practice aggressive medication, prescribing a range of antibiotics and resort to place them. Prescriptions are normally not issued, on the plea that there are cases of self-medication among tribals. For any minor surgeries or complications, people travel 60 to 100 km distance.

**Cost of Ill Health:** The failure of government institutions to provide effective health care services is the main reason for the huge out-of-pocket expenses being incurred by the tribals on purchasing basic health care services from the private market- a minimum of almost Rs 200 per episode of illness-towards transport, professional fees, drugs and tests. Given the frequency with which illnesses and fevers occur in tribal areas, it is realistic to assume that spending by a family per year on health care may range between Rs 1,000-2,000. This would amount to over 20 percent of the income, going by the 1990 study of expenditure patterns of tribals conducted by the Tribal Cultural, Research and Training institute for the IFAD, which established an average expenditure/consumption of Rs 4,327 per family per annum. The money required for health care is raised by taking loans at high rates of interest ranging from 5 to 10 percent per month and on condition of
preferential sale of the produce at 70 percent of the prevailing market rate. If these indirect costs, including the opportunity costs of wages lost on account of absence from work or reduced productivity are computed, the amounts spent on basic health care would be significantly higher.

Roa K. Mohan, et al (1996): The cycle between hunger- disease-low levels of productivity, (measured both in terms of absence from work as well as duration) - low wages - indebtedness - reduced consumption levels - disease, is reflective of how the development process has, largely, bypassed the tribals. With evidence of increasing landlessness among the tribal populations compared to 1981, the doubling of prices of most essential commodities- kerosene, oil, salt, matchboxes, etc - during the last three years and inability to take full advantage of the increase in the market prices for their produce, for a majority of the tribals illness has serious economic consequences on their fragile incomes. Thus, on account of the poorly developed market, it is imperative for government to shoulder the responsibility of providing a package of health care services that would provide early cure to malaria, TB and respiratory illnesses, gastrointestinal problems, mother and child health cart services, fevers, health and nutritional education. Such a package does not need high investments in equipment's and buildings but requires a well trained and motivated health personnel provided with basic facilities. Only such a system would make the health system accessible, affordable and need based.

DTW (1995): Information demand generation: Campaigns are the most expensive mode of health education and information dissemination. Several studies conducted by the ministry of health and family welfare, government of India have demonstrated the limited impact, in terms of recall, of over-supply of information. These lessons are of value for tribal areas, given the sharp differences in cultural ethos, levels of understanding, language, and abysmal illiteracy-female literacy is 6.86 percent among ST (rural) and among 25 percent of the population in these four project districts, it is less than 2 percent. If two jatras per PHC could bring about the required level of demand generation, which subsumes a change in attitudes and behaviours, there ought to be no plague, dengue, malaria and cholera epidemics breaking out in this day and age.
Therefore, of concern is the absence of a creative strategy for information dissemination. The amounts provided for training and IEC are pitifully low, despite the realisation that it is lack of critical skills, knowledge gaps and poor motivation among the providers, and ignorance and non-familiarity with an alien system of medicine among the tribals that are the structural barriers plaguing the delivery system.

**TWA (1995):** The development paradigm will need to make health centre stage in the overall development strategy. "Incomes depend exclusively on physical labor and have no savings to cushion the blow ... It is impossible to recover with their human and financial capital intact". Therefore, any strategy for the development of tribals will need to not only protect income flows, particularly during the lean periods, but also realize that "investments to reduce health risks among the poor and provision of insurance against catastrophic health care costs are important elements for reducing poverty". As indicated in the WDR, 1993, a survey of 22 low-income countries demonstrated that an increase of income by one dollar per day showed 30 percent increase in life expectancy. Another survey of 58 countries showed that a 10 percent improvement in incomes resulted in 2 to 3.5 percent reduction in infant mortality and an increase in life expectancy by one month. Similar is the causal relationship female literacy has to health - a 10 percent increase in literacy of women resulted in a 10 percent reduction in childhood mortality. It is stated that in India one year of additional schooling will bring down two maternal deaths and 45 infant deaths. In view of this structural inter-connectivity between income, food security, female literacy and good health, the conventional, bureaucratized approach of looking at health issues for tribals in a sectoral, compartmentalized manner can have little impact on achieving health goals. Accordingly, strategies to reduce morbidities and mortality among tribals would need to contain specific directions for establishing this interconnectivity between improving incomes to female literacy and better utilization of health services at the PHC level based on micro-planning.

**TWD (1995):** The allocative issues within the health budget are critical for determining the quality of care. The WDR "Investing in Health" 1993, argued for low income countries such as India, to consider utilising available resources on provisioning of basic health services that, in the Indian context would consist of MCH services, treatment for TB, malaria, STDs, minor surgeries, trauma
care and health education for preventive and promotive health care. It was estimated that such a package may require a per capita investment of 12 dollar or Rs 384. Against this, as per the NCAER (1995) study, expenditure being incurred for basic health care services being provided in the rural areas is less than one dollar being only Rs 30.22 per capita, of which, 75 percent are spent on salaries and only 12 percent on drugs at the rate of Rs 5 per capita per year. In view of the financial crisis, increases in budgetary outlays would be increasingly difficult, as witnessed in this years budget.

**Nutritional Anthropometry**

This study was carried out in Jhabua District of Madhya Pradesh. Madhya Pradesh is one of the largest states in India, and the district of Jhabua, which is the area of this study, is predominantly tribal. The main tribal groups who dwell in this district are Bhils, Bhilalas and Patelias. The nutritional status by anthropometry of tribal women of Jhabua district, discussing the various parameters related to their health, i.e. weight, height and Body Mass Index, which affects their maternal health as well as child health.

This study was carried out by multi stage random sampling method. The study was conducted in 50 per cent blocks in Jhabua District by random sampling to avoid bias. Here, 10 per cent of the villages from each block were selected from the list of total villages. Then, in each village, selection of house holds were done in a purposive manner. House holds with women in the reproductive age group, i.e. 18 to 45 years were studied. They were categorized as pregnant, lactating, and non-pregnant non-lactating, according to their physiological status.

**ICMR** standardized weight for Indian reference women in 50 kg and weight gain in pregnancy is 10 to 12 kg. In first trimester the weight gain is 3 kg., in second it is 5.5 kg and in third it is 4 kg.

Data shows that maximum number of women had weight below 40 kg. It is also clear that as the pregnancy progresses from the first trimester to third trimester, the percent of women which had weight below 80 percent of standard increased from 5.45 percent 20.0 per cent and then 30.9 per cent in the last trimester. During lactation, the extra energy requirement in Indian women as per ICMR recommendations is 550 and 400 Kcal/day. This need is even greater than that during
pregnancy. It is obvious that mothers with body weight below 40 kg will be hard pressed to provide adequate nourishment for their infant, compromising her health also.

Generally, these tribal women belonged to lower socio-economic status. During pregnancy and lactation period, requirements are increased. Low body weight causes higher incidence of toxemia, premature, malnutrition, low-birth-weight baby, prenatal mortality, and poor lactation performance shows a close association with poor weight gain.

Amin, et al (1993): found that education is a very important factor about low weight. They indicate poor educational level affected material weight and was also associated with birth weight. In this study, these tribal women's educational level is very low (4.55%). Taneja, et. al (1994) studied on Banjara tribe in Madhya Pradesh. They noted that 62.5 per cent of the women had a body weight less than 45 kg in third trimester, indicating the greater chances of having low-birth-weight babies.

Thus, the weight is very important for the growth of mother and child. It reflects better health and nutritional status of mother. Awareness is particularly needed in these areas. In a study on scheduled castes by Amin. Mothers who delivered low-birth-weight babies was 47.1 per cent. As regards maternal height, 61.7 per cent mothers with height below 150 cm, delivered low-birth-weight babies, as compared to 43.6 per cent mothers with height ³ 150 cm, who delivered low-birth-weight babies.

Table I presents the Body Mass Index (BMI) of women. BMI is being increasingly used as a measure of nutritional adequacy in adults, and is considered to be a better indicator of chronic energy deficiency. It is also a good index to assess the current forms of malnutrition in a community.
TABLE I

Body Mass Index of Women

<table>
<thead>
<tr>
<th>Height</th>
<th>Percentage of women</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00 - 16.0</td>
<td>7.27</td>
</tr>
<tr>
<td>16.0 - 18.5</td>
<td>74.83</td>
</tr>
<tr>
<td>18.5 - 20.0</td>
<td>12.72</td>
</tr>
<tr>
<td>20.0 - 25.0</td>
<td>2.72</td>
</tr>
<tr>
<td>25.0 - 30.0</td>
<td>2.42</td>
</tr>
</tbody>
</table>

Data reveals that only 2.42 per cent women were in healthy category and 2.72 per cent women were having normal grade of BMI. It shows that nearly 95 per cent women were malnourished.

Naidu et al (1991) found in their study that most of the mothers belonged to low and lower middle income groups. The incidence of low weight (≤2500 g) was highest (53%) in the Chronic Energy Deficiency (CED) or severe group (<16.0 BMI), and gradually declined as the BMI status of mothers improved its incidence. Programme of socio-economic improvement are not only long term measurements, but are also of doubtful consequence as for as women's nutritional status is concerned. Lactation is considered to be a physiological process that is robust and hence preserved well in spite of the poor nutritional status of mothers. However, there is some evidence to show that poor maternal status exemplified by a low BMI, is associated with poor lactational performance and poorer growth in infants. Naidu reported the incidence of low-birth-weight, which is an indicator of "Intra-uterine Malnutrition", is higher among mothers with a low BMI status.

According to report on "Women in India", 11.3 per cent women are moderately malnourished. In the present study, nearly 75 percent women were moderately malnourished, and 2.42 percent in normal grade only 5.1 percent women were healthy in the above report. It means that the situation in tribal context is very delicate and dangerous in terms of women's health as well as child survival.
Summary and Conclusion

The findings reveal that the Bhil tribal women are living in a state of great deprivation due to poor socio-economic status. Anthropometric measurements show that the weight deficits were maximum compared to height. BMI values indicated higher prevalence of moderate forms of malnutrition. Thus, it is evident from the present study that almost three-fourths Bhil women in all physiological groups belonging to lower socio-economic status were in moderate grade of malnutrition.

Bose K, Chakraborty F (2005) A cross-sectional study was undertaken to determine anthropometric profile and nutritional status based on body mass index (BMI) of adult Bathudis, a tribal population of Orissa, India. A total of 409 adult (aged >18 years) Bathudis of three villages of Anandapur, Keonjhar District, Orissa, India, were studied. Anthropometric measurements including height, weight, circumferences and skinfolds as well as BMI and waist-hip ratio (WHR) were measured. Overall, the extent of undernutrition (BMI < 18.5) was found to be very high (57.9%). Moreover, there was a significant (chi(2) = 8.09674, P = 0.01745) difference in the prevalence of undernutrition between men (52.7%) and women (64.5%). In conclusion, this study demonstrated that the prevalence of adult undernutrition was found to be very high among the Bathudis, a tribal population of Keonjhar District, Orissa. These rates were much higher than those found in several tribal populations from other parts of India. Therefore, immediate nutritional intervention programs are needed for implementation among Bathudis. Moreover, further research is needed not only among this ethnic group but also other tribal populations of India to fully understand the causes and consequences of adult undernutrition.

Nutritional Status of Adult Women belonging to Khond, Gadaba and Porja Tribes of Andhra Pradesh

In India tribals are neglected a lot, discriminated in terms of income distribution and social status. Most of them are desperately poor, backward, generally uneducated and lead a hard and miserable life.
Thakur, D.S; Thakur, D.C (1991): In India tribals are neglected a lot, discriminated in terms of income distribution and social status. Most of them are desperately poor, backward, generally uneducated and lead a hard and miserable life.

Neetimakanti (1991): There are more than 400 tribal communities in India, out of which 75 Primitive Tribal Groups (PTG) have been identified by the government in 1989. Tribal women in India are at a great disadvantage due to illiteracy and ignorance. Various research studies on tribal population of India revealed that their diets are nutritionally deficient. There is paucity of information regarding the women of the PTG and hence this investigation was undertaken to study the socio-economic and dietary background and to assess the nutritional status of selected women from three primitive groups of Andhra Pradesh.

Kupputhal, U. & Mallika, N (1993): Out of the eleven mandals in Visakhapatnam district under Integrated Tribal Development Project, Paderu mandal was selected for conducting the study as this mandal had the highest concentration of scheduled tribes than others. The selected three tribes included Khond, Gadaba and Porja belonging to the PTG and formed the lowest strata among the scheduled tribes. A multistage random sampling method was used for the study. Out of the 82 villages, a total of 40 were selected randomly and the survey was conducted among, 273 families from a total of 560 families representing a proportionate sample. From the selected households all the non-pregnant adult women numbering 311 in the age group of 20-39 years were selected for the study.

Information on the socioeconomic and dietary background of the selected families was collected using a specially designed interview schedule. Anthropometric measurements such as height and weight of the selected women were taken following the standard procedures. Body Mass Index (BMI) was computed using the height weight data. Majority (78-92%) of the families of the three tribal groups were of nuclear type. About 50 per cent of the families consisted of more than five members. Majority (87-98%) of the tribal women were illiterate. Among the three groups, Gadaba women had better, educational status.
Collection of minor forest produce formed the major occupation among the tribes (69-78%) followed by agriculture, cattle rearing, poultry keeping and pig rearing. The income (Rs.100-600/month) of the tribal families was hardly sufficient to sustain their livelihood. Nearly 59 to 65 percent of families had a monthly income between Rs. 150 to 300.

Monthly expenditure pattern revealed that 61-81 per cent of their income was spent on food by all the three tribes and no expenditure was incurred on education and health. Majority of the tribals had their own houses of katcha type with thatched huts covered by Copirigadda grass available on the hills during summer. The interior villages did not have facilities like schools, balwadis, PHC, electricity, transportation and protected water supply. Out of the 40 villages surveyed, eight villages had single teacher schools.

The tribal diet was monotonous, lacking variety and they cared more for the bulk rather than quality of the diet. The common meal pattern included cereal (millet) gruel either fermented or unfermented, for breakfast and rice with vegetables or dhal for dinner.

Boiling method was commonly used for cooking by all the tribals. They also used at times, dry roasting, shallow fat trying and smoking. Nearly one fourth of the tribal families had kitchen garden from which they got some greens, roots and tubers.

The main storage structures for cereals were found to be mudpots, gunny bag and at times metal tins. Bamboo baskets were commonly used for storing dried fish and meat. Infant feeding practices indicated that colostrum was fed to infants by mothers of all the tribes and breast feeding was continued till 12-24 months which is more encouraging. But the child feeding practices were found to be unsatisfactory. Infants were weaned only at the age of ten months and were fed directly with adult diets.

Male members were given preference in feeding compared to females among all the tribal families. Severe food restrictions were followed during pregnancy, lactation and ill health.
Raman, L (1991): Among the three tribes adult women belonging to the age group of 20-29 years were chosen for the study. They were practically more height deficit than women of 30-39 years. Among the three tribes, khond women of 20-29 years had, more height deficit than the others.

A similar trend was found in the case of weight also among Khond women of 20-29 years. Though deficits of height were observed among women, weight deficit was more pronounced than height deficit. Weight for height is very useful for the assessment of malnutrition among adults.

Visweawara Rao, et al., (1990): Though all the women exhibited, weight for height deficit, it was more among women of Khond tribe and less among Gadaba women of 20-29 years of age.

Body Mass Index (BMI) has been proposed as a good index to assess the current forms of malnutrition in a community. The BMI was low for Khond women and higher for Gadaba women of 20-29 years.

Most of the women had dry and rough-skin may be due to exposure to changing climatic conditions without a proper dwelling place. Angular stomatitis, raw and glazed tongue were found more among women of Khond tribe might be due to inadequate consumption of milk, eggs, fleshy foods and consumption of excessive alcohol. Dental caries due to tobacco chewing and bleeding spongy gums due to inadequate intake of fruits were also found common among the tribal women.

Scabies, diarrhoea and dysentry were very commonly found among 15-32 per cent of adult women. Gastritis was very common among women of all three tribes which might be due to the excessive intake of low grade alcohol and tobacco chewing. Nearly one fourth of the tribal women were suffering from venereal diseases mainly because of the practice of polygamy among them. Skin allergies were more among women due to poisonous insect bites, wild animal bites and contact with wild plants during their, visits to forest to collect the forest product.

The percentage calorie deficit was found to be more among adult women belonging to Khond (22.4) tribe compared to Gadaba (19.8) and Porja (21.9) tribes. The calorie gap observed in the
The present study might be mainly due to the low calorie density of their diets, which are largely in the form of gruel and also due to the use of negligible amount of fat in their diets.

Pathak P, et al (2003) the present study was undertaken to assess the prevalence of iron, vitamin A and iodine deficiencies amongst rural Adolescent Pregnant Mothers (APM). METHODS: Survey was conducted amongst APM in a rural block; district Udham Singh Nagar, Uttaranchal State. In the district, all blocks were enlisted and one block was randomly selected. Further, villages in the block were listed (n = 64) and five villages were randomly selected for the detailed study. All APM residing in the selected villages were included for the detailed study. The data on socio demographic parameters was collected utilizing a pre-tested semi-structured questionnaire. Anaemia was assessed by hemoglobin estimation with the help of the HemoCue instrument. Vitamin-A deficiency (VAD) was assessed by presence of night blindness utilizing a pre-tested semi structured proforma. Iodine Deficiency was assessed by the clinical examination of the thyroid gland and estimating the Urinary Iodine Excretion (UIE) levels of each subject. Nutrient intake was assessed by the 24-hr dietary recall method. RESULTS: One hundred and fifty one APM, belonging to low socio economic group, were selected for the study. The occupation of the families was farming, but the APM were housewives. The mean age of the APM was 17.8 +/- 1.5 yr. Eighty nine percent of the APM were in the age group 16-19 yr. Sixty percent of the APM were in the gestational age of 24 weeks and more. It was found that 46.0% of the APM were anaemic (Hb < 11.0 gm/dl). Sixteen percent of the study subjects had presence of night blindness. Fifteen percent of the subjects had Goiter. Median UIE level in the subjects studied was 95.0 micrograms/l. Concomitant prevalence of the three deficiencies was amongst 2.0% of the population. The 24-hour dietary intake revealed that the mean consumption of retinol and iron was only 13 and 28% of the recommended dietary allowance, respectively. CONCLUSION: The findings of the present study indicated that Anaemia, Vitamin A, and Iodine deficiency existed as public health problems in the APM of the study area.

Venkalah K, et al (2004) To study the current diet and nutritional status of rural adolescents in India. DESIGN: Cross-sectional study with household as the unit of randomization. SETTING: National Nutrition Monitoring Bureau collected information in the rural areas of the nine States. METHODS: In each State, 120 villages were selected from eight districts. From each of the
selected villages, 20 households (HHs) were selected from five clusters. The information on socio-demographic profile was collected in all the 20 HHs, while anthropometric data such as weight, height and clinical signs of nutritional deficiency was collected on all the available adolescents in the selected households. In every fourth sampled household, i.e., five HHs, dietary information on all the members was collected using 24 h dietary recall. The outcome measures for nutritional status were proportion of underweight (<median -2 s.d. of NCHS standards of weight for age), stunted (<median -2 s.d. of NCHS standards of height for age) and body mass index. The nutrient intakes were compared with recommended dietary allowances (RDA).

RESULTS: Anthropometric and socio-economic information on 12,124 adolescent boys and girls and dietary information on 2,579 individuals in 1996-1997 was available for the analysis. The major occupation of the heads of the households surveyed was agriculture. More than a third (37.3%) of the families with adolescents did not possess any land. The per capita income per month was about Rs 250/- at 1996-1997 prices. About 23% of the adolescent girls were married before the age of 18 y. About a quarter of the married adolescent girls had short stature and 18.6% were underweight. They considered as 'at risk'. About 39% of the adolescents were stunted (<Median -2 s.d. of NCHS height for age) irrespective of sex. The prevalence of undernutrition (<median -2 s.d. of NCHS weight for age) is higher (53.1%) in boys than in girls (39.5%). The extent of stunting was higher (42.7%) among adolescents belonging to the scheduled caste community. In the case of girls, the extent of underweight was considerably less in each age group than their male counterparts. About 70% of adolescents consumed more than 70% of RDA for energy. The intakes of micronutrients such as vitamin A and riboflavin were woefully inadequate.

CONCLUSIONS: The extent of undernutrition was high among adolescents and was higher among boys than girls. Adolescent girls in the rural areas could be at greater risk of nutritional stress because of early marriage and early conception before completion of their physical growth.

Chaturvedi S, et al (1994) Adolescence is period of rapid growth and development. The present study was undertaken to assess the nutritional status of 941 adolescent girls, aged 10-18 years belonging to Scheduled Caste communities in rural Rajasthan, using the probability proportionate to size sampling procedure. Data on 93 married adolescent girls was analysed in detail. Nutritional status of the subjects was assessed by anthropometry, dietary intake and by clinical examination of nutritional deficiency disorders. Anthropometric measurements were recorded for height, weight,
chest circumference, MUAC and TSF using standardised techniques. On comparing the present study's data with ICMR's study data (1956-65) it was found that there has been a significant improvement in the height, weight and chest circumference of the adolescent girls but the values were below the well-to-do group study data. Dietary intake was assessed by 24 hours recall method. The dietary intake was compared against ICMR's RDA. It was found that the diets were deficient in calories by 30 to 40% in proteins by 25 to 37%, by 39 to 55% in iron and by 10 to 34% in vitamin A. 78% of the subjects suffered from various grades of anaemia and 40% of the subjects had B-complex deficiency.

**Bentley ME, Griffiths PL (2003)** The burden of anemia among women in India. This research investigates the prevalence and determinants of anemia among women in Andhra Pradesh. We examined differences in anemia related to social class, urban/rural location and nutrition status body mass index (BMI). We hypothesized that rural women would have higher prevalence of anemia compared to urban women, particularly among the lower income groups, and that women with low body mass index (BMI; <18.5 kg/m(2)) would have a higher risk compared to normal or overweight women. DESIGN: The National Family Health Survey 1998/99 (NFHS-2) provides nationally representative cross-sectional survey data on women's hemoglobin status, body weight, diet, social, demographic and other household and individual level factors. Ordered logit regression analyses were applied to identify socio-economic, regional and demographic determinants of anemia. SETTING: Andhra Pradesh, a southern Indian state. SUBJECTS: A total of 4032 ever-married women aged 15-49 from 3872 households. RESULTS: Prevalence of anemia was high among all women. In all 32.4% of women had mild (100-109.99 g/l for pregnant women, 100-119.99 for non-pregnant women), 14.19% had moderate (70-99.99 g/l), and 2.2% had severe anemia (<70 g/l). Protective factors include Muslim religion, reported consumption of alcohol or pulses, and high socioeconomic status, particularly in urban areas. Poor urban women had the highest rates and odds of being anemic. Fifty-two percent of thin, 50% of normal BMI, and 41% of overweight women were anemic. CONCLUSIONS: New program strategies are needed, particularly those that improve the overall nutrition status of women of reproductive ages. This will require tailored programs across socio-economic groups and within both rural and urban areas, but particularly among the urban and rural poor.
Malhotra A, Passi SJ (2004) Nutrition and health status of rural adolescent girls in selected ICDS blocks of Delhi and Rajasthan. Adolescent girls need special care in view of their present and future roles. The only national programme targeted towards the developmental needs of these girls is the Adolescent Girl (AG) scheme of Integrated Child Development Services (ICDS). The present study has been undertaken in ICDS blocks of Delhi (Alipur, Kanjhawala and Mehrauli) and Rajasthan (Deeg) to assess the baseline nutrition/health status and related knowledge of rural adolescent girls in these areas. Methods: 181 girls (aged 11-21 years) comprised the sample and the dietary intake data were gathered by one day 24 Hour Recall coupled with Food Frequency Questionnaire. Data on weight/height/BMI were gathered and hemoglobin status was assessed by cyanmethemoglobin method. An interview schedule was employed to elicit knowledge relating to nutrition and health. Results: Data indicate that the diets were cereal based and monotonous; 58.4% of subjects were found to have intake less than 75 percent of RDA while a substantial proportion of them had inadequate nutrient intake (NAR<0.66) with respect to most of the micronutrients especially iron (93.4%), vitamin A (75.7%) and folic acid (81.8%). The incidence of anaemia (hemoglobin level <12 g/dl), thinness ('BMI for age' <5th centile) and stunting ('height for age' <3rd percentile) was 93.2%, 35.9% and 30.4%. Further, a large majority of the subjects had inadequate knowledge relating to immunization, colostrum/exclusive breast-feeding, childcare practices as well as that relating to prevention of deficiency diseases. Conclusions: The nutrition/health needs of the rural adolescent girls must be addressed in a holistic manner (providing food supplementation, imparting nutrition/health education as well as skills in income generation). A comprehensive programme like AG scheme, if implemented effectively, has the potential not only to break the intergenerational cycle of malnutrition but also result in improved knowledge and empowerment of these girls to face their challenging roles.

Friedman MS, Somani J (2002) Health conditions in the tribal villages of South Bihar: An Epidemiological survey. In order to understand and establish an effective approach toward sustainable rural health development in the tribal region of South Bihar, an extensive socio-medical survey on over 90% of the houses of four tribal villages was undertaken. Using both a family-based questionnaire and screening physical examinations, the vital statistics, disease prevalence rates, immunization rates, and use of maternal health services in this neglected and previously unstudied area were determined. Local health-related behaviours and attitudes as well as nutritional status and
family dietary intake were also focused upon. The results indicate that disease prevalence and mortality rates are significantly higher than expected and that existing services are less effective than previously thought. More importantly, the survey offers evidence that the fundamental obstacle toward improved community health remains a vast lack of health awareness and education in the villages; specifically in the areas of nutrition, immunization, diarrhoea prevention and treatment, maternity care, and family planning. Surveys of this kind provide vital information to health professionals working in underserved areas in India and should be an integral part of any such developmental undertaking.

Chowdhury S, et al (2000) The age at menarche and its association with nutritional status in a rural area of Bangladesh was determined. A cross-sectional study was conducted in four villages of Rupganj Thana of Narayanganj district. Data was collected through October to December 1996 using a pre-tested structured questionnaire interview schedule, and nutritional status was measured by weight, height, body mass index (BMI) and physical examination. Data were obtained on 436 adolescent girls aged 10-17 years. Among them, 165 (37.8%) girls had commenced menarche. The mean age at menarche as determined by retrospective recall was 13 years SD 0.89 (n = 165). The median age at menarche determined by the status quo method was 13.0. Among the adolescents 60.1% were thin (BMI < 5th centile WHO recommended reference) and 48.2% were stunted (< 3rd centile NCHS/WHO). The mean weight and BMI were significantly higher among the menstruating girls of 13, 14 and 15 years (p < 0.01) than non-menstruating girls. The mean height was found to be significantly higher at 11-14 years among the menstruating girls (p < 0.05). A lower prevalence of angular stomatitis was found among the menstruating adolescent girls compared with the non-menstruating girls, 36.4% versus 46.5%, although this was statistically non-significant (odds ratio = 0.66, 95% CI 0.43-1.00). For glossitis, no significant difference was found. Among the menstruating girls 12.1% were suffering from menorrhagia and 31.5% from dysmenorrhoea. We conclude that the age of menarche among this rural Bangladeshi community is not as delayed as expected. Not surprisingly, menarche is associated with better nutritional status. The surveyed population had extremely high rates of undernutrition which suggests that adolescents in this and similar situations require specific intervention programmes to improve their nutritional status.
Root causes of maternal mortality: Infancy to Motherhood

UNICEF (1990): In a UNICEF publication, titled 'The Lesser Child', the disadvantages of being born a female are highlighted. Girls are likely to be less breastfed and for a shorter period than boys with the result that they are malnourished from the beginning of their lives. They are subjected to heavy work both within and outside the house at an early age. When ill, they are less likely to receive medical help. What is more shocking is that by the age of five years, female mortality exceeds that of males by 20 percent in Bihar, Haryana, Madhya Pradesh, Manipur, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh.

In schools the situation is similar, fewer girls attend both primary and secondary schools than boys. The report stresses the urgent need to address the problems facing India's 200 million women under the age of 20.

UNICEF (1991): Grant in 'The State of the World's Children', has shown the relationship between female literacy rate, contraceptive prevalence, the Crude Birth Rate (CBR) and the maternal mortality rate. In Bangladesh, the female literacy rate is 19 percent, contraceptive prevalence is 25 percent, the CBR 41, and maternal mortality is 600 per 100,000 births. In India, the female literacy rate is 29 percent, contraceptive prevalence 34 percent, the CBR is 31 and maternal mortality stands at 340. In Malaysia, the female literacy rate is 65 percent, contraceptive prevalence 54 percent, the CBR is 32, and the maternal mortality rate is 59/100,000. Singapore at the other end of the scale has a literacy rate greater than 80 percent, a contraceptive prevalence of 74 percent, the CBR is 18 percent, and the maternal mortality rate is as low as five percent.

Sex determination by Chorion Villus Sampling (CVS) though illegal continues to be surreptitiously practiced as the desire to procreate a male child is deep-seated. This entire subject is related to several closely knit die-hard practices including reluctance to educate and difficulties in educate a female child. The anxiety of saving hard earned money for 'a dowry' and even after marriage the constant and repeated demands from the family of the groom are hard to meet. 'Dowry deaths' still continue and prior to such extreme steps, the physical and mental torture of young girls is shocking.
Motashaw, Nergesh, D (1997): A study conducted by the Indian Institute of Management found that the ratio of men to women seeking medical attention at a primary health center was 5 to 1. Because of ignorance and household responsibility women tend to neglect themselves. Maternal deaths due to hemorrhage, infection, toxemia and cardiac disease are declining in the West due to improved medical practice. Cardiac disease in pregnancy is associated with a high mortality. Heart disease can be congenital but more often it is acquired. It is the aftermath of inadequate treatment of rheumatic fever in childhood. Alveolar disease of the heart follows, which jeopardizes the life of the young girl when she is pregnant. Similarly, acute nephritis following a sore throat can lead to nephropathy and chronic hypertension. When patients with chronic hypertension are pregnant, they are prone to super added toxemia with all its serious consequences.

In India, hemorrhage (25.6 percent) ranks first as the cause of maternal death, followed by sepsis (13 percent), toxemia of pregnancy (11.9 percent), abortions (8 percent) and obstructed labor (6.2 percent) while other causes together total 35.3 percent. The incidence of ectopic pregnancy is reported to be as high as 1 in 30 to as low as 1 in 300. Most workers feel that the incidence is increasing due to the rise in Pelvic Inflammatory Disease (PID), the greater use of the IUD and the incidence of tubal surgery. In India, five million sterilizations are performed annually and when the operation fails there is an increased risk of an ectopic gestation. The new high technology of assisted reproduction is not available to most women in the world, but it is worth remembering that the world’s first test tube baby was an ectopic pregnancy (Steptoe and Edwards) and there is a high incidence of such pregnancies (5-10 percent) associated with this technique.

With improved diagnostic methods, such as the early detection of serum B-hCG, good resolution ultrasound machines particularly the use of the endovaginal probe and laparoscopy, more and more ectopic pregnancies are diagnosed before rupture, but again such a facility is available to only a few women in the world. Even in the USA, ectopic gestation is still one of the leading causes of maternal death.
**W.H.O (1991):** In most Indian data, ectopic gestation is classified under 'death from hemorrhage'. High risk factors associated with pregnancy should be recognized. They are:

- Maternal age less than 17 or over 35 years
- Maternal height less than 145 cm.
- Maternal weight less than 40 kg or greater than 70 kg.
- Last delivery within two years
- History of a previous instrumental delivery particularly a caesarian section
- History of antepartum or postpartum hemorrhage
- History of repeated abortions, stillbirths or neonatal deaths
- History of a twin delivery
- History of a pre-term delivery or of a small or large baby, and
- History of medical diseases such as hypertension, heart disease, diabetes, renal disease, tuberculosis and anemia.

With reference to abortion, 150,000 - 200,000 deaths occur from abortion annually. Of the maternal deaths, in South America, close to 50 percent are due to an abortion. Tetanus toxoid is freely available yet according to a study conducted by the London School of Hygiene and Tropical Medicine, 15,000-30,000 cases of maternal tetanus occur annually - a neglected cause of maternal mortality.

**R.G.I (1991):** AIDS is almost an epidemic in certain parts of the world. The ideal would be routine HIV testing of and counseling to all women. The health attendant must prevent HIV infection in women of child bearing age, prevent pregnancy in HIV infected women and interrupt the vertical transmission of infection from an infected mother to her child.

Important contributing causes of maternal mortality in developing countries are anemia, poverty, ignorance and malnutrition, repeated pregnancies, inter current infections, parasitic and helminthic infestations and haemoglobinopathies. The percentage distribution of deaths from puerperal sepsis
was 13.1 in 1986. It has been reduced to 8.1 in 1990 - a small but significant step in reducing maternal mortality.

**World Bank (1996):** A recent World Bank study states that India cannot fully achieve its population and health objectives until the full range of contraceptive choices is made available to Indian women and they are permitted to control the spacing and timing of pregnancies.

**Sundari (1992):** summarized the factors contributing to the high levels of maternal mortality in developing countries. They are an inadequate health care system, misplaced priorities, inaccessibility of essential health information, lack of minimal life saving equipment, and faulty patient management.

**The status of women, fertility and family planning among tribals of South Rajasthan**

**Sharma, V. and Sharma, A (1992):** In such societies, which still lead an isolated existence, far removed from the modern way of life, a wife is primarily regarded as an investment for production of labour and a childbearing housekeeper. In such societies, male dominance is a rule, and preference for a male child, a traditional compulsion. Women are considered too inferior in status to voice their views and concerns even in matters which have a direct bearing on their own health and wellbeing. Family elders and caste leaders reign supreme in the decision-making processes and prehistoric practices and primitive rituals and customs are still very prevalent.

Malnutrition among tribal women has a multifactorial aetiology with its roots embedded deep in the tribal psyche. To the tribals, who are faced with object poverty, a young woman is more importantly an earning member of the family and hence a vital asset. Pregnant tribal women are compulsorily underfed under the notion that overfeeding or even proper feeding of the pregnant mother will result in a healthy, large baby, and thereby to prolonged and difficult labour. Such a myth has forced the tribals to underfeed pregnant mothers in the hope that the baby will be small and hence easily delivered.
In rural India, a large number of girls are married off before they attain the age of 15. In spite of legislation prohibiting the marriage of girls before 21 years of age. In tribal communities, it is customary to marry children at any time during their childhood and some parents even indulge in anticipatory marriages, even before the birth of their children.

Sharma, V. and Sharma, A (1993) The study was conducted in the Udaipur district of Southern Rajasthan, which has a high concentration of tribals. Out of the 18 Community Development Blocks in the district, nine are Tribal Development Blocks, which are included under the tribal sub-plan. By the process of simple random sampling, four of the Tribal Development Blocks were selected for the study. A list of the villages in the selected tribal blocks was obtained and six villages from each of the selected Tribal Development Blocks were chosen to form the sampling frame of the study. We thus had a list of 24 villages with a high concentration of tribal population. However, we were compelled to include one more village in the study during the time of survey because of a request from the local leaders of that village to whom the inclusion of their village in the study was a matter of prestige.

Based on the objectives of the study, all the female opinion leaders and wives of male opinion leaders from the 25 sample villages were included. For the purpose of the present study, the definition of opinion leaders proposed by Rogers was adhered to, wherein opinion leaders have been defined as, "those individuals from whom others seek information, guidance and advice", and the sociometric method of identification of opinion leaders was followed.

The rationale for selecting the female opinion leaders and or the spouses of male opinion leaders for this study was that opinion leaders represent the local elite whose advice is often sought by the community. They are a mirror of the socio-cultural practices of the community, since the general population of the area tends to follow and copy their lifestyles and pattern of social behaviour. Furthermore, a study of opinion leaders obviates the necessity of stratification of the population sample according to religious, socio-economic or cultural characteristics.

Based on the above inclusion criteria, a total of 182 female opinion leaders/spouses of opinion leaders could be enlisted for our study. Out of these, 83 (45.6 percent) had received a short-term
orientation training in family planning organised by the Government of India through the local primary health care set up. These respondents were assigned to Group A of the study, while the remaining 99 had not received a formal training in family planning and were included in Group B.

Data regarding the age, socioeconomic status, educational background and other relevant general characteristics of the respondents were collected by means of a pretested, structured interview schedules. Additionally, the social status of these women was determined by scoring on a five-point equidistant scale (Appendix I). We also calculated the bias in favour of the male child in the study groups.

Results and Discussion
The present study was carried out in 25 remote villages with a high percentage of tribal population. Most of the villages do not have proper transport facilities and the majority of them are cut off from the rest of the world during the rainy season. In these villages while even the bare necessities of life like food and adequate clothing are scarce, water and electricity are unaffordable luxuries. A large majority of the population is illiterate and poverty is rampant.

Jejeebhoy Shireen (1991): The concept of the inter-relationship between the social status of women and fertility, though well established by deductive reasoning, has aroused considerable scientific debate and controversy in the past, for the mere reason that research workers had not attempted to quantify the status of women in numerical terms. Moreover, a number of vital medical parameters with social causes and consequences had been omitted in such computations. In the present study, an attempt has been made to develop a comprehensive socio-medical scale to measure the social status of women and to study fertility behaviour and family planning practices among tribal communities.

The scale was developed by taking into consideration a number of social and medical parameters such as the height and weight of adult women, their educational status, age at marriage, number of children possessed and desired, preference for male children, nutritional deficiencies (especially prevalence of anaemia and night blindness), the utilization of health care services such as antenatal care, family planning practice, and so on.
Jejeebhoy Shireen (1990): Another important factor that has been documented as having a direct and significant bearing on the fertility of a couple is the age at marriage. In our study we found that quite a large number of the respondents (35.0 percent) had been married even before attaining the age of 4 years, and not surprisingly, almost 21 percent of them had given birth to their first child when they were between 14-16 years of age.

Sharma, V (1991): The practice of family planning and the use of modern contraceptives have been known to be non-existent among tribal people. In our study as well, we observed that irrespective of the training in family planning received by about 46 percent of the respondents, they themselves or their spouses were not using any method of contraception. This significant credibility gap or KAP-Gap can only be explained by the low status of women in these societies. Tribals have been reported to depend on certain indigenous methods for family size limitation and our respondents also described a number of primitive and/or herbal-based methods of family planning with yet unproved efficacy or safety.

Begum, S, Arokiasamy, P and Acharya, R (1998): Study on factors affecting complication during delivery: An analysis of NFHS data; Factors commonly known to be associated with the risk of complications during delivery include elderly primiparity, high multiparity, short stature, low pregnancy weight for height, poor gestational weight gain, closely spaced pregnancies, history of adverse outcome of pregnancy, and maternal morbidity during pregnancy. Most of these risk factors depend on the nutritional status of the women particularly during pregnancy. To study the factors affecting complications during delivery, two states Tamil Nadu and Uttar Pradesh, were selected, the place of delivery and birth assistance were significantly and directly related to complications. The reporting of Non-instrumental delivery related complication during delivery.

Malhotra (1986): based on 67 tribes in India for which both the prevalence of HbAS in Indian tribes. He estimated that over 13 lakh, as of 1971, persons were suffering from sickle cell anemia (Hbss). He also estimated the number of homozygous individuals(Hbss). Based on 67 tribes, and as per there 1971 population sizes, the estimate works out to be about 52,000. He suggested that systematic investigations should be carried out in respect of the sickle cell trait and disease on the
following aspects; an understanding of these will help us in the better management of the disorder;
(i) Demographic studies, (ii) Sex difference, (iii) Growth and development, (iv) work capacity and
performance, (v) Disease profile.

countries are scarce. The reasons include difficulties in obtaining population-based samples and in
collecting data before and throughout pregnancy. OBJECTIVE: The objective was to measure
weight-gain patterns from prepregnancy until after delivery in a population-based sample of rural
Indonesian women. DESIGN: Two cross-sectional surveys of nutritional status among nonpregnant
women of reproductive age were carried out through a surveillance system in Purworejo District,
were enrolled in a cohort study in which weight was monitored monthly throughout pregnancy.
Prepregnancy weights and other anthropometric measures were available for 251 of the women
who had live births. RESULTS: Before pregnancy, 16.7% of the women had chronic energy
deficiency and 10.0% were obese. The mean total pregnancy weight gain for all the women was 8.3
+/- 3.6 kg, and 79% did not meet the international recommendation regarding weight gain for their
prepregnant body mass index. The rate of weight gain was highest during the second trimester
(0.34 kg/wk). In the first and third trimesters, it was 0.08 and 0.26 kg/wk, respectively. Total
weight gain was associated with prepregnant body mass index, education, and socioeconomic
status. CONCLUSIONS: Many women in rural Central Java, Indonesia, enter pregnancy with
suboptimal nutritional status. For most of these women, total weight gain during pregnancy is
insufficient. It is likely that this contributes to adverse health outcomes for both the mothers and
their newborns.

Giddens JB, et al (2000) this study has examined the dietary intake of pregnant adolescents during
the second and third trimester of pregnancy, and to compare their nutrient intake with that of
pregnant adults. DESIGN: Two 7-day food records (14 days) from subjects participating in a larger
randomized clinical calcium trial: the first at 19 to 21 weeks and the second between 29 and 31
weeks gestation. Intake of energy and selected nutrients were calculated and compared with dietary
standards. SUBJECTS/SETTING: Fifty-nine pregnant adolescents and 97 pregnant adults recruited
from prenatal clinics at a metropolitan university hospital. STATISTICAL ANALYSES: Two
sample t tests, equality of variances, and repeated measures (analysis of variance). RESULTS: There was no difference in mean nutrient intakes between the second and third trimesters. Using two 7-day food records, we found mean intakes for energy, iron, zinc, calcium, magnesium, folate, and vitamins D and E to be below recommended standards in both groups. Other nutrients examined met or exceeded reference values. Total daily intakes for energy and 11 nutrients were significantly higher in the adolescent compared to the adult diets (P < .05). These differences were not evident when nutrient values were corrected for energy, indicating that increased energy intake in the teen-aged population was contributed by nutrient-dense foods. APPLICATIONS: This study indicates the need for continued dietary monitoring of pregnant adolescents and pregnant adults, including nutrition guidance that stresses food sources of calcium, magnesium, zinc, iron, fiber, folate, and vitamins D and E, the nutrients found deficient in their diets.

Pena E, et al (2003) A sample of 215 adolescents (16.9 +/- 0.7 y; 13-18 y) from a low socioeconomic level of Valencia, Venezuela, at their first trimester of pregnancy were studied in order to identify nutritional risk. Socioeconomic, anthropometrical, hematological and dietary characteristic were assessed. Premenstrual weight, actual weight, height, arm circumference (AC), triceps skin fold (TS), fat and muscle area (FA/MA) and pregestational body mass index (PBMI) were determined. Hemoglobin (Hb) and ferritin were measured by colorimetric and ELISA methods. Two 24 hour recalls were obtained. According to age, two groups were created. Pregnant adolescents were grouped by age: Group 1, 13 to 15 years old and Group 2, 16 to 18 years old. Nutritional risk was defined as: Gynecological age lower than 4 years since menarche. PBMI < 19.8 kg/m2, height below 10th Percentile of reference, Hb below 11 g/dL and ferritin < 12 micrograms/L. Almost all the adolescents (96.3%) were in poverty. 83.3% were single, 83.3% were at elementary school before pregnancy but 84.1% were attending house chores at the time of exam. There were significant differences (p < 0.001) for gynecological age and menarche age, but not for anthropometrical, hematological and dietary variables when Group 1 was compared to group 2. 35.3% of the adolescents had a gynecological age lower than 4 years, 23.3% were below 10th percentile for height, 36.3% had a PBMI lower than 19.8 kg/m2, 26.5% were below 10th percentile for arm circumference, anemia was present in 13.7% and low levels of ferritin in 18.4% of the adolescents. Calorie intake was below recommendation in 87.3% and adequacy for vitamin A and C, calcium and zinc were below 2/3 of recommendation in 36.3%, 25.9%, 88.7% and 73.5% of the
adolescents respectively. Studied adolescents had a high prevalence of risk factors for nutritional deficiencies (short age, poverty, low weight, anemia and deficient intake). Early assessment of this conditions allows to identify the risk, to establish interventions and to monitor pregnancy evolution.

Kapoor AK, Kshatriya GK (2003) Selection potential based on differential fertility and mortality has been computed for six tribal groups inhabiting different geo-climatic conditions, namely: Sahariya, Mina and Bhil of the State of Rajasthan, north-western India, and Munda, Santal and Lodha of the State of West Bengal, eastern India. Irrespective of the methodology, the total index of selection was found to be highest among Lodhas (0.668), followed by Sahariyas (0.524), Santals (0.462), Bihils (0.386), Mundas (0.353) and Minas (0.334). Incidentally, Lodha and Sahariya are two of the seventy-four notified primitive tribal groups of India, and these two study populations show the highest index of total selection, mainly because of a higher embryonic and postnatal mortality. The relative contribution of the fertility component to the index of total selection is higher than the corresponding mortality component in all tribal groups. The analysis of postnatal mortality components indicates that childhood mortality constitutes the bulk of postnatal mortality, suggesting that children under 5 years need better health care in these tribal groups.

Dimension of Health and Tribal Health

The Constitution of WHO (1948): defines health as a state of physical, mental and social well-being and not merely the absence of disease or disability. The 30th World Health Assembly in 1977 referred to "Health for All" slogan as a level of health that will permit people to live a socially and economically productive life. Mahler (1979) who elaborately examined this concept suggests that the people must use better methods than the existing ones in order to lead socially and economically satisfying lives for not only preventing the disease but also to overcome the miseries of life long diseases and disabilities as also the processes connected with growth and old age still death.

The WHO's definition of health when considered from a practical point of view in the context of primitive peoples, or their forerunners of the preliterate time, it will be much above a mere elimination of disturbances that can make a person feel not at ease to make the life rewarding and
successful, going beyond the level of the living tribal populations we find that the ancient man during the course of his evolution has adapted himself very well to the environment of his times characterized by quite treacherous, bewildering and unfavourable climatic conditions as well as other kinds of threats and dangers posed by food shortage, microbial parasites, wild animals, or even by his own counter parts.

**Socio-Cultural Dimensions**

The success of the formulation of suitable health care programmes and their effective implementation such that these are accessible and acceptable to the tribal communities lies in the appraisal of the socio-cultural and psychological dimensions attributed to the health beliefs and practices broadly constitute a part of their cultural matrix, besides socio structure and organisation and therefore it would be important to study the distinctive notions of various aspects of disease and health as also the medical practices such as the diagnosis and prognosis and their organisation with reference to different aspects of the society, including the ever-changing mechanisms of adaptation in different societies and cultures.

The proper study of the tribal health practices according to traditional systems must also entail the process of their interaction with the modern systems to understand the acceptance or rejection of the latter and their implications. This would enable the understanding of the mechanics of change as well as the nature of change in their systems. This has to be further linkup with the tribal community as a whole to delineate the concepts of disease causation or other aspects of traditional system in relation to other aspects of the society. Experience has shown that the tribal people have their own concepts of health and diseases which may be social and cultural ranging from customs, practices, beliefs, values to medical care.

The notions regarding disease causation have been reported by a number of scholars (Elwin, 1955; Opler, 1963; Mathur, 1982; Sachchidananda, 1986; Swain, 1986; Ali, 1986 and others). Elwin has shown that the saoras associate a number of Gods with various disease afflicting children, pregnant women, animals, and so on, and those are cured by supplicating and propitiating the respective Gods believed to be responsible for various diseases.
Mathur (1982): studies the tribes of North Wynad in Kerala with reference to the different diseases, the causes attributed to them, and the methods of the treatment. Sachchidananda (1986) observed that the Munda old men and women are quite knowledgeable not only in the preparation of herbal medicines but also their administration. So also in other tribes like Santhals, Singhohos and Noctes of Arunachal, Muria Gonds of Bastar and others, the diseases are believed to be caused by the nature itself, evil spirits and so on. In yet another study among the tribals of Phulbani in Orissa, Swain (1986) reported a number of diseases (dental caries, gum diseases, fever, Malaria, tuberculosis, diarrhoea, vomiting, anemia, avitaminosis, Scabies and Skin diseases), their perception of cause and pattern of remedial measures by tribals. Ali (1986) reviewed the indigenous health and medical practices among the tribes in different parts of the country.

In any case the nature of treatment is given according to the type of the disease and also the type of causation that ranges from religious rites, supernatural or human and physical actions, magic, omens and taboos.

**Biological Dimensions**

The biological studies among Indian tribes or among castes and religious groups have not been done systematically to derive meaningful conclusion of academic research importance or of social relevance. As rightly averred by Kirk (1978) one gains the impression that the bulk of the work in this area has been done on an adhoc basis lacking the necessary coordination or longterm goal in view. There is not a single study on which data of all types ranging from demographic and socio-cultural environment, covering individual records, mating records, and social factors affecting fertility and survival; health status and disease pattern covering medical history, physical examination of all individuals, laboratory investigation and pathology; genetic and other physical data covering serological and biochemical genetics, (blood group antigens, enzymes, haemoglobins, serum groups enzymes and antibodies; tests on saliva and urine, etc); other genetic markers (cytogenetic studies, colour blindness, ability to taste, etc); morphology (measurements of body dimensions, dental studies, dermatoglyphics) and physiology to data on physical and
biological environment covering climatological and geological studies, botanical studies and zoological studies as recommended by WHO (1964 and 1968) for the study of primitive groups.

Gupta and Dutta (1966): the most extensively studied biological characters among Indian tribes are the anthropometric and anthroposcopic characters. Data for these are available for over 150 tribes mostly from males. These show the three morphological types among the Indian tribes; the Negritos in Andaman Island; the Nishadic or Australoids in Southern Western, Central and Eastern India and the Mongoloids in the Sub- Himalayan ranges, particularly the northwest. A few of the tribes belong to the Europoid type.

Roy Choudhury (1976): Studies on consanguinity have been conducted among a number of tribes. The northeastern tribes show very low level of inbreeding (0.002-0.003) where as in southern and western India it is much higher than 0.005. The tribals prefer to marry between the first cross cousins and in Andhra Pradesh, it is between uncle and niece. The coefficients of inbreeding among the tribals are on the whole higher than in non-tribal populations.

The nutritional status of the tribal population which together with their economic status determines their health status is not satisfactory according to the surveys conducted by the National Institute of Nutrition (1971), Gopalan (1971) and the planning commission of India during the sixth five year plan those of certain individual workers (chitre et.al, 1976, Pingle, 1975). Rice is their staple diet besides fish and meat of all kinds. The diet with high Protein Calorie Malnutrition (PCM) led to many nutritional deficiency disorders such as goitre, angular stomatitis, infections and parasitic diseases. There are no systematic dietary surveys, the study of the associated social-cultural and economic factors.

Mahapatro Meerambika and Kalla A. K (2000): Health seeking behavior in a tribal setting, the study was conducted in six tribal villages of Nabrangpur district of Orissa. The villages were selected on the basis of accessibility of health services and other facilities. A total of 621 Bhattara women from 473 households of six revenue villages were studied. The results confirm that 'quick therapy' is considered as a part and parcel of allopathic system among tribals. However, for any kind of illness, Bhattara women used home remedy on priority basis. It was also observed that
tribal women were not against the use of modern allopathic treatment in spite of the prevalence of the extensive use of traditional treatment. Interestingly, though their work output reduced significantly during their illness, they were not used to take bed rest, unless they were seriously ill. Since they believe that measles (gundi) and chickenpox (maa) occur due to the wrath of the goddess (thakurani) on the patient, they visit the 'desari' rather than a medical practitioner.

Deshpande R.V (1998): his study was carried out alongside an operations research study of spacing method undertaken by the population Research centre, Dharwad during June-Sep 1994. In this survey based on the performance of spacing method, two primary health centres (PHCs) were chosen randomly and from these PHC. 20 villages were selected using the probability proportion to size method. The result of this study show that children below four years of age and the elderly(60 +years of age) have higher levels of morbidity as compared to other age groups. The analysis also revealed higher morbidity among females than males and indicated that poor, landless people, muslims, and those living in kachcha houses had higher levels of morbidity as compared to those who were better off, those who owned cultivated land, caste Hindu or SC/ STs and members of pucca house holds respectively.

Begum S Arokiasamy, P and Acharya R (1998): They study on factors affecting complication during delivery: An analysis of NFHS data, Factors commonly known to be associated with the risk of complications during delivery include elderly primiparity, high multiparity, short stature, low pregnancy weight for height poor gestational weight gain, closely spaced pregnancies, history of adverse out come of pregnancy and maternal morbidity during pregnancy. Most of these risk factors depends on the nutritional status of the women particularly during pregnancy. To study the factors affecting complications during delivery, two states Tamil Nadu and Uttar Pradesh were selected, the place of delivery and birth assistance were significantly and directly related to complications. The reporting of non-instrumental delivery related complication during delivery.

The study group of ICSSR-ICMR (1981) took cognizance of the relationship between health of the people, the surrounding and considered health care services necessary but not sufficient. It noted: “Health is a function not only of medical care but of the overall integrated development of
society cultural, economic, educational, social and political. Health also depends on a number of supportive services nutrition, improvement in environment and health education”.

The review of the studies attempted by Graham and Reeder (1977) clearly points out that the socio-economic status is closely associated with hypertension, blood pressure, coronary diseases, different types of cancer and tuberculosis. The vulnerability to and prevalence of serious illness were found to be greater among the poor. The explanation offered by scholars for this phenomenon includes poor housing, crowded living, low income, lack of education and a strained environment. Among several socio-economic status variables, education is reported to be the most closely related to health.

Monica Sharma (1991): Many factors influence maternal health. The genetic constitution, exposure to disease producing organisms imbalanced or inadequate nutrition, low resistance to infection, all determine health. In addition, social, cultural, economic, political and environmental factors, as well as the availability of health services, greatly influence the health of individuals. Attitudes to marriage, age of marriage, the value attached to fertility and sex of the child, the pattern of family organization and the ideal role demanded from women by social conventions –are all cultural norms that affect the women’s health. Overcrowding and squalor are compounded by ignorance and cultural taboos. For example, pregnant women in the rural northwest regions of India are often not given the extra calories and proteins they require because of the belief that increased food intake during pregnancy results in large babies culminating in difficult labour.
2.2 Theoretical perspective

The present study is a modest effort to understand the theoretical perspective of the research problems. The study is encompassing the Todas health through structural functional perspective. Sewell W.H (1992), Social Structure A term loosely applied to any recurring pattern of social behavior; or more specifically, to the ordered interrelationship between the different elements of a social system or society. Thus, for example, the different kinship, religious, economic, political and other institutions of a society may be said to comprise its social structure, as might such components as its norms, values and social roles. The essence of this concept is those social relations that seem to be of critical importance for the behavior of members of the society, so that if such relations were not in operation, the society could not be said to exist in that form. Structure is generally agreed to be one of the most important but also most elusive concepts in the social sciences.

Peter Blau’s point that the social structural view emphasizes differentiation, and heterogeneity and that value orientations are taken into account only indirectly. The differentiation and heterogeneity to which Blau gives primary preference to variability in the things people do, and objectively can do, to each other, rather than variability in the things they think or feel about each other.

Talcott Parsons declared through his work The Structure of Social Action, that essential to the action frame of reference is a normative orientation of action, a teleological character... (and) the normative elements can be conceived of as “existing”, only in the mind of the actor. In a publication 33 years later, he defined “acts”, as behavior to which their authors and those who significantly interact with them attribute, in Weber's phase, a 'subjective', which is to say cultural or symbolic meaning. Moreover, Parsons has consistently held that the purposive orientations that define action are themselves explained by purposive orientations, in so far as the latter guide socialization and the social control of role expectations.
**Homans C. George**, What do we mean by "social structure"?

As used by sociologists, **Structure**, seems to refer first to those aspects of social behavior that the investigator considers relatively enduring or persistent. What is relatively enduring may include a number of different kinds of things. It may include formal organizations, such as the Church of Rome. The church certainly changes, but some of its features change relatively slow. What is relatively enduring may include institutions, such as marriage, which are not organizations but which are subject to organizations, but which are subject to organizational control, for instance by the courts.

The functionalism of **A. R. Radcliffe-Brown**: The concept of function applied to human societies is based on an analogy between social life and organic life and that the first systematic formation of the concept as applying to the strictly scientific study of society was performed by Durkheim. Radcliffe-Brown tried to indicate how some of the problems of organismic analogizing might be overcome. For him, the most serious problem with functionalism was the tendency for analysis to appear teleological. Durkheim's definition of function pertained to the way in which a part fulfills system needs, Radcliffe-Brown emphasized that, in order to avoid the teleological implication of such analysis, it would be necessary to "substitute for the term needs the term necessary condition of existence." In doing so, he felt that no universal human or societal needs would be postulated rather, the question of which condition were necessary for survival would be an empirical one, an issue that would have to be discovered for each given social system. Furthermore, in recognizing the diversity of conditions necessary for the survival of different systems, analysis would avoid asserting that every item of a culture must have a function and that items in different cultures must have the same function.

The Functionalism of **Bronislaw Malinowski (1884-1942)**, was reintroducing Spencer’s approach. It offered a way for modern sociologists to employ functional analysis. Malinowski’s scheme reintroducing two important ideas from Spencer: (1) the notion of system levels and (2) the concept of different and multiple system needs at each level. In making these two additions, Malinowski made functional analysis more appealing to 20th-century sociological theorists.
In Malinowski’s scheme, there are three system levels: the biological, the social structural, and the symbolic. At each of these levels, one can discern basic needs or survival requisites that must be met if biological health, social-structural integrity and cultural unity are to exist. Moreover, these system levels constitute a hierarchy, with biological systems at the highest level Malinowski stressed that the way in which needs are met at the next level in the hierarchy. Yet, he did not advocate a reductionism of any sort; indeed he thought that each system level reveals its own distinctive requisites and processes meeting these needs.

In analyzing the structural system level, Malinowski stressed that institutional analysis is necessary. For Malinowski, institutions are the general and relatively stable ways in which activities are organized to meet critical requisites. All institutions, he felt have certain universal properties or "elements" that can be listed and then used as dimensions for comparing different institutions. These universal elements are:

1. Personal: Who and how many people participate in the institution?
2. Charter: What is the purpose of the institution; what are its avowed goals?
3. Norms: What are the key norms that regulate and organize conduct?
4. Material apparatus: What is the nature of tools and facilities used to organize and regulate conduct in pursuit of goals?
5. Activity: How are tasks and activities divided? Who does what?
6. Function: What requisite does a pattern of institutional activity meet?

Many sociologists use social structure, to refer to some kind of social whole, which can be divided, at least conceptually, into parts and in which the parts are in some way interdependent, at least in the sense that a change in some of them will be associated with changes in some of the others. In this meaning, a structure is distinguished from a mere aggregation. Sometimes sociologists make a stronger and less easily demonstrated claim that a change in any one of the parts will produce changes in all the others.
Structural Functionalism seems society as a whole system that is a set of interrelated parts, which together forms as a total. The basic unit of analysis is society and its various parts are institutions like ‘family’, is part of the social system rather than as an isolated unit. In particular, it is understood with reference to the contributions it makes to the system as a whole. The early functionalists often drew an analogy between society and an organism such as human body. They argue that an understanding of any organ in the body such as the heart or lungs, involves an understanding of its relationship to other organs and in particular, of its contribution towards maintenance of the organism. In the same way, an understanding of any part of society requires an analysis of its relationship to other parts and most importantly of its contribution to the maintenance of society. Continuing this analogy, they argue that just an organism has certain basic needs which must be satisfied if it is to survive, so society has basic need which must be met if it continues to exist.

The social structure of the Toda society is unique in nature. This structure has defined parts as institutions for its survival. Each part is doing its own role to maintain the social structure by adopting specific value system. Hence, family is considered as a separate system which function towards the formation and development of social system. But the family has a subsystem while defining the role of its family members. Many of the sociologists have stated their idea about social structure as social whole that is encompassing society as a structure with many interrelated parts as their institutions. In their approach, family is considered as special institutions that are subject to organizational control. The health seeking behaviour and knowledge on health of the Todas are very much related to their socio-cultural set up. The religious practices and believe systems are profoundly influencing their health practices. Toda tribes are common in their supernatural belief system like all other tribes in India.