



Tribal Health

Issues, challenges & Way Forward

Dr. Jayanta Choudhury



Tribal Research and Cultural Institute,
Govt. of Tripura, Agartala

TRIBAL HEALTH

Issue, Challenges & Way Forward

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**TRIBAL RESEARCH AND CULTURAL INSTITUTE
GOVERNMENT OF TRIPURA**

Tribal Health : Issues, Challenges & Way Forward
Dr. Jayanta Choudhury

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Message

It is well recognized that improvement in the health status of population is both an important means of increasing productivity and economic growth as well as an end in itself. The importance of improvements in health is also acknowledged in the Sustainable Development Goals of the UNDP, which calls for a dramatic reduction in poverty and improvements in health, especially of the poor. In India, with its vast majority of poor population, ensuring the good health of the people is a challenging task.

Tribal people constitute a significant proportion in population of India and cultural pattern varies from tribe to tribe and region to region. More over cultural settings, eco-system, magico-religious beliefs and treatment etc. influence tribal health and health seeking behaviours. Since independence various plans, programmes have been taken to improve the health status of Tribal people but, in reality, in many parts of India they suffers from chronic infections and diseases out of which water borne diseases are life threatening.

Under this back ground an International Seminar on “Tribal Health: Issues, Challenges & Opportunities” was held on 6-7 April, 2015 organized by Centre for Rural Studies (CRS), Department of Rural Management and Development, Tripura University in collaboration with Tribal Research and Cultural Institute, Government of Tripura. Many renowned academicians, dignitaries and policy makers participated the seminar and presented their valuable papers.

Present edited volume is the outcome of the seminar and hope it will be immense helpful for the readers, researchers and policy makers.

I congratulate Dr. Choudhury and wish a grand success of the present volume.



Shri. Sunil Debbarma

Director

Tribal Research and Cultural Institute,
Government of Tripura

Place: Agartala
Date: 08 / 08 / 2018

Foreword

Improving tribal health requires remedying two major factors of underdevelopment: overcoming social discriminations which the tribal community in India as in Tripura suffers from; and tackling the problem of lack of health care which in some ways can be considered to have reached crisis proportions in India and is even more acute among tribals. Therefore addressing tribal health and its twin conundrums presents a daunting challenge to development practitioners which is the subject of this collection of papers presented at the International Seminar on Tribal health organized by the Centre for Rural Studies, Tripura University in April 2015.

If inclusive and sustainable development is to be achieved in India, the tribal population which comprises about nine percent of the total population of India cannot be left behind and must be fully involved in the process of development. Unfortunately, even after seventy years since India's independence, the tribal population still remains far behind in development compared to the rest of the country. For example, around half of the tribal population continues in extreme poverty; in all major health indicators too the tribal population has fallen significantly behind the general population and assessments of overall life expectancy of the tribal population compared to the general population places the former significantly lower than the latter.

Improving health requires more than health interventions alone. Literacy and education have an important role to play, particularly literacy of women who are primary nurturers and care givers. Availability of clean water and sanitation is also critical to prevent water borne diseases and illnesses caused by lack of hygiene. Physical infrastructure also plays a key role. Electricity enables rural health centres to perform better; and roads are required for better access to health facilities and travel by health personnel. All this means that attention to growth and development particularly of tribal areas is essential to allow better health care of tribal populations.

Highlighting these priorities is important if the tribal health problem is to be remedied urgently. I hope this volume will go a long way to help in this mission.

Dr. Shiladitya Chatterjee IAS (Retd.)

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Preface

India has the second largest concentration of tribal communities in the world next to Africa. According to 2011 Census, in India there are 104,281,034 persons of Scheduled Tribes which comprises of 8.6% of total population. These groups inhabit widely varying ecological and geo-climatic conditions (hilly, forest, valley regions etc.) in different concentration throughout the country with distinct biological isolates along with rich cultural, poor socio-economical background. They have developed strong magico-religious health care system and wish to survive with a livelihood of their own style.

Health is a prerequisite for human development and is an essential component for the well being of the mankind. It finds a predominant place in three of the eight goals, eight of the sixteen targets and eighteen of the forty-eight indicators of the “Millennium Development Goals of the UN”. It is the most important social service sector having direct correlation with the welfare of the human being. The concept of health, disease, treatment, life and death among the tribes is as varied as their culture. The health problems of any community are influenced by interplay of various factors including social, economic and political ones. Tribal populations generally have poor health outcomes, often because of healthcare delivery system that does not cater to their needs. They are routinely marginalized and deprived of their access to fundamental resources. Inferior health outcomes can be attributed to inadequate access to health care facilities and medical services among the Scheduled Tribes. Again, due to remoteness and isolation, 75 Particularly Vulnerable Tribal Groups (PVTGs) have been identified by Government of India in 15 States/Union Territories for taking up special-socio-economic development and health-care-facility-based programmes.

The human development approach is well known. Human capabilities can be improved enhancing health status, nutritional status, education, income, empowerment, equity, etc. and it depends on the opportunity that exists. According to the World Bank, there are three objectives of sustainability: Social (full employment, equity, security, health, education and participation), economic (growth, efficiency and stability) and environmental (healthy environment for humans, rational use of renewable natural resources and conservation of non-renewable natural resources).

Tripura ranks second highest among the North-eastern states of India after Assam with the average annual exponential growth rate of 1.39% as revealed from the data of Census - 2011. The state ranks seventeenth position in terms of density of population, although, it is the second smallest state in the entire country after Goa. Tribal women are

still lacking behind in comparison with their class sisters which may be due to illiteracy, lack of awareness, lack of financial support etc. Though the empowerment of tribal women is in steady progress, an immediate action by the government, society and tribal community is very necessary to empower the tribal women. In spite of the government taking initiative steps in improving the living condition of the tribals, but in reality the tribals are still lacking in many facilities such as drinking water, proper sanitation, primary health center, pucca road, nutritional food security and quality education. It is in the hand of the government and people who are in-charge of the various schemes to make the facilities provided beneficial for the tribals of Tripura. Therefore tribal identity dynamics in Tripura is important as so many inter-community relations and socio-economic development are intimately connected to the question of identity, which belongs to where in the regional ethno-cultural scheme. Tribal identity or ethnicity is a community level consciousness and solidarity.

There is no denying the fact that environment, economic status, education, availability of facility, awareness etc. have played a vital role in ameliorating the status of health care practices of tribal masses. Under this background an International Seminar on “Tribal Health: Issues, Challenges & Opportunities” was held on 6th & 7th April, 2015 organized by Center for Rural Studies (CRS), Department of Rural Management and Development, Tripura University in collaboration with Tribal Research and Cultural Institute, Government of Tripura. The main objectives of the said seminar were :

- I. To review overall situation of Tribal Health status in India especially in the state of Tripura.
- II. To share the best practices on promotion of Tribal Health & Hygiene.
- III. To find out the challenges for uplifting health status among Tribal.
- IV. To come out with strategies for development of Tribal health status in Tripura.

Researchers, academicians and health practitioners from different part of the country and from neighboring country as well submitted and present their paper. Total 68 Nos paper was submitted under different sub-theme based on the seminar topics amongst the all **34 Nos** of papers had been selected and published in 8 Nos sub-themes. The present publication is especially devoted to development of health features of India as well Tripura with special reference to indigenous people.

Apilang Apum and Dr. Lijum Nochi's paper entitled, 'Utilisation of antenatal care services among Adi tribe in rural Arunachal Pradesh: A case study of Mebo sub division' is a comprehensive and analytical research paper. The paper was an attempt to study the factors associated with the utilisation of maternal health care as well as its barriers. It was important to communities, families and the nation due to its profound effected on the health of the women, immediate survival of the newborn and long term well being of children, particularly girls and well being of families. **Dr. H Saha's** findings revealed in his paper that the mentally unhealthy group of school-going tribal students had higher family tension than the healthy group. Mental health of boys and girls appeared to be considerably influenced by the two factors: intelligence and physical health. Moreover, in the above context, the objectives of the study were to find out significant differences between the school-going tribal boys and

the tribal girls in mental health, and to find out whether students having high mental health possess more qualities of good citizenship than the students possessing low mental health. **Prasanta Deb and Prakash Ch. Dhar** tried to investigate the nutritional and growth status of Tripuri children of South Tripura using anthropometric measurements. The study suggested that comprehensive approach required identifying the truly undernourished children of the Tripuri populations. The research paper of **S.Das** also explained the problems and causes of infant mortality and child mortality in tribal people of North-East India. In this first segment **A. Saha, Dr. S Biswas and Dr. A.C Baishya** tried to reveal that the health service delivery was developed faster in non-tribal concentrated areas compared to tribal concentrated areas. The existing infrastructure and services were also less utilised by tribal population compared to their non-tribal counterparts due to lack of awareness and socio-cultural compulsions. The paper of **D. Debbarma** was based on secondary information to assess the health status of Tribal women and children in the state. Few indicators were considered like their nutritional status, maternal health, anemia, antenatal care, morbidity and mortality rate, RTI/STI and mental health. An attempt had been made to explain those factors affecting Tribal health and measures of possible strategies were suggested towards reduction and prevent of those prevalent communicable deceases.

The second segment of the volume dealt with the papers related to general health and poverty or economic factors. **Dr. B. C Pal** in his paper attempted to find out the reasons for their backwardness and the possible chances for their upliftment and finally make them economically stable to combat with the health problem. The paper titled as *“Impact of Poverty on Health Status of the Tribals of Tripura”* by **H. Theresa Darlong and H. Deb Barma** tried to concentrate only to the tribals of TTAADC area and the paper studied the impact of poverty on health status of tribals and discuss on the strategies for development of tribal’s health of Tripura. The paper of **Dr. R. Dutta** presented an overview of the different health hazards faced by the tribals of Odisha, since the state occupies a special position in the tribal map of India. The study also highlights some of the initiatives taken by the Government as well as Non-governmental organisations for reducing the burden of the diseases faced by the Tribals. Unless locality specific, tribe specific and need-based health care delivery system is evolved which is appropriate, acceptable, accessible and affordable, the goal of health for all would remain a Utopian dream. The purpose of the study of **Dr. U. Singh and Dr. S. K. Nag** was to study the growth pattern of urban tribal of Tripura and to find out their physical status and also to suggest suitable programmes and strategies to improve the nutritional status and proper management of health.

The third segment of the book tried to focus on the correlation of Water, Sanitation, Environment, Education and Health. The study of **Dr. S. Biswas and D. Debbarma** dealt with the issue of education and health of the tribal in the Tripura. Issues related education and health were discussed and attempt was made to highlight the level of literacy reached among tribal and the status of tribal health. The Study of **Dr. B. Baidya** tried to focus the degradation of natural environment of Tripura and main causes of present distress. According to the researcher people of Tripura suffer from various kinds of illness and it was considered that human health was intimately connected to the surrounding environment. Several

diseases were due to poor indoor and outdoor pollution and many more diseases were due to poor environmental condition leading to contamination of water, food, soil etc. **Nilimanka Das** in his paper emphasized on sanitation and hygiene as a factor of ill health. Amongst all open defecation was one worst facet of it and inflicts enormous harm to human health and largely lethal to the children under the age of five. Practicing open defecation polluted ground water, contaminated agricultural produce and unveils the community to the water borne diseases like Diarrhoea, Dysentery, Cholera, Hepatitis A, Typhoid and constrained the normal growth and cognitive development in children. The paper of **R. Debbarma and Dr. A Bhattacharjee** reviewed the overall situation of mental health status of the tribal youth in India, especially in the state of Tripura. In addition the paper attempted to suggest some need based measures for improving mental health and well-being of different tribes of India. The joint study of **Dr (Mrs) J. Dey and S. K Sarkar** found a complex relation in between health status, education and poverty the among tribal people in the tea garden areas with special reference to Barak valley. The study as a whole found education element had an impact on the community health scenario. The paper **R Shahani and K. Choudhury** explored the nutritional status of scheduled caste and scheduled tribe women. The study further examined about the impact of education in nutritional health. According to **S. K. Mallick**, Education and health were commonly devolved functions to increase the social progress. Residents of rural and remote communities continue to show poorer health outcomes than residents in metropolitan cities, while the health of indigenous communities remains unacceptable.

The next portion of the book sequentially arranged on the topic of Food Security, Nutrition and Health. The study of **S. Chakraborty and B. Sen** focused on the commercial status of wild healthy and nutritional food resource in Tripura state, which were mainly brought by the tribal people in the village market of tribal dominated areas and same was purchased in lot by the vegetable tribal vendors of urban areas. This paper highlight the role of forest plants and products on tribal people mainly the rural those had traditional indigenous knowledge about healthy and nutritional forest vegetables. **Dr. S. Biswas, A. Saha and Dr. A.C. Baishya** jointly found that reducing Infant and Child Mortality was a key goal among eight Millennium Development Goals. Huge and strategic investments are being made by Government and VHND was one of the best steps to reduce IMR in Tripura. The paper on '*CNS Depressant Activity of Young Stem of Melocanna Baccifera a Traditional Tribal Food Ingredient*' found that the Tribal's most common traditional food ingredient was *muia*. It had the CNS depressant property. The study of **S. Roy Sarkar and S. K. Shil** aimed to determine the current prevalence of malnutrition among rural tribal boys from Tripura, in the adolescent age range of 8+ to 16+ years. This study indicated toward the necessity of nutritional intervention for upgrading the nutritional status of the rural tribal adolescent boys of Tripura. The group study of **M. Nath, S. Gangopadhyay & R. Bhowmik** tried to identify the anthropometric characteristics and nutritional status of adolescent Tripuri boys of Agartala, Tripura and found a vast majority of the adolescent Tripuri boys of Agartala, was malnourished. Age group 12 was worst sufferer.

The section Traditional Ethno Medicine & Ethno Botany comprised of 14 Nos of papers. The paper of **S. Debnath** discussed about the lack of ethics in medical practices of India. According to author in order to develop awareness about ethical values among students, more importance should be given to the teaching of medical ethics. The objective of the study of **R. Das** was to explore and enumerate the medicinal plants used by indigenous tribal patients and indigenous tribal medicine practitioners (Kavirajes). The study revealed that tribals were primarily dependent on medicinal plants for the treatment of different diseases at minimum cost and had to improve their health status. The next study of **H. Mazumder** dealt with medicinal plants used as folk medicines by the tribal's of Tripura. As such the work started with an introduction to tribal food and food habits with special focus on Tripura tribal communities.

The last but not the least part of the book chapter was on Occupational Health Hazard, Health Insurance & Health Care Practices. The research paper on HIV of **C. Mishra** narrated about the knowledge, awareness and attitude of Bodo community towards HIV/AIDS. The paper revealed that adult Bodo people had a fairly good knowledge regarding HIV, but there still persisted a considerable misconceptions and prejudices towards HIV and people living with HIV. The research study of **Prof. S.C.Srivastava and R. S. Bunghai** examined the service delivery mechanism and regional disparities in the performance in the eight districts of Mizoram. The study also found that beside the four 'High Prioritized Districts, viz: Lawngtlai, Lunglei, Mamit and Saiha districts categorized by the GOI based on their performance on IMR, MMR and RMNCH+A services, there was a lot of inter-district disparities in terms of infrastructures as far as health facilities were concerned. The paper of **R. Shahani and M. Brahma** tried to understand the reproductive health awareness among married Bodo women and utilization of reproductive health care services. As awareness or knowledge leads to action which provides inputs for changing health behaviors of the people by giving new information motivating for adopting new behaviors and stopping harmful practices. The Study of **A. Das and D. Banerjee** proposed to develop a system which can be utilized by Health Workers in the remote areas of Tripura to detect cervical cancer in the tribal women. The study mainly conducted on Challenges in Detection of Cervical Cancer in the Tribal of Tripura. **S. Debnath** and **Dr. J. Jhouthury** and highlighted the prevalence of Persons with Disabili belonging to Scheduled Tribes category in India, Northeastern States with Special reference of Tripura. In the concluding chapter **Dr. J. Choudhury** and **M. Deb** discussed about the Status of Tribal health in Tripura, various challinges Faced by the group and also suggested some way forward to overcome those challenges.

The publication contains articles relating to health related issues and outcomes. These articles have found most useful reading materials for various research studies. Therefore these articles can be of great use to students of social science, science and other research scholars needing information on health challenges and issues in India at one place. Hope the volume will be of great use.

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Reproductive Child Health & Mother and Child Health



Utilisation of Antenatal Care Services among Adi tribe in rural Arunachal Pradesh : A case study of Mebo Sub-Division

Apilang Apum and Dr. Lijum Nochi

Introduction

A nation's growth is not just all about tallying balances sheets but also about evaluation of the Human well being. As such, the status of health care services is one critical measure. Maternal healthcare is important to families, communities and the nation due to its profound effects on the women health, survival of the newborn and for the long term well being of children. Maternal death and illness have not only cost implications to aggrieved families and the community but also adversely impacts on productivity. Maternal mortality and morbidity indicates not only how well the healthcare system, but also the degree of equity in public service delivery, utilisation and the social states of women. While the fifth Millennium Development Goals (MDGs) emphasises upon reducing global maternal mortality ratio (MMR) by three quarters between 1990 and 2015, the least progress has been made in this regard¹. During 1990-2008, global MMR declined by an average of 2.3 percent annually, much less than the required rate of 5.5 percent to achieve the target (United Nations, 2010).

For the developing countries the average MMR (450 maternal deaths per 100,000 live births) is 50 times higher than the developed counterparts (9 maternal deaths per 100000 live births).² with regard to India, annually about 28 million pregnancies takes place with 67000 maternal deaths, about a million women are left with chronic health issues and another million suffers neonatal healths⁴. Neonatal mortality in India is about 36/1000 live births and it accounts for 50 percent of infant deaths (NFHS-3, 2005-2006). According to ICMR (India Council of Medical Research) about three quarter of all neonatal deaths occur during the first week of life and about 20 percent of it takes place in the first 24hours. A common factor for such death is due to poor maternal health and healthcare system that is preventable, provided a good health care system and access to it is in place.

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Maternal health care comprises the health of mother during pregnancy, childbirth and post-partum period. In India, the union government have initiated RCH (Reproductive and Child Health Care) Programme in which “maternal care” is one essential component. It includes health care delivery system right from Antenatal Care, Safe Delivery till Post Natal care. Unfortunately many women do not receive these services, especially, in rural areas. At the global level, during 2006-2013, about 91 percent of women received at least one ANC, but only 56 percent of them received the recommended minimum. The case of antenatal care in India is comparatively low with only 77 percent out of which about 91 percent were from urban areas (NFHS-3). Similar is the case with institutional delivery at 41 percent of which only 29 percent are in rural areas. Percentage of women receiving postnatal care is 42 percent of which 34 percent are in rural areas 66 percent for the urban areas.

In India, the inter-regional diversity is an important factor determining the use of maternal health care. Amongst the different components of maternal health care services, use of antenatal care varied from 32% in Rajasthan to 98% in Kerala. The coverage for vaccination (Tetanus) was more than 90% in Kerala, Tamil Nadu, and Goa, while it was 45% in Uttar Pradesh, Madhya Pradesh, and Rajasthan. Less than 30% of mothers in Nagaland, Bihar, and Uttar Pradesh received iron and folic acid tablets, while it exceeded 84% in Kerala, Goa, and Tamil Nadu. In case of Arunachal Pradesh, utilisation of maternal health care services is far below the national average with only 36.6 percent of the women receiving at least 3 or more antenatal care. However, the utilisation of these services differs from district to district and from urban to rural areas. Women living in urban areas access these services more often than those living in rural areas. In urban areas 56.6 percent utilised maternal health care services compared to 28.3 % in rural areas (NFHS-3, 2005-06).

Nonetheless, over the years there may have been an increase in the utilisation of maternal health care services, more particularly more amongst the rural women. Therefore, this paper is an attempt to highlight to what extent rural women access to the basic health care services available to them during pregnancy particularly Antenatal care and to identify the factors that are associated with the utilisation of it as well as its barriers.

Brief Survey of Literature

Studies suggest that utilisation of maternal health care services are determined by a host of factors. The desire to become mother is captured as one determinant of maternal health care utilisation (Erlindawati et al; 2008). Contrarily, unintended pregnancy is posited as public health problem that predisposes women to maternal deaths, through unsafe abortions and poor maternity care (Wado et al; 2013). Self motivation and knowledge about health care services too is seen as having increased impact on utilisation of it. Motivations may come from husband, relatives or health professionals. Studies also suggest husband education as having profound impact on utilisation of maternal health care services (Chakroboty et al, 2003).

Numerous studies have been carried out in relation to birth order and use of maternal health care with contrasting results. Younger women are more likely to access maternal health care than the older one (bloom et al; 2001). Such might be due to the fact that the

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expectant mothers are already experienced and can take care of the subsequent pregnancies. It is perceived that associated risk is more with first pregnancy (Thind et al; 2008). Hence, more women are expected to seek maternal health care services in first birth order than others. Consequently, the use of maternal health care services is likely to decrease with increasing birth order (Arthur, 2012). Nonetheless, contradictory results are also found where more of the middle aged women were found preferring institutional delivery than younger ones (salaam et al; 2006). In fact, maternal health care services are often sought to be accessed more during second birth order. However, the access to health care services decreased with birth order more than two (Jat et al; 2011). Thus, there has been no concrete stand in regard to the birth order and access to maternal health care; it rather seemingly depended upon the context.

Better educated women are expected to be more aware of health care issues and its utilisation. In fact, mother's education is one of the most important factor that determines the use of maternal health care services (Matsumina and Gubhaju; 2001). With increased level of education, awareness as well as rate of maternal health care utilisation also increases. So mothers with higher levels of education make better utilisation of maternal health care services (Olayink et al 2013). A similar result was concluded in a study where mother's education had positive impacts on maternal health care utilisation (Govindasamy and Ramesh; 1997). Moreover women with primary education and secondary education were found utilising antenatal care and health facility for delivery than the illiterate (Assfaw et al; 2010).

Exposure to mass media, as it increases awareness and knowledge changes attitudes, social norms, behaviours, thereof, brings about positive public health outcomes. Therefore, policy efforts in improving education, spreading health care information through media and providing a better local network of health workers goes a long way in augmenting development through improving the health of the mother and the child (Sheriff and Singh, 2002). Hence, improving the empowering women by expanding educational opportunities, strengthening promotion of antenatal and delivery care (DC) by enhancing community awareness about the importance of ANC and DC are often recommended (Birmeta at.al, 2013).

Use of maternal health care services is also seen from location, spatial and ethnic dimensions. It was found to be varying among the scheduled tribe's women from region to region. Women in North-Eastern states are twice as likely to deliver in institution compared to those of central India, 54 percent more likely to receive assistance from trained health professionals for delivery but less likely to receive complete antenatal care services than the women of central states (Shah and Belanger; 2011). The place of residence also influences the use of maternal health care. Level of utilisation of maternal health care amongst the urban women is found to be relatively higher compared to rural counterparts. This is explained partially by easy access to health facilities and partly by awareness and exposure. The rural counterpart, on the other hand, are more readily influenced by traditional practices, contrary to modern health care (Mekonnen and Mekonnen; 2002).

In addition to it, the community and institutional factors also shapes the level of use of maternal health care, such as the presence of anganwadi centre in a village. The effectiveness of the anganwadi, in this respect, provides a rationale for expanding the range

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of health information and primary care available at the centre for maternal and child health (sharan; 2005). As pregnancy is perceived as a natural process of life, and going for institutional delivery may be purported as futile exercise. Therefore, women; families and communities may underestimate the importance of antenatal care, which in turn, acts as a barrier to access of the maternal health care. Individual or community perception and awareness too contributes a lot to the utilisation of maternal health care. As such, the use of these services is also influenced by the factors like ignorance of antenatal care facilities (Birmeta et al; 2013). Of course, the willingness and the ability to access such services play crucial role in determining access to maternal health care. In fact, both awareness regarding the need for institutional delivery, willingness and the ability to go to medical institutions are important determinants to the access of maternal health care (Digamber et.al, 2011).

Income and wealth is another determinant that may effects the decision to utilise maternal health care. The wealthier the family is, more likely it is for a women to get better access to maternal health care and institutional delivery (Desai et al; 2006). More intense are the rate of non-utilisation of maternal health care by the families of lower income strata. Women from families living below poverty line are less likely to use maternal health service comparing to women above poverty line (Jat et al; 2008).

The health of mother depends partially on their access to maternal healthcare services and is an important determinant in its utilisation, socially in developing countries. Because of the high cost associated with the services, the poor are less likely to access maternal health care services. As time allocation for women in the rural areas for acquiring health facilities are limited due to pre-occupation with the household activities, the distance from the health facilities influence the use of maternal health care services. Inadequate transportation facility especially in remote areas and poor road conditions can make it extremely difficult for women to reach even relatively nearby facilities. Thus, closer the distance to health facility, more is the utilisation of ANC, postnatal care and delivery in health facilities (sharan et al, 2005). There are numbers of literatures which studied the determinants of utilisation of maternal health care services in different parts of India. But no literatures are available in the context of Arunachal Pradesh except some reports in the health department.

Objectives of the study

The objectives of the study are as follows:

1. To highlight to what extend Antenatal care is access by the Adi Tribe in rural Arunachal.
2. To study the factors associated with the utilisation of maternal health care particularly Antenatal care.
3. To highlight the barriers that is associated with the utilisation of Antenatal care.

Methodology

The study is descriptive in nature and cross sectional in design. Considering previous studies and knowledge it was considered indispensable to use both qualitative and quantitative methods. By using both qualitative and quantitative tools, more rigorous and

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rich data can be collected and this is expected to enrich and improve the findings of the study. For quantitative part, sample size was determined by the number of households in a particular village. From each selected villages 15 percent of the household were covered. The attempt was made to select more villages of the study area to make the sample more representative. Out of 14 villages where Adi people resides 11 villages were covered in the field survey. Data were collected through semi-structured questionnaires. The total number of household surveyed was 247. As the sampling was Purposive in the nature that only those households in which women had at least one delivery in the last five years preceding the survey, were selected for interview. At least 15 percent of the total household in bigger villages were interviewed and for small villages like Aohali and Bodak all were covered.

Area of the study

The area of the study is Mebo sub-division of East Siang district. It is situated in the midst of three district headquarters i.e. about 130 kms north from Yingkiong, the district headquarter of Upper Siang; 20 kms East from Pasighat, the district head quarter of East Siang and 125 kms west from Roing, the district headquarter of Dibang Valley District at an altitude of about 342 m above sea level. The area is well linked by P.W.D and National Highway (NH-52A). It lies roughly between 27° 55' N and 28° 25' N latitudes and 95° 15' E to 95° 35' E longitudes. There are 18 villages under Mebo sub-division spread over an area of 810.746 Sq.km. The name of the villages are Mebo, Ayeng, Bodak, Silluk, Aohali, Motum, Sigar, Ralling, Kiyit, Ngopok, Borguli, Seram, Kongkul, Namsing, Mer, and Gadum. Further it is divided into two blocks i.e. Mebo- Banggo and Monggu Banggo. The first eight villages come under Mebo- banggo and the rest six villages come under Monggu-Banggo. It has a total population of 14474 out of which 7381 are males and 7093 are females (census, 2011). The area is inhabited by Adi, Idu Mishmi and Mishing Tribes. Agriculture is the main occupation. There is one community health centre (CHC), two primary health centres (PHCs) and four sub-centre (SCs) in the study area.

Antenatal care utilisation in Arunachal Pradesh

Any programme is successful, if implementation includes the participation of target beneficiary. It becomes, therefore, important to analyse how the programme is functioning and how beneficiary are responding to it. The utilisation of ANC in Arunachal Pradesh is comparatively low with about fifty percent (50.4) of pregnant women receiving ANC irrespective of socio-economic background (DLHS 3, 07-08). The proportion of women who received at least three ANC is 46.2 percent and about 36.1 percent of them receiving it during first the first trimester. The Health Management Information System (HMIS) reports that during 2013-14 only 39.67 percent of women received three antenatal check-up while about 38.8 percent opted for institutional delivery.

Antenatal care utilisation in Mebo Sub division

About 72.9 percent of women who had at least one delivery in the last five years preceding the survey had received ANC in Mebo subdivision.

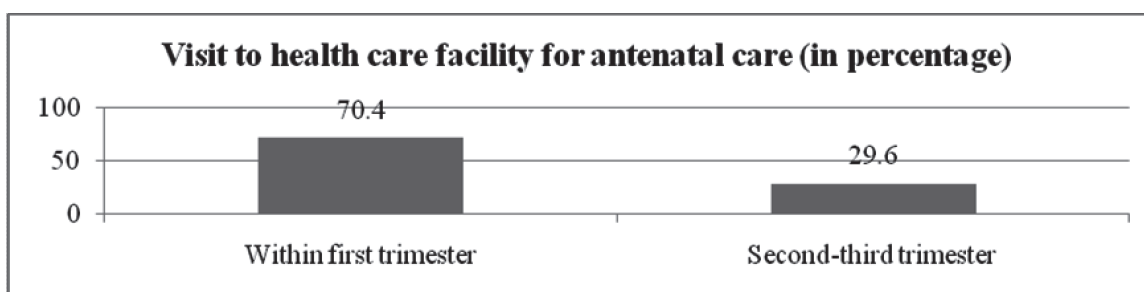
Table no.1: Availability of ANC

Whether Received ANC	Percentage
Yes	72.9
No	27.1

Source: own computation from field survey, 2014

The timing of ANC is important for early detection and diagnosis of any health complications. Figure 1.1 gives us the months of pregnancy at which the mother received ANC. Accordingly, 70.4 percent visited health facility for ANC during the first trimester while 29.6 percent within second-third trimester for the first time.

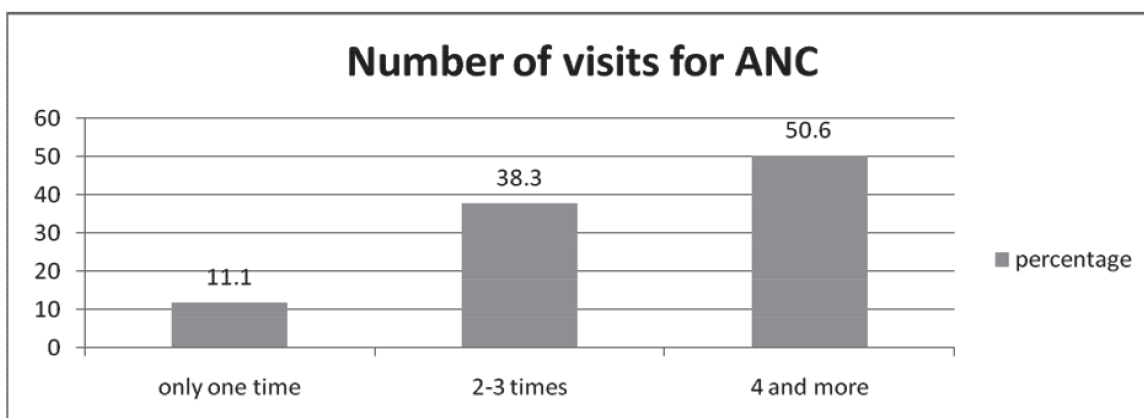
Figure 1.1: Visit to health care facility for antenatal care



Source: Own computation from field data, 2014

It is also important to know whether the mother received minimum recommended antenatal visit or not. The government through JSY scheme encourages pregnant women to undergo at least four antenatal check-ups. Therefore, mothers who received ANC are classified into three groups with only one time, 2-3 times and 4 and more ANC visits. This is shown below in Figure 1.2 About 50.6 percent of the pregnant women received minimum recommended ANC. Pregnant women who received only one ANC are about 11.1 percent while that of 2-3 times are 38.3 percent.

Figure 1.2: Number of visits for ANC



Source: Own computation from field data, 2014

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Number of tablets women taken Iron and Folic Acid Tablet Table no-2

Pregnant Women are recommended daily supplementation of Iron and folic acid tablets as a public health intervention for the purpose of improving pregnancy outcomes and reducing maternal anaemia in pregnancy. Attempts were also made to study how much women received Iron and Folic acid (IFA) tablets during pregnancy. Accordingly it was categorised into different categories as given in Table 2.

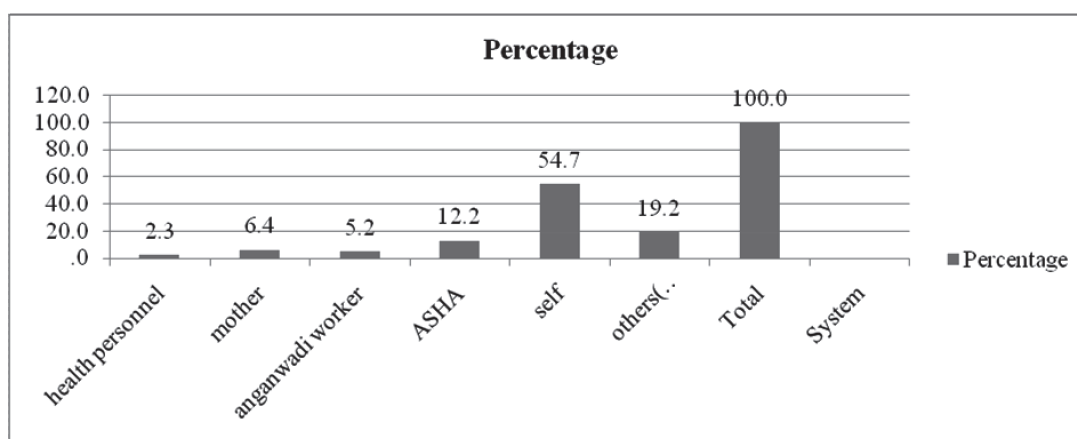
Number of IFA tablets taken	Percentage
1-30 tablets	23.1
30-60 tablets	5.7
60-90 tablets	5.3
not taken	66.0

Source: own computation from field data, 2014

It is seen from the above data that 5.3 percent of women have 60-90 tablets which was lowest and 23.1 percent received 1-30 tablets. While 66.6 percent of women does not took IFA.

Self awareness is important for adoption of health care services. However, decision to opt ANC are also strengthened through encouragement and motivation from health professionals, relatives etc. The influence during pregnancy to avail health care facilities by encouragement and motivation from others is captured in the Figure 1.3. About more than half (54.7%) of the women received ANC based on self awareness. Accordingly, about 19.2 percent of pregnant women are influenced by the category others (which includes husband, friends etc) and 12.2 percent by ASHA workers. The health personnel could not motivate nor influence the targeted group adequately as it accounted only 2.3 percent which is lowest.

Figure 1.3: Percentage of women advised for ANC by various categories



Source: Own computation from field data, 2014

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Factors associated with the utilisation of Antenatal care

The various factors that capture the utilisation of ANC are mother's age, mother's education, distance from the health facility, birth order, complications during last pregnancy, mother's occupation, problems during last delivery. The various factors are sub-divided into different categories as shown in Table No 1.

It is found that the utilisation of ANC decreased with the increase in age, particularly after 29 years. The percentage of utilisation of ANC in the age group 15-19 years is 66.7 percent while in the age group 20-29, it is highest. Thereafter it declined proportionately to 71.2 percent and increases to 100 percent for the age group 30-39 and 40 and above respectively.

As far as the level of education is concern, it is found that the percentage of women utilising ANC increases with the increase in education though it is not constant at all levels. 63.4 percent of women with no education availed ANC visits. About 76.2 percent of those who attained primary level education availed ANC while about 73.9 percent were those who attained middle school. The percentage of those who attained secondary level education is less (66.7 percent). However, it increased to 78.6 percent for those with higher secondary and 90 percent for those with degree and above. In general, with exception secondary level, availing of ANC has positive relation to level of educational attainment.

Contrary to the literature claims that mother living nearer to the health facility access more ANC than those living farther, this study finds that mother living farther from the nearest health facility (87.5 percent) access ANC more than those living nearer (70.7 percent). Utilisation of ANC is also found to be influenced by child birth order. With the increase in the number of births, mother visits for ANC check-up is found to be less. The utilisation of ANC is highest for the first birth order (83.6 percent) followed by 2nd-3rd birth order with 83.6 percent and 62.3 percent in the birth order of more than three. Thus, an inverse relationship is also found in case of birth order and the utilisation of ANC.

Economic factors are also likely to effect the utilisation of ANC. However, in this study only one aspect of economic status of the occupation of mother is taken into account. Attempt is made to identify the relationship between occupational status of the mother and the utilisation of ANC. The data generated from the field survey reveals that utilisation of ANC increased with higher occupational status of the mother. The percentage of utilisation of ANC by the farming mothers' is 71.9 percent and 100 percent amongst those in services and 70.6 percent in case of the others. As such, the economic status as well the first birth order seemed to influence the ANC utilisation.

The previous history of bad health and complicity during pregnancy and delivery also influence utilisation of ANC. Results from field data indicates a positive relationship between complicacies during pregnancy and ANC utilisation. About 83.8 percent of the mothers with health problems during pregnancy received ANC compared to 63.9 percent without health issues. Similarly, mother who experienced complication at delivery accessed ANC (81.6 percent) more compared to those without complications (18.4 percent). As such, the health issues and delivery complicity appears to be one major determinant of utilisation of ANC.

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Table 3: Factors associated with the use of ANC

Characteristics of mother	Whether receive ANC?		
	Yes (%) N=193	No (%)	N=86
Mothers age at last birth	15-19 YEARS	66.7	33.3
	20-29 YEARS	73.9	26.1
	30-39 YEARS	71.2	28.8
	40 and above	100	0
Mother's level of education	No education	63.4	36.6
	Primary	76.2	23.8
	Middle	73.9	26.1
	Secondary	66.7	33.3
	Higher secondary	78.6	21.4
	Degree and above	90.0	10.0
Distance from the nearest health facility	0-5kms	70.7	29.3
	6-10kms	87.5	12.5
Birth order	1 st	83.6	16.4
	2 nd - 3 rd	72.4	27.6
	More than three	62.3	37.7
During your pervious pregnancy did you suffer from any health problems?	No	63.9	36.1
	Yes	83.8	16.2
Mother's occupation	Farmer	71.9	28.1
	Services	100.0	
	Student	73.7	26.3
	Others (business, labour...)	70.6	29.4
During delivery did you experience any problems?	No	18.4	29.3
	Yes	81.6	70.7

Source: own computation from field data, 2014

Barriers to the utilisation of antenatal care

Although utilisation of maternal health care seems reasonably good, still many do not have access to it. Table 4 shows the reasons for not accessing ANC. Majority of the women (26.1 percent) responded visit to health care facilities for ANC as unnecessary. Absence of complications during pregnancy and delivery accounted for 23.6 percent while 18.8 percent responded as feeling shy.

Table 4: Barriers to the Utilisation of ANC

Barrier	Percentage
Not necessary	26.1
Feel shy	18.8
Health facility too far	1.4
No time to go	4.3
Absence of complications during pregnancy	23.6
Not responded properly	4.3
Others(lack of knowledge, not customary, cost too much, poor quality service)	21.7

Source: Own computation from field data, 2014

Major Findings

1. While there is an increasing trend of utilising ANC in the age group of 20-29 years, it decreased thereafter. The utilisation of ANC in the teenage age group is relatively low. This may be because teenage pregnancy is usually seen as illegitimate or as taboo shying them away from institutions delivering ANC. The utilisation of ANC is found to be highest in the age group of 20-29 years. This, of course, is also the standard marriageable age and wherein women are matured, productive and fertile. The utilisation of ANC beyond the age group of 20-29 years decreased. This is partly explained by the fact that women are now more experienced to take care herself and partly by the higher birth order.
2. The utilisation of maternal health care is found to be influenced by level of education. Nevertheless, the effect of education is not constant across all levels. For instance, in case of ANC, it decreases in the secondary level of education. However, the general tendency is that of increasing and positive. With higher level of education, mothers are more aware and knowledgeable about health care and pregnancy related complications. In addition, education imparts feeling of self-worth and self-confidence which are critical in bringing about changes in health-related behaviour.
3. Contrary to the expectation the study finds a positive relationship between distance from the health facility and the utilisation of maternal health care services. Mothers living nearer the health facility have less access to ANC than those living relatively far. This may be due to the effect of education, awareness, ASHA workers etc which influence ANC utilisation.
4. In relation to cost associated with the utilisation of maternal health care, it is found that mother's occupation also determines the use of maternal health care. Mothers who are in farming pursuits are found to consume less of maternal health care services than that of those who are in services and other sectors. It may be recalled that the study area is rural and agriculture not yet been commercialised. It thus leaves farming households with output but without incomes. Hence, employment status or income has an important bearing in determining the use of maternal health care.

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5. Birth order is found to be negatively associated with the utilisation of maternal health care. Because of the perceived risk associated with the first birth order, women seek more maternal health care. Thus, utilisation of maternal health care is higher in first birth order. With the increase in birth order, utilisation of maternal health care decrease. Such might be due to realisation by expectant mothers that she is experienced to take care of the subsequent pregnancies. This may possibly be explained by the fact that women with higher birth orders have had no difficulty during the previous births. Also, as number of children increases in the household, women have less time for herself and greater household chores that interfere in her way of accessing and utilising ANC or in going to health facility for delivery.
6. The study reveals that previous history of a complication during pregnancy, delivery or post- delivery influences ANC. The more complications and health problems mother faced during pregnancy or previous delivery, higher was the access for ANC. Thus, there is a positive relationship between the previous complications during pregnancy and delivery and utilisation of maternal health care.

Barriers associated with the utilisation of maternal health care

1. It is found that mothers perception towards the health care services are the most important barriers to the utilisation of MHC. It is found that 23.8 percent of the mothers feel not necessary to avail ANC.
2. It is observed that until and unless complications arises 21. 6 percent of the mothers did not like to avail ANC.
3. It is found that 14.8 percent of the mothers do not go for ANC as they feel shy.
4. In addition to the above three points the study has also found many factors like health facility too far, no time to go, poor quality of health services, no medical facility, no transportation etc for non utilisation for MHC.

Conclusion

The utilisation of ANC among Adi tribe in Mebo subdivision is reasonably good as about 72.9 percent of the mothers received it. Of this, more than 50 percent received minimum recommended ANC. Also, it is found that more than 50 percent accessed ANC on self awareness. Thus, over the years with improvement in health care services, mothers are more aware of the basic health care available to them during pregnancy. Factors influencing utilisation of ANC that are found significant are education, age, pregnancy complications history, occupational status, birth order.. A negative relationship between the birth order and the utilisation of ANC is found in the study which requires proper counselling awareness and guidance to avoid complications to overcome it. It also found that about 21 percent do not want ANC unless complications arise which is not encouraging. Nevertheless, public policies should not focus on education alone. Other factors, such as access to better health facilities and its availability can affects greater health-care utilisations. While some success has been achieved, there is still much to do.

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¹ world bank, 2009, p-20). World Bank, 2010, p-3.



Mental Health and Family Characteristics of School-going Tribal Students in Tripura: An Empirical Study

Dr.Haradhan Saha
Dhruba Caran Hota

Introduction

The concept of mental health is as old as human beings. In ancient scriptures there are full of references to mental diseases and their treatments. The Atharbaveda, the Charak, the Samihita, the Susurt and Astangh Sangrah have described several diseases of the mind with specific methods of treatment. They have also given the concept of mental health and how to maintain and promote. *The term mental health is not a precise term, but an intuitively apprehended idea.* The mental health of an individual depends on foundations of some basic factors, such as: a) hereditary factors, b) physical factors, c) Social factors (home, school, neighborhood and the community and d) the satisfaction of basic needs.

According to WHO (2007) Mental health is not just the absence of mental disorder. It is defined as a state of wellbeing in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully and is able to make a contribution to her or his community.

The meaning of the term 'mental health' is ambiguous; not only is it difficult to agree on its general application, even in a single context it may be used in many different ways. One conclusion, however, can be reached: mental health is not a precise term, but an intuitively apprehended idea. That is striving for scientific status at the same time serving within an ideological level.

The word 'mental' usually implies something marathons the purely cerebral functioning of a person; it also stands for his emotional- affective states, the relationships he establishes with others, and a quite general quality that might be called his equilibrium in his socio-cultural context. Similarly, 'health' refers to more than physical health; it also connotes the individual's intra-psychic balance, the fit of his psychic structure with the external environment and his social functioning. Avoiding tug of war between these two opinions one may come to an eclectic theory stating that 'mental health' means both psychological well-being and mental illness.

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The mentally healthy person, to the psychologist, is the productive and unalienated person, the person who relates himself to the world lovingly, and who uses his reason to grasp reality objectively, one who experiences himself as a unique individual entity, at the sometime feels one with his fellowman, who is not subject to irrational authority and accepts willingly to be rational authority of conscience and reasons, who is in the process of being born as long as he is alive, and considers the gift of life the most precious charms he has. Here the values are humanism, individualism, freedom and rationality.

‘Mental Health’ as analyzed by different psychologists, one will come to a compromise notion. The acceptable sets of criteria of ‘mental health’ or attitude towards the self, include accessibility of the self to consciousness, correctness of the self-concept, feeling about self-concept (self-acceptance) and a sense of identity, growth, development and self-actualization which include conception of self-motivational processes, and investment in living, integration which refers to the balance of psychic forces in the individual, a unifying outlook on life and resistance to stress, autonomy which refers to the decision-making processes, regulation from within and independent action, undistorted perception of reality including empathy or social sensitivity, environmental mastery including the ability to love, adequacy in inter-personal relations, efficiency in problem solving and adequacy in love, work and play.

The concept of positive mental health was developed by Jaheda (1958), who argued that the notion of mental health would be viewed as an enduring personality characteristic or as a less permanent function of personality and the social situation. Mental health, to her required the accurate perception of reality. She concluded with a discussion of the value assumption inherent in the concept. In her classic book: ‘Current Concept of Positive Mental Health’, Jaheda identified six approaches to the definition of mental health namely, (i) attitude towards own-self, (ii) growth development and self-actualization, (iii) integration, (iv) autonomy, (v) perception of reality and (vi) environmental mastery.

At this backdrop, the present researchers decided to investigate and measure the relationship between Mental Health and some Family Characteristics of School going Tribal Students in Tripura’.

Significance of the Study

A mentally healthy person would have a wholesome balanced personality free from inconsistencies emotional and nervous tension, discords and conflicts. The balanced personality is like the balanced physical system; it would stand firm in the midst of strain and stress. There could be no balance of personality, where there is no possibility of conflict. Two aspects are usually found in a mentally healthy person: one is firmness in his intention, and the second one is remaining undisturbed by stress and strain of life. So, many characteristics were found in a mentally healthy person. They are: sense of responsibility, sense of self-reliance, sense of direction, a set of personal values, and sense of individuality. Besides this, he should possess self-concept, concept of life, feeling of adjustment self-respect and respect for others, tolerance, balanced and matured capacities for loving and being loved, insight etc. The present researchers realized the importance of good mental

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health of the individuals in the society and choose a study on relationship between mental health and some family characteristics of school –going tribal students in Tripura.

Literature Review

Many studies have been conducted in the field of mental health. Most of the studies highlighted taking samples from school and college students' mental health during the adolescence stage. Some of the related studies and their findings are highlighted below:

Sinha and Bhan (1978) undertook a study on mental health in University students. The main objectives of the research were to assess the mental health of university students and find out its psycho-social dynamics. He used Maslow Security-insecurity Inventory, Thematic Apperception Test, and Crown and Crisp Middlesex Hospital Questionnaire. One of the findings was that the positive mode of the central figure as an important aspect of interpersonal situation was concomitant with emotionally secured mental health.

Abraham (1985) ventured a study on certain psycho-social correlates of mental health status of university students of Kerala. The aim of the study was to explore the association between mental health status and psycho-social variables for total sample and sub-samples. The main finding was twenty three out of 25 psycho-social variables, except need for knowledge and new experience and involvement in politics, showed significant correlations with mental health status, but none of the values obtained were very high, showing that the influence was not considerable. The estimation of common variance confirmed this finding.

Ostroff, J.S. et al (1996) deserved that few instruments existed for the assessment of adolescents' mental health. In order to examine the appropriateness of the Mental health Inventory for use with adolescents, secondary analyses were conducted on the large sub-sample (n=953) of adolescents who participated in the community-based Raid Health Insurance Study. The MHI, with its adolescent norms, was recommended for the assessment of adolescent mental health, particularly in studies in which comparison with a non-psychiatric, normative adolescent population was indicated.

Anithamary (2005) studied the mental health among adolescence school student in Tiruchirappalli, Srividya V (2007) Studied the Mental health and adjustment problems of students of Navodhaya, Central and State schools.

Bharathkumar Reddy K. R. et al (2011) studied the assessment of mental health Indian adolescence studying in urban schools. Mandava Neelima (2011) studied the self-confidence and mental health in relation to emotional intelligence of college students. Prasanth Kumar, J (2011) Studied the mental health analysis of intermediate students in relation to their hardiness and academic achievement. Dilip Shivane (2011) studied the family environment and mental health of the tribal and urban student. Singh, Arjinder (2011) studied the mental health in relation to spiritual intelligence altruism school environment and academic achievement of senior secondary students.

P. LavanyaKumari (2012) studied the Influencing factors of Mental Health of Adolescents at School Level. Dinesh R. S. et al (2012) studied the mental health among adolescence.

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Narmadha. U et al (2013) studied the mental health and academic achievement among student at the secondary level. Mahesh Pallor et al (2013) conducted the case study on life skills education in school mental health program in kerala. Singh, Rashee (2013) studied the Emotional maturity among senior secondary school students in relation to their self-esteem, home environment and mental health. Sathiya. S and D. Sellam (2013) studied the mental health of visually impaired children at Thantai Hans Rover high school in perambalur; Nancy R Premkumar (2013) studied the Spiritual well-being and mental health: a study of adolescents in colleges in Tiruchirappalli City.

Archna (2013) conducted study on mental health of adolescents in relation to moral judgment, intelligence and personality, Seyed Younes, Mohammadi Yousef Nejad (2013) studied the impact of life skills training on self-esteem, mental health and assertiveness. Sowndaram C. S. (2013) studied the Effectiveness of psycho-social intervention in enhancing the mental health of the adolescents.

Bharath Srikala, Kishore Kumar K. V. (2014) studies the empowering adolescents with life skills education in schools – School mental health program.

The above studies revealed the following findings in relation to Mental Health of students particularly the students belonging to the adolescence stage.

There is a highly significant positive correlation among self-confidence, mental health and emotional intelligence among adolescence. School life skill education program had significantly better self-esteem perceived adequate, coping better adjustment generally specifically with teachers in school, and pro-social behaviour. Among the tribes adolescence found to be that student were shy and withdrawn. Whereas urban student were much open and warm. There is more influence of good peer relation and healthy school environment on mental health of adolescents.

Objectives of the study

The following specific objectives are set out in the study: (1) to find out whether there is any significant differences between the school-going tribal boys and the tribal girls in mental health; (2) to find out whether there is significant differences between the school-going urban tribal students and the rural tribal students in mental health; and (3) to find out whether students having high mental health possess more qualities of good citizenship than the students possessing low mental health.

Hypotheses of the study

(1) There would be no significant difference between the School-going tribal boys and tribal girls in mental health. (2) There would be no significant difference between the urban school-going tribal students and rural school-going tribal students in mental health. (3) The school-going tribal students having high mental health would possess more qualities of good citizenship than those possessing low mental health.

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Methodology used in the Study

The present investigators were interested in finding out the Relationship between mental health and some family characteristics of school –going tribal students in Tripura. For this purpose Mental Health Questionnaire (MHQ) developed and standardized by Dr. Haradhan Saha. We have collected data from 600 school-going tribal students of Class IX of sixteen secondary schools selected randomly from the Municipality/ Nagar Panchayet and ADC areas situated in the four districts of Tripura. The investigators administered his tool on 600 students out of which three hundred were boys and three hundred were girls. Out of 600 students, three hundred students belong to rural area and another three hundred belongs to urban area. The result have been calculated using statistical measures like Mean, Median, Quartile Deviation, Standard Deviation, Variance, Skewness, Kurtosis, T-test and F-test.

Findings of the Survey

Table-1 (a): Particulars showing the Statistics of the Scores obtained by the School going Tribal Students in the Mental Health Questionnaire (HMHQ)-Gender-wise and Strata-wise:

Measures	Urban Boys	Urban Girls	Rural Boys	Rural Girls
M	67.37	66.35	66.22	65.24
Mdn	67.63	67.21	65.69	65.60
Q	5.75	5.54	5.59	4.49
SD	8.14	7.61	7.49	7.08
V	12.08	11.46	11.31	-.152
SK	-.095	-.337	.212	-.152
KU	.282	.275	.272	.241

Table-1 (b)

Measures	Urban	Rural	Boys	Girls	Total Students
M	66.86	65.73	66.80	65.80	66.50
Mdn	67.46	65.63	66.83	66.16	66.47
Q	5.53	5.16	5.24	5.24	5.42
SD	8.00	7.31	7.84	7.48	7.68
V	11.96	11.12	11.73	11.36	11.54
SK	-.225	.041	-.011	-.144	.011
KU	.270	.260	.271	.268	.267

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Table-2: Sums and Means of the Scores of the School-going Tribal Students in the Mental Health Questionnaire for ANOVA

GenderStrata	Boys	Girls	Total
Urban	2730	2655	5385
Mean	68.25	66.38	67.31
Rural	1665	2673	5338
Mean	66.63	66.83	66.73
Total	5395	5328	10723
Mean	67.44	66.60	67.12

Table-3: Sums of Squares (Ss) for Gender, Strata and Gender x Strata together with Error Variance for ANOVA

Source	df	Ss	Mean Ss	F	Level of significance
Gender	1	28.05	28.05	0.50	p>.05
Strata	1	13.80	13.80	0.25	p>.05
Gender	1	43.07	43.07	0.77	p>.05
x Strata	156	8686.02	55.68		
Within classes					
Total	159	8770.94			

Table-4: The Significance of Difference in Mean Scores in Good citizenship of the Tribal students belonging to High and Low Mental Health Group of Tribal students

Measures	High Mental Health Group	Low Mental Health Group
N	25	25
M	82.32	66.96
SD(combined)	13.13	
SE _D	3.68	
Difference in Means	15.36	
t	4.17*	

***significant at the .01 level**

Interpretation of the data and conclusion of the study

- 1) From the distribution of the scores of the school-going tribal students (N=600) in Mental Health it was apparent that the Mean, Median, Q, SD, V, SK and KU were found to be 66.50, 66.47, 5.42, 7.68, 11.54, .011 and .267 respectively. With respect to skewness the distribution approached towards normality and with respect to Kurtosis the distribution was a bit platykurtic.

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- 2) With respect to Mental Health scores the F-values for the gender, strata and interaction were found to be .50,.25 and .77 respectively. All these F-values were insignificant at the .05 level. Hence the **Hypothesis No: 1(H_1)** that the school-going tribal boys would not differ in Mental Health from the school-going tribal girls was accepted and the **Hypothesis No: 2 (H_2)** that the urban tribal students would not differ in mental Health than the rural tribal students were **retained**.
- 3) The t-value for the good citizenship scores of the school-going tribal students belonging to high mental health group (M=82.32) and low mental health group (M=66.96) was found to be 4.17 which was significant at .01 level. Thus, the **Hypothesis No: 3(H_3)** that the school-going tribal students having high mental health would possess more qualities of good citizenship than those having low mental health were **retained**.

Suggestions

1. The present researchers employed the Mental Health Questionnaire on the school-going tribal students. The findings showed that the tribal boys were a bit superior to the tribal girls in mental health. But this difference was not significant. Moreover, in case of strata, the urban tribal students were a bit superior to the rural tribal students. In this case also the difference was not significant. Though the urban and rural tribal students were closer to the extent of mental health, attempts should be taken to raise the standard of mental health of the two groups. This was true in case of tribal boys and tribal girls. This would increase the extent of mental health of the tribal students in Tripura, which would strengthen the social bond and help them live as good citizens.
2. The parents and guardians should be aware of the fact that physical health factors made significant contributions to mental health. It had been observed that continued hunger, overwork or sleeplessness would produce fatigue. Vitamin deficiencies had been found to be the causative factors in many personality difficulties. So, the guardians and the parents should take care of these factors so that their wards might not suffer from mental deficiencies.
3. The social environment shaped knowledge, skills, interests, attitudes, habits, values, and the goals of the children. Proper social and environmental factors should be provided to the tribal children to develop mentally healthy attitudes.
4. The parents and the guardians should know that mental health in childhood and later depended very much on the adequate satisfaction of fundamental or basic needs of the children. The tribal parents should provide to their wards a sense of security through love and affection. Over-protection and over-restriction should be avoided, and the wards should be allowed to think and decide for themselves independently.

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Anthropometric Measurements of Tripuri School Children of South Tripura

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Introduction

The nutritional status of children is a good indicator of the health status of a community. Malnutrition during childhood is believed to have long term repercussions on both physical growth and intellectual performance in later life. The growth and nutritional status of the children of various sections of Indian population have been assessed (Chatterjee and Mondal,1991; Agarwal et al.,1992), but the information about the tribal population is very limited (Mitra et al., 2002; Bose and Chakraborti,2005). According to census of India (Census,2011), the tribal population of India is over 104 million which constitutes 8.6% of its total population. Tripura is the third smallest state in the country it covers 10,491 km². In 2011 the state had 3,671,032 residents, constituting 0.3% of the country's population. Indigenous communities, known in India as scheduled tribes, constitute about 31 per cent of Tripura's population. Tripuri is the major tribe among the 19 tribes and many sub-tribes.

The nutritional status of Tripuri has not been investigated elaborately. The present study has been undertaken to evaluate and compare the physical growth pattern and nutritional status among 8-14 years old Tripuri children from South district of Tripura.

Materials and Methods

Anthropometric measurements were taken on 305 school going unrelated Tripuri children (Boys and Girls) of seven different schools. Most of our study subjects belong to lower income groups as evident from the socio-economic status (using modified Kuppuswamy Scale, 2013). Simple random sampling design was adhered to in drawing the sample from the tribal children. The distribution of study sample according to age and sex is given in Table-1. The selection of the subjects was confined to rural areas of Belonia south district of Tripura, having similar dietary habits and socio-economic conditions.

Table-1: Distribution of study subjects according to age and sex.

Age	Boys	Girls	Total
8+	24	13	37
9+	18	21	39
10+	22	14	36
11+	24	14	38
12+	30	27	57
13+	25	24	49
14+	23	26	49

Data regarding general information and awareness about balanced diet was collected by personally interviewing the subjects. The age was recorded as indicated in the school records. Different anthropometric measurements of the subjects were taken under standardized condition. The height was measured to the nearest 0.5cm without shoes using a anthropometer with head in Frankfort plane and weight was recorded using a personal weighing balance with minimum clothing to the nearest 0.1kg. The body mass index (BMI) of the subject was determined by dividing the weight (kg) by the squared value of height (meter). $[BMI = \text{weight}/\text{height}^2]$. Mid upper arm circumference (MUAC) was recorded with the help of flexible non-stretchable steel measuring tape to the nearest 0.1 cm, using standard technique (Lee and Nieman, 2003). Triceps skinfold (TRSF) of each child were measured to the nearest millimeter using the Harpendon skinfold caliper with a constant spring pressure of 10 g/mm². The measurement was taken over the triceps muscle and at a previously marked point, located halfway between the elbow and the acromial process of the scapula, with the skinfold parallel to the longitudinal axis of the upper arm (Johnston et.al., 1972; Malina et.al., 1972). All sites were measured on the right side of the body. Mean of the three readings in single location was accepted.

Calculations of upper arm muscle area is based on measurements of the upper arm circumference and triceps skinfold using the formula (Mann J, Thruswell S, 2002) :

$$UAMA = [MUAC - (\delta \times TRSF)]^2 / 4\delta$$

The height-weight measurements were compared with ICMR standard and MUAC with WHO standard. Different indices computed using anthropometric measurements includes the height for age, weight for age, weight for height and BMI. Based on these indices children were classified into different degrees of malnutrition according to Gomez (1965), Waterlow (1972), Waterlow et al. (1977) and WHO (1963) classifications. The BMI, weight deficit, height deficit are the best determinants of the nutritional status of individual and population.

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An alternative parameters upper arm muscle area by height (UAMAH) have been found to be reliable indices of growth and nutritional status in children (Frisancho AR, Tracer D, 1987; Bolzan et al., 1999 ; Erfan M et al., 2003). UAMAH is calculated according to the method described by Frisancho and Tracer.

The growth velocity of the children was determined by noting changes of his/her height (cm) and weight (kg) as a function of time (year).

Data are expressed as mean \pm SE. They have been analyzed using the Microsoft Excel software

Result and Discussion

Sl. No.	Age	Sex	Height (cm)	Weight (kg)	BMI (kg/m ²)	MUAC (cm)	Tricep Skin folds (cm)
1	8+	Boys	119.63 \pm 0.965	22.92 \pm 0.337	16.02 \pm 0.179	15.86 \pm 0.21	0.44 \pm 0.03
		Girls	120.8 \pm 1.326	23.54 \pm 0.327	16.16 \pm 0.255	16.05 \pm 0.27	0.43 \pm 0.03
2	9+	Boys	127.96 \pm 1.58	24.72 \pm 0.784	15.05 \pm 0.238	16.53 \pm 0.18	0.37 \pm 0.014
		Girls	127.46 \pm 1.468	26.52 \pm 1.049	16.18 \pm 0.281	16.84 \pm 0.31	0.61 \pm 0.05
3	10+	Boys	133.64 \pm 1.637	28.36 \pm 0.906	15.78 \pm 0.151	17.69 \pm 0.26	0.41 \pm 0.02
		Girls	127.06 \pm 1.18	25.29 \pm 0.62	15.65 \pm 0.266	16.99 \pm 0.28	0.58 \pm 0.06
4	11+	Boys	136.15 \pm 1.232	30.15 \pm 0.718	16.22 \pm 0.213	18.22 \pm 0.27	0.47 \pm 0.03
		Girls	139.47 \pm 1.384	33.71 \pm 1.622	18.25 \pm 0.273	16.22 \pm 0.21	0.71 \pm 0.07
5	12+	Boys	145.26 \pm 0.761	34.53 \pm 0.735	16.32 \pm 0.216	19.57 \pm 0.34	0.40 \pm 0.01
		Girls	142.37 \pm 1.31	35.65 \pm 1.18	17.49 \pm 0.407	20.42 \pm 0.37	0.86 \pm 0.06

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6	13+	Boys	149.29±1.908	39.44±1.772	17.40±0.41	21.12±0.55	0.50±0.04
		Girls	147.5±1.203	46±0.662	19.53±0.297	21.91±0.21	1.01±0.04
7	14+	Boys	157.38±1.143	46.5±1.177	18.72±0.328	22.41±0.35	0.50±0.04
		Girls	146.43±0.816	42.15±0.749	19.62±0.203	21.41±0.23	1.01±0.04

The mean and standard error of mean of different anthropometric parameters of each age group of Tripuri children are presented in Table-2, no significant difference in height, weight, BMI and MUAC values between the two gender groups was found.

When the heights of both the boys and girls were compared with ICMR standard of measurement, it was found to be lower than the standard (Figure 1a) and significant difference was found in all age groups of both the genders (Table-4).

When weights of all the children were compared with standard weight of ICMR, it has been found that the weights in both the genders are lower than the ICMR standard in early age groups (Figure-1b), there exist a significant difference in Tripuri children in all age groups (Table-5). These differences may be due to economic condition and food habits in children. Mid upper arm circumference (MUAC) of children of different age groups in both boys and girls when compared with WHO standard recorded lower.

Table 2: Mean ± SE of anthropometric measurements of the Tripuri students (N=305)

Nutritional Status

Weight-for-age : 43.37% Tripuri boys and 45.32% Tripuri girls are found to be under weight (Table-3)

Height-for-age : Both the boys and girls show higher prevalence of stunting, 57.83% in boys and 58.27% in girls according to the height-for-age parameter (Table-3)

Weight-for-height : The prevalence of wasting in Tripuri boys is 26.51% and 20.14% in girls (Table-3)

BMI : The percentage of undernutrition as assessed by BMI is 87.95% in boys and 59.71% in girls respectively.

The percentage of severe undernutrition (grade-III) is more in boys compared to girls (Table-3).

The chronic energy deficiency is a chronic imbalance between energy intake and expenditure. The high level of energy expenditure is required for physical activities and playing. This impact of imbalance is seen on both sexes. Since BMI is a result of complex interaction between nutritional intake, health status and physical activity pattern, the lesser intake of fat and protein might be affected in gaining weight and height among the children which attributed to their low socio-economic status (Urade BP et al., 2004).

The validity of estimates of UMA as indicators of body muscle and body protein has been evaluated by several investigators. UMA is linearly related to total body muscle.

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Table-3: Classification of grades of malnutrition according to Gomez (weight-for-age), Water low (height-for-age), Water low *et al.* (weight-for-height) and WHO (BMI) for Tripuri boys and girls

Types of malnutrition	N	Normal		Grade I (mild)		Grade-II (moderate)		Grade-III (severe)		Total malnourished	
		No.	%	No.	%	No.	%	No.	%	No.	%
Tripuri Boys											
Weight-for-age	166	94	56.63	59	35.54	13	7.83	NIL	NIL	72	43.37
Height-for-age	166	70	42.17	74	44.58	19	11.45	03	1.81	96	57.83
Weight-for-height	166	122	73.49	36	21.69	05	3.01	03	1.81	44	26.51
BMI	166	20	12.05	42	25.30	32	19.28	72	43.37	146	87.95
Tripuri Girls											
Weight-for-age	139	76	54.68	50	35.97	13	9.35	NIL	NIL	63	45.32
Height-for-age	139	58	41.73	52	37.41	29	20.86	NIL	NIL	81	58.27
Weight-for-height	139	111	79.86	26	18.71	02	1.44	NIL	NIL	28	20.14
BMI	139	56	40.29	26	18.71	16	11.51	41	29.50	83	59.71

Upper arm muscle area by height (UAMAH)

Figure 2a shows that at the earlier developmental stages of height, growth curves of UAMAH in boys are below or around 15th percentile of the reference data of Frisancho and Tracer, but as the height increases growth curve of UAMAH shows average values based on the statistical criteria given by A.R. Frisancho and Tracer (1987).

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Figure 2b shows at the earlier developmental stages of height, growth curves of UAMAH in girls are above or around 15th percentile of the reference data of Frisancho and Tracer, but as the age increases growth curve of UAMAH shows values below average based on the statistical criteria given by A.R. Frisancho and Tracer (1987).

The growth velocity, which is calculated from height and weight of the subjects (data from present investigation as well as from ICMR report) are shown in Figure 3a, 3b, 3c and 3d respectively, it may be noted that peak velocities of height and weight of Tripuri boys were found at the age of 12 years and 14 years respectively. The peak velocities of Indian boys, obtained from ICMR data were same in respect of height with that of the present data but different in terms of weight.

The peak velocities of height and weight of Tripuri girls were found at the age of 11 years. The peak velocities of Indian girls, obtained from ICMR data were different from that of the present study.

In the present study the highest rate of growth had been noticed at the age of 12 to 14 years in case of Tripuri boys and at the age of 11 years in case of Tripuri girls. These findings indicated that boosting of growth is not only dependent on energy consumption but other factors also influence the growth rate. It is largely their genetic make up which sets up the tempo of growth and development. However, this developmental status has a lot of bearing on the child with respect to his/her physical performance as also to their social status and peer relationships. Different hormones may play some important role in this regard.

Table 4: Distribution of Tripuri boys and girls by height versus age

Age in years	Boys				Girls			
	No. of Cases	Mean (in cm)	S.D	t-Value	No. of Cases	Mean (in cm)	S.D	t-Value
8+	24	119.63	4.63	-10.846**	13	120.80	4.59	-6.337**
9+	18	127.96	6.49	-4.217**	21	127.46	6.57	-5.138**
10+	22	133.64	7.50	-3.887**	14	127.06	4.25	-10.985**
11+	24	136.15	5.91	-7.02**	14	139.47	4.99	-4.211**
12+	30	145.26	4.09	-7.678**	27	142.37	6.68	-5.976**
13+	25	149.29	9.35	-4.039**	24	147.5	5.77	-5.236**
14+	23	157.38	5.36	-4.916**	26	146.43	4.08	-12.951**

(**P<0.01 with respect to ICMR standard)

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Table 5: Distribution of Tripuri boys and girls by weight versus age

Age in years	Boys				Girls			
	No. of Cases	Mean (in kg)	S.D	t-Value	No. of Cases	Mean (in kg)	S.D	t-Value
8+	24	22.92	1.62	-6.768**	13	23.54	1.13	-4.463**
9+	18	24.72	3.23	-4.181**	21	26.52	4.69	-1.026
10+	22	28.36	4.15	-2.69*	14	25.29	2.23	-9.546**
11+	24	30.15	3.44	-5.506**	14	33.71	5.85	-0.669
12+	30	34.53	3.96	-4.719**	27	35.65	6.02	-2.84**
13+	25	39.44	8.68	-2.178*	24	42.42	3.17	-1.486
14+	23	46.5	5.52	-1.275	26	42.15	3.75	-6.602**

(**P<0.01,*P<0.05 with respect to ICMR standard)

Figure 1a

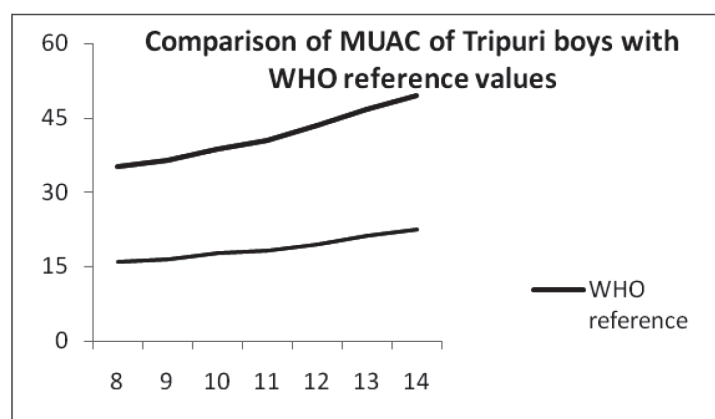


Figure 1b

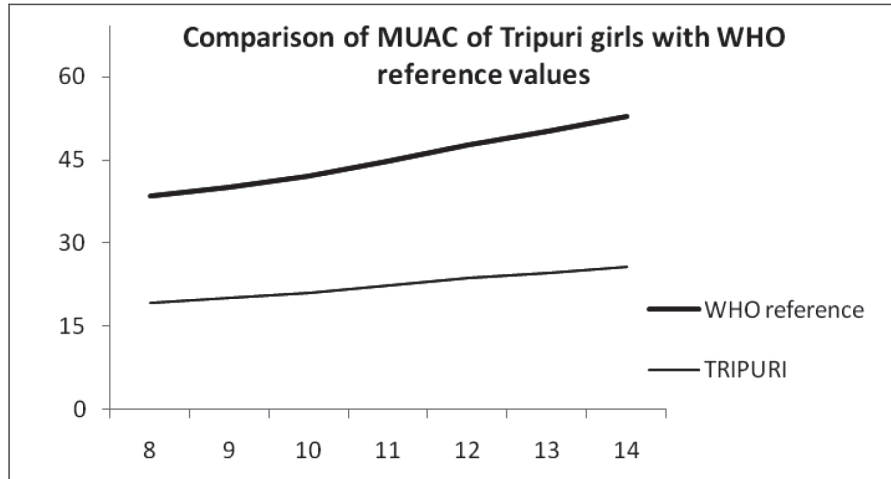
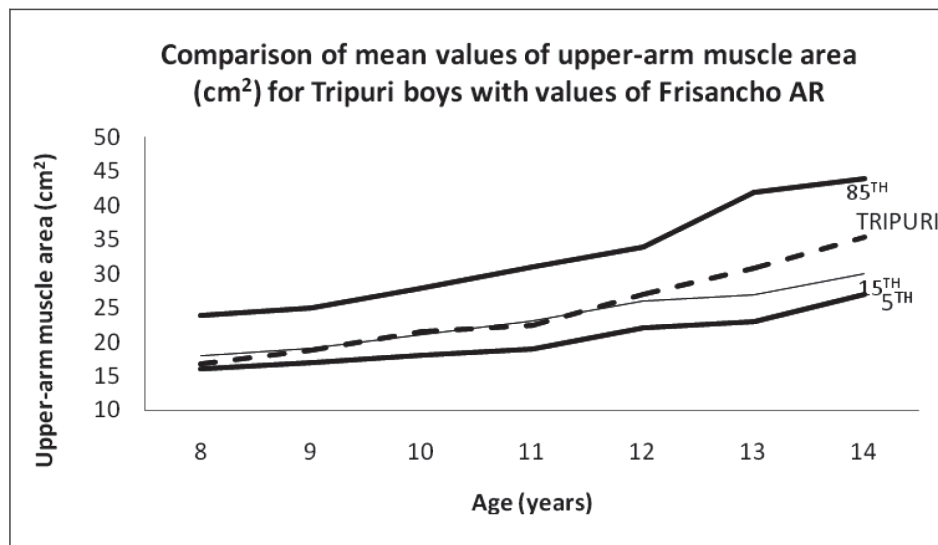


Figure 2a



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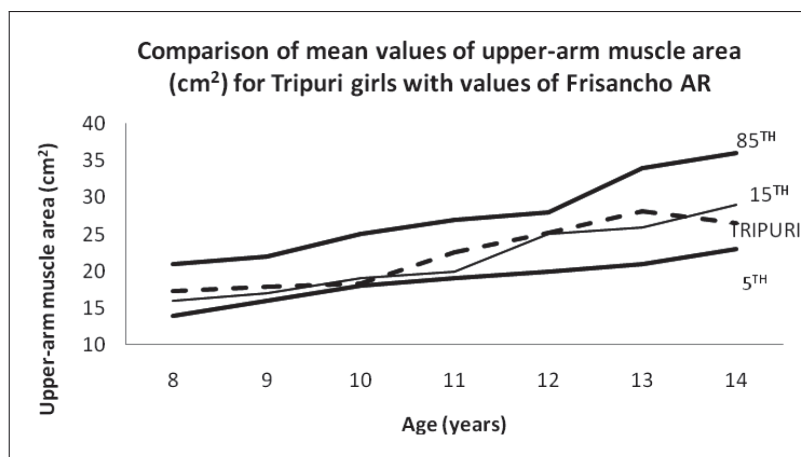


Figure 3a

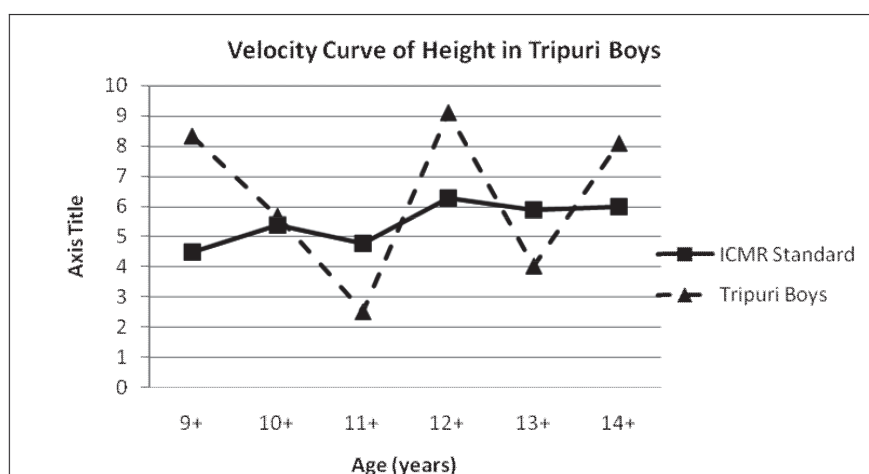


Figure 3b

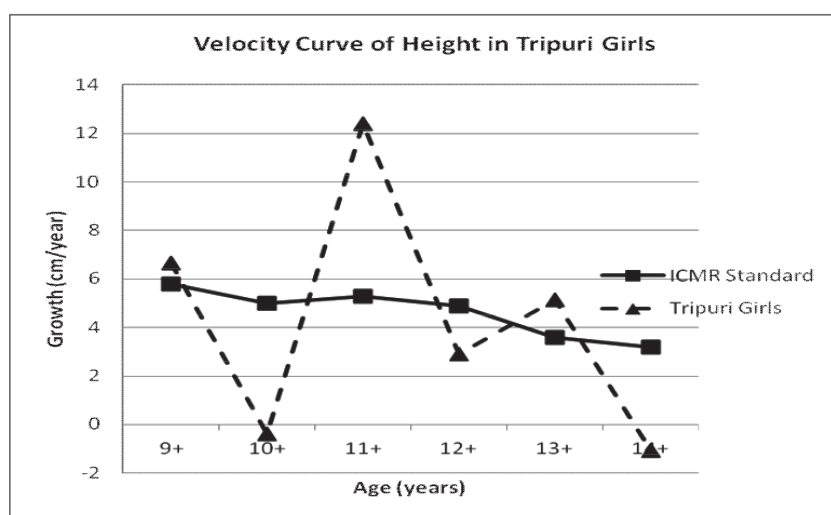


Figure 3c

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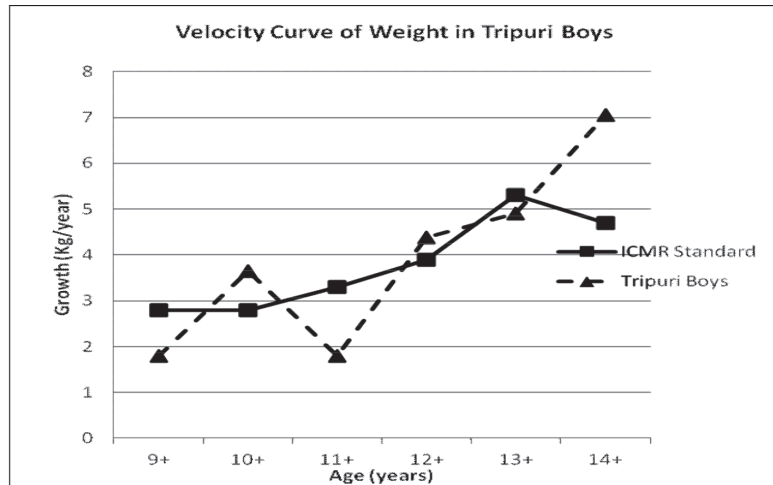
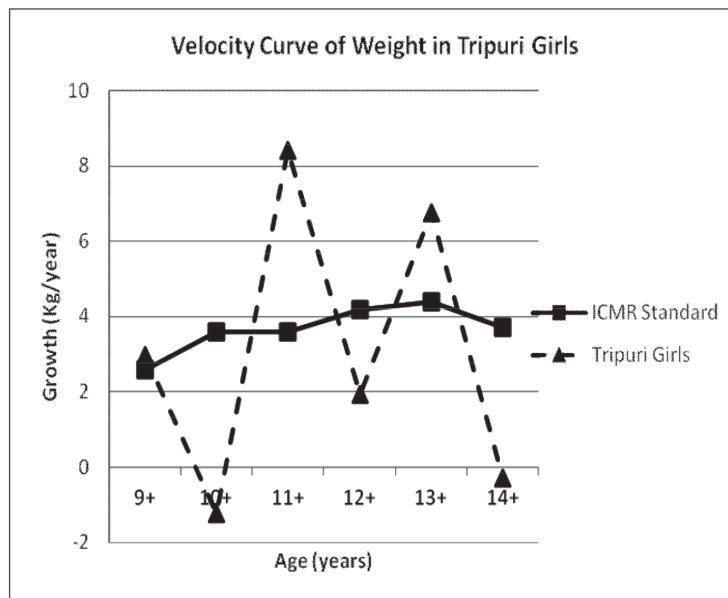


Figure 3d



Conclusion

The nutritional status of the children was lower than that of the ICMR standard in terms of height and weight in all age-groups among Tripuri children.

Mid upper arm circumference also shows lower values compared to WHO reference values.

Nutritional status of both boys and girls are below normal in terms of BMI.

Socio-economic status of the subjects indicates that they belong to lower income group families which may be associated with the prevalence of under-nutrition among Tripuri students.

Both boys and girls show malnutrition in terms of anthropometric indices viz., Height-for-age, Weight-for-age, Weight-for-height, BMI and UAMA-for-height.

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From the results of the study, it can be concluded that the Tripuri children are suffering from malnutrition. Therefore, there is a need to raise the health and nutritional status of these children by imparting necessary health education to children, parents and school teachers with locally available cheap sources of essential nutrients. Intervention programme through Government and Non-Government Organisations (NGOs) may be initiated for the overall development of Tripuri tribal population of south Tripura with special focus on children. This study needs further evaluation involving more children of these age groups.

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Infant and Child Mortality in Tribal peoples in North-East India

Suman Das

Introduction

Tribal peoples are those peoples according to Govt. Of India, who are backward economically and socially and are in need of special protection from social injustice and exploitation. India is a living place for over a 705 (census 2011) types of indigenous groups of peoples whose total population is over 104 million (census 2011) and in North East India over 130 groups of peoples are living with many sub-groups. Most of these groups of peoples are living in rural areas almost disconnected from urban areas which are the basic reason for their backwardness in economy, education and health etc. Govt. Of India has taken a special look to remove those problems by initiating different programmes and find out that health problems in India particularly among tribal peoples living in rural areas is one of the major challenges which urgently to be rectified, because, health is one of the vital elements that determines human development and progress in a given space and time. World health organisation defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Health status in North-East India

North East India is a comprise of eight hilly states of India, which is one of the most backward place in India and has suffered due to infrastructure and other bottlenecks, which has adversely affected the economic development of the North East India. Here, about 81.6% of total population (census- 2011) lives in rural areas and that backwardness is telling the story of the health services facilities of here. But, now Government of India took special look to improve the health structure and introduced National Rural Health Mission in 2005. The NRHM programme is a magnificent effort of Govt. of India in order to provide accessible, affordable and accountable quality health services to rural areas throughout the country, especially in North-East India.

Health status of a place can be measured by various health problems and infant and child mortality is one of them. Infant and child mortality determines the growth of population. Yadava and Tiwari say, "It has been argued by experts that infant mortality is an

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important indicator of the socio-economic condition, health and nutritional standard of a community.” This paper is concern with the infant and child mortality among the tribal peoples of the North-East Indian states and its problems and causes.

Data and Method

This paper is solely based on secondary data. Data used in this paper were collected from the sources – A) National Family Health Survey- 3 published by Ministry of health and family welfare, Govt. of India. B) Census 2011 published by Registrar General, Govt. of India C) Statistical profile of scheduled tribes in India 2013 Published by Ministry of Tribal Affairs Statistics division D) Schedule Tribes in India published by Ministry of Home Affairs.

The analysis carried out in this paper is qualitative and descriptive.

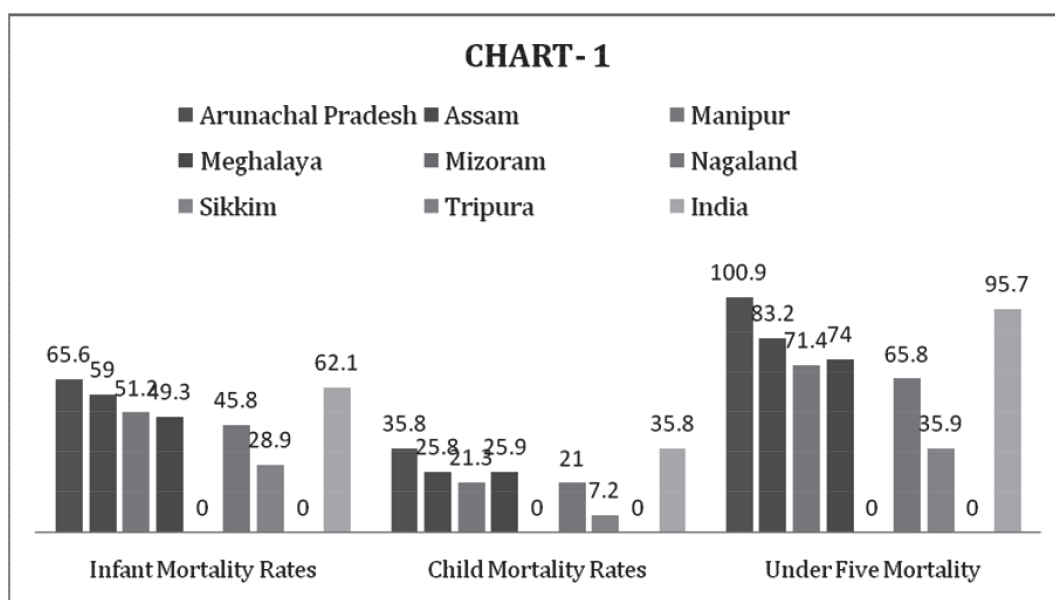
Infant and Child mortality in North-East India

“Health care is one of the most important of all human endeavours to improve the quality of life especially of the tribal people” said Balgir. Infant and Child mortality rates determine that a community or state is health or not and on the basis of that the future planning for the same can be taken.

Infant mortality is defined as the probability of dying between after birth and first birthday.

Child mortality is defined as the probability of dying between first birthday and fifth birthday.

The below mentioned chart will show the differences of Infant and child mortality rates of the tribal peoples of North-East Indian states and with India.



Source: NFHS-3

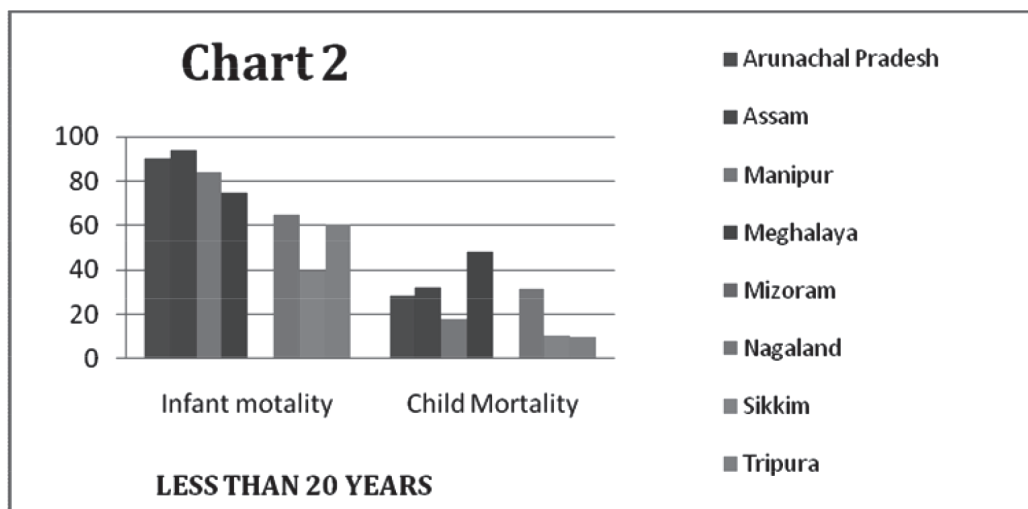
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Chart 1 shows Infant and child mortality rates among the tribal peoples of the North-Eastern states and it is seen that Arunachal Pradesh is carrying the highest position, even more than the average of India. The average rates of Infant and Child mortality rates in tribal peoples of India are 62.1 and 35.8 respectively i.e. in India among tribal peoples per 1000 live births 62.1 passed away before reaching first birthday and 35.8 per 1000 child passed away between first and fifth birthday, where in Arunachal Pradesh it is 65.6 and 35.8. The state Sikkim maintain a good status regarding this in North-East India where infant and child mortality rates are 28.9 and 7.2 far better from other North Eastern states as well as many states of India. Actually, all the North-east Indian states are carrying better statistics than average states of India. Though, it is not a satisfactory statistics to develop a community.

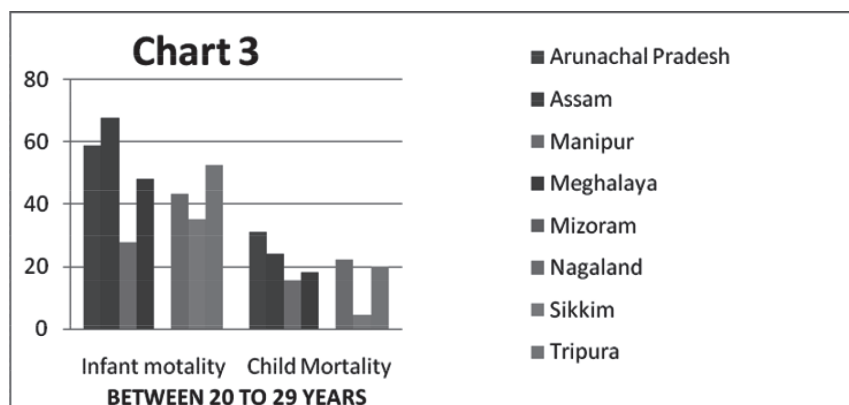
Causes

When something happens there has to be a cause. And there are some causes which are mainly responsible for infant and child mortality.

- 1) Age of marriage: - The responsibility to take care of the life of an infant towards a future life to hold different responsibilities in his/her shoulder is totally depend on the health of the mother. But when a girl got married before reaching to her adult age, necessarily she has to have a child when she actually is not physically able to have a child. This may be one of the basic reason for infant and child mortality. Though in India child marriage is illegal, but still girls are being married in her young age.
- 2) Teenage pregnancy: - At the time of pregnancy if the mother is not physically fit, she may will be unable to procreate a healthy child (not all cases), because naturally physically unfit mother will give birth a weak infant who may will not be able to fight in the outside environment.



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Statistic shows that if mother's age is less than 20 at the time of pregnancy the death of infants and child became more than the mothers whose age is between 20 -29 years at the time of pregnancy.

- 3) Birth intervals: - Birth intervals between two births is one of the major factor for increasing or decreasing of infant and child mortality rates, because statistics shows that, if the intervals between previous birth and current birth is less than 2 years, the infant and child mortality rates is highest than anything else but when the intervals between two births is more than 3 years, the infant and child mortality rates is decrease.

Birth Intervals in north-East India's Peoples

Name of the States	BIRTH INTERVALS					
	Infant Mortality			Child Mortality		
	<2	2-3	4+	<2	2-3	4+
Arunachal Pradesh	90.1	57.2	NA	56.9	35.1	NA
Assam	100.9	63.3	50.2	48.4	28.2	18.5
Manipur	60.8	25.7	31.3321.6	12.9	15.1	8.3
Meghalaya	60.7	36.0	32.2	48.8	30.1	NA
Mizoram	64.4	20.6	NA	19.0	17.8	NA
Nagaland	782.1	38.5	27.4	27.6	27.7	16.0
Sikkim	NA	29.0	NA	10.2	9.5	NA
Tripura	NA	NA	NA	NA	NA	NA
NA= not available						

Sources: NFHS 3

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- 4) Education: - Education of mother has a direct effect on infant and child mortality rates. It is seen from statistics that infant and child mortality rates vary on the basis of mother's schooling, because infant and child mortality rates for children is highest whose mothers have no schooling and increasing of mother's schooling years decreases the percentage of infant and child mortality rates.

Name of the States	EDUCATION					
	Infant Mortality			Child Mortality		
	No Education	Upto 10 years	10 or more years	No Education	Upto 10 years	10 or more years
Arunachal Pradesh	77.9	58.2	NA	41.3	26.3	NA
Assam	88.0	62.1	35.9	36.3	19.7	6.3
Manipur	47.7	40.4	16.63	22.6	12.3	8.3
Meghalaya	60.5	42.5	25.8	45.8	15.3	4.1
Mizoram	NA	37.0	20.3	NA	16.8	6.2
Nagaland	67.0	42.2	23.6	32.0	20.5	8.2
Sikkim	29.4	48.7	2.5	6.9	8.7	NA
Tripura	102.4	43.5	NA	27.6	13.5	NA
NA= not available						

Sources: NFHS 3

Conclusion

Health is the very important factor for developing a country, like, a human being became immovable without the backbone, just in that way, a community or state or country cannot be developed if its majority of people are not health. Srinivasan says, "The organisation of health services to all people is considered to be the key step towards development."¹ This paper is basically based on NFHS-3 which was conducted on 2005, I am sure that in recent days North-East Indian states has improved not only in this side but also in other sides. But NFHS-4 will reveal the truth very soon. But until and unless these

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socio-cultural causes of the said problems will not be demolished from society, the health status will not be improved.

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Tribal Health: An Empirical Study of Maternal & Child Health at Dhalai District of Tripura, India

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Dr. Supratim Biswas
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Introduction

Health is the most important factor of socio-economic development. In the words of Nobel Laureate, Amartya Sen ***“Bad health is constitutive of poverty. Premature mortality, escapable morbidity, undernourishment are all manifestations of poverty. I believe that health deprivation is really the most central aspect of poverty.”***

Accessible, equitable, affordable and effective primary health care is primary vision of Indian Health Policy 2002. During last decade different strategies has been adopted to achieve this goal, and significant improvement has also made in many areas particularly Maternal and Child Health (MCH) [IMR from 68 (SRS-2000) to 42 (SRS-2013) and MMR from 254 (SRS-2000) to 214 (SRS-2012)], but still challenges ahead. In 2005, Government of India has started National Rural Health Mission (NRHM) with the aim of rejuvenating the health delivery system. Under NRHM stress was providing on quality health care that was accessible, acceptable and affordable to all section of the society.

A major aim of health mission is to improve maternal and child health, which also a global concern and priority area of Millennium Development Goal (MDG). Well-being of mother & child, determines the health of the next generation and this help predict future public health challenges for families, communities, and the health care system. Social determinates are main factor which influencing maternal health, pregnancy outcomes and infant health of the community. Women and new born health depends on educational status, accessibility of health service, quality of care, community affordability and mainly on social structure.

In India there is huge diversity of social structure from one to another. Variation of custom and tradition is high among different tribal community. Tribal groups are mainly inhabit widely varying ecological and geo-climatic conditions in different concentration throughout the country and are distinct biological isolates with characteristic cultural and socio-economical background.

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A small North East Indian state Tripura is a good example of various tribal community residence in a small geography includes hilly, forest, plains, valley and also international border. Health status of these people has many challenges which include issues related to health determinant; like water, sanitation, health education, habits, quality of service etc. To achieve the MDGs of maternal and child health tribal community should get equal opportunity of health services as other.

Significant of the Study

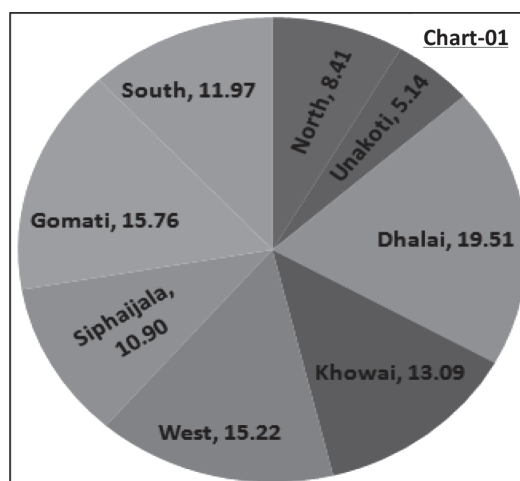
Issues-challenges and opportunity in mother and child health is exist in every Indian society. Tripura is also, not exceptional in this regard. Each year around 53000 new lives borne in this state and according to data of 2012-13 (DLHS-4) 33.6% of them are home delivery (rural) and 14% of children (rural) did not get any vaccination till completion of 01 year of age. This situation is vulnerable in difficult and hilly areas. Out of the eight district of this state, Dhalai is comparatively more geographically isolated and tribal proportion is highest of 56% (census-2011). Annually more than 6000 mother become pregnant and 5500 new born delivered in this district. This paper is an effort to find out the MCH issues-challenges & opportunity of tribal dominated district of Dhalai Tripura.

People and Land of Study area

Population of Tripura is 32.76 Lakhs; where tribal population is 32% as per census 2011. District wise tribal population varies from lowest 8.41% in North District to highest 19.51% in Dhalai District (out of total tribal population).

Dhalai District is a mountainous district of Tripura. This district is formed in 1995 after division of North Tripura District. It is named after the river “Dhalai”. The green hilly Dhalai District is bounded by Sylhet District of Bangladesh in the northern part, Chittagong District of Bangladesh in the southern part, West and South Tripura districts in the western and North Tripura in the eastern part. Dhalai District contributes 4.08 Lakh populations as per census 2011, where 62.49% population belongs to tribal community. Administratively Dhalai has 04 Sub-divisions and 08 development blocks, 92 TTAADC Villages and 41 Gram Panchayats.

Livelihood of the people is mainly agrarian based and a large community is depends on shifting cultivation. Subdivision wise population, health set-up and health human resources of Dhalai are shown below:



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Table :01 – Sub-Division wise Population

SL	Sub-Division	Tot Pop	ST-Pop	Proportion
1	Kamalpur	135548	38637	28.50 %
2	Ambassa	61978	48232	77.82 %
3	Longthraivelly	139156	108127	77.70 %
4	Gandacherra	71565	60124	84.01 %

Source: Panchayat & Health Department, Govt. Of Tripura

District Health Profile

People of the district is mainly depends on Government health facility. There are no private health care facilities in the district, only few private practices at clinic / pharmacy is going on. Inpatients service 94% are depends on public institution. District Health setup, Health Human resource and Health Indicator is:

Table :02 – Sub-Division wise Health Setup

S L	Sub-Division	Tot Pop	ST-Pop	Bed	SC	PHC	CHC	SDH	DH	FR U
1	Kamalpur	135548	38637	120	43	3	0	1	0	1
2	Ambassa	61978	48232	160	28	2	0	0	1	1
3	Longthraivelly	139156	108127	118	40	5	1	1	0	0
4	Gandacherra	71565	60124	60	19	2	0	1	0	0

Source: Panchayat & Health Department, Govt. Of Tripura

Table :03 – Sub-Division wise Health Human Resource

S L	Sub-Division	MO	AYUSH	Dentist	SN	Phar	Lab	ANM	MPW-M	ASHA
1	Kamalpur	13	6	1	37	9	7	17	29	
2	Ambassa	18	1	1	37	6	6	9	21	
3	Longthraivelly	24	3	2	55	8	6	15	27	
4	Gandacherra	13	2	1	27	3	2	6	18	

Source: Health MIS, Health Department, Govt. Of Tripura

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Table: 04 – District Situation of Maternal & Child Health

SL	Indicator	Tripura	Dhalai District	
		DLHS-4	DLHS-4	DLHS-3
1	Pregnant women who received any ANC	83.7	81.1	63.4
2	Three or more ANC visits	63.8	63.6	37.2
3	Pregnant women whose BP taken	48.4	43.2	43.4
4	Pregnant women whose abdomen examined	37.9	43.8	43.8
5	Consumed 100 or more IFA Tablets/Syrup equivalent	36.9	27.9	51.2
6	Pregnant women who had full ANC	27.3	20.6	12.8
7	Institutional delivery	72.7	70.6	43.4
8	Delivery at home	26.8	29.4	55.7
9	Delivery at home conducted by skilled health personnel	4.3	4.1	2.1
10	Any Pregnancy complication	51.5	57.2	50.2
11	Received full vaccination	48	51.4	26.6
12	Children (age 9-35 M) received at least one dose of Vit A in last 6 M	65.2	64.2	46
13	Children age 0-5 months exclusively breastfed	50.4	52.5	NA
14	Percentage of Children with low birth weight below 2.5 kg)	13.8	15.2	NA
15	Pregnant women (15-49 aged) having anaemia	37.2	40	NA

Source: DLHS 3 & DLHS 4

Objectives

- To assess the provision of maternal and child health service delivery system in tribal and non tribal areas.
- To find Out of Pocket Expenditure disparity during pregnant women among tribal and non-tribal.
- To find out issues-challenges & opportunity for improved and more equitable service delivery mechanism.

Methodology

Study is based on both primary and secondary data collected from health facility, pregnant mother, service provider and community volunteer. Purposive sampling method is followed and case studies were conducted through inter-personal discussion and exit interview.

A. Selection of study area was done on the basis of population:-

- Dhalai District was selected for the study which has highest proportion of tribal population (Ref: Chart-01 - 19.51%) in Tripura as per Census-2011.
- Comparative analysis among non-tribal and tribal was carried out in with in the district viz. 02 sub-division of Kamalpur & Longthraivelly.
- Selected sub-divisions have similar size of population of 1.35 and 1.39 lakhs.
- Tribal population is lowest (15.14%) in Kamalpur and highest (42.38%) in Longthraivelly.

B. Selection of Health Institution to observed maternal, newborn and child health delivery setup, was done on following basis:

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- Both the study area has 01 sub-divisional hospital; therefore both the hospital was chosen for the study. The names of the facilities are Kamalpur Sub-divisional Hospital (SDH) and Longthraivelly Sub-divisional Hospital.
- One Primary Health Centre (PHC) was taken from each sub-division on the basis of highest average monthly institutional delivery load. Accordingly, Nakasipara PHC of Kamalpur and Chamanu PHC of Longthraivelly were selected.
- C. Health care delivery system at facility level** was analyzed on the basis of recommended technique / parameter of Maternal Health Division, Ministry of Health & Family Welfare, Government of India (Maternal and Newborn Health Toolkit). As per toolkit, maternal and child health services of facility level are assessed in Labour room, Ante Natal Check-up ward , Post natal check-up ward on 08 major parameters (*Building Status, Infrastructure, Labour room equipments, Drugs and Consumables, Records & registers, Human Resource, Training, Others*). Under each major parameter there are few sub parameters (Table 05) listed, which were analyzed to find out the service delivery situation at facility level.
- D. Health Indicator** of maternal, newborn and child health has been chosen as per recommendation by the Ministry of Health & Family Welfare, Government of India in the official website of Health Management Information System (HMIS. Present study made an effort to analyze these 13 indicators.
- E. Exit interview** with the pregnant mother was taken at selected health institution. 30 pregnant mothers from each sub-division were covered to analyze out of pocket expenditure.
- F. Primary data** has collected through purposive sampling method for Exit Interview of pregnant women who were admitted at the health institution during the survey. Data of health infrastructure at facility level was collected through questionnaire of recommended parameters of Ministry of Health & Family Welfare, Government of India (Maternal and Newborn Health Toolkit) from selected health facility.
- G. Secondary data** was collected from different reports like , Census – 2011, Tripura Economic Review 2012-13, Sample Registration Survey, District Level Household Survey, Health Management Information System of Ministry of Health & Family Welfare, Government of India, State MIS: ASHA – 10 Point Indicator.

Findings

Health infrastructure

Table 05: Area wise Health Infrastructure

Sub-Division	Bed	SC	PHC	CHC	SDH	DH	FRU	DP
Longthraivelly	118	40	5	1	1	0	0	3
Kamalpur	120	43	3	0	1	0	1	3

Source : Health MIS, NHM Tripura

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- Primary health facility in tribal area is more than non-tribal areas, but number of delivery point is similar in both the area.
- Specialist health service particularly First Referral Unit is not available in tribal area.

Health care delivery system

Table 06 : Assessment Score Card of Labour room, ANC ward , PNC ward

Sl.	Parameter	Assessment Point	Longtraivelly		Kamalpur	
			Longtraivelly SDH	Chaumanu PHC	Kalampur SDH	Nakashipara PHC
A	Building Status	Total	5	5	5	5
		Scored	1	1	5	1
B	Infrastructure	Total	15	15	15	15
		Scored	3	7	10	6
C	Labour room equipments	Total	30	30	30	30
		Scored	18	3	20	20
D	Drugs and Consumables	Total	5	5	5	5
		Scored	2	3	4	3
E	Records & registers	Total	7	7	7	7
		Scored	5	5	4	5
F	Human Resource	Total	6	6	6	6
		Scored	5	5	6	5
G	Training	Total	7	7	7	7
		Scored	0	0	4	1
H	Others	Total	5	5	5	5
		Scored	1	4	4	1
Overall		Total	80	80	80	80
		Scored	35	28	57	42
Proportion (%)			42.75	35.00	71.25	52.50

- Overall service delivery mechanism is stronger in of Kamalpur sub-division.
- Service provider is more or less similar in both the areas, but trained manpower missing in tribal areas.
- Infrastructure, equipments and other support also low in tribal areas.

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Health Indicators

Table 07: Comparison of Health Indicator

SL	Health Indicator	Longtharaivelly	Kamalpur
		2013-14	2013-14
1	First trimester registration to total ANC registration	67.85	74.98
2	Pregnant women received 3 ANC to total ANC registration	41.48	85.45
3	Pregnant women given 100 IFA to total ANC registration	81.66	97.63
4	Cases of pregnant women with Obstetric Complications and attended to reported deliveries	6.25	7.94
5	Pregnant women receiving TT2 or Booster to total ANC registration	72.48	89.94
6	SBA attended home deliveries to total reported home deliveries	8.68	1.99
7	Institutional deliveries to total ANC registration	67.02	52.97
8	C-Section to reported deliveries	0.00	6.30
9	Newborns breast fed within 1 hour to total live births	77.49	98.01
10	Women discharged in less than 48 hours of delivery in public institutions to total number of deliveries in public institutions	93.80	63.99
11	Newborns weighing less than 2.5 kg to newborns weighed at birth	8.06	9.64
12	Newborns visited within 24hrs of home delivery to total reported home deliveries	29.64	64.90
13	Infants 0 to 11 months old who received Measles vaccine to reported live births	75.34	97.81

- Antenatal check-up is low in tribal areas in terms of non-tribal counterpart. 3 ANC is 41.48% in Longtraivelly, where as it is 85.45% in Kamalpur.
- Institution delivery proportionately high in Longtraivelly but factors for maternal health during pregnancy is weak in tribal areas.
- Child health indicators are better in non-tribal area. Measles vaccine, Newborns breast fed with in 1 hour, Newborns weighing less than 2.5 kg and Newborns visited within 24hrs of home delivery is low in Longtraivelly.

Out of Pocket Expenditure

Expenditure during pregnancy has been assessed through a schedule questioner at the OPD and IPD of the 04 identified health institution. 10 mothers who delivered (normal delivery) within last 30 days were interviewed and overall findings are shown below:

Table 08: Average expenditure during delivery.

SL	Community / Category	Longtraivelly	Kamalpur
1	Non-Tribal	1382	905
2	Tribal	1729	1081

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- Average out-of-pocket expenditure is significantly high among tribal population.
- Expenditure pattern is similar in both tribal and nontribal area. Moreover tribal and BPL patients are using health insurance facility (Rastriya Swasthya Bima Yojana - RSBY) to meet this expenditure.
- National Health Programme of Janany Sishu Suraksha Karyakram for cash less delivery at public health institution is implemented since 2011-12.

Focus Discussion

During discussion with different level of Administrator (Chief Medical Officer, Sub-Divisional Medical Officer), service provider (Medical Officer, Staff Nurse, Pharmacist, Laboratory Technician), ASHA, Programme Manager of NRHM and beneficiary (patients) following has observed, dialogue of concern people is mentioned below:

01	Chief Medical Officer (CMO)	<ul style="list-style-type: none">• Human resource in difficult areas is a challenge; there is shortage service provider in remote tribal areas.• We are unable to make regular supervision due to shortage of officer in district and sub-district level.• Public health trained personnel is required at sub-district level for management of different community level issues & programme; whereas district has only one trained Public Health Person.
02	Sub-divisional Medical Officer (SDMO).	<ul style="list-style-type: none">• I am the only officer to look after all administrative work, community level programme and hospital management of SDH• Medical Officer in-charge and Programme Manager under NRHM needs training on hospital management and public health”
03	Medical Officer In charge	<ul style="list-style-type: none">• Cleanliness and maintaining hygiene is a big challenge.• Staffs are reluctant towards work and dedication.
04	Staff Nurse	<ul style="list-style-type: none">• Function of RKS, JSSK and JSY – I don’t know.• I have not received any training on current issues.• I m not aware about how to operate the Baby warmer.
05	ASHA	<ul style="list-style-type: none">• If our training is being carried out in tribal language, then it may be more effective.• Many pregnant women of tribal areas do not want to go for Ante-Natal check-up during pregnancy by male worker.

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Conclusion/Policy Recommendations

Health care delivery system of Dhalai District has made many positive changes in last decade irrespective of tribal and non-tribal areas; particularly on infrastructure and demand for health. Institutional delivery, Patients' attendance at hospital, Immunization coverage shown the increasing trend in last 7-8 years.

Study reveals that specialist services and trained manpower is a challenge in Longtraivelly Sub-division; where utilization of infrastructure and equipment is very sub-optimal in comparison to Kamalpur Sub-division. Antenatal care and post natal services including care of infant after birth is an issue in Longtraivelly. Performance and skills of ASHAs in tribal areas is disappointing and supportive supervision also missing. Hospital cleanliness and hygiene is better in Kamalpur sub-division.

Medical Officer in-charge of a PHC or CHC is the only person who looks after all health related issue of a certain jurisdiction (average 50-80 thousand population). He found responsibly different issue like, community health, demand generation, employee management, hospital management and also perform as a on-duty practitioner (duty medical officer) of same health facility. This situation, result of poor supervision at grass root level health activities. In view of above analysis following are recommendations for improvement:

1. To look after the community health issues and hospital management separate manpower is required.
2. Deployment of female health worker at sub health centre level for quality ANC.
3. Skill development of ANM on MCH.
4. Improvement of labour rooms quality and ensure availability of emergency drugs.
5. To reduce the out of pocket expenditure & promotion of institutional delivery, it is required to review the implementation modalities of Janani Sishu Surakshya Karyakram.
6. To reduce the out of pocket expenditure; it is required to set-up laboratories in all the health facilities.
7. Refresher training to medical officer and staff nurses on different modern equipments to maximize the utility.
8. Evaluation of RSBY utilization pattern and corrective action.
9. Training of ASHA should be organised on local language.

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A Review on the Status of Tribal Health in Tripura with Special Reference to Women and Children

Daniel Debbarma

Introduction

Tripura a hilly State in the North-Eastern region of India is the homeland of different tribes. Altogether there are 19 (nineteen) tribes in the State. The third-smallest state in the country covers 10,491 square kilometer (4,051 sq mi) and is bordered by Bangladesh to the north, south, and west, and the Indian states of Assam and Mizoram to the east. In 2011 the state had 3,671,032 residents, constituting 0.3% of the country's population. Indigenous communities, known in India as scheduled tribes, form about 30 per cent of Tripura's population. The Kokborok speaking Tripuri people are the major group among 19 tribes and many sub tribes. The Bengalese people form the ethno-linguistic majority in Tripura. 19 recognized STs from 1981 to 2011 census is given below:

Profile Of Tribal Population In Tripura:

Sl. No.	Name of the Tribes	Population (Census Years)			
		1981	1991	2001	2011
1.	Tripuri / Tripura	3,30,872	4,61,531	5,43,848	5,92,255
2.	Reang	84,003	1,11,606	1,65,103	1,88,220
3.	Jamatia	44,501	60,824	74,949	83,347
4.	Noatia	7,182	4,158	6,655	14,298
5.	Uchai	1,306	1,637	2,103	2,447
6.	Kuki	5,501	10,628	11,674	10,965
7.	Halam	28,969	36,499	47,245	57,210

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8.	Lushai	3,734	4,910	4,777	5,384
9.	Bhutia	22	47	29	28
10.	Lepcha	106	111	105	157
11.	Khashia	457	358	630	366
12.	Chakma	34,797	96,096	64,293	79,813
13.	Mog	18,231	31,612	30,385	37,893
14.	Garo	7,297	9,360	11,180	12,952
15.	Munda / Kaur	7,993	11,547	12,416	14,544
16.	Santhal	2,726	2,736	2,151	2,913
17.	Orang	5,217	6,751	6,223	12,011
18.	Bhil	838	1,754	2,336	3,105
19.	Chamal	18	26	226	549
20.	Generic	0	0	7,098	48,356
	Total	5,83,770	8,53,345	9,93,426	11,66,813

Scheduled Tribes

In India the term “tribe” is not properly defined and is used as administrative groupings. The British, until March 31, 1937 categorised them as “backward classes”. It was under the Government of India Act, 1935 that they were first scheduled as tribes, a practice that was retained in independent India (Chaube 1999). Tribal refers to groups of people who define themselves by a kinship to an early pedigree before they identify with the nation. Anthropologists termed tribe as consisting of a singular cultural unit, having shared traits such as language and the absence of a hierarchical political structure. There is no definition for tribal in the Constitution of India. According to Clause (25) of Article 366 of the Constitution, “Scheduled Tribes” means such tribes or tribal communities or parts of or groups within such tribes or tribal communities as are deemed under Article 342 to be Scheduled Tribes for the purposes of this Constitution (Chandra 2011). The term “Scheduled Tribes” refers to specific indigenous peoples whose status is acknowledged to some degree by national legislation. Tribal communities do have similarities, though broad generic ones. They are known to dwell in compact areas, follow a community way of living, in harmony with nature, and have a uniqueness of culture, distinctive customs, traditions and beliefs which are simple, direct and non-acquisitive by nature. Some of these broadly similar characteristics have been used as criteria for the last few decades to identify and declare a particular community as a Scheduled Tribe. Ministry of Tribal Affairs described ST using the criteria such as primitive traits, distinctive culture, geographical isolation, shyness of contact

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and backwardness. But even all these broad criteria are not applicable to Scheduled Tribes today. Some of the terms used (e.g. primitive traits, backwardness) are also, in today's context, pejorative and need to be replaced with terms that are not derogatory.

The criteria followed or specification of a community as a Scheduled Tribe are: (i) Indications of primitive traits; (ii) distinctive culture; (iii) geographical isolation; (iv) shyness of contact with the community at large and (v) backwardness. However, the term 'tribe' has been defined by various thinkers and writers in different ways. Two or three definitions are cited here for a clear understanding of the term 'tribe' or 'tribal'. Majumder, (1961): A Scheduled Tribe refers to "a collection of families or groups of families, bearing a common name, members which occupy the same territory, speak the same language and observe certain taboos regarding marriage, profession or occupation and have developed as well as assessed system of reciprocity and mutuality of obligations". Mishra (2002): Defines Scheduled tribes as people who (i) claim themselves as indigenous to the soil; (ii) generally inhabit forest and hilly regions; (iii) largely pursue a subsistence level economy; (iv) have great regard for traditional religious and cultural practices; (v) believe in common ancestry and (vi) have strong group ties. Gillin and Gilhn (1989): "A tribe is a group of local communities which lives in a common area, speaks a common dialect and follows a common culture".

Objective of the Study

1. To review the health status of Tribal women and children in Tripura
2. To know the nutritional status of Tribal women and children in Tripura.
3. To study the factors responsible to poor tribal health.
4. To offer suggestive measures of improvement in tribal health.

Health Status of Tribal Women and Children In Tripura

Health as defined by WHO as a state of complete physical, mental and social well being and not merely the absence of disease. In terms of health condition both tribals and non tribals are counted as a whole to the state statistical progress report. Lack of personal hygiene, poor sanitation, poor mother-child health services, and absence of health education, lack of national preventive programmes and lack of health services are responsible for the poor health of the tribals. Problems like insanitary food supplies, water contamination and poor food in-take reflect on the health status of tribals. The tropical disease like malaria is still widespread in the tribal areas. Hence, better nutrition and good environmental health are the important aspects of village health services.

Though no much of studies have been conducted on the health status of the Tribals particularly on the tribal women and children, still an overall review on the health status of the state in terms of socio-demographic parameters like birth rate, death rate and infant mortality rate etc. gives us clue to understand the health situation of women and children. Talking about tribal women's health in the state, a few indicators are considered to assess their status in health.

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1. Vital Rates

Considerable progress has been made by the State in respect of socio-demographic parameters like birth rate, death rate and infant mortality rate etc. Data from the Sample Registration Survey (SRS) indicates that these rates have not only declined for Tripura but these are also well below the all India level. The birth rate, death rate as well as infant mortality rate for Tripura and all India during the years 1995 to 2012 are presented below.

Year	Birth Rate		Death Rate		Infant Mortality Rate (per thousand)	
	India	Tripura	India	Tripura	India	Tripura
1995	28.3	18.9	9.0	7.7	74	45
1996	27.5	18.4	8.9	6.5	72	49
1997	27.2	18.3	8.9	6.8	71	51
1998	26.5	17.6	9.0	6.1	72	49
1999	26.1	17.0	8.7	5.7	70	42
2000	25.8	16.5	8.5	5.4	68	41
2001	25.4	16.1	8.4	5.6	66	39
2002	25.0	14.9	8.1	5.7	63	34
2003	24.8	14.5	8.0	5.5	60	32
2004	24.1	15.0	7.5	5.5	58	32
2005	23.8	16.0	7.6	5.7	58	31
2006	23.5	16.6	7.5	6.3	57	36
2007	23.1	17.1	7.4	6.5	55	39
2008	22.8	15.4	7.4	5.9	53	34
2009	22.5	14.8	7.8	5.1	50	31
2010	22.1	14.9	7.2	5.0	47	27
2011	21.8	14.3	7.1	5.0	44	29
2012	21.6	13.9	7.0	4.8	42	28

Source: SRS Bulletins, RGI

According to the report of the Tripura Tribal Areas Autonomous District Council (TTAADC), requirements of the health care facilities in the area are not proportional to the increasing demand of the people due to the fact of population explosion.

2. Maternal and Child Health Care Practices

Child bearing imposes additional health needs and problems on women -physically, psychologically and socially. Maternal mortality was reported to be high among various tribal groups. The chief causes of maternal mortality were found to be unhygienic and primitive practices for parturition. From the inception of pregnancy to its termination, no specific nutritious diet is consumed by women. On the other hand, some pregnant tribal

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women reduced their food intake because of simple fear of recurrent vomiting and also to ensure that the baby may remain small and the delivery may be easier. The consumption of iron, calcium and vitamins during pregnancy is poor. The habit of taking alcohol during pregnancy has been found to be usual in tribal women and almost all of them are observed to continue their regular activities including hard labour during advanced pregnancy. More than 90 per cent of deliveries are conducted at home attended by elderly ladies of the household. No specific precautions are observed at the time of conducting deliveries which resulted in an increased susceptibility to various infections. Services of paramedical staff are secured only in difficult labour cases.

As far as child care is concerned, both rural and tribal illiterate mothers are observed to breast-feed their babies. But, most of them adopt harmful practices like discarding of colostrum, giving prelacteal feeds, delayed initiation of breast-feeding and delayed introduction of complementary feeds. Vaccination and immunization of Infants and children have been inadequate among tribal groups. In addition, extremes of magico-religious beliefs and taboos tend to aggravate the problems.

3. Morbidity and Mortality Rate

In our country there are many women in the reproductive age group and especially girls between the age of 15 yrs to 19 yrs who die due to problems related to child bearing. The decline in the child sex ratio (CSR) as reported by the Census of India (2011) from 945 in 2001 and further to 914 females per 1000 males in 2011- the lowest since independence – is cause for concern and urgency. The Govt. of India has introduced the RCH programme to address the problems of women in their reproductive years and even to look in to the specific problems that adolescent girls encounter by setting up the ARSH programme. Many young girls suffer grave consequences of unwanted pregnancy due to unsafe abortion, and many women and girls die when they have a home delivery and suffer post partum complications thus escalating the MMR in our state. Almost zero awareness about sexuality and reproduction, and the hesitation to avail the current free Adolescent and reproductive health services, the contraceptive services and other MCH services provided at all Government health facilities and refusal of institutional deliveries result in high morbidity and mortality in tribal women. The most deprived tribal women are those living in the interior hillock huts abundant from proper health centers and institutions.

4. RTI and STI

RTI and STI are on the rise because of sexual promiscuity and young girls are sexually active at a very tender age. Because of their poor socio – economic condition coupled with their social and biological predisposition they have become easy prey to the flesh trade and thus are at risk of contracting RTI/STI. Our people are still unaware of the dangers posed by these diseases and they have refused to come forward to get themselves reported for RTI and STI. But the big question is - How many of our women both tribal and no tribal especially in the rural areas go for antenatal checkups and how many of them really get access to RTI/STI Checkups?

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Percentage of women reporting awareness of RTI/STI in North-Eastern states of India

From one of the studies presented by Mousumi Gogoi and Ranjan Kumar Prusty on “Reproductive Health Complications among Tribal Women in India: A Special Focus on North-East India” published in journal “Etawah Journal of Social Sciences ISSN: 2277 3487” we can segregate the level of women reporting awareness RTI/STI between tribal and non-tribals in the region and states. The below table depicts the same.

State	Non-tribal	Tribal	Total
Assam	21.7	9.4	18.5
Arunachal Pradesh	29.8	23.3	24.5
Manipur	68.6	29.0	47.5
Meghalaya	11.1	7.4	7.6
Mizoram	29.9	46.3	45.9
Sikkim	26.7	28.8	27.7
Tripura	41.7	12.9	28.5
North-East Total	31.6	24.1	27.2

The above table shows the level of awareness between tribals and non – tribals in terms of RTI/STI in the North-Eastern states of India. In terms of reporting awareness on RTI/STI in Tripura it is very clear from the table that the tribal women in Tripura is percentage to only 12.9 which is very low compared to non-tribals with 41.7. Also it falls below overall northeast level percentage that is 24.1.

5. Morbidity and Mortality Due To Other Diseases

Our tribal women along with the rest of the population still suffer from communicable diseases like TB, Malaria, Typhoid, Gastroenteritis and other major health problems. As per NDTV News, in 2014 a fresh outbreak of malaria took 120 lives across the state by mid May itself; 85 of them died in hospital, while the rest succumbed to the disease without any medical treatment. By June nearly 40,000 people were being treated for malaria across the state and deaths have been reported from five of the eight districts. The majority affected by malaria were mostly women and children. Non communicable diseases like Diabetes, hypertension, coronary heart diseases and cancer are claiming many lives and the tribal women of Tripura are not an exception.

Nutritional Status of Tribal Women and Children of Tripura

The health and nutrition problems of the vast tribal population of India are as varied as the tribal groups themselves who present a bewildering diversity and variety in their socio-economic, socio-cultural and ecological settings. The malnutrition is high among the tribal population. Nutritional anaemia is a major problem for women in India and more so in the rural and tribal belt. This is particularly serious in view of the fact that both rural and tribal women have heavy workload and anaemia has profound effect on psychological and physical health. Anaemia lowers resistance to fatigue, affects working capacity under

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conditions of stress and increases susceptibility to other diseases. Maternal malnutrition is quite common among the tribal women especially those who have many pregnancies too closely spaced. Tribal diets are generally grossly deficient in calcium, vitamin A, vitamin C, riboflavin and animal protein.

A study by Mishra (2005) using the National Family Health Survey (NFHS-2) found that in almost all the states of India, tribal households had a higher incidence of childhood stunting (52.3%) than non-tribal households (42.8%). Using the same dataset, Nagda (2004) reported an anemia prevalence of more than 80% among tribal children. Several studies have also reported deficient intake of calories and protein among tribal populations relative to the Indian RDA, which may be an explanation for the high rates of stunting among this group (Rao et al., 1994; Yadav and Singh, 1999; Agte et al., 2005; Mittal and Srivastava, 2006). Iron deficiency is recognized as the major cause of anemia in tribal communities (Reddy et al., 1995; Vyas and Choudhry, 2005) and several studies have reported that deficiencies of micronutrients such as iron and zinc often occur together. Hence the high rates of anemia among tribal populations provide additional evidence of the possibility of marginal zinc deficiency in tribal areas. This is further supported by the high prevalence of stunting and the highly deficient dietary energy intakes in the tribal populations since intake of both zinc and iron are known to be highly correlated with dietary energy intake (Willett, 1998). At least one study has shown that zinc intake of populations in tribal regions was significantly lower than that of any of the other regions studied (Agte et al., 2005). Tribal populations still largely depend on agriculture and forest products for their livelihood and they follow a relatively homogenous lifestyle with their food habits, dietary practices and general pattern of living (Patwardhan, 2000). Most tribes still rely on their indigenous foods, which usually consist of wild unconventional forest products although some cultivate grains and other farm products for subsistence (Singh and Arora, 1978). The most frequently used cereals are maize, millet or rice and these form part of a major meal at least once daily (Kapil et al., 2003). Earlier studies indicated that, comparatively, the overall health of the tribal population is inferior to that of people elsewhere in India and that poor environmental sanitation and unhygienic personal practices predispose tribal populations to high risk of infection (Nagda, 2004; Mishra, 2005). Findings from a recent national survey showed that 82.4% of tribal households did not have latrines and 78.1% did not have drainage facilities in their homes (NFHS-2, 1998), a situation that predisposes children to diarrhoeal disease. The survey also found that the prevalence of diarrhoea and acute respiratory infection (ARI) was higher among tribal children than children of non-tribal mothers. Similarly, the study by Nagda (2004) suggested that childhood diarrhoea, ARI, anemia and fever were major causes of infant mortality in tribal areas.

A Comparative study among the Northeastern States of India on the developments and changes in women lives on Health sector is given in the following tables.

TRIBAL HEALTH**Infant Mortality Rates (per 1000 live births) among Females (IMRF)**

States	IMRF	Rank
Assam	60	3
Meghalaya	56	5
Mizoram	39	12
Sikkim	32	14
Arunachal Pradesh	32	14
Tripura	29	16
Nagaland	28	17
Manipur	16	19
India	49	

Source: Sample Registration System (SRS), 2012

Child Sex Ratio among the NE States of India

States	2011	Rank
Meghalaya	986	5
Manipur	987	6
Mizoram	975	8
Tripura	961	13
Assam	954	14
Nagaland	931	16
Arunachal Pradesh	920	19
Sikkim	889	24

Source: Census of India, 2011

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Women Suffering from Anaemia among Northeastern states of India

States	Pregnant women age 15-49 who are anaemic (%)	Ranking
Assam	72.0	1
Sikkim	62.1	8
Meghalaya	60.2	12
Tripura	57.6	16
Arunachal Pradesh	51.8	18
Mizoram	51.7	19
Manipur	36.4	25
Nagaland	NA	NA
India	57.9	

Source: NFHS-3

Mean Age at Marriage among Females (MAMF)

States	Rank	MAMF
Mizoram	2	21.8
Nagaland	3	21.6
Manipur	4	21.5
Tripura	11	19.3
Meghalaya	6	20.5
Sikkim	7	20.2
Assam	9	19.7
Arunachal Pradesh	10	19.6
India		18.3

Source: Census of India, 2001

Factors Responsible For the Poor Health Condition of Tribal in Tripura

Tribals usually remain isolated and majority of them have poor health status and inadequate health infrastructure. Some of the common factors responsible for the poor health of tribal in Tripura are given below in points.

Improper Nutrition

- Deficiency of essential components in diet leading to malnutrition, protein calorie malnutrition and micronutrient deficiencies.
- Goitre of various grades is also endemic in some of the tribal areas.

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Communicable diseases

- Waterborne and communicable diseases: Gastrointestinal disorders are very common, leading to marked morbidity and malnutrition.
- Malaria and tuberculosis
- Spectrum of viral and venereal diseases.

Genetic Disorders

- High prevalence of genetic disorders mostly involving red blood cells: Genetically transmitted disorders like sickle cell anemia
- Glucose 6 phosphate dehydrogenase deficiency and different forms of thalassaemia are also common.

Health infrastructure

- The inadequate health infrastructure for these peculiar health needs of the tribes is also a major factor.
- Lack of maternal and child health services among the hilly tribal areas.
- The tribal demographic scenario is one of high fertility, high maternal and infant mortality rates.

Social and cultural issues

- Superstitions particularly related to health problems
- Extreme poverty
- Excess consumption of alcohol.

High disease burden

- Poverty and under nutrition
- Poor sanitation, lack of safe drinking water
- Diseases which are more prevalent in tribals
- Lack of awareness about and access to health care
- Social and economic barriers to utilization

Factors contributing to increased disease burden

- Poverty and consequent undernutrition
- Poor environmental sanitation, poor hygiene and lack of safe drinking water
- Lack of access to health care facilities resulting in increase severity and or duration of illness
- Social barriers preventing utilization of available health care services
- Specific diseases they are prone to such as genetic diseases (G-6 PD deficiency) infections (Yaws) etc.

Suggestive Strategies Towards Improve Health Care in Tribal Areas

It is necessary to continue with primary health care educational activities, National health and tribal health programmes and other measures of providing proper nutrition and counselling and with the help from experts from multi-disciplinary fields, the health status of the tribal population can be improved. Some of the suggestive measures of improvement can be carried out in order to improve the health status of tribal in the state of Tripura like-

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- Ensuring availability of adequate infrastructure and personnel.
- Tribal Areas specific RCH programmes.
- 100% central plan funds for NMEP.
- Effective implementation of the Health & Family Welfare programmes
- Close monitoring, early detection of problems in implementation and midcourse correction.
- Improvement of health care structure
- Developing a flawless referral system.
- Provide diagnostic facilities for genetic defects.
- Follow up of anaemic and other severe patients
- Carry out population genetic survey programmes
- Health education
- Genetic counselling
- Marriage counselling
- Provide prenatal diagnosis.

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General Health & Poverty



Economic Stability of Tribal Women in Tripura And Recovery of their Health Problem

Dr. Bimal Chandra Pal

Introduction

Economic independence is the most vital factor towards overall empowerment. Economic development efforts to combat poverty can only succeed if women are part of the solution. Doing so yields a double dividend: When women are economically empowered, they raise healthier, better educated families. Their countries are more economically prosperous because of it, too.

Women's economic empowerment – that is, their capacity to bring about economic change for themselves – is increasingly viewed as the most important contributing factor to achieving equality between women and men. But economically strengthening women – who are half the world's workforce – is not only a means by which to spur economic growth, but also a matter of advancing women's human rights. When governments, businesses and communities invest in women, and when they work to eliminate inequalities, developing countries are less likely to be plagued by poverty. Entire nations can also better their chance of becoming stronger players in the global marketplace.

The Government of India has declared 2001 as Women's Empowerment Year (WEY). The purpose of the declaration is not to celebrate women exclusively in the new millennial year, but to make every effort to restore to woman as '*Shakti*', the 'Power' that she had lost over the years in a world of growing male supremacy. A lot has been and is being done for the strengthening of women's power at national and international levels. Yet the question remains unanswered in that despite all the efforts. Why women, particularly the tribal women continue to be so much backward in almost all levels.

The concept of Empowerment

Empowerment can be viewed as means of creating a social environment in which one can make decisions and make choices either individually or collectively for social

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transformation. It strengthens the innate ability by way of acquiring knowledge, power and experience.

- Acquiring knowledge and understanding of gender relations and the ways in which these relations may be changed.
- Developing a sense of self-worth, a belief in one's ability to secure desired changes and the right to control one's life.
- Gaining the ability to generate choices exercise bargaining power.
- Developing the ability to organize and influence the direction of social change, to create a more just social and economic order, nationally and internationally.

Thus, empowerment means a psychological sense of personal control or influence and a concern with actual social influence, political power and legal rights. It is a multi-level construct referring to individuals, organizations and community. It is an international, ongoing process centred in the local community, involving mutual respect, critical reflection, caring and group participation, through which people lacking an equal share of valued resources gain greater access to the control over these resources.

Status of Tribal Women

The status of women in a society is a significant reflection of the level of social justice in that society. Women's status is often described in terms of their level of income, employment, education, health and fertility as well as their roles within the family, the community and society. In tribal communities, the role of women is substantial and crucial in tribal society women are more important than in other social groups, because they work harder and the family economy and management depends on them.

Tribal women have adjusted themselves to live a traditional life style in the local environment and follow occupations based on natural resources. Undoubtedly, the programmes, oriented towards the empowerment of tribals, particularly women, have improved their socio-economic conditions and status.

A tribal woman can participate actively in all agricultural operations including, ploughing, digging, sowing, manuring, transplanting, weeding, harvesting, preparing the granary, threshing, winnowing and storing food grains. They operate closely with the forests from where they get water, fuel and minor products including edible fruits, tubers, flowers, vegetables and berries. Minor forest produce plays an important part in the tribal economy. Its collection and marketing is a major source of livelihood for most tribal families contributing around 70% of their total income. The different varieties are classified as plants for use in tanning, natural gums, resins and balsams, plants and seeds used in pharmacy and perfumery and *tendu* leaves. Firewood is also provided by forests. Since firewood gathering is done mainly by women, the interaction between forests and women gets further enhanced. Since all the duties of tribal women are connected with the forests and they look towards the forest for nature's gifts.

Health and Safe Motherhood

Healthcare is a major problem in far flung isolated tribal areas. Lack of food security, sanitation, and safe drinking water, poor nutrition and high poverty levels aggravate their

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poor health status. The problem of malnutrition is multidimensional and intergenerational. Health institutions are few and far between. Till recently, an abundance of fruits, tubers, roots and leaves in forests on the one hand and indigenous health-care systems on the other, contributed positively to tribal health. Tribal people have over the centuries developed their own medicinal system based on herbs and other items collected from nature and processed locally. They have their own system of diagnosis and cure. But the skills and natural resources are fast disappearing. Moreover, the traditional systems cannot treat or prevent many diseases that modern medicine can. Some health indicators of tribals, SCs and others (per thousand persons) are given below to establish their poor state of health.

Women's health is another important issue under Human Resource Development and also highest prioritized area in family welfare programs. However, the accumulated research evidences show that the achievement levels in providing better health care and safe motherhood for women, especially for rural women, are not at expected levels. In India, the highest number of deaths in the age group of 16 to 25 is recorded among women. Anaemia is one of the most commonly found deficiency among the women and it is also mentioned by several studies that they are often not too healthy when they bear the first child and none of them are physically ready to bear a second child. A pathetic reality is that nearly 88 percent of the pregnant women (1985-95) reported to be anaemic. World Health Organization figures also show that the lifetime risk of dying from pregnancy or child-birth-related causes is one in twenty in some developing countries, compared to one in ten thousand in some industrialized countries. About one in five of these deaths stem from unsafe abortions.

The available data says that in India about 20 percent of the women in the age group of 15-49 years are at the risk of unintended pregnancy. Coming to anti-natal care only 10 percent of the pregnant women received it on an average in rural India. In this regard Tamil Nadu, Himanchal Pradesh, Karnataka, Punjab, West Bengal is in better position than other states. Nearly 33 percent of the babies are under low birth weight category. During 1993, 5.5 percent stillbirths are recorded at all India level and this percentage is more in Bihar and West Bengal (around 15%). The reasons for such high percentage of stillbirths are usually associated with low age of mother, poor nutritional level of women and low utilization of primary health care.

Empowerment and Education

Education as means of empowerment of women can bring about a positive attitudinal change. It is therefore, crucial for the socio-economic and political progress of India. The Constitution of India empowers the state to adopt affirmative measures for prompting ways and means to empower women. Education significantly makes difference in the lives of women. These can be direct or indirect. Few are being mentioned here.

Improved Economic Growth

Education increases the economic, social and political opportunities available to women. It leads to direct economic benefits in the form of higher lifetime earnings for women. The society and community also benefit from the higher productivity of its labour

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force. Besides improving human capital and increasing economic growth, female education also reduces the fertility rate. The lowering in the number of dependants is referred to as the “demographic gift”. Keeping women illiterate clearly retards economic growth. Societies that do not invest in girl’s education pay a price for it in terms of slower growth and reduced incomes. Investments in female education start a virtuous cycle that leads to improved levels of income, growth and gender equality. Inequality in education is like a distortionary tax that misallocates resources, thereby reducing economic growth (Dollar and Gatti, 1999).

Empowerment of women through SHG

Women’s empowerment is used to alleviate poverty and other socio-economic issues. Self -Help movement through thrift and savings has been taken of as a mass movement under the government program of development of women and children in the Rural Areas (DWCRA), some of the State Governments assisted these self- help groups by providing revolving fund and helping them in micro- enterprise activities. DWCRA program of self-help groups helped the women to earn additional income. With improvement in economic status, there is enhancement in social status as well. These women show increased awareness of family welfare, promote their children’s nutritional and educational status, shows concern about environment and health, issues of sanitation and drinking water. Thus mobilizing the poor women in rural areas for self-help group formation either State Government assisted SHGs or SHGs assisted by Non-Government

Organization is an effort toward participation of women in poverty alleviation and subsequently increases their awareness towards various social problems. Building the common corpus is the first step toward empowerment of women.

Tribal Women in Education

Tribal women play a significant role in the economic development of tribals as they contribute in various economic activities and education is one of the them. Education is a crucial requirement for the sustained growth of a developing society and lack of it is largely responsible for the exploitation and pitiable plight of the tribals. The literacy rate of tribals was 8.53 in 1961 and steadily increased to 47.10 in 2001, yet it is far below the national rate of 64.84 (2001 census).

Support to Training-cum-Employment Programme (STEP)

The scheme renders support to women’s empowerment in sectors like agriculture, dairying, small animal husbandry, fisheries, khadi and village industries, handlooms, etc., where women are predominantly engaged in work. The scheme focuses on the poorest, the most unorganised and assetless women.

Socio-Economic Programme

Under this programme, the Central Social Welfare Board gives financial assistance to voluntary organisations for a variety of income-generating activities, providing work and wages to needy women. Small economic units, handloom and handicrafts units, dairy units

and other animal husbandry programmes like piggery, goat-rearing, sheep-breeding and poultry are supported under this programme.

Women's Development Corporation

The Scheme for setting up Women's Development Corporations in States was formulated in 1986-87 with a view to identifying women entrepreneurs, providing them with technical consultancy, facilitating availability of credits, promoting marketing of products, strengthening women's cooperatives, arranging training facilities, etc. The scheme was transferred to the State sector during 1992-93, as per the decision of the National Development Council.

National Institute of Public Cooperation and Child Development

The National Institute of Public Cooperation and Child Development (NIPCID), New Delhi, an autonomous organisation, functions under the aegis of the Department of Women and Child.

Conclusion

Empowerment of women means....

- Acquiring knowledge and understand of gender relations and the ways in which these relations may be changed.
- Developing a sense of self-worth, a belief in one's ability to secure desired changes and the right to control one's life.
- Gaining the ability to generate choices and exercise bargaining power.
- Developing the ability to organize and influence the direction of social change, to create a more just social and economic order, nationally and internationally.

The concept of empowerment of women means psychological sense of personal control in the persons, domestic, social and political realms. It is a process by which one is authorized to think, act and control resources in an autonomous way. The most critical component of women's empowerment is found to be education. It leads to improved economic growth, low fertility rate, health and sanitation and an awareness of factors that disempowered women. Work participation rate and political participation also grows in women's education.

The expansion of the market economy and industrialization and globalization brought increased inequalities, resulting in loss of livelihoods, erosion of natural resources and with it decreased women's access to water, fuel, fodder and traditional survival resources. It also brought new forms of exploitation-displacement, tourism, sex trade and retrenchment to mention a few. Women are being pushed into less productive sectors. Increased pressure on rural resources accelerated migration to urban areas in search of livelihood. People from backward regions, tribal communities, disadvantaged castes and the displaced communities were being pushed against the wall. Women in such countries shouldered the brunt and this phenomenon was labelled, feminization of poverty. Women's health is an important component of women's empowerment. However the accumulated research evidences show that the achievement levels in providing better health care and safe motherhood for women, especially for rural women, are not at expected levels.

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In India, the highest number of deaths in the age group of 16 to 25 is recorded among women. Anaemia is one of the most commonly found deficiency among the women and it is also mentioned by several studies that they are often not too healthy when they bear the first child and none of them are physically ready to bear a second child. A pathetic reality is that nearly 88 percent of the pregnant women (1985-95) reported to be anaemic. World Health Organization figures also show that the lifetime risk of dying from pregnancy or child-birth-related causes is one in twenty in some developing countries, compared to one in ten thousand in some industrialized countries. About one in five of these deaths stem from unsafe abortions.

Work participation empowers women. However the condition of women in India is more miserable than the rest of the world in almost every field of social life. They are paid half of three-quarters of the money while their male counterparts earn for the same job. India is predominantly agricultural country. Women do more than half of the total agricultural work. But their work is not valued. On an average a woman works 15 to 16 hours a day unpaid at home and underpaid outside. Among strategies for women empowerment, Government policies such as 73 and 74th amendment of Indian Constitution, Reservation policies, concessions, social legislation and enactment of certain acts were found to be very important. However, the effect of such strategies failed to reach the target due to various bureaucratic and systemic failures.

In this regard, the SHG approach towards women empowerment is found to be highly promising and effective. In the next chapter, we shall discuss in detail how SHGs mediate economic empowerment of women.

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Impact of Poverty on Health Status of the Tribals of Tripura

H. Theresa Darlong
Hiraxmi Deb Barma

Introduction

Health is not just a pure physical or biological state of the human body. It is also a major social issue since the state of health has an impact of the growth of a society and the nation. Nations of the world have agreed that enjoying the highest attainable standard of health is one of the fundamental rights of every human being without any distinction of race, religion, political, economic or social condition. Beyond its intrinsic value to the individual, health is also central to over all human development and to reduction of poverty. A healthy society contributes more to national growth as compared to society that is not in a good state of health. It is an important indicator of the well being of society. Health is “a state of complete physical, mental and social well being” as defined by the World Health Organisation. Various factors are responsible for describing a society as good health. Among all, poverty poses a great threat to the health status of tribal society. It creates ill-health because it forces people to live in an environment that make them sick, which means they may have little or no access to decent shelter, clean water, adequate sanitation or any health care. All these problems invites other related issues like, low educational levels, shorter life expectancy, high mortality and fertility rate, vector-borne disease, etc. than wealthier people.

It has been seen that the problem is more pronounced in the case of tribal people of North East India due to peculiarities of geographical isolation, poor transport facilities, poor economy, tribal religious practises, preference to superstitious healing rather and avoid allopathic/ homeopathy medicines, diseases due to the environment and other related reasons. The ill-effect of poverty on health has become a matter of concern for government, non-government and local people. In Tripura majority of the tribal population lives in TTAADC area and major section of this population are poor who suffers from various health problems affecting in mortality rate. For poor people health is a crucial important economic asset because their livelihood depends on it. When the poor become ill or injured the entire

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household can become trapped in a downward spiral of loss of income and high health cost. Therefore, the study will concentrate only to the tribals of TTAADC area. The present study has restricted its analysis to the effects of poverty on health among tribals of Nepal Tilla of Dhalai district, Tripura.

Study area

Tripura is one of the poor states in India due to geographical isolation, dependence on mainly primary and secondary activities, agrarian society, high population growth due to influx of refugees from erstwhile East Pakistan now Bangladesh, low per capita income, poor infrastructural facilities, poor transport and communication network, inadequate exploitation of natural resources, low progress in industrial field, high un-employment problems etc. These factors have increased the level of poverty inviting the ill-effect in health status of the state. The situation is more prominent in the hilly backward areas of TTAADC. For better understanding the situation, the field study is conducted by selecting one of the places of poor district of Tripura, i.e., Dhalai District. Therefore, Nepal Tilla village panchayat has been selected for the field study.

The area under study comprises of 3 big villages, West Kathalcherra, East Kathalcherra and Demcherra under which there are 28 hamlets. The area is a tribal and hilly region in Dhalai district of Tripura. It has the population of 13000. Health care facilities are not sufficiently developed in the study region due to remoteness and hilly nature of the district. The study is pertinent to the poverty and health issues, therefore Nepal Tilla is chosen as study area as it sets an example of economic backwardness susceptible to health issues. The area is overwhelmingly inhabited by tribal communities (79%) where health care facilities remain rather backward due to many prevailing factors, like poor transport and communication facilities, low literacy rate, low income, more rural inhabitants, ignorance of using low cost filtered water, unavailability of safe drinking water, medical facilities, environmental awareness programme, community hygienic awareness programme, religious and superstitious belief, etc.

Objective

The present paper will study the following objectives:

- i. to study the impact of poverty on health status of tribals of Tripura, and
- ii. to discuss on the strategies for development of tribal health of Tripura.

Data base and Methodology

This study is based on both primary and secondary sources of data. Much of the data pertains to the field study conducted in the study area in the year 2015. Many doctors working in the remote villages of Tripura have been interviewed on the topic prevailing health issues of tribals and their related problems. Random sampling has been applied for the study of villages under Nepal Tilla Health Centre. In order to find out issues related to poverty and health, the study was carried out by visiting Primary Health Centres in the Nepal Tilla and by interacting with medical staff and locals. The aim was to carry out a

realistic assessment of how issues relating to poverty affect health in the tribal community; the status of general health; and to find out the challenges and opportunities affecting in the maintenance of a good health state; and also to recommend solutions to mitigate the existing problems.

Impact of poverty on health status of tribals of Tripura

Poverty and Health have an intricate relationship. Many scientist and researchers measures the poverty differently with different indices. Poverty as measured by many agencies and governments is on a bench mark of the index of income earned by an individual or the minimum food intake, in terms of calories (2000-2500 calories per day) by an individual. It can be 'objective', i. e., based on the income – expenditure levels or 'quantitative", based on poverty lines. According to Zeller (2004), at a global level, the index is the International Poverty Line, which is the one dollar income per day per capita (equal to \$1.08 per day in purchasing power parity (PPP) dollars at 1993 prices). At national level there is the Poverty Line defined for rural and urban areas based on various methodologies. In fact, poverty is a state where an individual is not capable enough to earn the minimum income to provide him and his family the much needed food security, education, and health for sustenance. Amartya Sen describes "Bad health is constitutive of poverty, premature mortality, escapable morbidity, under nourishment and are manifestations of poverty." There are many issues of poverty which facilitate health deprivation to the tribals.

The health status of Tripura is improving as compared to other North Eastern State of India. Table 1 shows the health status of Tripura. The comparative study of given data (2008 and 2013) shows the Birth rate, Natural growth rate, Death rate, Infant mortality rate (IMR), Couple Protection rate (CPR), NFHS-3, TFR (total Fertility Rate), NFHS-3, Maternal Mortality Rate (SPP-2000) and Sex ratio which are progressively improving and shows the better status than the national (India) average. The National Rural Health Mission (NRHM) adopted by the state government is one of the responsible measures as it aims in improving the availability of access to quality health care of people especially for those vulnerable living in rural areas, the poor, women and children by supporting the existing health infrastructure, manpower and services in the state through the introduction of Accredited Social Health Activist (ASHA) in the community. But practically, majority of the tribal population living in the remote villages were devoid of such facilities and also not conscious of such health awareness programmes. No doubt the NRHM has brought a change in the scenario of health status in Tripura.

TRIBAL HEALTH**Table 1: Health status of Tripura**

SL. No.	Category	India (2008)	India (2013)	Tripura (2008)	Tripura (2013)
1	Birth rate	22.8	21.6	15.4	13.7
2	Natural growth rate	7.4	7	5.9	4
3	Death rate	15.4	14.5	9.5	9
4	Infant mortality rate (IMR)	53	42	34	26
5	Couple Protection rate (CPR), NFHS-3	56.03	56.03	65.08	65.08
6	TFR (total Fertility Rate), NFHS-3	2.68	2.5	2.22	1.7
7	Maternal Mortality Rate, SPP-2000	4.37 (SPP-2000)	4.37 (SPP-2000)	4 (SPP-2000)	4 (SPP-2000)
8	Sex ratio	933:1000	940:1000	950:1000	961:1000

Source: Economic Review of Tripura 2008-2009, 2013-2014

According to statistics of Economic Review of Tripura (2012-13), the indicator of health are good in Tripura compared to many other states in terms of birth, death, infant mortality and fertility rates which are higher than national standards. Study from the compiled analysis of the health indicators as per the Human Development Index of North Eastern India (2011) and National Health Profile 2010 -National Family Health Survey, shows that the health state in Tripura is much better compared to other states in the NE (shown in table 2). This is mainly due to health infrastructure and schemes created by the government. The health set up and state of public health in the sample villages indicates the same. However, there are certain problems peculiar to the tribals due to which these schemes are not fully exploited.

Table 2: Health indicators of Tripura.

Sl. No.	Indicator	Tripura	Comparison with worst in NE	Remarks
1.	Birth Rate	14.8	Assam 23.6	2009
2.	Death Rate	5.1	Assam 8.4	2009
	Fertility Rate	1.7	Meghalaya 3.1	2009
3.	Infant Mortality Rates	31	Assam 61	All India - 50
4.	Full Immunisation	49.7	Nagaland 21.0	2010
	No Immunisation	14.7	Arunachal 24.1	2010
5.	Maternal Care	48.8	Nagaland 24.7	Birth Assisted by Doctors
6.	Anti Natal Care	60.0	Arunachal 35.5	At least 4 visits prior to birth
7.	Nutritional Status of Women	65.1	Arunachal 69.5	Anaemic women
8.	Sex Ration (Total)	961	Sikkim 889	Per 1000 men
9.	Infanticide	1	All India - 186	2009 data. Not much available of other states
10.	Malaria Reported	2589 4	Assam- 83936	51 deaths (2010)
11.	Respiratory diseases	2428 00	Meghalaya- 213692	43 deaths (2010)
12.	Diarrhoea	1264 27	Meghalaya- 133478	39 deaths (2010)
14.	House Hold Water from unprotected sources	22%	Mizoram– 78.6%	
15.	Lack of Latrines	16.8 %	Arunachal-52.7%	Septic tanks– 5.2% only

Source: Human Development Index of North Eastern India (2011) and National Health Profile 2010 - National Family Health Survey

Issues Related to Poverty and its impact on Health Status of Tripura

1. Lack of Education: 1990s, Tripura saw a major literacy expansion. By 2011, the literacy rates for both males and females, in rural and urban areas, were higher than the corresponding averages for India and the North Eastern States. Inequalities in education levels remain, across districts, social groups and gender. Nevertheless, universal literacy has not been achieved in any of the villages. The literacy rate of Tripura is 87.75% and only next Mizoram amongst the NE states. In case of ST literacy rate, it has significantly increased

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from 56.50% in census 2001 to 79.05% in census 2011. But it is 10.4% low as compared to SC literacy rate (89.45%) and quite low among the tribals in Dhalai. The rate in Dhalai District is 85.72%, which is less than the state index. Despite the efforts of the state government to provide free education to the tribals, there is a tendency to drop out of schools. However, the drop-out rate is higher among children of ST families, (14 %). Therefore, with no prospects of higher education unemployment prevails amongst tribals.

2. Unemployment: Unemployment leads to poverty. The problem of unemployment is acute in Tripura. In 1999–2000, most of the unemployment rates in urban Tripura were higher than the corresponding all-India averages. For example, among males, unemployment was 5.4 per cent in Tripura as compared to the national average of 4.5 per cent. This is a major factor which permits poverty to prevail, especially amongst tribals. Total job seekers in the Employment Exchange were 5.99 lakhs as per statistics of March 2013. Tripura has a low per capita income Rs.60,963/- as per index of 2012-13.

3. Hunger and Malnutrition: This is a direct effect due to poverty and has implications of health. Anemia, lack of natural immunity, low Body Mass Index (BMI), high infant mortality, etc are a fallout of hunger which leads to malnutrition. A study conducted by Ray and Chandra (2013) indicates a high level of malnutrition amongst the children in Tripura, especially the tribal children, though it also mentions “As the study was conducted about one and half decades ago, the under-nutrition problems of Tripura’s children (as evidenced by the high prevalence of stunting and/or wasting/thinness) might have undergone a substantial change during this interval.”

4. Gender Issues: The tendency to get the girl child married very early still remains amongst the tribal due to the belief that early marriage reduces the financial strain on the family. Child marriage has its related problems of health, pregnancy and post natal ailments. They have higher than average child and mother mortality. Gender inequality is a major determinant of power and ill health in the society. As compared to educated and societies Below Poverty Line (BPL), women and girls are worse off in asset entitlement, within the household and in the society. Due to socio-cultural beliefs women and girls may experience even greater disadvantages in access to resources for health.

5. Tendency to ignore health problems: Since the limited income is not enough to provide the basic food required for the family, health issues are low in priority and ignored. There is a tendency amongst tribals not to resort to medical help for illnesses till it becomes critical for the sole reason that it costs money, be it for treatment or transportation to the nearest medical unit with facilities.

6. Lack of communal hygiene: These are the problems basically created due to the living conditions – lack of toilets in houses, use of open fields or in and around the sources of water, lack of drainage, unclean living conditions and are a threat to communal hygiene. This can be a major factor leading to infectious diseases.

7. Superstitious Beliefs: There does exist a medical infrastructure in rural areas due to various schemes by the government. For example in Dhalai district there are three sub-division hospitals and 11 Primary Health Centres (PHC) as per the statics of 2007, with a bed to population ratio of 68 beds to 100000 persons. Despite this there is a tendency

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amongst tribals to first try out traditional practices then go to *ochai* or *ojhai*. When things are out of control they go to the nearest PHC. This is due to social beliefs strongly engrained in poverty ridden tribal societies.

8. Genetic Disorders: These are primarily related to lack of education and superstitious societal relationships amongst the people living in poverty. It caused due to close relative (kinship) marriages these can be overcome by awareness in societies. However, such incidents are very few in Tripura tribals due to the strict adoption of tribal laws.

9. Vulnerability to Epidemics: The lack of education and awareness on the importance of prophylactic prevention, immunisation, lack of clean living conditions, proximity of animal living areas to human households, the large surroundings of forests and water bodies in which the tribal villages are located make them very vulnerable to epidemics especially like malaria.

10. Budget for Health Care: With literally no money left in the budget for health, the tribal does not access the secondary and tertiary levels of treatment required to be done in specialised private hospitals, when not available in the nearest PHCs.

Health Status under Study area Nepal Tilla: The study restricted itself to Dhalai district as the district has the highest population of Scheduled Tribes (ST) living in rural areas. According to 2011 census report, the total ST population of Dhalai District is 210608 persons out of which 205637 persons live in rural areas and 4971 persons in urban areas (Table 3 and fig. 1, shows the comparisons of ST Population of Tripura and Rural-Urban ST Population) and there are 152 villages, four villages are uninhabited. For the convenient, field study has been conducted in Nepal Tilla as it also poses as one of the poor places of the district; it falls under Longtharai Valley Sub-division and under Manu Rural Development Block. The nearest connectivity network is NH-44 which is 7 km distant. But most of the hamlets are situated in inaccessible areas due to hills and valleys and forest cover where building and maintaining road is costly affairs.

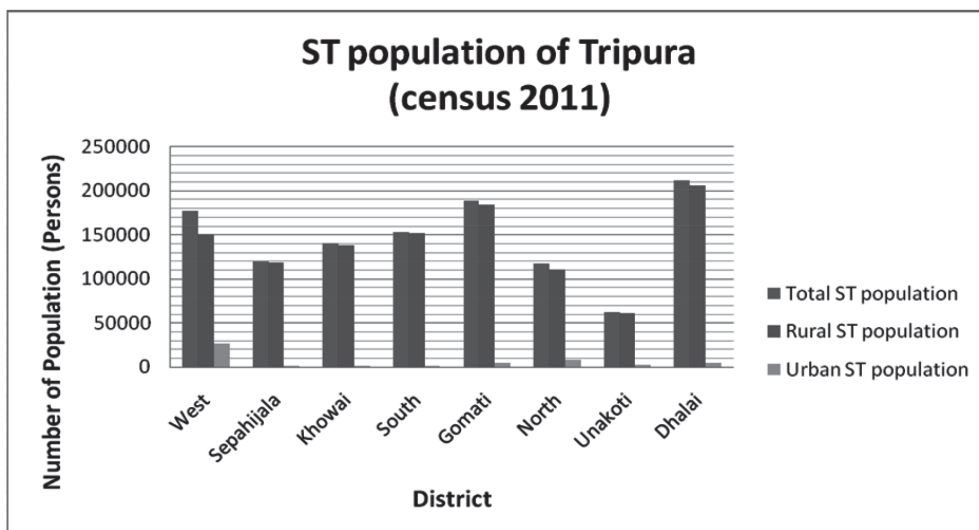
Table 3: ST Population of Tripura and ST Rural-Urban Population

Sl. No.	Name of District	Total ST population	Rural ST population	Urban ST population
1	West	176596	149847	26749
2	Sepahijala	119401	118385	1016
3	Khowai	139537	138104	1433
4	South	152691	151329	1362
5	Gomati	188554	184007	4547
6	North	117106	109696	7410
7	Unakoti	62320	60561	1759
8	Dhalai	210608	205637	4971
9	Tripura	1166813	1117566	49247

Source: Economic Review of Tripura, 2013-14

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Fig. 1: ST Population of Tripura and Rural-Urban ST Population



Nepal Tilla Primary Health Centre is a recently established Primary Health Centre (PHC) on 1st September 2012, which was divided from the 82 Miles Primary Health Centre. It has three Sub Centres, viz, West Kathelcherra, East Kathelcherra and Demcherra. The population coverage is approximately 13000 people. There are ten (10) beds at Nepal Tilla. The PHC is like in any other Tribal areas. Table 4 shows the profile of Nepal Tilla, some of its salient features on health systems are enumerated. These are:

- There is a working health setup adequately stocked with basic essential medicines and support systems.
- Medical and para-medical staffs are posted.
- Around 80% of the tribal population uses the government health facilities for some ailment or the other.
- Preventive medicine appears effective since there has been no case of severe epidemic.
- Most common ailments are due to sanitation, water or are infectious.
- 81.71% (avg.) of the immunizations are being carried out among tribals, table 4 shows the percentage of immunization among the tribal children.
- Government hospitals are used for normal delivery mode of child birth.
- Village health awareness is maintained.
- Health awareness programs are conducted often.

Table 4: Profile of Nepal Tilla.

Sl. No.	Category	
1	Date of Starting PHC	1/9/2012
2	Sub-centre	3
3	population in person	13000
4	Total no. of hamlet or <i>Para</i>	28
5	No. of ICDS centre	22
6	No. of ASHA	22
7	No. of Bed	10
8	Distance from Natonal Highway (in km.)	7

Source: Field Study, 2015.

Table 5: ST Population and percentage of children's immunization.

Sl. No.	Name of the Tribe	Population	Percentage of Population	Percentage of childrens Immunization
1	Darlong	2021	21%	100%
2	Debbarma	2345	24%	96%
3	Garo	1208	13%	91%
4	Reang	3853	48%	70%
5	Tripura	405	4%	60%
6	Munda	205	2%	60%
7	Other tribes	103	1%	95%
8	Total	10140	99.99%	81.71% (Avg.)

Source: Field Study, 2015

Review of overall Health situations under Nepal tilla:

Tropical diseases like malaria, Diarrhoea, Helminthiasis, respiratory infection, skin diseases, enteric fever, malnutrition etc., are prevalent in the Dhalai District of Tripura. As a whole the health situation is much better in comparison to other parts of Longtharai valley sub-division. For example, in 2014, when an outbreak of malaria occurred in Dhalai District there were about 98 patients treated for PF Malaria in Nepal Tilla PHC and about 45 cases of PF Malaria treated in the camps. No death was reported in the hospital or field. In the

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same sub-division in other PHCs like in 82 Miles, Dumacherra, Manu, Chawmanu, Manikpur, Subdivision Hospitals hundreds of people were affected by malaria and many died. Reangs with 48% of the total population are the most malaria affected community. Due to government efforts and previous experiences, it is observed that most of the tribals do seek for modern form of medical treatment for their ailments only now since they are convinced that these cannot be cured by traditional methods. However, for other routine illness people still believe in old traditional treatment.

Strategies for development of tribal health of Tripura

Most of the Tribal people are very sentimental and emotionally soft, there should be certain aspects health and hygiene formulation to impart to them which should be different from mainstream practices. Since most of the tribal are economically and educationally poor, their understanding of health is very poor. Most of the hoarding and wall writing on health and hygiene are practically ignore as they cannot read.

Despite the effort of the government of Tripura to provide the basic health facilities in the tribal villages, there are many challenges to be faced which could be suggested for the development of tribal health of Tripura.

Challenges: Most of the tribal people are very sentimental and emotionally soft, there should be certain aspects health and hygiene formulation to impart to them which should be different from mainstream practices. Since most of the tribal are economically and educationally poor, their understanding of health is very poor, most of the hoarding and wall writing on health and hygiene are practically ignore as they could not read.

The challenges are mostly due to the tribal practices and psyche created over a period of time due to isolation as also the lack of accessibility to these remote areas. The tribal beliefs in superstitions and tribal practises are the major predicament. They tend to resort to either the village witch craft or traditional practises due to which the illness is not diagnosed early leading to its gravitation and ending up in a stage when the patient has to resort to secondary levels of treatment which may not be available in the PHCs. Timely referrals to the PHC would facilitate the tribal to be sent to bigger hospitals in the state where the services of specialists are available. Tribal affiliations lead to consultation with the village elders and traditional village healers. The tribals also have a tendency to procrastinate due to their way of living due to which timely attention is not given to health. There is a hesitancy to visit hospitals on small pretexts that the child might cry if and injection is administered or cropping of pineapple and the festivities take precedence to health. This casual attitude can only be rectified by creating awareness.

The other major challenges are the remoteness of the villages and the lack of a sound transportation system. Many of the tribal villages are accessible only by foot. This is a major challenge both for the medical teams to reach out as well as for the patient to be evacuated to the nearest PHC or the secondary level hospitals. Transportation costs are high and lack of good roads takes a long time for travel to the cities.

The major opportunity to facilitate a sound health state to the tribals is the availability of a health infrastructure in the state. The growth of Tripura over the last 12 years has

focussed on addressing the various needs of the tribals, especially the health sector. Tripura's health infrastructure is inadequate as per norms of the Government of India, Ministry of Health and Family Welfare. However, as per National Family Health Survey (2010) survey, 78% of the population reported the use of health services at government or public institutions, What is of concern is not the people who use these facilities but that tribal child in a remote village who is not able to reach the PHC due to various social and economic factors. The medical staff along with the district administration must launch proactive drives in remote areas to address the challenges.

A paradigm shift in the attitude towards health is what is required and the existing schools in the villages are the sources from where these initiatives can be launched.

Recommended Solutions: Notwithstanding the programs of the government some more measures suggested by this study, these are:

- **Education:** There is still a need to reach out to the tribals, especially those in remote areas and well entrenched in tribal practises on the need for healthy and hygienic living conditions.
- **Supply of Clean Water:** Most of the rural areas in the interiors are still dependant of the local stream or river for drinking water. While this might sustain for a limited period of time, there is a requirement to provide clean drinking water to the villages.
- **Community Centres:** While Community Centres do exist in many rural areas, they are not fully exploited for promulgation of health programmes. There is a need for more initiative at the district level civil servants to come up with attractive schemes to be executed in the Community Centres for the tribals to come forward and seek assistance in the PHCs and other government schemes.
- **Adoption of Villages by Non Government Organisations (NGOs):** The concept of a model village must be resorted to in each District. NGOs must be given sanction on their capability to create model villages where in an ideal practical health system is exhibited.
- **Delegation of Powers:** Low level functionaries, who are the ones in contact with the tribals must be given more power in terms of finance expenditure and decision making in designing and evolving health schemes in conjunction with the tribal leaders.
- **Efficient and Productive Schemes:** While many schemes are launched, many of them do not achieve their aims to the desired extent. It is preferable that lesser number of schemes with more potency are launched to achieve more outputs.
- **Empowerment of the Rural Doctor:** Presently the medical and para medical staffs in PHCs and rural hospitals are treating only primary disorders like fever, stomach disorders, etc. All specialities are referred to the government hospital with such facilities in the nearest localities. It would be prudent to enable the doctors in PHCs to administer a larger variety of treatment by providing the necessary infrastructure and modern medicines.

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Conclusion

Hygiene and health care is one of the ten components of Multi directional poverty assessment as per a Report by JSC Scientific and Technical Report prepared for Institute for the Protection and Security of the Citizen, an advisory agency to the European Union. But poverty and health are inter-related. Poverty has a direct influence on the health of the individual and society. When analysed in the context of Tripura, economic and health indicators prove that while poverty does exist but due to various initiatives of the state, the health of the public is much better when compared to the rest of North Eastern states. However, with 31% of tribal population, many of who still live in remote areas there is a challenge to reach out to these people who are not availing the existing health facilities either due to traditional beliefs or difficulties of commutation. There is a need to change the psyche of these people by various campaigns, to facilitate health programs to reach out to these people and enable transportation for them to use the existing health facilities.

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Status of Tribal Health in Odisha: Issues and Challenge

Dr. Rajshree Dutta

Introduction

Despite remarkable world-wide progress in the field of diagnostics, curative and preventive health, still there are people living in isolation in natural and unpolluted surroundings far away from civilization with their traditional values, customs, beliefs and myth intact. They are commonly known as 'tribals'. About half of the world's population comprises 635 tribal communities including 75 primitive tribal communities that live in India. Odisha, the most picturesque state in eastern India, occupies a unique place in the tribal map of the country having one of the largest number of tribal communities¹ (62 tribes including 13 primitive tribes) with a population of 8.15 million constituting 22.2% of state's population (ICMR Bulletin, 2003). The major scheduled tribes includes Bathudi, Bhumiz, Kolha, Lodha and Santal from Mayurbhanj district; Bhuyan, Kharia, Kissan, Munda and Oraon from Sundargarh district; Bhatra from Nawarangpur district; Gond from Kalahandi and Kandhamal districts; Paraja from Koraput district; Bondo and Didayi from Malkangiri district; Juang from Keonjhar district; and Saora from Ganjam and Gajapati districts in Odisha.

Special attention for the tribal health was given only in 2000. The Health Strategy of Odisha in 2003 has advocated the improvement in health status of tribal population by reducing the morbidity and mortality in them. Tribal people suffer from special health problems disproportionately such as malaria, sexually transmitted diseases, tuberculosis, nutritional deficiency diseases, and genetic disorders like sickle cell anaemia. The situation analysis of health indices of the tribal population in Odisha was worse than the national analysis. A high incidence of malnutrition has also been documented in tribal dominated districts of Odisha. This scenario presents a very grim picture about the general health and quality of life of the tribal people in Odisha. So it was felt that the urgent need is to combat the health problems and take the rehabilitative measures to alleviate the sufferings of the dwindling masses in the state of Odisha. Any tribe must be encouraged to organize itself in order to take advantages of the programs designed for the development and health in the light of human genetics, immunization, socio-cultural traditions and eco-friendly environment. It was observed that the tribal communities of Odisha are vulnerable as well as have major threat of the following major health problems.

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Tribal Health Problems in Odisha

Managerial skills and controlling power of the doctor to coordinate various activities and maintenance of infrastructures including vehicles and procurement of equipments, medicines, vaccines, etc. on regular basis are highly desirable. But there was a complete lack of managerial training, financial empowerment and facilities available to the doctor to efficiently and effectively monitor and carry out public health duties in the rural setting and tribal areas. This drastically affects the well-being and tribal health in the state. Frequent transfers and absenteeism of the staff, favouritism and corrupt practices hinder the smooth functioning of the Primary Health Centre (PHC), which have adverse health effects on the tribal population. Still now the position has not been improved upto the markable extent. As a result of these loopholes, the tribals are often burdened with the following diseases:

(a) Communicable diseases

The communicable diseases are those diseases, which pass from infected person to a healthy person by direct or indirect contacts through infectious agents. The people in their daily life consciously or subconsciously modify the environment and ecological aspects of their habitat, which in turn increase the risk for communicable diseases. The communication of diseases is dependent either on the direct contact or on the indirect agents like breathing, sputum, stool, saliva, urine, etc. The diseases are communicated through direct contact and tuberculosis is communicated through indirect contact such as breathing. Sometimes, viral or bacterial infections cause death in a large numbers (in epidemic form) and threaten the survival of mankind. There are several communicable diseases prevalent among the tribals of Odisha. These are: Tuberculosis, Hepatitis, Sexually Transmitted Diseases (STDs), Malaria, Filariasis, Diarrhoea, Dysentery, Jaundice, Parasitic Infestation, Viral and Fungal Infections, Conjunctivitis, Scabies, Measles, Leprosy, Cough and Cold, HIV/AIDS etc which spreads like wild fire due to lack of sanitation and unhygienic living (Balgir, 2005).

(b) Non-communicable diseases

Education, especially the female education, is generally considered a key factor to development. Female education is believed to have a great influence on the maternal and child health as it enhances the knowledge and skills of the mother concerning age at marriage, contraception, nutrition, prevention and treatment of diseases. This also means that the higher infant and child mortality rates among the poorly educated mothers are due to their poor hygienic practices. Moreover, maternal education is related to child health because it reduces the cost of public health related to information on health technology. It is expected that the increase in literacy rate of a community would reduce the fertility, morbidity and child mortality or in other words, improve the health status of the community as a whole. Mortality decline can be achieved by widely distributed public health services such as information technology, immunization, sanitation, nutrition, adding preventive and curative services to improve the maternal and child health. Lack of proper health education, poverty, faulty feeding habits and irrational beliefs aggravate the health and nutritional status of these underprivileged people in Odisha (Balgir, 2000).

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As malnutrition is known to lead susceptibility to infectious diseases to death, the mortality rate in primitive tribes may be attributed to malnutrition. Four primitive tribes, namely, Bondo (16%), Didayi (19%), Juang (25.1%) and Kutia Kondh (26.6%) showed severe malnutrition in Malkangiri (Bondo and Didayi), Keonjhar (Juang), Kandhamal (Kutia Kondh) and Rayagada districts of Odisha respectively. The severe anaemia was also noticed among the majority of tribals. There was a positive correlation between hookworm infestation and anaemia due to indiscriminate defecation, bare foot and lack of health awareness. Drug administration intervention revealed reduction in worm infestation (51.2%) and improvement of anaemia (34.8%) in individuals belonging to above tribes. Liver cirrhosis due to excessive drinking of country made alcohol, hypertension due to excessive salt intake, chronic respiratory diseases due to excessive smoking, oral cancer (due to regular betel nut chewing), malnutrition, nutritional deficiency disorders like iron deficiency anaemia, iodine deficiency (goitre) etc. form a major chunk. There are several other environmentally caused health hazards due to poor sanitation, poor disposable facilities for human excreta, animal waste, sewerage and sullage, etc. associated with illiteracy, extreme exploitation by the local elites, etc.

(c) Silent killer genetic diseases

Genetic disorders are gaining prominence and have profound health implications in morbidity status of tribals in Odisha. Sick cell anaemia and enzyme deficiency are the two important genetically determined disorders, which play an important role in human health and disease.

(d) Reproductive health

After India's independence, government institutions gradually opened in rural areas inhabited by indigenous people. Male officers from the developed coastal plains were posted in these government offices temporarily, usually for a period of two to three years. Since the tribal areas were underdeveloped and lacked necessities of civilized lifestyle, the officers who were posted in tribal areas did not bring their families with them. During their stay, some of them entered into bigamy by marrying innocent young tribal women. This did not cost them much and provided a solution to their loneliness and physical or sexual needs. Two or three years later, they could leave the area leaving the tribal wife and children without any support. This illegal and inhuman practice by the government officials remained unknown to the public in the coastal plains. Further, the dark side of these activities was the grabbing of land by outside people in the tribal areas, sexual exploitation of innocent tribal women, and extortion of forest produces by non-tribal traders, stood as a challenge before the indigenous women living in the forests of Southern Odisha. This has led to the spread of certain diseases prevalent only in the coastal belt, but now common among the tribals (Balgir, 2004).

Thus the primitive tribes in Odisha have distinct health problems², mainly governed by multidimensional factors such as habitat, difficult terrains, varied ecological niches, illiteracy, poverty, isolation, superstitions and deforestation. The tribal people in India have their own life styles, food habits, beliefs, traditions and socio-cultural activities. The health and nutritional problems of the vast tribal populations are varied because of bewildering

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diversity in their socio-economic, cultural and ecological settings (Balgir 2000). The health care services and challenges in tribal areas are a complicated phenomenon because:

- (a) Concept of health and disease is rather traditional which results in their not seeking treatment at an early stage of physical maladjustment and frequent refusal of preventive measures and their idea of medical care is some treatment not easily accessible and available.
- (b) Lack of motivation of people for availing medical care at the initial stage of the disease.
- (c) Limited paying capacity or habit of getting treatment always free of cost.
- (d) Comparative inaccessibility of medical care services due to under-developed communication and transport facilities.
- (e) Non-availability of qualified medical practitioner in the tribal areas.
- (f) Qualified health workers and professional medical and paramedical staff do not want to work in rural and tribal areas because of professional, personal and social reasons.
- (g) Non-availability of private or governmental doctor as and when need arises (Behera, 2011).

Ameliorative Challenges

There are several challenges³ for policy makers, planners, administrators, implementers, doctors, social workers and non-governmental organizations (NGOs) for the amelioration of tribal communities in the tribal dominated areas of Odisha. Some of the suggestions are listed here which gives at least some relief to the suffering tribal masses:

1. A complete Mini Hospital or Health Unit (including a medically qualified doctor, a laboratory technician, a pharmacist and a staff nurse with required medicines and basic laboratory testing set up, etc.) in a mobile van should be set up which will cater to the health needs of the tribal community in a group of adjacent villages fixing a date at least weekly or preferably in the weekly tribal market to minimize the tribal sufferings.
2. A mass awareness and preventive programme about common prevalent diseases should be launched at weekly markets in tribal areas with increased interaction of health workers with the participation of local population.
3. Mass screening for genetically transmitted diseases should be continued at an interval of certain period for carrier detection among the high risk tribal communities.
4. Providing genetic/marriage counsellor to affected tribal communities and families for the future reproductive guidance and decisions.
5. Providing social and economic incentives and support for combating the common prevalent communicable and non-communicable diseases in the tribal community.
6. Maintenance of registry of common prevalent diseases will be an added advantage for future course of action and effective mobilization of health care machinery of the district, state or the region.
7. For nutritional deficiencies, localized research should be directed towards the easily or cheaply available food items, which could provide necessary nutrients with change of dietary practice to the vulnerable families and segments of the society.

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8. Local agricultural produce should be marketed by the tribal cooperative societies rather than individually for the better profit without involving the intermediary agents.
9. Financial incentives should be given for the transport of agricultural produce and communication.
10. To achieve operational efficiency in the health care delivery programs, efforts should be made to involve local tribals (preferably girls) with economical incentives, traditional dais, traditional healers in the health and family welfare delivery system after giving them proper training. Preventive approach like immunization, anti-infection measures and various other aspects should be given more importance.
11. Constraints and bottlenecks of the existing health and family welfare delivery system should be identified, specifying clearly the infrastructure required, strategies to be developed which are in consonance with the felt needs of the local tribal population.

Steps Undertaken

The Odisha Health Vision 2010 was developed during 2003-04 by the Department of Health and Family Welfare and approved by the state cabinet. The mission aims “to facilitate improvement in the health status of the people of Odisha with their participation, and to make available health care in a socially equitable, accessible and affordable manner within a reasonable timeframe, creating partnerships between the public, voluntary and private health sector and across other developmental sectors”. The Odisha Health Sector Plan (OHSP) translates the Vision into a plan of action and is aligned with the National Rural Health Mission (NHRM). Both were developed by 2005, marking the beginning of a change from input-based approaches in tribal health to a focus on health outcomes. There is particular emphasis on achieving equity of access and outcomes. Factors affecting under-nutrition are addressed through a dedicated Nutrition Operational Plan led by the Department of Women and Children. The state wide health system was strengthened, with focused activities in half of the districts which are highly vulnerable to poor health status and malnutrition.

The Government of Odisha effective use of financial and technical resources from multiple funding streams has resulted in a number of significant sector improvements during the last five years. The trend in impact indicators is improving. The maternal mortality ratio is down, infant mortality fell, state wide cash transfer scheme, Mamata was introduced. Beyond the efforts aimed specifically at improving the health and nutrition of women and children, some of major health sector reforms supported by TMST (Technical and Management Support Team) also benefited the wider population. These include improved procurement practices, increased budget allocation and expanded storage facilities for drugs and equipment; human resource reforms; improvements in provision of hospital diets; improved financial management systems, including medium term financial planning and outcome based budgeting; improvements in health communications planning; creation of a programme management structure at state and district levels to support convergence of health and nutrition planning; and additional monitoring to increase the use of evidence in planning.

These initiatives, together with many more under the NRHM (National Rural Health Mission) and other health directorates, have led to a substantial increase in use of essential

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services. Till now the TMST continues to support Government of Odisha in developing, implementing and tracking the outcomes of further initiatives to strengthen systems and services and to increase demand for and utilisation of these services and increasing convergence between health, nutrition and sanitation services.

Outputs

The following targets/outputs are achieved for securing the tribal health. These initiatives helped to solve to a certain extent not only the tribal health problems but also created a widespread awareness in Odisha.

Output 1: Improved access to priority health nutrition and water and sanitation services

1. 'Mo Mashari' (my bed net): protecting women from malaria during pregnancy. Mo Mashari initiative was launched in November 2009, as a programme to protect pregnant women against malaria through distribution of Long Lasting Insecticidal Nets (LLIN).
2. Enhanced the quality of care of maternity services
3. Hospital diet services were introduced for reforming health care.
4. Odisha telemedicine network was established as a result of which specialist will take care for people in remote locations.
5. Odisha sickle cell project was introduced.
6. Wheels for Ashas were implemented for providing supporting services for women and children.

Output 2: Public health management systems was strengthened

1. By reforming human resource management to meet health care needs.
2. Nursing reforms were introduced for strengthening institutions and improving quality of care.
3. Modernising public health services by preparing the road map and e-governance plan.
4. Optimised use of public health resources by procurement of drugs and equipment.

Output 3: Positive health, nutrition and hygiene practices and health seeking behaviour of communities improved

1. The nutrition operational plan was introduced.
2. Better communication facilities developed for promoting positive health.

Output 4: Improved use of evidence in planning and delivery of equitable health, nutrition and water and sanitation services

1. A strategy for positive change was initiated by focusing on equity in health.
2. Out of pocket spending on health was introduced.
3. Concurrent monitoring of health and nutrition services was done with analysis and feedback mechanism.

Suggestions

The following suggestions may be undertaken for improving the health status of the tribal people of Odisha:

1. Develop and implement national standards for examination by which doctors, nurses and pharmacists are able to practice and get employment.
2. Rapidly develop and implement national accreditation of hospitals; those that do not comply would not get paid by insurance companies. However, a performance incentive plan that targets specific treatment parameters would be a useful adjunct.
3. Obtain proposals from private insurance companies and the government on ways to provide medical insurance coverage to the population at large and execute the strategy. It is healthy to have competition in healthcare, and provide health insurance to the millions who cannot afford it.
4. Utilise and apply medical information systems that encourage the use of evidence-based medicine, guidelines and protocols as well as electronic prescribing in inpatient and outpatient settings. This will, in time, encourage healthcare data collection, transparency, quality management, patient safety, efficiency, efficacy and appropriateness of care.
5. Perverse incentives between specialists, hospitals, imaging and diagnostic centres on the one hand and referring physicians on the other need be removed and a level of clarity needs to be introduced.
6. Develop multi-speciality group practices that have their incentives aligned with those of hospitals and payers. It is much easier to teach the techniques of sophisticated medical care to a group of employed physicians than it is to physicians as a whole. It is also important that doctors are paid adequately for what they do.
7. Encouragement of business schools is necessary to develop executive training programmes in healthcare, which will effectively reduce the talent gap for leadership in this area.
8. Revising of the curriculum in medical, nursing, pharmacy and other schools that train healthcare professionals, so that they too are trained in the new paradigm.
9. Developing partnerships between the public and private sectors that design newer ways to deliver healthcare.
10. The government should timely enquire about the progress of different committees and commissions which makes recommendations for the healthcare system and monitors its performance.
11. Health camps should be organised for free health check up for the needy.

Conclusion

To conclude, the health problems of the tribal populations of Odisha as in case of other states cannot automatically be overcome by establishing more primary health centres and sub-centres and also imparting training to more health personnel or providing integrated health services by a single authority or by a number of agencies. An integrated health services would be operated on a teamwork basis by division of labour so that the

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greatest possible use of professional skills could be made. While the physician is the central figure in the health center complex, the efficiency and output health services would depend upon the supporting personnel consisting of nurses, various categories of paramedical (laboratory technician, pharmacist, multipurpose health worker, genetic/marriage counsellor etc.) and auxiliary staffs.

In spite of the tremendous advancement in the field of preventive and curative medicine, the health care delivery services in tribal communities in Odisha are still poor and need amelioration and strengthening with sustenance to achieve the targeted goals of 'health for all'. Unless locality specific, tribe specific and need based health care delivery system are more effectively, efficiently and economically implemented which is appropriate, acceptable, accessible, and affordable, the goal of health for all would remain a Utopian dream!

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A Study of Normal Growth Pattern of Urban Tribal Boys of Tripura

Dr. Uma Sinha and Dr. S.K. Nag

Introduction

Children are a critical resource whose growth and well being will determine to a large extent the course of a country's social and economic future. Growth and development are intrinsic characteristics of childhood. Therefore appraisal of the progress of a country in the field of health can be made from time to time with the help of growth studies. According to De Onis, M., & Blossner, M. (2003) growth assessment is the single measurement that best defines the health and nutritional status of children, just as it provides an indirect measurement of the quality of life of an entire population. The future of human societies relies on children being able to achieve their optimal physical growth and development. In general, children living under better socio-economic conditions have consistently exceeded in growth and maturation than their counterparts living in under-privileged conditions.

Tripura is inhabited by two major racial elements, namely the Indo-Aryan represented by the Bengalee and the Indo-Mongoloid represented by various tribal communities, with short to medium stature and muscular body and have similar race, socio-economic status, culture, food habit and geographic, climatic condition. Thus, the tribal population of Tripura can be considered as a homogenous group (Dey, S.K., & Debray, P., 2003).

As there is a dearth of published data on the growth pattern of tribal boys of Tripura, we conducted a cross-sectional study. In present study, an attempt has been made to examine the trend of growth in height and weight among tribal boys and to evaluate their health profile in relation to human growth, development and nutrition and also to comparison of these parameters with national standards and other tribes of India.

Material and Methods

Subjects

A total of 150 tribal boys were investigated in this cross-sectional study carried out from 2006-2010. Data was collected only from the different higher secondary school situated

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in the Agartala Municipality Area, West Tripura by stratified random sampling technique. All the subjects came from almost similar socio-economic background. The anthropometric parameters of the boys including height (cm) and weight (kg) were recorded by following the standard procedures (Sodhi, H.S., 1991). Skinfold thickness was recorded by Harpenden Skinfold caliper at the site of biceps, triceps, subscapular, suprailliac and calf (Eston, R.G. *et al.*, 1995). Body density was calculated using the equation of Siri WE (1956) and Body Fat % was calculated by the formula of Durnin, J.V.G., & Womersley, J. (1974).

Statistical analysis:

Mean and standard deviation were performed.

Results

Mean and standard deviation (SD) values of the physical characteristics of urban tribal boys were shown in Table 1. It is apparent from this table that the mean values of all the anthropometric measurements are progressively accelerating with advancement of age except skinfolds and body fat % which declines toward puberty and again inclines after puberty among boys. In present study, the growth spurt for height and weight are noticed between age group 13 to 15 years in both groups.

Table 1: The growth and physical development of tribal boys according to age

Variables	0years (n = 20)	11years (n = 24)	12years (n = 25)	13years (n = 21)	14years (n = 20)	15years (n = 20)	16years (n = 20)
Height (cm)	127.5±2.2	133.0±3.1	138.2±1.7	143.2±3.0	150.5±3.4	157.0±3.4	159.0±4.1
Weight (kg)	22.3±1.3	25.0±1.8	28.2±2.0	30.5±2.6	35.2±1.8	41.7±1.3	44.0±2.3
TST(mm)	26.5±3.1	27.0±2.3	25.2±2.0	25.0±1.7	24.8±2.3	28.0±2.5	29.0±3.0
Body fat %	11.20±1.58	11.62±1.13	11.40±1.02	11.07±0.98	10.60±1.35	12.05±1.67	13.20±1.32

Values are (mean±SD); TB, Tribal boys, TST, Total skinfold thickness i.e. (Bicep + tricep + subscapular + suprailliac+ calf)

The height and weight of Tripura tribal boys were also compared with other states of tribal boys. In Fig 1. and Fig 2., Rajasthan (Sahariya) tribal boys (Bhasin, M.K., & Jain, S., 2007) and Orissa (Ashram School) tribal boys (Balgir, R.S., 2010) were superior in height and weight to the tribal boys of present study. The growth and development are influenced by the variation of climatic condition, which is also in agreement of the present study as the climatic conditions of the regions are different (Tanner, J.M., 1982).

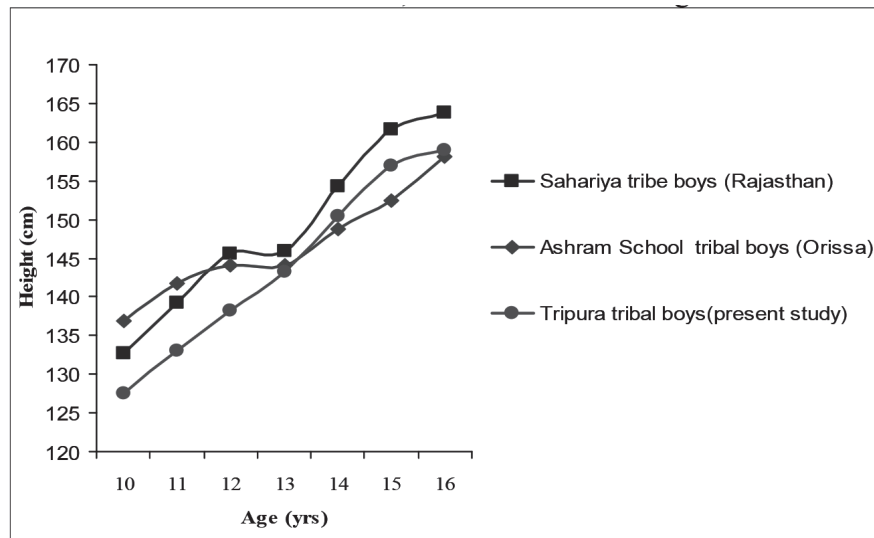


Fig 1. Comparison of mean body height of different age groups of Tripura tribal boys with other states of tribal boys of India

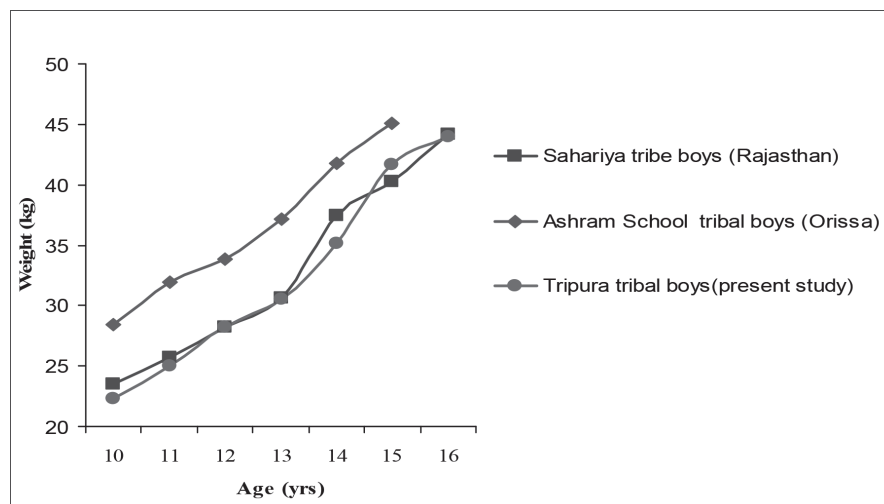


Fig 2. Comparison of mean body weight of different age groups of Tripura tribal boys with other states of tribal boys of India

Discussion

A study by Mishra, N.R. (2005) using the National Family Health Survey (NFHS-2) found that in almost all the states of India, tribal households had a higher incidence of childhood stunting (52.3%) than non-tribal households (42.8%). Using the same dataset, Nagda, B.L. (2004) reported an anemia prevalence of more than 80% among tribal children. Several studies have also reported deficient intake of calories and protein among tribal populations relative to the Indian RDA, which may be an explanation for the high rates of stunting among this

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group (Yadav, R.J., & Singh, P., 1999; Mittal, P.C., & Srivastava, S., 2006). The overall prevalence of stunting, thinness and overweight in Tripura tribal boys were 23.7%, 33.4% and 0.8%, respectively (Shil, S.K. *et al.*, 2011) and the prevalence of thinness in non-tribal boys (Bengalee) were 51% , stunting (9%). The prevalence of being at risk of overweight was low (4.2%) (De Onis M *et al.*, 2001). The nutritional status of rural Tripura tribal children is better than that of other tribal children of northeast India as reported in earlier studies (Singh, J. & Sengupta, S., 2007; Gaur, R. & Singh, N.Y., 1995; Khongsdier, R. & Mukherjee, N., 2003).

Height and weight are the most important indicators of health and nutritional status. The height of tribal boys increased with age significantly. The mean height increased from $127.5\text{cm} \pm 2.2$ at 10 years to $159.0\text{cm} \pm 4.1$ at 16 years in tribal boys (average growth in height 5.25cm/year).

Peak height velocity (PHV) is a commonly used biological parameter in growth studies that allows subjects to be aligned at comparable biological rather than chronological ages (Baxter-Jones, A.D.G. *et al.*, 2003). In present study tribal boys achieved a peak height velocity of 7.3cm/year and a total gain in height of 23 cm in tribal boys during the pubertal growth periods.

The body weight of tribal boys increased with age significantly average growth per year being 3.61 kg. In boys, peak weight velocity occurs at about the same time as peak height velocity. The rate of weight gain decelerates in a manner similar to height velocity during the later stages of pubertal development. In present study tribal boys attain a peak weight velocity of 6.5kg/year and total gain in weight of 12.9 kg during pubertal growth periods.

Skinfolds measurements are used to assess thickness of subcutaneous tissues. Total skinfold thickness (TST) increased steadily till the age of 13 years and thereafter gradually decreased. This decrease in the fat folds does not really represent lesser fat accumulation, but results from the enlargement of the underlying muscular tissue (Pathmanathan, G., & Prakash, S., 1994). The mean Total skinfold thickness (TST) increased from $26.5\text{mm} \pm 3.1$ at 10 years to $29.0\text{mm} \pm 3.0$ at 16 years in tribal boys (average growth in TST 0.41mm/year).

Body fat is assessed to measure the body composition. mean The body fat % increased from $11.20\text{ per cent} \pm 1.58$ at 10 years to $13.20\text{ per cent} \pm 1.32$ at 16 years in tribal boys (Average growth in body fat $0.33\text{ per cent/year}$). At the age of 16 years maximum average value of body fat per cent (13.20 in tribal boys) is seen in the present study. Body fat per cent slowly decline during early childhood and slight increase in relative fatness in late pre-pubertal age, body fat per cent then slowly decline, reflecting the development of free fat mass at puberty.

Conclusion

From the present observations it may be concluded that tribal boys were found to be shorter and lighter than that of other tribes of India which may be due to ethnicity and climatic condition. The Growth spurts of height and weight are noticed in 13-15 years of age. In cross-sectional study, tribal boys achieved a peak height velocity of 7.3 cm/year and peak weight velocity of 6.5kg/year .

The finding of the study can be used as a reference material for urban Tripura tribal boys. Further, the research conducted among Tripura tribal boys may help to suggest suitable programmes and strategies to improve the nutritional status and proper management of health.

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Poverty and Health

A study on Education and Health Status of Tribal People in Tripura

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Mr. Daniel Debbarma

Introduction

Tripura is the third smallest state, located in the North Eastern Region of the country. As per 2011 Census, the ST Population of the State was recorded 11, 66,813 that is 31.8 percent of the total population. Out of this 5, 88,327 were ST males and remaining 5, 78,486 were ST females. Out of this population 0.83 million are tribals who live in the interior parts of the state in the hills. In terms of literacy 87.75% (male 92.18%, female 83.15%) of the population has been returned as literate in the same census of 2011. Among the tribals (total population 9.93, 426), only 63% are literate and most of them are Kokborok speaking. The low rate of tribal literacy is due to several factors, the chief among them being their poor economic condition and limitation in their access to education.

The tribal people of Tripura along with rest of the population still suffers from communicable diseases like Malaria, diarrhea, Typhoid, Gastroenteritis and other major health problems. In order to assess the health status of tribal in the state a few indicators are considered like their nutritional status, maternal health, anemia, antenatal care, morbidity and mortality rate, RTI/STI and mental health. An attempt has been made to explain those factors affecting Tribal health and measures of possible strategies were suggested towards reduction and prevent of those prevalent communicable diseases. The present study has been taken up to deal with the issue of education and health of the tribal in the state.

There are 19 Scheduled Tribes in the State with their own cultural identity and bewildering variation in population size, namely (i) Tripuri, (ii) Reang, (iii) Jamatia, (iv) Chakma, (v) Lusai, (vi) Mog, (vii) Garo, (viii) Kuki, (ix) Chaimal, (x) Uchai, (xi) Halam, (xii) Khasia, (xiii) Bhutia, (xiv) Munda, (xv) Orang, (xvi) Lepcha, (xvii) Santal, (xviii) Bhil and (xix) Noatia.

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Methodology

The study is based on secondary data obtained from various books, articles, journals, reports and websites etc. Other official statistics and information were obtained from various institutions and organizations like Tribal Welfare Department, Govt. of Tripura, Social Welfare Dept., Govt. of Tripura, Tribal Research Institute, Govt. of India.

Objectives of the study

- i) To explain the educational status of the tribal people in Tripura.
- ii) To analyse the health status of tribal people.

Educational status of the Tribal People

Education is very important in promoting upward social mobility. People with higher levels of education generally get good opportunities for social mobility – say, for getting better jobs, earning more money and maintaining a better life-style. On the other hand, social mobility of people may be restricted in absence of proper educational qualification. Urbanisation, more precisely migration of people from rural to urban, is also a measure of social mobility. Urban areas have become centres for industrial and business establishments and are providing improved and more satisfactory standard of life. This movement changes the population composition, provides new labour and introduces the groups of people to a new cultural setting. All these result in greater social mobility.

Data and its interpretation

Table 1: Demographic profile of ST population (19 tribes) of Tripura

Sl. No.	Name of the Tribes	Population (Census Years)			
		1981	1991	2001	2011
1	Tripuri/Tripura	3,30,872	4,61,531	5,43,848	5,92,255
2	Reang	84,003	1,11,606	1,65,103	1,88,220
3	Jamatia	44,501	60,824	74,949	83,347
4	Noatia	7,182	4,158	6,655	14,298
5	Uchai	1,306	1,637	2,103	2,447
6	Kuki	5,501	10,628	11,674	10,965
7	Halam	28,969	36,499	47,245	57,210
8	Lushai	3,734	4,910	4,777	5,384
9	Bhutia	22	47	29	28
10	Lepcha	106	111	105	157
11	Khashia	457	358	630	366

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12	Chakma	34,797	96,096	64,293	79,813
13	Mog	18,231	31,612	30,385	37,893
14	Garo	7,297	9,360	11,180	12,952
15	Munda / Kaur	7,993	11,547	12,416	14,544
16	Santhal	2,726	2,736	2,151	2,913
17	Orang	5,217	6,751	6,223	12,011
18	Bhil	838	1,754	2,336	3,105
19	Generic	0	0	7,098	48,356
	Total	5,83,752	8,53,319	9,93,200	11,66,264

Source : Census Report, 1981, 1991, 2001, 2011

Table 2 : Tripura's Demographic Change : 1981-2011

Year	Total Population	Tribal Population	Percentage of tribal Total Population
1981	20,53,058	5,83,920	28.44
1991	27,57,205	8,53,345	30.95
2001	32,00,000	9,9,200	31%
2011	36,71,032	11,66,813	31.76

Source : Census Report : 1981, 1991, 2001

Table 3 : Gross Enrolment Ratio of ST as per 2011 Census

Percentage of ST Population 2011 Census	Primary Level			Upper Primary Level			Secondary Level			Upper Primary Level		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
31.80%	39.78	39.67	39.73	37.14	35.71	36.44	35.82	32.64	34.27	24.34	22.76	23.65

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Gender	Appeared	1 st Division	2 nd Division	3 rd Division	Total passed	% of pass
Male	4773	73	287	2009	2369	49.63
Female	4054	70	214	1521	1805	44.52
Total	8827	143	501	3530	4174	47.29

Source: Tripura Board of Secondary Education Result-2014

Table 5: T.B.S.E. Higher Secondary (+2 stage) Examination Result-2014

Gender	Appeared	1 st Division	2 nd Division	3 rd Division	Total passed	% of pass
Male	1561	22	174	782	978	62.65
Female	1172	22	129	620	771	65.78
Total	2733	44	303	1402	1749	63.99

Source: Tripura Board of Secondary Education Result-2014

Table 6 : Percentage of ST Girls' enrolment in General Degree Colleges for the academic Year 2014-15

Sl. No.	College	Boys	Girls	Total	Percentage (%)
1	MBB College	1245	236	1481	15.94
2	Ramthakur College	95	45	140	32.14
3	BBM College	462	142	604	23.51
4	NSM, Udaipur	392	204	596	34.23
5	AMBSM, Amarpur	112	50	162	30.86
6	ICVC, Belonia	504	194	698	27.79
7	MMDC, Sabroom	86	41	127	32.28
8	KNM, Sonamura	40	10	50	20.00
9	DDMC, Khowai	373	264	637	41.44
10	GDC, Kamalpur	116	141	257	54.86
11	GDC, Dharmanagar	247	235	482	48.76

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12	RM, Kailasahar	201	117	318	36.79
13	Ambedkar, Fatikrayu	18	34	52	65.38
14	GDC, Khumulwng	357	233	590	39.49
15	GDC, Gandacherra	123	27	150	18.00
16	GDC, Longtra Valley	90	30	120	25.00
17	RTM, Bishalgarh	37	11	48	22.92
18	SVM, Mohanpur	52	20	72	27.78
19	GDC, Teliamura	95	48	143	33.57
20	GDC, Santirbazar	26	18	44	40.91
21	GDC, Kanchanpur	40	10	50	20.00
22	Holy Cross, Agartala	176	235	411	57.18
	Total	4887	2345	7232	32.43

Table 7: Status of Schedule Tribes students in Graduate level by district in 2012-13

District	Boys	Girls	Total
West	2065	1525	3590
Khowai	455	360	815
North	207	94	301
Unokoti	168	113	281
Dhalai	253	141	394
Sepahijala	89	27	116
Goamti	384	179	563
South	571	223	794
Total	4192	2662	6854

The table shows the number of Schedule Tribes (ST) students in graduate level by districts in 2012-13.

Health Status of tribes of Tripura

Health is a prerequisite for human development and is an essential component for the well being of the mankind. The concept of health, disease, treatment, life and death among the tribes is as varied as their culture. Lack of personal hygiene, poor sanitation, poor mother—child health services health services Managed care The benefits covered

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under a health contract, absence of health education, lack of national preventive programmes, and lack of health services are responsible for the poor health of the tribals. Problems like in-sanitary food supplies, water contamination, and poor food in-take reflect on the health status of tribals. The tropical disease like malaria is still widespread in the tribal areas. Hence, better nutrition and good environmental health are the important aspects of village health services.

Birth and mortality rate

The tribal population has a much lower Infant Mortality Rate (IMR) as compared to the scheduled castes but moderately higher than the other population.

Special estimates of IMR at the district level were prepared. These estimates show that the IMR in Tripura were 41 and 43 infant deaths per 1,000 live births for males and females respectively. The estimates show higher mortality than the latest SRS estimates (35 for males and 34 for females for 2000–02) for Tripura. District-level estimates indicate that Dhalai had the highest IMR, followed by South, North and West Districts. For girls, IMR was above 50 in Dhalai and South District. Even this was, however, below the all-India IMR of 60 (according to the SRS Bulletin of April 2005).

According to the report of the Tripura Tribal Areas Autonomous District Council (TTAADC), requirements of the health care facilities in the area are not proportional to the increasing demand of the people due to the fact of population explosion.

Maternal and child health care practices

Child bearing imposes additional health needs and problems on women -physically, psychologically and socially. Maternal mortality was reported to be high among various tribal groups. The chief causes of maternal mortality were found to be unhygienic and primitive practices for parturition. From the inception of pregnancy to its termination, no specific nutritious diet is consumed by women. On the other hand, some pregnant tribal women reduced their food intake because of simple fear of recurrent vomiting and also to ensure that the baby may remain small and the delivery may be easier. The consumption of iron, calcium and vitamins during pregnancy is poor. The habit of taking alcohol during pregnancy has been found to be usual in tribal women and almost all of them are observed to continue their regular activities including hard labour during advanced pregnancy. More than 90 per cent of deliveries are conducted at home attended by elderly ladies of the household. No specific precautions are observed at the time of conducting deliveries which resulted in an increased susceptibility to various infections. Services of paramedical staff are secured only in difficult labour cases.

The population of Tripura is characterized by social diversity. People of the Scheduled Tribes (ST) comprise about one-third of the population. Nineteen tribes are represented in the population of Tripura, the two largest being the Tripuri and Reang, which together accounted for 71 per cent of the tribal population in 2001. There is also a plurality of languages and dialects; the two official languages of the State are Bengali and Kokborok. The overwhelming majority of tribal people (97.4 per cent) live in rural areas.

Nutritional Status of tribes of Tripura

The health and nutrition problems of the vast tribal population of India are as varied as the tribal groups themselves who present a bewildering diversity and variety in their socio-economic, socio-cultural and ecological settings. The malnutrition is high among the tribal population. Nutritional deficiency leads to diseases like endemic goiter, anemia, pellagra and beriberi, deficiency disease occurring when the human body has insufficient amounts of thiamine (Vitamin B₁). The deficiency may result from improper diet (e.g. Nutritional anemia is a major problem for women in India and more so in the rural and tribal belt. This is particularly serious in view of the fact that both rural and tribal women have heavy workload and anemia has profound effect on psychological and physical health. Anemia lowers resistance to fatigue, affects working capacity under conditions of stress and increases susceptibility to other diseases. Maternal malnutrition is quite common among the tribal women especially those who have many pregnancies too closely spaced. Tribal diets are generally grossly different in calcium, vitamin A, vitamin C, riboflavin and animal protein.

As far as child care is concerned, both rural and tribal illiterate mothers are observed to breast-feed their babies. But, most of them adopt harmful practices like discarding of colostrums, giving prelacteal feeds, delayed initiation of breast-feeding and delayed introduction of complementary feeds. Vaccination and immunization of infants and children have been inadequate among tribal groups. In addition, extremes of magico-religious beliefs and taboos tend to aggravate the problems.

Tripura has made remarkable progress in Routine Immunization by increasing coverage throughout the State. As per the National Immunization schedule of Govt. of India. Routine Immunization is carried out in the State including ADC area to cover all children in the age group of up to 1 year. Overwhelming response has been shown in connection with immunization of DPT. 120.6% children throughout the State has been immunized through DPT whereas the performance of all India level is 94.7% as per record of Govt. of India Ministry of Health & Family Welfare (Monitoring & Evaluation Division) during the year 2006-2007. The success is same for the period of 2006-07 B.C.G. vaccine was given to 679251 children which is much better for the period of 2005-06 where the total was 64775 children. Measles Vaccine are also being given to children in an effective manner. The achievement of proposed need assessment in 122.2% in the State which is higher than the percentage of all India level (90.4%) for the period of 2006-2007. The Package has one of the components on immunization for all Children and pregnant women in ADC area for implementation by Health & FW Department.

Traditionally, most of the tribal population practiced shifting or Jhum cultivation and were termed Jhumias. Jhumia is a generic term used for tribal people dependent on shifting cultivation as the primary source of livelihood. The big concentration of Jhumia families was in Dhalai and South District. Nevertheless, forest remains an important source of livelihood for the tribal population. Jhum cultivation has an intimate relationship with forest use, not only in terms of the habitation and cultivation of tracts inside forest areas, but also because the forestry sector provides important supplementary income and inputs in the daily lives of tribal people.

TRIBAL HEALTH

Health and social status of Tribes

Some of the basic indicators of the demographic and health status of a population are the total fertility rate, crude birth rate, natural growth rate, crude death rate, neonatal death rate, infant mortality rate and under-5 mortality rate. Some indicators like total fertility rate, Tripura performs far better than all other states of North-East India. Age at marriage is an important factor in determining women's health particularly since it is an important factor in determining the age of first pregnancy. The mean age at marriage of tribal women in Tripura 20 year (Year Book, 2010) was higher than the national figure (19.7 %). This improvement is related to enhancement in literacy rates both in urban as well as in rural areas. The incidence of child marriage was lower among the tribal population than among the non-tribal population. Therefore the understanding of tribal identity dynamics in Tripura is important as so many inter-community relations and socio-economic development are intimately connected to the question of identity, which belongs to where in the regional ethno-cultural scheme. Tribal identity or ethnicity is a community level consciousness and solidarity.

Housing, Sanitation and Drinking water supply facilities

Housing is of central importance to quality of life. Ideally, it minimizes disease and injury and contributes much to physical, mental and social wellbeing. Over and above the basic purpose of proper housing is to provide shelter against the elements and focus for a family life. The home environment should provide protection against the hazards for health arising from the physical and social environment.

Data and its interpretation

Infant Mortality Rates (per 1000 live births) among Females (MRF)

States	IMRF	Rank
Assam	60	3
Meghalaya	56	5
Mizoram	39	12
Sikkim	32	14
Arunachal Pradesh	32	14
Tripura	29	16
Nagaland	28	17
Manipur	16	19
India	49	

Source: Sample Registration System (SRS), 2012

Child Sex Ratio among the NE States of India

States	States	2011	Rank
1	Meghalaya	986	5
2	Manipur	987	6
3	Mizoram	975	8
4	Tripura	961	13
5	Assam	954	14
6	Nagaland	931	16
7	Arunachal Pradesh	920	19
8	Sikkim	889	24

Tripura in Comparison with India from 2001 to 2012

Year	Birth Rate		Death Rate		Infant Mortality Rate	
	India	Tripura	India	Tripura	India	Tripura
2001	25.4	16.1	8.4	5.6	66	39
2002	25.0	14.9	8.1	5.7	63	34
2003	24.8	14.5	8.0	5.5	60	32
2004	24.1	15.0	7.5	5.5	58	32
2005	23.8	16.0	7.6	5.7	58	31
2006	23.5	16.6	7.5	6.3	57	36
2007	23.1	17.1	7.4	6.5	55	39
2008	22.8	15.4	7.4	5.9	53	34
2009	22.5	14.8	7.8	5.1	50	31
2010	22.1	14.9	7.2	5.0	47	27
2011	21.8	14.3	7.1	5.0	44	29
2012	21.6	13.9	7.0	4.8	42	28

Source: SRS Bulletins, RGI

TRIBAL HEALTH**Women suffering from Anaemia in NE India**

States	Pregnant women age 15-49 who are anaemic (%)	Ranking
Assam	72.0	1
Sikkim	62.1	8
Meghalaya	60.2	12
Tripura	57.6	16
Arunchal Pradesh	51.8	18
Mizoram	51.7	19
Manipur	36.4	25
Nagaland	NA	NA
India	57.9	

*Source: NFHS-3***Recommendation of health manpower in Tripura and shortage as on 2010-11**

No.	Discipline	Total Requirement	Existing
1.	Medical Officer	1,032	1,480
2.	Specialist	749	272
3.	Staff Nurse	1,542	814
4.	Laboratory Technician	300	125
5.	X-ray Technician	170	31
6.	Ophthalmic Assistant	150	12
7.	Blood Bank Technician	40	8
8.	MPW (Female)	1,142	552
9.	MPW (Male)	1,142	530
10.	MPS (Female)	172	155
11.	MPS (Male)	172	144

Source: Health Department, Tripura

Number of allopathic medical facilities in Tripura during 2010-11

Sl.	Name of Institution	Districts				Total
		West	North	South	Dhalai	
1	State Hospitals	04	00	00	00	04
2	District Hospitals	00	01	01	00	02
3	Sub-Divisional Hospitals	03	02	03	03	11
4	Rural Hospitals & CHCs	06	01	03	01	11
5	PHCs	24	19	23	11	79
6	Sub-Centres	287	112	164	72	635
7	Blood Banks	03	02	01	01	07
8	Blood Bank Centre	02	01	03	01	07
9	Telemedicine Centre (Storage)	03	03	03	03	12
10	Vision Centre	05	07	12	16	40
11	Tele optoamology Centre`	11	00	00	00	11

Source: Health Department, Tripura

Scheduled Tribes in Tripura

Sl. No.	Scheduled Tribes	Total Population	% of population
1	Tripuri	543843	54.74
2	Reang	165103	16.62
3	Jamtia	74949	7.54
4	Mog	30385	3.06
5	Noatia	6655	0.67
6	Chakma	61793	6.22
7	Halam	47261	4.76
8	Uchoi	2103	0.21
9	Garos	11180	1.13
10	Chaimal	226	0.02
11	Kuki	11674	1.18
12	Lushai	4777	0.48
13	Khasia	630	0.06
14	Lepcha	105	0.01
15	Bhutia	29	0.00
16	Munda	12416	1.25
17	Orang	6223	0.63
18	Bhil	2336	0.24
19	Santhal	2151	0.22
	Total	993426	100%

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Health indicators in Tripura vis-à-vis all India in 2010-11

No.	Category	National	State
1.	Birth rate, 2010	22.1	14.9
2.	Death rate, 2010	7.2	5.0
3.	Natural growth rate, 2010	4.9	9.9
4.	Infant Mortality Rate (IMR), 2010	47	27
5.	Couple Protection Rate (CPR), NFHS-3	56.03	65.08
6.	TFR (Total Fertility Rate), NFHS-3	2.68	2.22
7.	Maternal Mortality Rate, SPP-2000	4.37	4
8.	Sex Ratio, Census-2011	940:1000	961:1000

Source: Economic Review (2010-11), Govt. of Tripura

Findings & Conclusion

According to 2011 census, in India there are 10,42,81,034 persons of scheduled tribes which comprises of 8.6% of total population. These groups inhabit widely varying ecological and geo-climatic conditions (hilly, forest, valley regions etc.) in different concentration throughout the country with distinct biological isolates along with rich cultural, poor socio-economical background.

The Tripuri people have a rich historical, social and cultural heritage which is totally distinct from that of the mainland Indians. Even though the present world is changing and people have to keep up with modernization but its people should preserve the rich culture that their ancestors has bestowed upon them. The Tribal citizen should have a keen interest in enriching the way their valuable culture should survive in this changing world.

The literacy rate of tribal is higher than the national average, which is a good sign for the tribal community to upgrade their living standard. But female literacy rate is lower than the national average which is major concern to be taken care of.

Tribal women are still lacking behind in comparison with their class sisters which may be due to illiteracy, lack of awareness, lack of financial support etc. Though the empowerment of tribal women is in steady progress, an immediate action by the government, society and tribal community is very necessary to empower the tribal women.

Though the state government and central government had set up Tripura Tribal Area Autonomous District Council (TTAADC), it is not functioning properly as it was expected. The autonomous body should consist of tribal people only so that proper welfare program can be revolutionized.

In spite of the government taking initiative steps in improving the living condition of the tribals, but in reality the tribals are still lacking in many facilities such as drinking water, proper sanitation, primary health center, pucca road, nutritional food security and quality education. It is in the hand of the government and people who are in-charge of the various schemes to make the facilities provided beneficial for the tribals of Tripura.

The various social, economic and developmental constraints have potentially exposed the tribals in Tripura to the high rate of malfunction and health problems which is correlated with the lower literacy rate of the community. Although the tribals are accorded special status under the Fifth/Sixth scheduled of the Indian Constitution, their status on the whole especially their health problem still remains unsatisfactory. Hence, the methods to tackle their health problems should not be multifold, but also specific to the individual groups as feasible as possible. It is necessary to continue with primary health care educational activities, National health and tribal health programmes and other measures of providing proper nutrition and counseling and with the help from experts from multi-disciplinary fields, the health status of the tribal population can be improved.

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An Enquiry into the Environment and causes of Degradation of Life-support System: with Special Reference to Tripura

Dr. Biswajit Baidya

Introduction

Every human being has a right to lead a healthy life. Earlier, basic human rights were not recognized, but with the passage of time, the relationship of humans with nature and society has changed. The term environment implies, all the external factors living and non-living, material and non-material which surround man. In its modern concept, environment includes not only the water, air and soil that form our environment but also the social and economic conditions under which we live.

Therefore, environment is a complex system that includes physical, chemical, biological, social and cultural elements; all these elements are interlinked to each other in a complicated manner similar to a spider web and the disturbance of any one of these elements will threaten the structure of the environment. Thus, for the stability and sustenance of the environment, it is important that all these elements are preserved.

Much of the ill health in India is due to poor environmental hygiene that is, unsafe water, polluted soil, unhygienic disposal of human excreta and refuse, poor housing, insects and rodents. Air pollution is also a growing concern in many cities. The high death rate, infant mortality rate, sickness rate and poor standards of health are in fact largely due to defective environmental sanitation or waste. Improvement of environmental hygiene and sanitation is therefore crucial for the prevention of disease and promotion of health of individuals and communities. Since more than 72% of the population of India lives in rural areas, the problem is one of rural hygiene. The first step in any health related program is the elimination through environmental control of those factors which are harmful to health.

Safe and wholesome water is a basic health need. Much of the ill health in India and other developing countries are largely due to lack of safe drinking water. Same picture in Tripura. It has been estimated that more than 50% of illness in India could be cut down by the provision of safe drinking water alone. The percentage of water borne illness in Tripura is very high from all India standards. The provision of safe and adequate drinking water is therefore

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a basic need for society health as well as all. The WHO has coined the slogan 'safe water for all by 1990', as part of its activities to achieve the goal of 'health for all by the year 2000'.

In north-Eastern region of India there are several reasons for environmental degradation and pollution. It seems that people of north-eastern region had not developed proper scientific sense. Water pollution occurs in the north-eastern region due to a variety of reasons contaminating the drinking water as well as harming the local people. People themselves are responsible for that. They usually throw away domestic animals and the idols of God and Goddess during many religious occasions. The washer-men wash clothes in the water bodies and thus adding Caustic Soda and Chlorine in huge amount to the same. Large numbers of people are engaged in the laundry works and hence we can very well understand the massive scale water pollution there. No effective measures have been taken by the management and so no way of refining the contaminated water.

In the N-E region one of the main components of agriculture is Jute. Many people are associated with the jute industries. Jute after being cultivated have to be thrown out into the water and then it is left for rotting. The same procedure follows for betel-nut. The water then becomes unfit for use. In West-Bengal, Assam, Tripura and in other states of India specific rule is set for this purpose. The unfit water is disposed very quickly. In north-eastern states there is heavy rain fall and there is the change for floods is also very frequent. Therefore, until and unless floods occur after rain the unfit water remains there. There is no way refining or removing the unfit water. For this reason not only the water is contaminated but also the surroundings are polluting equally. This is the main reason why most of the people in that region suffer from skin diseases. Not science but advertisement motivates the people more. Ignoring the necessity of making people aware scientifically in their practical lives, many villages got the honour of 'Nirmal Gram'. The underground water table is depleting day-by-day. For this pollution by arsenic is increasing. This has been seriously felt in Kolkata and its suburbs. The same picture as big cities like West-Bengal is in the north-East.

It is necessary to develop a scientific outlook towards environmental society in the eyes of future citizens. The problem is very ground-level one, we have to understand our duties and responsibilities. Not only in the north-eastern region but we had to improve the quality of school level education also. The students can apply the values in their practical life; we have to take care of that.

The problems and issues discussed above are not only confined to north-eastern region but also in plain regions in every part of Tripura. Since the very last days of winter people living in the hills have to dig 150 to 200 ft long tunnel and those who live in distant places have to cover 5 to 10km to collect drinking water throwing from the hills. So, for this reason availability has resulted to mainly water borne diseases like cholera, typhoid, etc. are there relatives from the very Royal era. The traditional house pattern of the local tribes is also cause of indoor air pollution and diseases.

More than 100 substances which pollute the air have been identified. These are called air contaminants. The important ones are carbon dioxide, carbon monoxide, sulphur dioxide, hydrogen sulphide, fluorine compounds, cancer producing substances, etc. These are in addition to dust and smoke. The health effects of air pollution are both immediate and delayed. The immediate effects are borne in the respiratory systems, especially acute bronchitis in

lungs. Air pollution has also other effects namely destruction of plant and animal life; deterioration of metals; damage to buildings. To decrease the nuisance of air pollution, the Govt. of India has enacted the air prevention and control of pollution act in 1981. These kinds of environmental pollution guide climatic changes in Tripura.

We have been experiencing in the North-Eastern region of India that climatic cycle does not follow the earlier pattern, rather marked by irregular rainfall pattern with the same starting quite early and flash floods becoming more frequent and dry period becoming longer in different parts of this region. Evidently the impacts of such climatic changes on agriculture are manifolds as they adversely affect sowing and harvesting of crops thereby threatening the life of millions in this region as well as in the rest of the world. The people of North-East India have been facing the impact of these changes. The environment is continuously being contaminated by various pollutants thrown into environment. As a result, people of this state suffer from various kinds of diseases and it is considered that human health is intimately connected to the surrounding environment. Several diseases are due to poor indoor and outdoor pollution and many more diseases are due to poor environmental condition leading to contamination of water, food, soil etc.

Now we are looking since the last week of March, 2015 heavy smog fall during the mid-night and early morning. But at the same time humidity is 85% above. So, we are feeling very warm on morning and day light time. It is a result of environment pollution, like air. The north-eastern inhabitants have never seen the unwanted climatic change in the recent past. We have been experiencing another climatic change in north-eastern region mainly in Tripura, i.e. day-light advocates heavy hot and night supports cold. Before three decades, Tripura has six seasons but few years ago we are having four seasons. Now it has reduced into two i.e. summer and rainy.

These changes mainly marked from the year 2000. In order to these climatic changes now it has adverse affect in our local climate and our livelihood. It has painted a painful picture of our daily life. Irregular rainfalls, heavy heat waves, a large number of storms occur from Bay of Bengal, it has adverse affect on agricultural system. Large-scale environmental changes may cause a variety of diseases. Many health problems today reflect population pressure, climatic change and environmental pollution. The critical climate gradually changes genetic structure of humans, natural resources and affects all creatures. Disruption and destruction of the world's natural life-support system constitute the greatest threats to human health. These changes may cause abolition of various types of creatures from world. Aristotle taught us long ago nature does nothing uselessly in his famous book politics (Book-1, 1253, 98).

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Open Defecation is a Serious Menace to Child Health

Nilimanka Das

Introduction

Sanitation is a basic human right. It is very much essential for life, for health, for dignity, for empowerment and prosperity. Unfortunately, millions of people across the globe lack adequate sanitation and hygiene facilities. Poor sanitation and hygiene translates into devastating consequences on maternal health and globally a leading cause of child mortality under the age of five. Thanks to the constant efforts of United Nation which endowed the formulation of Millennium Development Goals (MDGs) concerned with maternal and child health. Today these goals are facing a great challenge from the burning issues like sanitation and hygiene. Open defecation is the worst facet of it and inflicts enormous harm to maternal health and largely lethal to the children under the age of five. Globally, more than 250 crore people lack adequate sanitation out of which 100 crore still practice open defecation. India is the number one country in the list where 62 crore people defecate in public and 65% of which are women. Practicing open defecation pollutes ground edible water and contaminates it with huge pool of harmful microbes and unveils the community to the water borne diseases like diarrhoea, dysentery, cholera, hepatitis A, typhoid and constrains the normal growth and cognitive development in children under the age of five (A. Ghosh 2014). Defecation in agricultural land contaminates the crops and other food materials and after rain the water drains to river and ultimately unites with ocean and endangers the aquatic life like fish which in turn expose the community again to these microbial diseases. Practicing open defecation brings about enormous harm to pregnant women and her baby is prone to microbial diseases and may lead to shunting and or wasting in the children. Hence the population with poor health & cognitive development results into economical weak workforce who may bring about serious impediment in nations development and prosperity.

In the light of current scenario, the author has made an attempt to compile various facts relating to open defecation and maternal and child health and the devastating consequences.

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Health Hazards

Maternal Health

Women practicing open defecation suffers from different microbial infection, urinary tract infection and vulnerable for sexual exploitation. They always remain over alert in privacy matters and their dignity is always at stake. Practicing open defecation brings about enormous harm to pregnant women and her new born baby may have congenital microbial diseases which may lead to shunting and or wasting in the children. These dire consequences impede the physical and cognitive development of survived children. Thus the children are always vulnerable to morbidity and mortality. This ultimately reduces the human capital of a nation's workforce.

Child Health

Open Defecation & Environmental Enteropathy

Fecal ingestion by children and infants from the domestic vicinity results into enteric infection followed by intestinal inflammation. This increases the intestinal permeability and allows bacterial translocation. This activates the innate and acquired immune system and leads to the development of environmental enteropathy. The Enteropathy is characterized by chronic villous atrophy, crypt hyperplasia and inflammatory cell filtrate. Chronic villous atrophy occurs when the villi's i.e. the microscopic finger like projection of intestine erode away, leaving virtually a flat surface. These villi's are responsible for the absorption of nutrients from food. As the villi's are completely absent the absorption of nutrients is impeded translating into malnourished population. The enteropathy is also characterized by crypt hyperplasia. Under normal condition, the ratio of villi and crypt length is 3-5:1. But in crypt hyperplasia, crypts are enlarged and the length of villi is diminished resulting into an altered villi crypt. Chronic villous atrophy and crypt hyperplasia leads to chronic inflammatory infiltrate in lamina propria. This condition is more common in children than adults (56% vs. 28%). This ultimately results into poor absorption of nutrients, vitamins and oral vaccines translating into devastating consequences like increased child mortality, reduced cognitive development and reduced adult economic productivity (Figure 1).

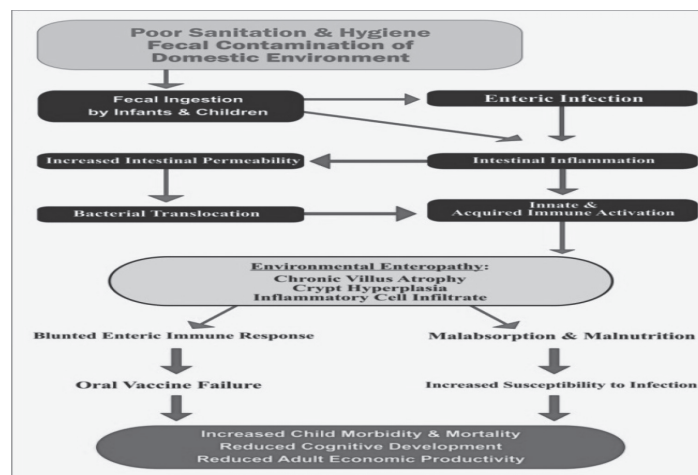


Fig: 1 Schematic representation of Environmental enteropathy and its consequences.
(Source-Trends Mol Med. 2012)

Open Defecation & Stunted, Wasted and Underweight Population

Nutritional deficiencies are more prevalent among underprivileged of the society. Young children from scheduled tribes and scheduled castes are more likely to be stunted, wasted, and underweight than children from other castes/tribes. Stunting is identified by comparing a person's height to the standard height for a healthy population of the same age and gender. A child is considered stunted if his or her height is more than two standard deviation below the WHO standard. A child is considered wasted if his or her weight is more than two standard deviation below from the median weight for height of reference population. Children from other backward classes fall in the middle of the scale on all three measures of nutritional status. Children who do not belong to any of the above underprivileged section are least likely to be stunted, wasted, and underweight. However, even for this group, the levels of under-nutrition are extremely high relative to the levels expected in a normal, healthy population (Figure 2).

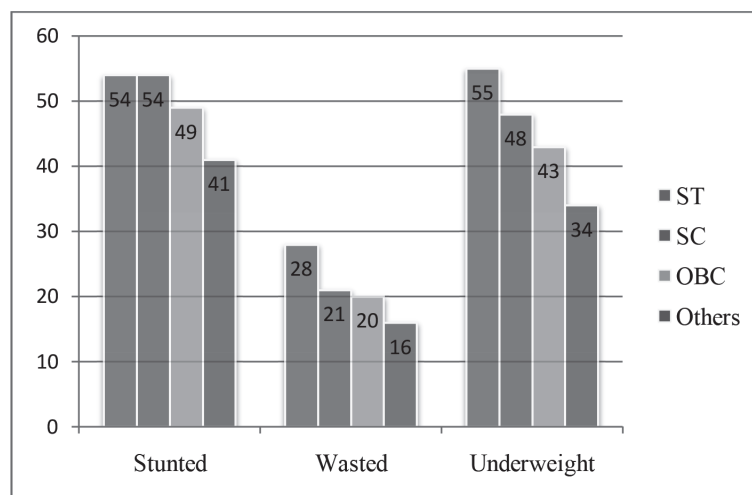


Fig: 2 Stunting, Wasting and Underweight among children under the age of five by caste/tribes.

Stunting has long-term negative consequences on health, including for future generations. The health risks associated with stunting begin in the womb and continue through life, often passing to the next generation. Babies born to underweight or stunted women are themselves likely to be underweight or stunted. In this way, under-nutrition passes from one generation to another (World Bank, 2006). Maternal stunting increases the risk of negative fetal, newborn, and child outcomes. A woman who is less than 145 cm or 4'7" is considered to be stunted. Her condition presents risks to the survival, health, and development of her offspring. There is increased risk of disparity in size between the baby's head and the mother's pelvis. Due to this disproportion, short mothers are less likely to have a successful spontaneous vaginal delivery, (Kwawukume et al 1993, Merchant et al 2001) which increases the risk of maternal mortality and short- and long-term disability.

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Stunting limits educational and economic performance. Stunting is strongly linked to the ability to learn and contribute to national economic development. Due to restricted nutrient supply and/or frequent infections, stunting is likely to cause of both short stature and structural & functional damage to the brain, resulting in delay in the development of cognitive functions as well as permanent cognitive impairments (Kar et al 2008).

Current Scenario of Open Defecation in India and Tripura

As the rest of the world steadily eliminates open defecation, this behavior stubbornly persists in India. Indeed, 67% of rural households and 13% of urban households defecate in open (Figure 3). India accounts for 60% of world's open defecation (WHO and UNICEF 2014).

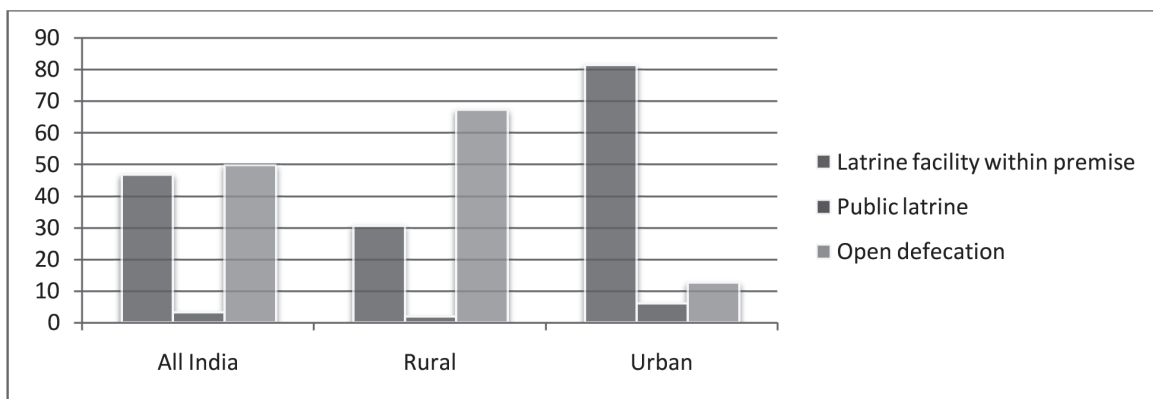


Fig: 3 Households with different types of latrine facility (%) (Census- 2011).

Open defecation is associated with significant negative externalities: it releases germs into the environment which harm the rich and the poor alike – even those who use latrines. So emphasis must be given to build more numbers of toilets with technologies that don't negatively impact ground water quality. A comparative data of Indian rural and urban households with no latrine facility is shown in figure 4. Figure 5 is another comparative representation of Indian household with Tripura in case of latrine availability status in 2001 & 2011.

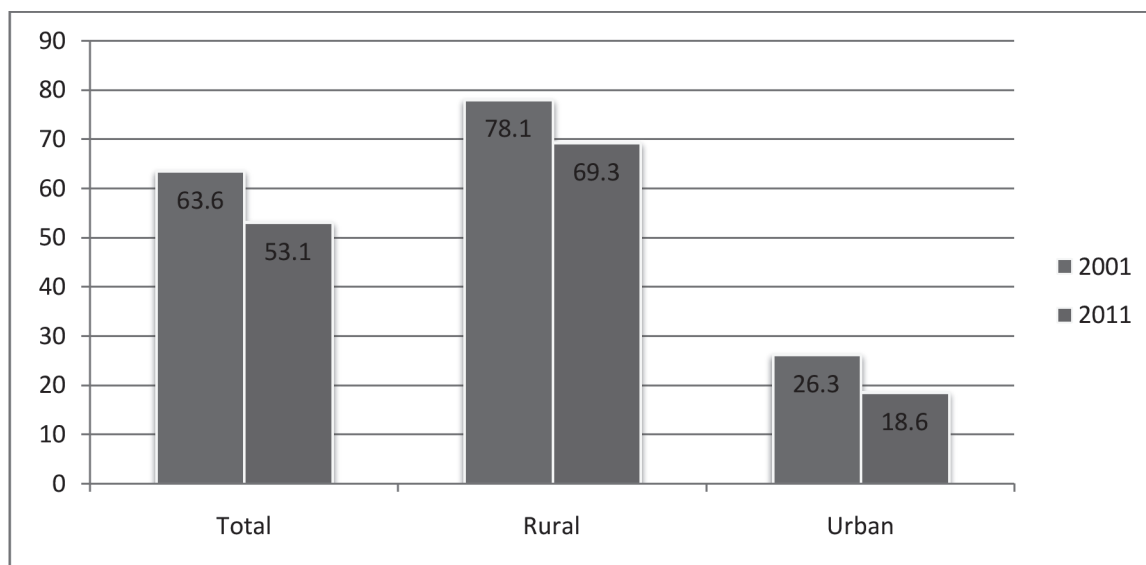


Fig: 4 Percentage of Indian households having no latrine (2001 & 2011)

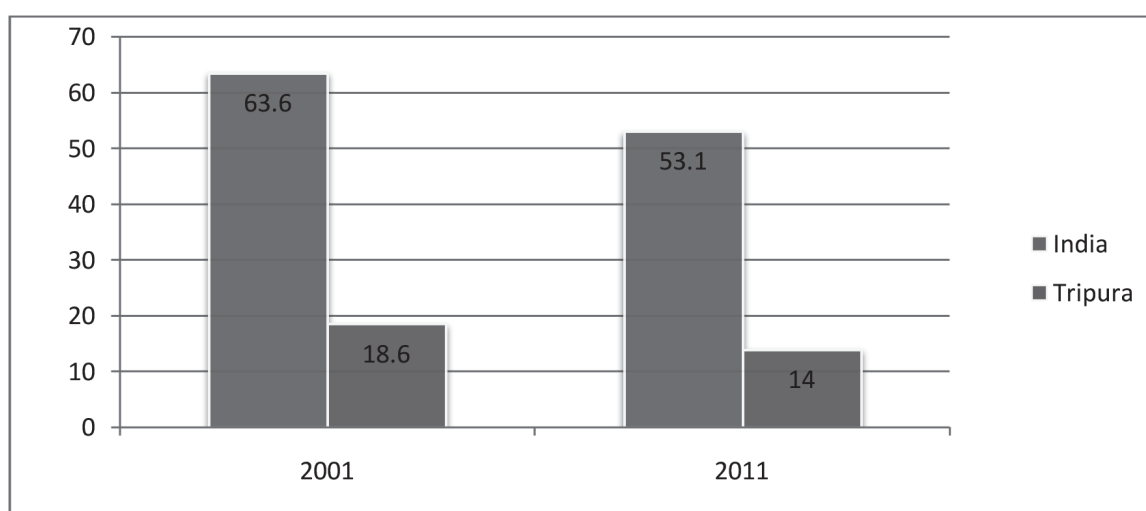


Fig: 5 Percentage of households having no latrine: India & Tripura (2001 & 2011)

Relationship between Toilet and Millennium Development Goals (MDG)

Toilets in Poverty and Hunger eradication (MDG 1)

Economists argue that investment in sanitation facilities contribute to a country's economic productivity. Appropriate management would enhance agricultural production, provide economic revenues from the sale of the produce and helps in hunger eradication. Advanced sanitation reduces economic burden on health system. People affected by infectious diarrhoeal diseases often require health care support, which incur costs to both patients (transport, medicine, time-loss) and to the government (medical consultation, treatment, medication). Tourism is also badly affected by poor sanitation and increase economic burden.

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Toilets and education (MDG 2)

Sanitation facilities in school improve attendance and retention, increase employment and quality of life. Improved sanitation and hand washing facilities have positive impact on the education opportunities of young girls, who are disproportionately affected by lack of privacy and cleanliness during their period.

Toilets and gender equality (MDG 3)

Poor sanitation affects women more than men. It is known that women who need to travel to use the toilet or to defecate in open are more susceptible to sexual harassment and violence. In a densely populated area, it is very difficult for a woman to find privacy. This can lead them to refrain from urinating and defecating for many hours which in turn cause urinary tract infections.

Toilets and the reduction of child mortality (MDG4)

During the initial years children need optimum nutrition to support their immune system and to be protected against disease. Diarrhoeal diseases caused by inadequate sanitation and hygienic lead to vitamin and mineral deficiencies, make them susceptible to the attacks of any disease and vulnerable to high morbidity, malnutrition, stunting and mortality. Studies suggest that sustained exposure to excreta related pathogens including helminthes in early life limits cognitive development and lowers immunity.

Toilets and the environment (MDG 7)

From an environmental perspective, improving sanitation would contribute to the mitigation of urgent climatic changes such as water stress, unexpected natural disasters, environmental degradation and excessive resource depletion.

Conclusion

It is very much clear that open defecation is a serious issue that must be reviewed strictly to restore human health and to achieve sustainable economic and social development. We need to build toilets in more numbers of qualities latrines, people need to be aware of their health benefits of using toilets, then only the new generation would be free from microbial diseases and the endeavor to make our nation prosperous would be fulfilled.

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Tribal Youth in India: The Scenario of Mental Health and Wellbeing

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Introduction

India is a country of largest democracy in the world. People of different culture, community and religion live together here. India is the home to large number of indigenous people and has the second largest concentration of tribal communities in the world next to Africa. Tribal communities in India are still untouched by the lifestyle of the modern world and they are still dependent on hunting, agriculture and fishing and they have their own culture, tradition, language and lifestyle. Article 366 (25) of the Constitution of India refers to Scheduled Tribes as those communities, who have been declared as such by the President through an initial public notification or through a subsequent amending Act of Parliament will be considered to be Scheduled Tribes (Ministry of Tribal Affairs). As per 2011 census, the tribal population, constitute 8.6% of the total population. Since independence, the scheduled tribes have been given reservation facilities, guaranteeing political representation and improvement of their status. However unfortunately till date scheduled tribes (STs) are among the most disadvantaged socio-economic groups in India. They are routinely marginalized and deprived of their access to fundamental resources including health and educational services. The Scheduled Tribes in India differ in their socio-cultural level as well as in their behavioral patterns.

Health care is one of the most important of all human endeavors to improve the quality of life especially of the tribal people (Balgir, 1997). The World Health Organization (WHO) defines: health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The WHO states that “there is no health without mental health.” Mental health is a state of emotional and psychological well-being in which individual is able to use his or her cognitive and emotional capabilities for proper functioning in society and to meet the ordinary demands of everyday life. Mental and physical health is fundamentally linked. There are multiple associations between mental health and chronic physical conditions that significantly impact people’s quality of life, demands on health care and other publicly funded services, and generate consequences to society.

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Health implies the provision of conditions for normal, physical and mental development and functioning of human being individually as well as in a group. However, tribal people are routinely marginalized and deprived of their access to fundamental resources including health and educational services. Again in terms of health, the mental health status of tribal community is significantly ignored. As a result tribal population especially the youth is more prone to develop different mental health problems like depression, anxiety, stress, adjustment problems etc.

India constitutes the world's largest youth population. For centuries Youth have had major roles in society (Narayana, 1986). The youth of every country are its valuable human resources. The responsibility for change, progress and innovation lies on their shoulders. However, the changing modern lifestyle, poor attachment, lack of love and affection, carrier competition, unemployment, as well as exposure to violence etc. has generated mental health problems in among the youth. The main cause of mental health problems among youth includes.

- Biological factors which includes family history of mental health problems.
- Adverse early life experiences including abuse, neglect, death or a significant loss or trauma
- Individual psychological factors - including self-esteem, coping skills or thinking style
- Current circumstances - for example, stress from work or school, money problems or difficult person relationships
- Serious illness or physical injury
- Drug and alcohol use and experimentation

Objectives of the study

The present paper is an attempt to review the overall situation of mental health status of the tribal youth in India, especially in the state of Tripura. In addition the paper attempted to suggest some need based measures for improving mental health and well-being of different tribes of India which includes focus for the need of attention, treatment, medication, security, suicide precautions, special programming, rehabilitative services, case management, or transition services.

Mental Health Status of Tribal Youth in India

Yadav et al. (2013) conducted a comparative study on self-esteem among tribal and non-tribal students in Udupi Taluk, Karnataka, India. Their result revealed that more than two third of the tribal student had low self esteem. Thus, indicating significant difference among tribal and nontribal students. Similarly, Ghosh, D. (2013) revealed significant differences between the tribal and non-tribal students on the level of self esteem, academic achievement need and depression. Tribal students possess low self-esteem, low academic achievement and more depression in comparison to the non-tribal students. However study conducted by Prajina and Prem Singh (2014) revealed that in spite of the socio-geographic

limitation the tribes keep respect themselves- the majority of the respondents show normal level of self-esteem. Ahmed (2012) explains that there is significant difference in the self-concept between tribal and nontribal students. Again research conducted by Bhattacharjee (2010) showed that self esteem of college students differed significantly in relation to their gender and community. This further indicated that male college students possessed high self esteem in comparison to female college students. Again, tribal college students possessed low self esteem in comparison to non-tribal college students.

Nandwana and Joshi (2010) conducted a study on emotional intelligence of tribal adolescents and found that they possessed low emotional intelligence. Majority of adolescents (55%) were found to have poor level of emotional intelligence followed by 35 percent of subjects in average category (Nandwana and Joshi, 2010). Furthermore, study conducted by Sinha (2014) revealed that non-tribal adolescent girls have high level of Emotional Maturity in comparison to the Tribal adolescent boys. Research on the role of gender and community in aggression among adolescents was conducted by Bhattacharjee (2012) and her analysis revealed that tribal adolescents possessed more aggression than non tribal adolescents.

Kumar, Dixit, Chaudhury, and Kenswar (2015) revealed that there were no racial differences in suicidal ideation and psychological discomfort among tribal and nontribal adolescents. Tribal adolescents, and more specifically tribal boys, had more depression than their nontribal counterparts. Suicidal ideation was positively correlated with psychological discomfort, anxiety, and depression. Similarly, research of Gopal et al. (2012) revealed significantly high prevalence of depression among tribal adolescents than the non-tribal adolescents. However, research done by Parihar and Jha (2015) revealed that gender and cultural differences was not found in depression. Similarly, research conducted by Bhattacharjee (2011) did not revealed any significant differences among tribal and non-tribal students in regard to their anxiety and depression. Dhanjal and Sharma (2012) in their study found that both tribal boys and girls showed non-satisfactory body build and girls exhibited high degree of stress. The findings also exhibited that boys and girls from science stream were found very low stressed whereas comparatively low state of stress were observed among boys and girls of arts stream. Some girls from science stream showed severe state of stress.

Akhtar (2012) revealed that tribal students possessed more anxiety and adjustment related problems when compared to non tribal students. Talukdar & Das (2014) revealed that tribal females have higher level of social adjustment than tribal males. Mathur & Golwarkar (2013) attempted to study the impact of Education, State and Gender on Adjustment among the adolescent tribal students of Rajasthan & Gujarat. On comparing education & gender, state & gender, there was a significant difference on adjustment (educational, social & emotional), which infer that the higher educated students are highly adjusted as compared to the lower educated students.

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Conclusion

The present paper finally concluded that the mental health status of tribal youth differs from their non tribal counterparts in different areas. Different studies showed that tribal youths possessed low self-esteem and thus have high aggression. They also possessed low emotional intelligence which creates difficulty in their adjustment. This is because Scheduled tribes in India have been for centuries; the most marginalized and exploited people. Over 95% of Scheduled Tribes still live in rural areas and economic exploitation remains their most acute problem. However, interestingly in respect to some other mental health variables like anxiety and depression it was found to be common for both tribal and non-tribal youth population. Depression is the most, common mental health problem among youth. One in 16 young people aged 16-24 experience and live with depression each year. However, reason for depression among tribal and non-tribal youth differs. For non- tribal population school performance, social status with peers, use of technology can cause depression while for tribal youth deprived from basic needs and social isolation can cause depression.

On the basis of the findings, the following measures have been recommended for improving mental health and well-being of the tribal Youths of our country:

- To develop the self esteem and to boost up the confidence of tribal children, schools should develop an interactive and social learning environment. Counseling sessions are to be conducted for the students who have low self esteem to motivate and support them. Immediate actions are to be taken as its effect can have lifelong impact.
- School psychologists can help prevent or reduce the immediate and long-term effects of adolescent's mental health problems. School psychologists provide mental health services that address needs at home and school to help students succeed academically, emotionally, and socially.
- **Family therapy-** Helps to identify conflicts and anxieties and helps the family develop strategies to resolve them.
- **Cognitive behavioural therapy-** Helps young people recognize and change thinking patterns and behaviors that are not good for their mental health
- Motivational enhancement therapy- helps to clarify his or her own perceptions and beliefs in order to direct him or her in a more decisive way.
- Peer work – adolescent community reinforcement approach. This is useful to face the increasing misunderstanding existing between generations. Adults think youngsters are wrong but that is generally not their perception. It is also important to train and support them.
- Awareness campaigning programs to promote a healthy lifestyle for e.g. giving healthy food,

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Education and Health Scenario of Tea Tribes of Assam with special reference to Barak Valley

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Introduction

Tribal's or adivasis are concentrated mostly around the central belt of India and parts of the North-East. With the advent of the East India Company in Assam, the Britishers found the entity of tea plant in the hills of Assam. The establishments of tea industry of Assam not only changed the existing demography of Assam but also reshaped the socio – economic and political life of the people of Assam. With the establishment of tea garden in Assam, there was a necessity of importation of labour from different parts of India. Tea garden community people hailed from different parts of the country to work in tea gardens as Bengal, Bihar, Orrisa, and U.P, C.P. etc. to work under the British company. In due course of time they consolidated themselves as a group and came to be known as 'tea tribe'. The much prevalent language of this community in both Brahmaputra valley and Barak valley is the '*Bagani dialect*', and another prominent dialect that developed in Barak valley is known as "*Bhojpuri*" dialect. However, they have different social customs and rituals. Another most important feature of labour community is that of a caste ridden society. These indentured community of tea gardens of Assam are now very vital and integral part of the socioeconomic life of Assam. Education is a vehicle through which one can achieve success in life. Education improves social status, cultural and intellectual qualities - the means of generating civic society. The knowledge, consciousness and information that is gathered through education has a long and strong impact on the health scenario of the region. But tea garden labours are deprived of Education by and large which seems to be a curse for this community. The lack of adequate educational facility for various reasons kept them in darkness. The literacy percentage among tea garden community are much lower in comparison to others which has pushed them in a state of misery and backwardness.

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Overview of Barak Valley

Assam is situated in the North-Eastern part of India at a latitude of 24° 10' N-29° 30' N and longitude at 91° 31' E- 97° 30' E.. The state of Assam is divided into three broad physiographic units viz (i) upper Assam (ii) lower Assam and (iii) Barak Valley. Barak Valley is situated in the southern part of the state Assam. It consists of three plain areas of district Cachar, Karimganj, Hailakandi. The official language of Barak valley is Bengali. The majority of the people are of Sylheti decent and they speak Sylheti language, a dialect of Bengali. Religious composition of the valley population is Hindu:42%,Muslim:50%, Christians 4% and others 4%. Hindus are majority in Cachar district 60% and Karimganj district (53%) while Muslims are majority in Hailakandi district(58%).The British Companies established a very large number of Tea Gardens (total 157) in the area and Silchar emerged as a very important center in this part of the country. All modern were introduced to the region in early twentieth century. Barak Valley suffers from poor means of communication due to landslides & flood induced by heavy rainfall, as well as earthquake. It is well connected now thorough railways, airways and by road.

Review of literature

Existing literature on children's schooling has also upheld the role of mother in the educational attainment of her children. For instance, Portes [1984] found that an interaction style in which the mother guided the Childs problem solving behaviour and encouraged his active participation differentiated between high and low social achievers, Hess et al [1984] also highlighted that a variety of maternal behaviour were important for predicting children's school readiness at age five and six and academic performance at age 12. These included mothers's teaching behaviour, communication 'efficiency, disciplinary strategy and expectation for achievements. Amota and Chiltree [1986] emphasized more on the frequency of the interaction in the family between parents especially mother's, and the children and found that such interaction were significantly correlated with reading test scores for a representative sample of primary school children. The total literacy rate of Assam is 73.18% of which male are 78.81% and 67.27% are female. Tea is one of the major industries of Assam with the National production of 415819000 Kilograms and out of that, Assam's share is 215157000 Kilograms. Tea contributes about 17% of the state income. Now there are 751 tea labourers in Assam. About 1576935 labourers (Directors of Economics and statistics, Government of Assam) are working in these Tea Gardens daily. The Tea-tribes form the backbone of the Assamese Tea Industry. The Tea-tribes of Assam are among the backward tribes of India, though their newer generation is comparatively educated. The Tea-tribes being basically labourers, live in villages, inside Tea-Estate (established by Tea-Planters). Non-education poverty, addiction to country-liquor, poor standard of living, are the problems in their lives. The Tea-garden labourers who were brought as slaves or bounded labourers by British to Assam, have now well settled in Assam and new generation that grew up in Assam has become well-integrated with Assamese culture (Kar 2001). As viewed by him, with good housing, health and education along with better salaries wages, the tea-garden labourers enjoy better facilities than other labourers. Zvelebil. A study by UNICEF and the Assam Medical College found that of the 14 meals in a week, only two were nutritional in a tea tribe family. Another UNICEF

sample study found 95 per cent women in the tea gardens to be anemic, where experts say that it was related to poor nutrition. Anemia makes women particularly vulnerable during pregnancy and child birth. Assam has one of the country's highest maternal mortality ratio (328 per 100,000 live births). A survey commissioned by Assam Sarva Sikhsha Abhiyan Mission (ASSAM) during 2002 shows that 25% of children in the age group of 6-14 are out of school in entire Assam, while 43% are among the tea garden. Out of 2,46,843 children in the tea garden areas in the age group, 1,05,821 (42.87%) are out of school. The Assam Sarva Sikhsha Abhiyan mission constituted the Tea Garden Education Committee (TGEC) and Assam human development report estimates that 1,000 Tea Garden Education Committees were set up by 2003. Presently, the state government managed schools in the Barak valley and Golaghat district in the Brahmaputra valley. The remaining schools are managed by the management companies. Among the government schools in the tea garden, 11.82% of workers received educational facilities in the Barak valley while it is only 2.04% in the Brahmaputra valley. It shows the condition of educational amenities available, particularly in the tea garden management controlled schools in the state. The survey titled "Study of health problems and nutritional status of tea garden population of Assam" concludes that a high magnitude of under nutrition and infectious diseases exist among the tea garden population of Assam. Nutritional problems like underweight among children (59.9%), thinness among adults (69.8%) and micronutrient deficiency disorder like anaemia (72%) are widespread. Common infectious diseases are worm infestation (65.4%), respiratory problems (6.7%), diarrhoea (1.7%), skin infections, filariasis (0.6%) and pulmonary tuberculosis (11.7%/ , 000). This study also registered a significant burden of hypertension (45.9%), senile cataract (25.3%), epilepsy (7.3/ , 000) and back pain (8.7%). Thus, the study has shown acute problems of health of the tea garden labour in Assam. The concept of health and hygiene among the tribal people and specially the primitive tribal groups is in a very wretched condition (Subramanyam Naidu, 1 999). He examined extends of tribal education, the pattern of income and expenditure and the impact of various tribal development and health programmes in the four states of South India. He had also formulated the strategies for the future development of the tribes. In his empirical study he found that the educational level is by and large low. The study also reveals that even though there are many tribal development programs, it does not improve the living standard of the tribes, this is because of illiteracy and lack of awareness of the development schemes and programmes. Indigenous people are amongst the poorest and most marginalized population groups experiencing extreme levels of health deprivation.(Villis R, 2004). The suboptimal health status of indigenous peoples and the health inequalities between indigenous and non-indigenous populations reflect a fundamental failure to ensure the freedom of indigenous peoples to fully realize their human, socio-economic, and political capabilities (Sen A 1999).

Objectives of the study

1. To study the health status of the people in the tea garden areas with special reference to Barak valley.
2. To find how far the education element is having an impact on the community health scenario.
3. Studying the co relation between health, education and poverty.

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Methodology and data analysis

The study is based on primary and secondary data. The secondary data are collected from different sources like official publications of governments. Data have been collected by using interview and observation as tools. Structured Interview Schedule was used to collect data. The schedule consisted of general information like sex, age, education, occupation, monthly income, monthly expenditure on food and fuel etc. Data were collected with the help of Structured Interview Schedule. The different indicators used here to indicate health status are: a) Infant mortality rate. b) Life expectancy at birth. c) Maternal mortality rate d) Birth Rate and e) Death Rate. The universe of study constitutes Cachar, Karimganj and Hailakandi districts of the region. Since universe is homogenous in terms of variables like caste, class, region, religion, language, income, education etc., therefore, samples have been selected by random sampling method. Sample size is small but this has adequately represented entire population. Each and every element of universe has been exposure. For purpose of study some non tea garden people were interviewed.

Findings

A View on Tea-Garden Community's Economy, Education and Health

For the establishment of Tea garden in Assam required huge plantation labour to engage in production. As the local tribe was not accustomed to such physical perseverance of manual type work, the management was bound to import them from different parts of India. Here in Barak Valley, it is noticed that the population included *Santhal, Orang, Mali, Munda* and other high class caste like *Goala (Ahir), Kairi, Kamkar, Kurmi, Nunia, Kanu (Haloowai) Kumar, Kohar, Sonar, Lohar, and other caste like Bania, Barhi, Teli, Sahu, Kalwar, Baroi (Chowrasia) Ghatwar*, are also available. Another caste group like *Bhar, Malah, Keot, Now (Barber) Dhobi (Washerman) Chamar (Rabidas) Doom, Rajwar, Rikiyasani (Mushar), Dusad, Pashi*, and so on. In addition to above, *Kshatriya* caste (who claim to be *Rajput*) were also identified. Rigidity of caste system in upper Hindu caste had been substantially observed. The existing literature suggests that the economic life of the tea garden labourers is full of miseries and deprivations. They have almost no other sources of income apart from the daily wages they earn from the tea gardens. Normally the worker's are not allowed to build private house within the jurisdiction of the garden. And they generally resides in provided labour quarter, made of semi *pacca* condition without well off sanitation, the labourer have to use desert place, "*jhour*" to meet the nature created emergencies. In respect of drinking water, there are only a few number of *pacca* well and tube well. The majority workers have to carry drinking water from natural '*jhorna*'. With regard to health facility, though there is a health center in the garden, but neither a qualified doctor nor minimum medicine facility are available in it. In case of emergencies, the patients need to travel many kilometers to reach a government Primary Health Centre (PHC) or to Silchar Medical College and Hospitals. There are govt sub centers which have very less medical facility where very rare an ANM visits for her so called duty and provides a few medicines to them and do so immunization. Though she is supposed to visit the SC (sub center) throughout the week but that scene is hard to be visualized in reality. There are maternity benefit schemes for the tea garden tribes but most of them are in print

layout only. Very few instances are there where the beneficiary is getting benefit and this happens due to the initiative of few localities. It has been observed that during pregnancy and post natal period women workers continue to engage in hard jobs. It is clear that the general living conditions of the labourers are poor and unhygienic. They use open space for toilet in the present economic reforms era. The prevalence of vector-borne diseases soon after monsoons is a continuous affair. Tuberculosis, gastrointestinal diseases, diarrhoea are common, and despite the management's 'welfare activities', the well demarcated labour colonies breed diseases — lack of hygiene, water stagnation, poor drainage and overflowing sewers. Proper sanitation are not available due to which they are prone to chronic diseases as diarrhea, cholera, etc. Due to lack of proper nutrition and knowledge of education or information on proper diet, women and girls were found to be facing anemia related problems. At the same time they also use river water for drinking. It is important to note that, on one hand they are poor but on the other side they are using or purchasing liquor and intoxicants. The community suffers from illiteracy, poverty, poor health and lack of awareness. Health-wise, malnutrition is common in the community. They are solely based on tea garden work for their livelihood. The economic picture of the workers of the tea garden has been characterized different from their outside counterpart. The tea garden community primarily depends on their wages. Nutritional deficiency is common for all children and mother. Their perception is different by their culture, socio-economic condition. Maternal malnutrition is quite common among the tribal women especially those who are conceived with little spacing. Health status of a community depend open access to adequate food, nutrition, portages worth and good sanitation facilities. Health and Family Welfare Department are taking some necessary step for better nutrition by nutrition education of mothers and families through health workers in collaboration with ICDS functionaries, improvement in nutritional content of supplementary feeding using low cost locally available food through self help groups, improved training of health professionals regarding nutrition, vitamin A, iron and folic acid supplements for women and children, early detection and treatment of childhood illnesses to prevent deterioration of nutritional status and de-worming. All these effort are very crucial for nutritional development of a community. Health indicators like Total Fertility Rate (TFR), Neonatal Mortality Rate, Post Neonatal Mortality Rate, Infant Mortality Rate and Under Five Mortality Rate are high among illiterate. Infant mortality and child mortality rate is high among illiterate and low literate people. People living below poverty line in the remote region face difficulties to access better health care services, because they are unable to afford those services. Education and health are recognized to be the two distinct influences which can promote the freedom and capability of individuals to make use of available opportunities.

Analysis on health and education, health indicators as Infant Mortality Rate, Institutional delivery, full immunization, and mother who have taken more than three Anti Natal Checkup (ANC) and on the other side literacy rate, there is a relationship between health and education in all over. It has been found that the prevalence rate of communicable diseases is common in different classes of patients. Due to their low level of socio-economic condition, illiteracy and hygiene situation it is quite expected. Traditional methods of health care system is still there in these regions due to illiteracy but tend to slowly reducing due to the introduction of govt health schemes under NRHM/NHM, ICDS, education department—SSA.

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The status of any social group is determined by its levels of health nutrition, literacy, education and standard of living. Education imparts knowledge, knowledge of self and infuses a sense of confidence, courage and ability among the community to know and overcome their problems associated with exploitation and to avail socio-economic and political opportunities extended to them. It has been recognized as a major instrument which societies can use to direct the process of change and development towards desired goals. In spite of the opportunities, extra initiatives and care by the government for tribal education, the achievement is not as per expectations due to several factors. Hence, problems associated with education of this community needs immediate attention and early resolution as this is an important element which is associated with other parameters of life as health of an individual of any given community. A large number of people of this community have missed education at different stages and in order to empower them there is a great need of providing opportunities so as to enable them to assume leadership qualities for economic self-reliance and even social transformation. Though in present generations, the number of illiterate tends to decrease and schooling habit increases. Some factors like mid-day meal, *Sarva-Siksha Abhijan* are to some extent effective in this regard. But, in the present situation there are also some drop outs. The study reflects that the root cause of poverty is basically inherited in nature. Apart from this, some other causes, like, low wages, lack of job opportunity and work culture of the people are also responsible for this situation. Daily wage they earn from tea garden is not sufficient to maintain their family.

Government of India adopted various plan and policy to safeguard interest of tribes. Policies are formulated and implemented to eradicate poverty, illiteracy, ill health and backwardness of Indian tribe. Government of Assam too has taken some measures to improve socio-economic condition of tea tribes in Assam. Tea tribes in Assam are regarded as Other Backward Class in Assam but some special development measures have been taken for them. The study reveals that despite of plans and policies taken by government to improve condition of life of tribes in general and tea tribes of Assam in particular, they are still suffering from illiteracy, ill health and tremendous exploitation. Majority of them are living below poverty line without minimum education and suffering from numerous diseases. Fruit of government policy is not percolating down to the community for which they are still remaining backward and underdeveloped. Their illiteracy and ignorance are used as weapons by government officials to deprive them from basic amenity provided to them by government. People working in tea gardens of Barak valley are not treated equally with tribes of Assam. Their highest level of education is upto middle-school that is upto class vii or viii. iv. According to occupational pattern majority of respondents were daily wage earners. They spend mostly on groceries. Kitchen gardening is an important work for them to supplement daily consumption. Some people domesticate animals for milk. Most of male folk practice fishing for both consumption and commercial purposes. They collect fire-wood for cooking purposes which are easily available. Different national health programmes have been launched by the Central government to control and eradicate communicable disease, improve sanitation, raising standard of nutrient, improvement in child and mother health, reducing infant and maternal mortality rate, improving life expectancy at birth, control of population and improve rural

health. The Ministry of Health and Family welfare, Government of India evolved a National Health Policy in 1983 keeping in view the national commitment to attain the goal of 'Health for All' by the year 2000. Since then there has been significant changes in the determinant factors relating to the health sector, necessitating revision of the policy. Looking forward the lack of health delivery in rural areas government of India launched the National Rural Health Mission in April 2005 to fulfill the goal of improving the health status of rural people. It was launched with the target to reduce maternal mortality rate, infant mortality rate and improve the health delivery mechanism and improve health status of people. Amongst the different strategies to achieve the target is to build strong and sound primary health care delivery mechanism and provision for community participation is worth mentioning. The health delivery system is not up to the mark for the community of the region.

As a whole the health condition in the tea gardens is pathetic. Secondly, in these hospitals, only those patients are treated who are either permanent or casual worker. When the casual workers are out of work, they are unable to avail any medical facility. The State Government with special initiatives implemented the Pulse polio campaign in the tea garden also. As per the report of Tea Garden Education Committee there are several constraints for the development of literacy campaigns in the tea garden areas, such as: poor infrastructure, inadequate human resources, lack of commitment, responsibility and ownership towards the students by the teachers, majority of schools are closed during the plucking time, since both the teacher and students work in the garden during that time, since the teacher is paid by the management; therefore, he or she is liable to the management for school management, in majority cases children leave school to work in the tea garden for a nominal amount of money, teachers are paid very nominal as they are not involved in the production process.

Health, education and poverty : a complex relationship

Health is more than survival and mortality, and includes factors as nutritional status and diseases. The obvious link between poverty, health and education is that education affects income which itself influences health status and behaviour. The literature finds that education and poverty have a strong impact on health and that poor health is both a cause and effect of poverty. Education and employment opportunities have both direct and indirect impacts on life quality including health, and prospects for development. Many of the inequalities in health are due to inequalities in the social conditions in which people live and work. Poverty and inequality influence health status. The utilization of health care services and education by the disadvantaged sections of the society is limited due to socioeconomic constraints which can march a long way to increase the individual capabilities. Education creates empowerment among the people. They can create awareness about their health and prepare them to adopt better prevention for better health. Poverty is the general bane of tribal, which arises due to economic factors as low agricultural productivity, shifting cultivation, land alienation, indebtedness, and lack of irrigation facilities, low education, and unawareness of institutional credit facilities, market prices, traditional living condition, malnutrition, diseases, isolation and exploitation by traders. The high cost of health care has serious implication on the livelihood of the poor households in particular. Those who are responding to medical need and spending

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a large share of annual income on health care, which affect their other essential expenditure and indebtedness situation. Debt positions among these people not deprive them from several facilities and amenities not only because of poverty but also due to illiteracy. The impact of poverty on health seems obvious. Income is the common way of measuring poverty. But poverty has many parameters: poor are deprived of services, resources and opportunities as well as money. These social determinants have an important effect on health status and general wellbeing. Access to basic health services and education are essential to the well being of every human being, and the lack of these services contributes to the persistence of poverty. In the case of these tribal communities there is evidence that there is a link between socio economic status and health. Poor health is strictly related to poor education, but at the same time poor health itself is a cause of income poverty. It diminishes personal capacity, lowers productivity and reduces earnings. The discussion confirms that relationships among poverty, education and health are multiple, and the studies of literature help us to deepen our understanding of the links. Besides economic inequalities, social and geographic factors such as gender, race, rural/urban residency and ethnic background also contribute for the large differences in health status and the exclusion of some groups from access to health services (Carr, 2004). Not only does income equality promote health because income does more for the health of the poor, but it also corresponds to an indicator for other desirable features of society. Illiteracy restrains people even the most basic day-to-day activities. Inadequate schooling prevents them from taking advantage of new opportunities. Like other dimensions of poverty, education and health outcomes interact. It is more difficult for illiterate or less-educated people to obtain information about health care, for example, in a form they can use. Poor health and lower survival rates reduce the incentive to invest in children's education. Poor health and low levels of education make it more difficult to translate additional income into improved well-being, preventing people from establishing or reaching personal goals (UNFPA, 2008). Not only the adequacy of schooling, but also the way and age in which education was reached to the beneficiary can have an impact on health behaviors. Poor people define poverty in the conventional way-lack of income-but also as instability, worry, shame, bad health, humiliation and powerlessness (Kishor, 1996).

Recommendations

- i. Awareness campaign should be framed on family planning, health care services, hygiene & sanitation, education etc.
- ii. Wage rate to be raised in present days of high price.
- iii. Government should make regulation to safeguard tea garden labourers from exploitation of authority.
- iv. Special attention needs to be given to improve educational attainment.
- v. Government plan and policy should be implemented properly for development of the community in the region.
- vi. NGO's, SHGs, Mothers group and so on should look after problems of tea tribe community and try to solve their problem in a concrete manner.

Conclusion

Thus, in the concluding remarks it can be said that Education and Health are two major dimensions of economic development. In order to enjoy the beauties of life, for human development and to increase human capabilities, health status has to be improved. Failure to access health and education services is affecting more the marginalized section. Decentralization could be one of the way to begin the chain of improvement for all but it is not a remedy to the age old ills. The number of dropouts is still very high and community pressures have by and large remained unsuccessful in challenging the perceptions of the parents. Poverty, illiteracy and safe drinking water deficiency is the main cause which affect to tribal health in other way. Parents education adversely affect to the child health care. In case of household health education, who are educated they must be conscious about their own health and also their children and family or the community as a whole. Though it is an open fact that most of the policies of the government are rural centric but it is to be assured that each and everyone is included. There are many examples of lack of proper implication, allocation and distribution of means in different formats. Unless and until the appeal comes from within the people to get incorporated to mainstream of development it's really a tough job to ensure human development only through the policy and papers.

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Impact of Education in Nutritional Health: A Comparative Study of Scheduled Caste and Scheduled Tribe Women in Silchar Town, Assam.

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Kakoli Choudhury

Introduction

Nutrition is the intake of food, considered in relation to the body's dietary needs. Good nutrition – an adequate, well balanced diet combined with regular physical activity – is a cornerstone of good health. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity. The Indian society being dual society, consist of a small group of well fed and a very large group of undernourished people. Due to male dominant society the food distribution within the family is an important issue. Women eat less and last of all in the family. The feeding practices for female children, adolescent girls are discriminatory which lead to poor nutritional status of young girls. Anaemia is the most common nutritional deficiency disorder in the world. Prevalence of anaemia in all the groups is higher in India as compared to other developing countries. According to NFHS-3, about 57.9% women are anaemic of which 54.6% are in urban areas. Nutritional problems during pregnancy impact not only on women's quality of life, but consequently on her newborn's well being after delivery, her family members and community as well. Women in poor household have reduced access to nutrition, rest, health education & health care.

The main objective of the study is to explore the nutritional status of scheduled caste and scheduled tribe women. The study will further examine the impact of education in nutritional health.

Methodology

The study has been conducted among Scheduled Tribe (ST) and Scheduled Caste (SC) women in Silchar town of Cachar District in Assam. Silchar is located in the southern part of

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Assam. A sample of 200 respondents (100 samples of ST women and 100 samples of SC women) was taken on the basis of simple random sampling within the age group of 20-35 years. The study has been conducted among the Rongmei sub-tribe belonging to Naga tribe and a sub-caste known as Patni belonging to Scheduled Caste category. The data has been collected through both primary and secondary sources. Primary data has been collected from field through interview schedule and group discussion with the respondents. Secondary data were collected from various books, journals, newspapers, records and reports from 'Office of Economics and Statistics, Silchar' and 'Office of Adult Education' and other Governmental reports.

Table 1: Socio-demographic profile of the respondents

Socio-demographic Characteristics	Characteristic	Scheduled tribe		Scheduled caste		
		Frequency	Percent	Frequency	Percent	Total
Religion	Hindu	34	34	100	100	134
	Christian	66	66	0	0	66
	Total	100	100%	100	100%	200
Education profile of the respondents	*Literate	25	25	2	2	27
	Primary	19	19	3	3	22
	High school	47	47	10	10	57
	Higher secondary	6	6	41	41	47
	Graduate and above	3	3	44	44	47
	Total	100	100%	100	100%	200
Education profile of the respondents husband	Literate	23	23	1	1	24
	Primary	27	27	3	3	30
	High school	33	33	14	14	47
	Higher secondary	12	12	35	35	47
	Graduate and above	5	5	47	47	50
	Total	100	100%	100	100%	200
Occupation of the respondents	Private job	1	1	17	17	18
	Government job	2	2	7	7	9
	Unskilled	36	36	13	13	49
	Housewives	61	61	63	63	124
	Total	100	100%	100	100%	200
Occupation of the respondents husband	Private job	15	15	35	35	50
	Contractors	2	2	1	1	3
	Government job	9	9	46	46	55
	Business	19	19	12	12	31
	Unskilled	55	55	6	6	61
	Total	100	100%	100	100%	200
Family type	Joint	43	43	12	12	55
	Nuclear	57	57	88	88	145
	Total	100	100%	100	100%	200

Source: field survey during March 2015

(NB:*Literate are those persons who can only read and write)

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In the above table 1 it has been found that among ST 66% believed in Christianity and 34% believed in Hinduism. While among SC 100% believed in Hinduism. It has been also been table reveals that majority (47%) of respondents belonging to ST category is educated up to higher secondary level. 25% of them are found literate who can read and write and 19% are educated till primary school. Rest 6% acquired education till higher secondary level and only a few (3%) are educated up to graduate level and above. Whereas among SC's most (44%) of the respondents are educated up to graduate level. 41% are educated till higher secondary level and 10% are educated up to high school level. Very few (3%) have studied till primary level and only 2% are found to be literate. it has also been found that most (33%) of the respondent's husbands of ST category are educated till high school level. While 27% are educated till primary school and 23 percent are just literate. 12% are higher secondary level educated and rest 5% are educated to graduate level and above. While among SC's 47% are educated till graduate level and 35% are educated up to higher secondary level. 14% high school level educated. Remaining 3% are primary level educated and only 1% is found to be literate. It has also been disclosed that among ST's 61% are housewives and 36% are unskilled workers. Rests 2% are doing government jobs while 1% is engaged in private sector jobs. On the other hand among SC women 63% are housewives 13 percent are unskilled workers. 17% are engaged in private sector jobs while remaining 7% are engaged in government sector jobs. Among ST's 55% of the respondent's husband are unskilled workers and 19% are engaged in business. Whereas 15% are doing private jobs and 9% are doing government services. Rest 2% is found to be contractors. Among SC's 46% of the respondent's husband are found to be engaged in government job and 35% are doing private sector job. 12% are found to have their business and 6% are unskilled workers. Remaining 1% is contractors. In the above table it has also been found that in ST's 57% are living in nuclear families while 43 percent are living in joint families. While among SC's 88% are living in nuclear families and rest 12% are living in joint families.

Table 2: Monthly household income

Characteristics	Scheduled tribe		Scheduled caste		Total
	Frequency	Percentage	Frequency	Percentage	
Below 5,000	27	27	5	5	32
5,000-10,000	53	53	31	31	84
10,000-15,000	11	11	45	45	56
15,000 and above	9	9	19	19	28
Total	100	100%	100	100%	200

Source: field survey during March 2015

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Data from above table 2 reveals that among ST's 53% has monthly household income of 5,000-10,000 and 27% has below 5,000. 11% of them have monthly household income of 10,000-15,000 and only 9% has a monthly income of 15,000 and above. While amongst SC's majority (45%) has a monthly income of 10,000-15,000 and 31% have monthly income of 5,000-10,000. 19% have an income of 15,000 and above and 5% has income below 5,000.

Table 3: Hygiene and sanitation

Characteristics		Scheduled tribe		Scheduled caste		Total
		Frequency	Percent	Frequency	Percent	
Purification of water	Yes	96	96	98	98	194
	No	4	4	2	2	6
	Total	100	100%	100	100%	200
Pattern of purification	Boiled	10	10	5	5	15
	Filtered	90	90	95	95	185
	Total	100	100%	100	100%	200
Type of toilet	Kaccha	65	65	5	5	70
	Pakka	35	35	95	95	150
	Total	100	100%	100	100%	200

Source: field survey during March 2015

Data from the above table reveals that among ST 96% of the respondents purify the water and 4% do not purify. They directly take the water. While among SC 98% purifies their water and rest 2% do not purify their water. It has also been found that 90% of the ST respondents filtered the drinking water whereas 10% boiled the water. And among SC respondents 95% filtered their drinking water and only 5% have boiled their water. From the above table it can also be concluded that 65% of the ST women have kaccha toilet and 35% of the respondents have pakka toilet. Among SC respondents 95% have pakka toilet and rest 5% have kaccha toilet.

Table 4: Habit of taking breakfast

Habit of taking breakfast	Scheduled tribe		Scheduled caste		Total
	Frequency	Percentage	Frequency	Percentage	
Yes	30	30	80	80	110
No	70	70	20	20	90
Total	100	100%	100	100%	200

Source: field survey during March 2015

Data from table reveals that 70% of the ST respondents do not takes breakfast and 30% of the respondents have the habit of taking breakfast. Among SC respondents 80% of them have a habit of taking breakfast whereas 20% do not take breakfast.

Table 5: Frequency of eating meals

Frequency of eating meals	Scheduled tribe		Scheduled caste		Total
	Frequency	Percentage	Frequency	Percentage	
Twice daily	70	70	20	20	90
Thrice daily	30	30	80	80	110
Total	100	100(%)	100	100(%)	200

Source: field survey during March 2015

The data from table shows that among ST women 70% of the respondent s consumes twice a meal daily while 30% of them consume thrice a meal daily. And among SC women it has been found that 80% of the respondents eat three times a meal and 20% eats two times meal.

TRIBAL HEALTH**Table 6: Distribution of respondents according to their nutritional practices**

Variables	Scheduled tribe		Scheduled caste		Total
	Frequency	Percentage	Frequency	Percentage	
Green leafy vegetables	65	65	37	37	102
Fruits	8	8	5	5	13
Milk and milk products	6	6	5	5	11
Eggs	5	5	18	18	23
Fish and meat	16	16	35	35	51
Total	100	100(%)	100	100(%)	200

Source: field survey during March 2015

In the above table it has been found that 65% of the ST respondents consume green leafy vegetables and 16% consume fish and meat. 8% eats fruits and 6% of them consume milk and milk products. Rest 5% consumes eggs. While among SC respondents 37% consumes green leafy vegetables and 35% consumes fish and meat. 18% consumes eggs and 5% of the eats milk and milk products. Remaining 5% are found to be consuming fruits.

Table 7: Distribution of respondents according to their pattern of consuming caffeine (tea or coffee)

Consumption pattern of caffeine	Scheduled tribe		Scheduled caste		Total
	Frequency	Percentage	Frequency	Percentage	
Once daily	74	74	55	55	129
Twice daily	20	20	40	40	60
Thrice daily	5	5	3	3	8
Never	1	1	2	2	3
Total	100	100(%)	100	100(%)	200

Source: field survey during March 2015

In the above table it has been revealed that 74% of the respondents consume tea/coffee once daily and 20% consumes it twice daily. While 5% consumes thrice daily and only 1% have never consumed caffeine. Among SC respondents 55% are found to be consuming caffeine once daily and 40% consumes twice daily. Rest 3% consumes three

times daily and 2% have never consumed caffeine. Though the ST women have found to consuming less caffeine but the quantity they take at one time is about 250ml. this also reflects a kind of negligence towards their health knowing the bad effect of caffeine.

Table 8: Distribution of respondents according to their consumption pattern of pan

Consumption pattern of pan	Scheduled tribe		Scheduled caste		Total
	Frequency	Percentage	Frequency	Percentage	
Regularly	16	16	51	51	67
Sometimes	21	21	33	33	54
Never	63	63	16	16	79
Total	100	100(%)	100	100(%)	200

Source: field survey during March 2015

The above table shows the data regarding the pattern of consumption of pan. It has been found that among ST respondents 63% have never consumed pan while 21% sometimes eat pan. Rest 16% consumes pan on regular basis. Whereas among SC's 33% of the respondents are found to be consuming pan sometimes and 51% consumes pan on regular basis. Remaining 16% had never consumed pan. The consumption of pan is not good for health but still most of the SC respondent's consume such items.

Table 9: Smoking habit of the respondents

Smoking habit	Scheduled tribe		Scheduled caste		Total
	Frequency	Percentage	Frequency	Percentage	
Yes	85	85	2	2	87
No	15	15	98	98	113
Total	100	100%	100	100%	200

Source: field survey during March 2015

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Data from above table reveals that 85% of the ST women have the habit of smoking while 15% do not smoke. Whereas among SC's 98% of the respondents don't have the habit of smoking rest 2% do smoke. Among ST women it has been seen that the less educated females smoke more and SC respondents who are found to more educated smoke very less.

Conclusion

In the present study it has been found that there is a difference between food habits among Scheduled tribe and Scheduled caste women. The ST women are found to be consuming only boiled food whereas among SC's the women are found to be consuming oily and spicy food. This study revealed that SC mothers have good knowledge compared to ST mothers. Most of the ST mothers in this study were lacking the awareness about the consequences of inadequate nutrition. There may be due to inadequate knowledge about nutritional care as most of the ST mothers lacking of basic access to health needs and less educational qualification. It has been found during field work that most of the SC respondents are avoiding some foods like papaya, coconut, during pregnancy. While among ST respondents during pregnancy they are found to be avoiding some food items like snail, bitter vegetables. With regarding to practice, most of the ST women have good practice of consuming green leafy vegetables, milk and milk products, eggs. Moreover, the most significant predicting factors for knowledge in this study were high women education followed by working. Socio-economic factor seems to play an important role in decisive the maternal health status amongst all the socio-economic factor education plays the most important part. Findings shows that high influence of higher education levels of women on the use of health services; the better educated women are, more aware about their health, know more about availability of health care services and use this awareness and information in accessing the health care services. Education of husband might be playing a similar role in supporting the women's access to the health services. Also, the most significant predictor for good nutritional practice was women's knowledge. There is a need of nutritional education which is must to change the dietary habits especially among women. But it has also been found that though women are about the nutritional value of many food items still they have found the less practice of consuming such food items. This reflects some kind of ignorance and negligence towards their health.

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6. NFHS REPORT 3



Education And Health Awareness Among The Tribals Of Tripura State

Sanat Kumar Mallick

Introduction

Tripura is the 2nd most populous state in the North Eastern Region. Although the state is small with a population of only over three million, the social composition of the population of Tripura is diverse. In particular, around one-third of the population comprises people belonging to the Scheduled Tribes. (*From Wikipedia, the free encyclopedia*) As per 2001 census, there were about 635 tribal groups and subgroups including 75 primitive communities who have been designated as 'primitive' based on pre-agricultural level of technology, low level of literacy, stagnant or diminishing population size, relative seclusion (isolation) from the main stream of population, economical and educational backwardness, extreme poverty, dwelling in remote inaccessible hilly terrains, maintenance of constant touch with the natural environment, and unaffected by the developmental process undergoing in India. There is a consensus that these scheduled tribes are the descendants of aboriginal population in India (Bhasin and Walter 2001). Tribal communities in India mainly consist of forest dwellers who have accumulated a rich knowledge on the uses of various forests and forest products over the centuries. According to Article 342 of the Indian Constitution, the Scheduled Tribes are the tribes or tribal communities or part of or groups within these tribes and tribal communities which have been declared as such by the President through a public notification. India possesses a total of 427 tribal communities, of these more than 130 major tribal communities live in North East India, The major tribal communities of the North East India have been categorized into sub-tribes. Tribal groups constitute about 8.2 % of the total population in India (Indian Government Census, 2001). According to government statistics, tribes can be found in approximately 461 communities with almost 92 % of them residing in rural areas, mostly in remote underserved forest regions with little or no basic civic amenities like transport, roads, markets, health care, safe drinking water or sanitation. Tribal communities therefore lag behind other communities with respect to attainment of income, education, health and other requisites for good community nutrition.

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Tribal health culture

Tribal communities are mostly forest dwellers. Their health system and medical knowledge over ages known as 'Traditional Health Care System' depend both on the herbal and the psychosomatic lines of treatment. While plants, flowers, seeds, animals and other naturally available substances formed the major basis of treatment, this practice always had a touch of mysticism, supernatural and magic, often resulting in specific magico-religious rites (Balgir, 1997). Faith healing has always been a part of the traditional treatment in the Tribal Health Care System, which can be equated with rapport or confidence building in the modern treatment procedure. For example, the doctor priests of the Saora tribe utilize several herbs and roots in conjunction with their magico-religious rites in Orissa. Health problems and health practices of tribal communities have been profoundly influenced by the interplay of complex social, cultural, educational, economic and political practices. The study of health culture of tribal communities belonging to the poorest strata of society is highly desirable and essential to determine their access to different health services available in a social set up. The common beliefs, customs, traditions, values and practices connected with health and disease have been closely associated with the treatment of diseases.

The Tripura Tribal Areas Autonomous District Council (TTAADC) Act 1979 was passed by the Indian parliament and is an independent council administering the tribal areas of the state of Tripura, India. Its council and assembly are situated in Khumulwng, a town 26 km away from Agartala,

Tribal health problems

Proper education, lack of national preventive programmes, and lack of health services are responsible for the poor health of the tribals. Problems like in-sanitary food supplies, water contamination, and poor food in-take reflect on the health status of tribals. The tropical disease like malaria is still widespread in the tribal areas. Hence, better nutrition and good environmental health are the important aspects of village health services.

The primary health care infrastructure provides the first level of contact between the population and health care providers and forms the common pathway for implementation of all the health and family welfare programs. It provides integrated primitive, preventive, curative and rehabilitative services to the population close to their hearth and home. A majority of the health care needs of the tribal population are taken care of either by the trained health personnel at the primary health care level or by their own traditional indigenous health practitioners at village level. Those requiring specialized care are referred to secondary and tertiary sector. The tribal population is not a homogeneous one. There are wide variations with regard to education and health status, access and utilization of health services among the tribal populations (Balgir, 2000a).

The health care services and challenges in rural and tribal areas are a complicated phenomenon such as:

- Concept of health and disease is rather traditional which results in their not seeking treatment at an early stage of physical maladjustment and frequent refusal of preventive measures in rural areas and their idea of medical care is some treatment not easily accessible and available. Lack of motivation of people for availing medical care at the initial stage of the disease.

- Limited paying capacity or habit of getting treatment always free of cost.
- Comparative inaccessibility of medical care services due to under-developed communication and transport facilities.
- Non availability of qualified medical practitioner in the village.
- Qualified health workers and professional medical and paramedical staff do not want to work in rural and tribal areas because of professional, personal and social reasons.
- Non availability of private or governmental doctor as and when need arises.

A look into the pattern of rural health services shows that the scarcity of trained manpower for health is a major problem and obstacle to the extension of health services to rural and tribal areas. Moreover, the qualified health workers do not want to work in rural and tribal areas because of professional, personal and social reasons.

Disease burden

Any tribe must be encouraged to organize itself in order to take advantages of the programs designed for the development and health in the light of human genetics, prophylactic immunization, socio-cultural traditions and eco-friendly environment. It has been observed in Orissa that the tribal communities are vulnerable as well as have major threat of the following major health problems:

Communicable diseases

The people in their daily life consciously or subconsciously modify the environment and ecological aspects of their habitat, which in turn increase the risk for communicable diseases. The communication of diseases is dependent either on the direct contact or on the indirect agents like breathing, sputum, stool, saliva, urine, etc. The venereal diseases are communicated through direct contact and tuberculosis is communicated through indirect contact such as breathing. Thus, the communicable diseases are those diseases, which pass from infected person to a healthy person by direct or indirect contacts through infectious agents. Sometimes, viral or bacterial infections cause death in a large numbers (in epidemic form) and threaten the survival of mankind.

Non-communicable diseases

Education, especially the female education, is generally considered a key factor to development. Female education is believed to have a great influence on the maternal and child health as it enhances the knowledge and skills of the mother concerning age at marriage, contraception, nutrition, prevention and treatment of diseases. This also means that the higher infant and child mortality rates among the poorly educated mothers are due to their poor hygienic practices. Moreover, maternal education is related to child health because it reduces the cost of public health related to information on health technology. It is expected that the increase in literacy rate of a community would reduce the fertility, morbidity and child mortality or in other words, improve the health status of the tribal community as a whole.

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Reproductive health

The tribal areas of Tripura are underdeveloped and lack necessities of civilized lifestyle, the officers who were posted in tribal areas did not bring their families with them. During their stay, some of them entered into bigamy by marrying innocent young tribal women. This did not cost them much and provided a solution to their loneliness and physical or sexual needs. Two or three years later, they could leave the area leaving the tribal wife and children without any support. This illegal and inhuman practice by the government officials remained unknown to the public in the hill areas. Further, the dark side of these activities was the grabbing of land by outside people in the tribal areas, sexual exploitation of innocent tribal women, and extortion of forest produce by non-tribal traders, stood as a challenge before the indigenous women. This has led to the spread of certain diseases prevalent only in the coastal belt, but now common among the tribals.

Genetic disorders and Sexually Transmitted diseases

Primitive tribal groups of India have special health problems and genetic abnormalities like sickle cell anaemia, G-6-PD red cell enzyme deficiency and sexually transmitted diseases. Genetic disorders especially sickle cell disease and G-6-PD has been found to occur in high frequency among various tribal groups and scheduled caste population. AIDS is as yet not a big concern in Tripura, only five full-blown cases (and 79 HIV-positive cases) have been identified. The State is in the low-risk category in terms of HIV prevalence rates. However, it is of concern that knowledge about AIDS is thin. In the NFHS-2 survey, 56 per cent of rural women had not heard about AIDS, and 58 per cent did not know any method of prevention. (2011)

Birth and mortality rate

The tribal population has a much lower Infant Mortality Rate (IMR) as compared to the scheduled castes but moderately higher than the other population. Special estimates of IMR at the district level were prepared. These estimates show that the IMR in Tripura were 41 and 43 infant deaths per 1,000 live births for males and females respectively. According to the report of the Tripura Tribal Areas Autonomous District Council (TTAADC), requirements of the health care facilities in the area are not proportional to the increasing demand of the people due to the fact of population explosion.

Maternal and child health care practices

Child bearing imposes additional health needs and problems on women -physically, psychologically and socially. Maternal mortality was reported to be high among various tribal groups. The chief causes of maternal mortality were found to be unhygienic and primitive practices for parturition. More than 90 per cent of deliveries are conducted at home attended by elderly ladies of the household. No specific precautions are observed at the time of conducting deliveries which resulted in an increased susceptibility to various infections. Services of paramedical staff are secured only in difficult labour cases.

Nutritional status of tribes of Tripura

The health and nutrition problems of the vast tribal population of India are as varied as the tribal groups themselves who present a bewildering diversity and variety in their socio-economic, socio-cultural and ecological settings. The malnutrition is high among the tribal population. Nutritional deficiency leads to diseases like endemic goiter/ thyroid gland, anemia, pellagra and beriberi. The deficiency may result from improper diet (e.g. Nutritional anemia is a major problem for women in India and more so in the rural and tribal belt. This is particularly serious in view of the fact that both rural and tribal women have heavy workload and anemia has profound effect on psychological and physical health. Anemia lowers resistance to fatigue, affects working capacity under conditions of stress and increases susceptibility to other diseases. Maternal malnutrition is quite common among the tribal women especially those who have many pregnancies too closely spaced. Tribal diets are generally grossly deficient in calcium, vitamin A, vitamin C, riboflavin and animal protein.

Population- SC/ST breakup: (As per Census 2011)

Sl.No.	Description		Schedule Tribe (ST)
1	Total Population		993426
2	Sex Ratio		970
3	Literacy Rate (%)		56.5%
4	Male Literacy Rate (%)		68.0%
5	Female Literacy Rate (%)		44.6%

Health Check up, Health Education and Distribution of Medicines at AWC

Health education and health awareness is so contextual for the tribal, even every man. The services under ICDS are implemented with the help of ASHA and Health Workers at AWC levels and locally it is done with the help of MOIC of Health Department with a view to ensure regular attendance of ASHA Workers to the AWCs. (APPI, ICDS, TRIPURA- 2012-13) The government of Tripura has been trying best for the development of total tribal. The health units of Tripura distributing different kinds of medicine like Iron capsule, albendazole / mabendazole etc. for the school students.

Village Health and Nutrition Day (VHND)

Tribal Village Health & Nutrition Day are being observed in each AWC of each district throughout the State on regular basis. During the month of April, 2012, 7818 Nos. of VHND/ MCH Day has been observed throughout the state.

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Conclusion

The livelihood of tribals in Tripura state is not so easy and smoothie. The ST backward classes have been suffering the worst condition still now. Though the government has provided various educational and health scheme, these are not sufficient to the hills and forests dwellers of Tripura. It is evident from the above discussions that tribal populations are affected by various social, economic and developmental constraints that potentially expose them to high rates of malnutrition and health problems which is correlated with the lower percentage of higher education of the community. The tribal of India are heterogeneous. Although scheduled tribes are accorded special status under the fifth/sixth schedules of the Indian Constitution, their status on the whole, especially their health still remains unsatisfactory. Hence, the methods to tackle their health problems and educations should not only be multi-fold, but also specific to the individual groups as feasible as possible with the help of humanity and responsibility.

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Food Security, Nutrition and Health

Role of Healthy and Nutritional Forest Products on Tribal People: A Study On Tribal Markets In West Tripura District

Sharmistha Chakraborty
Bijita Sen

Introduction

Northeast India including Tripura is very rich in plant and herbs because of plenty of rainfall and availability of deep forest. The rich endowment of edible resources in forest keep the tribal's of Tripura confirmed in living traditionally in forest areas. (Choudhury & Choudhury.2010). Tribal people are very much familiar and habituated to survive with the forest products, which ensure a range of ethnic food rich nutrition and compatible to culture and ethnicity of tribes. Mainly tribal people have generation's wise rich knowledge about many plants and non vegetarian food through trial and error. But literatures are very rare on how tribal people interact with these natural resources in scanty. Tribal peoples have conserved many forest crops and ethnic vegetables and indigenous fruits used in local diet for food with healthy and nutritional security.

Tripura is a small hilly state of North-Eastern part of India surrounded by Bangladesh on three sides with rich bio-diversity hot spot with huge variety of flora and fauna. The agro-climate conditions are fertile and acidic good depth and abundant rainfall favors the cultivation as well as natural crops. But not only vegetables and plants they used as edible but different species, non-vegetarian resources also included in their food habits. This paper is mainly highlight the influencing role of healthy and nutritional vegetable on tribal traders in west Tripura district. The useful knowledge of tribal people makes them more presentable in the market areas. These vegetables and medicinal plants are important tools for addressing poverty issues for the marginalized forest dependent communities by contributing to livelihoods, including food, security, income, health and sustainable human development.

Wild forest products play vital role in sustaining the lives of local tribal traders. Tribal traders mainly found in poor economic conditions in various areas of developing era. This study suggested the nutritional forest as sources of income to the villagers to improve their socio-economic conditions as well as increasing the income level by effective collection

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and marketing wild forest product. Tribal people of Tripura are using plants and vegetable which are mainly found in the natural settings of the forest. Most of these forest vegetables have special nutritive values. In present situation these products have a huge demand in the markets.

Classification of Tribal Traders

Tribal traders have classified on different section in the markets. Some tribal traders are selling vegetables which are found in the forest, cultivated and collected from different selected houses. Some traders have selling non vegetarian items like dry fish, pork and others wild animals.

On the other hands most of the tribal traders those were selling vegetables and edible forest plants bring their products from particular rural wholesale markets. In this study basically taidu and ompi two wholesale markets name are very much found from the traders. All selling process and money transaction is on cash paid. In these processes of trading, basically two types of vendors are identified. Primary vendors; those are regularly collect vegetables and plants from the forest. Some of them cultivate some products in forest areas. This cultivation is mainly organic in nature and no fertilizers are used, so products have high nutritious food value. Secondary vendors; they mainly buy forests product from primary vendors in wholesale rate and sell in the tribal markets in different areas in west Tripura.

Traditional Knowledge and Rural Tribal Traders

Rural tribal people are strong believed on traditional practices as well as wisdom about wild plants and medicinal herbs. Rural tribal are fully depend on forest for their livelihood as well as economic sustainability. They have intimately incorporated with nature, plants animals and soil in their socio-cultural prospective. As a result of which it has become a tradition of passing their knowledge from generations wise with great faith and believe. Rural tribal people have deep traditional knowledge about food, security and different useful plants as medicinal herbs to cure various diseases. Though, in the present era of modernization indigenous as well as traditional knowledge are being lost as they merge with modern fast foods. At the same time rural tribal traders those are sell the forest products help to secure their traditional food habits with explaining the usefulness and procedures to make tribal dishes.

Objectives and Methodology

Tribal traders collectively came to market areas to sell their product where as forest based vegetables and fruits and plants are very much demandable in these markets. This paper mainly focus of following objective, with reference to influence of healthy and nutritional forest products on rural tribal traders in unorganized markets of west Tripura district; -

- 1) To study rural tribal traders knowledge about traditional forest products.
- 2) To study the forest product related to health and nutritional value.
- 3) To study socio-economic status of rural tribal traders in west Tripura district.

This research method descriptive in nature as it attempt to describe social, economical and psychological believes of rural tribal people about different forest vegetables which they consider as highly nutritionals and healthy food values. This study includes fieldwork to collection of information purposive sampling method applied. Tools of methods are unstructured interview, direct discussion, participation and observation.

Nature of Data Collection:

Both primary and secondary data collect through different sources. Nine markets areas from west Tripura district i.e.-1) Lake Chowmuhoni.

2) Bijay Kumar Chowmuhoni.

3) M. B. Tilla

4) Adviser Chowmuhoni.

6) kolabari.

7) champaknagar.

8) kolabagan.

9) Jiraniya

From these markets 120 respondents selected for this study. An initial interview process was arranged with the help of market commission collectors it was very easy to mix up with simple rural tribal traders. Some respondent willingly come and give their valuable knowledge. Purposively from each market rural tribal traders were selected for sampling, those are basically selling forest products.

Results and Discussions:

Social status: - The term 'social status' of rural tribal traders includes the position, power abilities and privileges they enjoyed in their society. In this study most of the rural tribal traders are secondary vendors those belong to different communities. Rural tribal traders basically not found in well economic condition. But increasing demands in urban tribal areas help to develop the social as well as economic condition of rural traders.

- a) Sex: - In this study male and female both sex were found. Where from 120 respondents 48(40%)are found male and 72(60%) were female
- b) Educational status: - Education must have so much influence to one individual as well as social status for make once knolegeble . in case of simple trading business, knowledge about traditional and sessional forest products must be needed for better selling of products in the market areas. Among all respondents educational profile given below;-

Education	Male	Female	total
Illiterate	2 (4.1%)	50(69.4%)	52(43.3%)
Primary	37(77.8%)	16(22.2%)	53(44.2%)
Secondary	9(18.1%)	6(8.4%)	15(12.5%)
total	48(40%)	72(60%)	120(100%)

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- c) *Economic Status*: - Economic status comprises of the position, power abilities of trader. Though rural tribal basically not in a high economic condition but now a days the craziness about forest organic products make rural tribal people for involve on trading business of rare forest products in urban regular as well as weekly markets.
- d) *Annual income of rural tribal traders*: - Healthy and nutritious forest products influence the traders' income in road-side markets areas. Variety of rare forest products and presentable descriptions of the product help the traders for make profitable amount. In this study annual income found different for male and female. Female tribal traders are found more skilled seller of forest products than males. Some of the traders those have family relationship jointly participate in these markets for speedily sell their products. In this study distribution of respondents found in the following according to their income: -

Influential Knowledge of Healthy and Nutritional Forest Product among Rural Tribal

Income	Male	Female	Total
High	3(6.25%)	8(11.2%)	11(9.2%)
Medium	12(25%)	52(72.2%)	64(53.3%)
Low	33(68.75%)	12(16.6%)	45(37.5%)
Total	48(40%)	72(60%)	120(100%)

The organic and highly nutritional vegetables are not found in urban setting and every market in west Tripura. Basically rural tribal are the mainly and only source of the forest products. Because of natural climate various vegetables and edible plants found on the seasonal basis which have particular food value and some have medicinal qualities. According to rural tribal, most of the forest vegetables have good amount of neutrinos food values but the preparation of these vegetable is equally important for secure the good qualities of the food. For tribal most of the vegetables are preparing by boil their foods or steam. In some preparation they use chakhwi(alkali water or homemade kharpani). In the following some of the forest vegetables were discussed with tribal believes.

(i) *Thabolong* (Dioscorea Linn)

Thabolong is consisting of tubers which found in wild forest. This species have different size, shape and number of tubers can vary according to the species. According to tribal traders, they have believed that tubers are helpful for cleaning the blood and make nourish the lungs and enrich the kidney.

(ii) *Thaduk* (Dioscorea alata Linn)

Thaduk is found one of the most important species among cultivated yams. It is grown as garden crops in found almost every parts of Tripura. One of the respondent said that thaduk grows abundantly and spontaneously in several parts of the forest areas. They freely

exploit them in time of scarcity. They have a believe that after potato thaduk have huge amount of nitrous value which helpful for blood pressure, hypertensive activity and any kind of stomach related problems.

(iii) *Thacher* (*Dioscorea puber* Blume)

Thacher is a wild variety of yam. In the forest region it grows naturally. One of the tribal women traders' shared that it is very time taking process to collect thacher from the forest. Along with thacher, same types of species like thaduk, thktwi wasksa all have similar food value.

(iv) *Khamka* (*solanum indicum* Linn)

Khamka is a young fruits and half-ripe fruits which generally preferred by the tribal for making different dishes. They like this wild fruit because of its good nitrous value. According to tribal women khamka is useful for female diseases. Leaf of khamka tree used in itching problem as antibacterial agent. The fume of burning khamka is useful in toothache.

(v) *The Ganga* (*Dioscorea hamilonil* hook)

This tuber is used along with other vegetables and served as mixed vegetables dish. According to them ganga help other vegetables to provide their nutritive values and give good source of minerals in the food.

(vi) *Khamka sikam* (*solanum torvum* swartz)

This vegetable is very common in tribal dominated markets. Khamka sikam have a good food value. Tribal people use it as energy giving food and they believe that khamka sikam useful in the treatment of cough. Roots of this plant use to heel craks in the feet.

(vii) *Hukhi phantok* (*solanum melongena* Linn)

This is one kind of brinjal which is mainly jhum cultivated product of forest areas. One respondent sail they were very much use too with hukhi phantok form the childhood. Whole plant is used for different purpose. Leaf and fruits produce healthy and nutritional food value for reduce blood cholesterol and useful for bronchitis or asthma.

(viii) *Samsota* (*centella asiatica* Linn)

Samsota leafs are very nutritive which provide anti-oxidant, vitamin B, calcium, Iron. Tribal and non-tribes equally give important to this plant. Tribal people use this plant for improvement of brain; it is useful for anti stress action and anxiety. They share one process of making useful tonic for cough problem by using syrup of samsota along with ginger and black pepper.

(ix) *Banta* (*chenopodium album* Linn)

This green herb is very common used in Tripura. Leafs and tender shoot are eaten as vegetable. According to them, banta is easily available and help to give strength in bones. This plant is effective in throat troubles and eye diseases.

(x) *Batema* (*Amophophallus campanulatus* blume)

Batema is widely distributed in terior part of Tripura. It is also cultivated as a pure vegetable in most hilly areas. Both tribes and non-tribe peoples equally favour these vegetables for different preparation. According to tribal traders batem have a very pleasant taste and whole plant have rich nutrients include minerals.

(xi) *Muia* (bamboo shoot/bash khurul)

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Bamboos are usually a large variety. Almost 58 species are available in north east of India. Food value of different bamboo shoot (muia) depends on percentage of the edible portion. Female bamboo is called in tribal language as wakthwi which is composed of silicic acid, Iron, Calcium etc. According to rural tribes bamboo shoot is useful in asthma, cough.

(xii) *Thailik Bolong* (*Musa acuminata* colla)

The wild banana tree is basically found as most common vegetables for rural tribal in Tripura. The ripe fruit is a rich source of carbohydrates, minerals and vitamins on the same way unripe green banana use as vegetables. Tribal people call the green banana as (thailik kwthung) and flower (muikhon). Most of the tribal traders believe that these whole plants are useful for constipation problem and any kind of problem related with stomach.

Other information and Observation

- Traditional knowledge about forest product help the to elaborate the process of cooking and usefulness of the forest product which makes them more demanding in those market which is dominated by rural tribal traders.
- Most of the rural tribal traders are freely explain the usefulness of vegetables which is their traditional knowledge achieve by generation wise.
- Rural tribal traders share that only knowing about usefulness of forest vegetables is not enough for meet the nutritional requirement. Preparation techniques are equally important.
- They said, many of the vegetables eaten as raw while majority needs to cook. Indigenous preparation of wild vegetables is essential to ensure good nutrition and healthy pleasing in appearance, so that it becomes edible.
- All of these nine markets we found different tribal communities gathered and sell their forest products. But majority are found as tripuri, hrangkhawl, malsom, jamati and debbarmas.
- These nutritional and healthy products made new platform to them for selling the forest product in urban tribal dominated market areas. Most of them arrange their particular day of trading in different weekly market.

Suggestions

- Rural tribal traders require smooth transport facilities with cheap expenditure to reach the market areas. Because of transportation problem and damage road, they have to reach the market by hiring vehicle which is very expensive.
- Normally rural tribal traders are coming from interior parts along with huge forest products. Some of them stay at night. So night shelter home needed for those traders.
- Training is a process through which a person can equip himself with skill, abilities and attitudes; good quality training can help the tribal traders for economic settlement through regular economic earning.

Conclusion

Healthy and nutritional forest resources are the major source of income after agriculture. Though tribal traders collect some jhum cultivated vegetables but forest product are highly demanding. This study explores that forest product play a critical role in providing subsistence and cash income to the both primary and secondary venders. Now a days demanding image of rural tribal traders mainly emerge for organic, healthy and nutritional forest products.

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Massive Death of Infant in a Tribal Village: Pivotal Force for accelerating health care services through ‘Village Health & Nutrition Day’ in Convergence Mode

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Dr. Achyut Chandra Baishya

Introduction

Reducing Infant and Child Mortality is a key goal among eight Millennium Development Goals. Huge and strategic investments are being made by Government of India to achieve these goals. At various global platforms, India has reaffirmed its commitment to make every effort towards achieving the Millennium Development Goals 4 and 5. India has made considerable progress over the last two decades in the sector of health, which was further accelerated under National Rural Health Mission (NRHM). True to its vision, NRHM improved the availability of and access to quality health care by people, especially for those residing in rural areas, the poor, women and children. The National Rural Health Mission has entered in its second phase. National Health Mission (NHM) seeks to provide effective, efficient and affordable health care which is accountable and responsive to the needs of the People.

Tripura is a tiny state in North East with mixed populations of Tribal and non-tribal community and having 19 Sub-tribes among the Scheduled tribes in the state with their own cultural identity. Public health is a major challenge in our country and the Government of Tripura has also given special effort to bring about changes in public health care domain with the introduction of various health care schemes under National Health Mission.

The State of Tripura has good health indicators in the context of Maternal Health, Child Health and Family Planning. Although, there is no state specific data for Maternal Mortality Ratio (MMR), it is presumed that the State would proportionately be able to ensure less than 100 maternal deaths per lakh live births by 2016-17. It is pertinent to note that implementation of Janani Suraksha Yojana (JSY) & Janani Sishu Suraksha Karyakram (JSSK) schemes with the supportive role of ASHAs at the community level through their

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outreach activities have largely accounted for improving access to health facilities by the eligible beneficiaries and corresponding service delivery at the public health facilities. Institutionalization of Infant Death Audit (IDA) has helped in to adopt corrective measures at State and District level. The latest IMR of the state is 26 per 1000 live births (Source: SRS Bulletin, RGI 2013) which is lower than National average of 42 per 1000 live births.

Problem of the Statement

The concept of bringing quality health care services to the rural poor in our country and in the state has been the baseline on which National Rural Health Mission (NRHM) is working. Village Health & Nutrition Day is one of the prime initiatives of National Rural Health Mission and is considered as being vital for achieving the goal of catering RCH services and also increasing community ownership with the health system. The Village Health and Nutrition Days (VHND) are considered as an effective platform for providing first-contact primary health care to the villagers. But the special VHND initiative was undertaken in North Tripura District in view of following situations:

1. In April to June 2010, 24 people (19 infants) had died in Kangrai, a very remote village under Kanchanpur Sub-Division, North Tripura District;
2. No information filtered out of the village for three months, while the deaths were going on;
3. No road, no electricity, no mobile connectivity in the hard to reach areas;
4. No reaction from the families, death accepted as a way of life;
5. No complaints against Health or Social Welfare department;
6. This was the pivotal force to start VHND in complete convergence mode

Programme Description

North Tripura District (erstwhile) prioritized VHNDs by converging line departments like Social Welfare & Social Education, School Education, Drinking Water & Sanitation, Panchayat & Rural Development Department including PRI to implement in a collaborative manner. This is done to ensure community participation and mobilize towards health care services. District Magistrate & Collector acts as focal point at the district level for organizing VHND. Monitoring mechanism put in place at village, block, district and state level.

• VHND as Existing in NRHM, But practically not being implemented due to

- a. No awareness of the concept of VHND among general public and PRI's
- b. Distributed amongst all AWCs, meaning 7-8 VHND's per month per village to be held as per paper.
- c. Rs 125 per AWC given, Rs 300 per AWC given to Health
- d. Hardly 10 to 20 women used to attend (if at all!)
- e. Complete lack of co-ordination between AWW and ASHA.
- f. System of data recording was not there, thus no monitoring
- g. No PRI involvement
- h. No way of checking whether an AWW, MPW, ANM etc have gone to a village or not.

- **Basic Idea for Organizing VHND in Convergence Mode**
 - i. All the Anganwadi Centres in 3-4 habitations will come together for VHND.
 - ii. All the functionaries of various departments will come together.
 - iii. Schedule of VHND will be painted on walls of Panchayat in advance.
 - iv. EVERY activity related to health, nutrition, drinking water and sanitation, irrespective of scheme or department which requires mobilisation of people or awareness generation to be merged.
 - v. Fund for IEC activities merged.
 - vi. Onus on PRI
 - vii. All women, children in Anganwadi's, Schools will attend.

- **Salient Features of VHND in North Tripura State**
 - a. VHND is organized four times in a month in all 1038 Gram Panchayat and ADC Villages in the State as an important tool under NRHM for the convergence of all activities from the financial year 2012-13.
 - b. Awareness discussion on 14 issues of preventive health care for the community, using the VHND FLIP CHART by Headmaster of School
 - c. Small quiz for mothers and children on health issues
 - d. Immunization of children and Ante Natal Check up
 - e. Weighing of children and plotting of WHO chart and health monitoring of pregnant mothers are done. Nutritional support is given to mother and children with support of all departments involved for VHND.
 - f. Support though incentives to ASHA to mobilize eligible couple for Family Planning, PW/Children for Maternal Health Care, Immunization, and Personal Hygiene and to ensure that drop-out of ANC/PNC/Immunization cases participates in VHND.

Monitoring Process

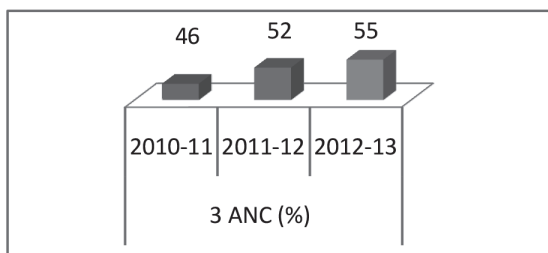
Any project which involves convergence of schedules, funds and manpower of multiple departments needs robust monitoring procedures for sustainability. Thus village level VHND Register is maintained in the village Panchayat by Rural Panchayat Secretary. Reporting Register with duplicate perforated sheets is available for sending upwards up to CDPO level. Validation of data is entered by health department. Register is counter signed by gram pradhan and local level signatories of line department to avoid figure fudging. Discrepancy in figures reported by various departments is analyzed systematically, thus cooking of figures not possible and quality of health data is much more reliable and robust. Block level and Sub Divisional committees are active headed by BDO and SDM with compulsory attendance of commensurate PRI leaders for monitoring the VHND reports. Online website is maintained for 100% transparency in reporting and is displayed to the public.

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Impact

The organization of VHND programme especially designed to cater health care services and health education messages for mother and children has led to the improvement and progress of health indicator in the North Tripura (Un-divided) District as follows:

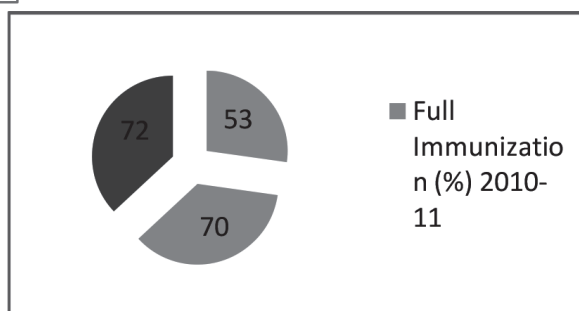
Maternal Health



3 ANC check-up is increased by 9% in 2012-13.

Immunization

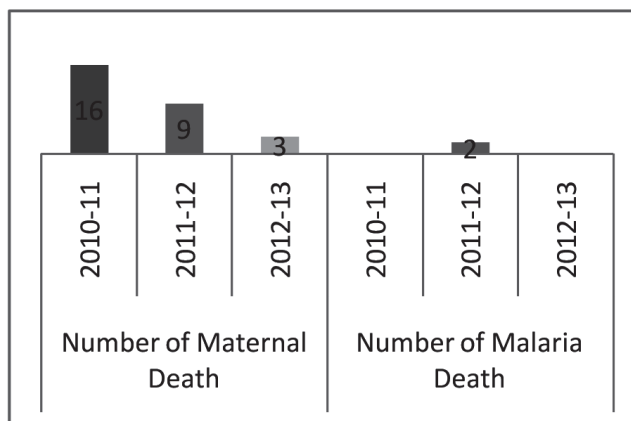
The coverage of full immunization was 53% in 2010-11 and 72% in 2012-13, total 19 point increased.



Others

Total number of maternal death reported in 2010-11 was 16 and the number of death in 2012-13 is 03.

There were 39 Malaria deaths in 2009, but in 2010-11 the number of death was nil though there were two deaths occurred in 2011-12. But in 2012-13, no death is reported.



Transparency

- No large funds involved in implementation of VHND in Complete Convergence Mode
- The fund utilization is accounted by all line Departments in VHND Register
- Performance of VHND put in public portal on website

Scalability

The financial resources are available under NRHM to conduct Monthly Village Health & Nutrition Day (VHND) in each village. VHNDs are made as community level forum to make awareness and to mobilize community towards achieving full immunization, complete Ante-Natal care, 100% Institutional Delivery and also to generate demand for health care services. Thus coordinated efforts of all health and ICDS machinery and better monitoring of the activities at the grass root level could easily achieve the target. VHND in complete Convergence Mode Model has the potential to be scaled in the other parts of the country especially in the tribal villages for accelerating demand for health care services, where there is no additional cost involvement.

Conclusion

Village Health & Nutrition Day (VHND) is considered as being vital for increasing community ownership with the health system especially in tribal villages of the State. Tripura is only State in the country, where VHND is organized in complete convergence mode for four times in a month in all 1038 Gram Panchayet and ADC Villages (Tribal Villages), which is showcased as Best Practices and begged Prime Minister's Award also at National Level.

The Health Indicators likely Infant Mortality Rate is reduced from 29 in 2011 to 26 in 2014 and the performance of Institutional Delivery, Children breastfed within one hour and Immunization etc. is improved in last four years. Involvement of PRI bodies made it possible to mobilize mothers for attending VHND. A demand has been generated in the rural and especially in tribal areas for organizing regular Village Health & Nutrition Day in every month. The number of complaints against Government functionaries of health and ICDS of all levels has skyrocketed, which in itself is a positive feature, showing public is demanding service delivery both in tribal and non-tribal villages. There is 100% PRI support and community are involved in its design and implementation at every step and the methodology is being replicated in other districts of the State.

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CNS Depressant Activity of Young Stem of *Melocanna Baccifera* A Traditional Tribal Food Ingredient

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Introduction

Tripura is a small state of mixed culture, with Tribal and Nontribal people. Nutritional biodiversity among the Tribal people of Tripura is well known. Generally they use less amount of spices and least amount of oil. Maximum of them take dry fish in each recipe. Few phytochemical analysis of plant ingredients used by Tribal people of Tripura is reported. Few food items/ ingredients are *muia* (*Bambusa arundinacea*), *Khamka sikam* (*Solanum torvum*), *Khamka bilati* (*Solanum indicum*), *Hukni Phantok* (*Solanum melongena*), *khokleng* (*Cajanus cajan*) etc .

In this part of research, I wanted to concentrate on one plant originated raw food ingredient *muia*. *Muia* is also used daily & vigorously by the tribal people by allowing it as one of the major ingredient of almost all curry.

Based on a preliminary survey conducted among the house wives of tribal family residing in Dhalai District Tripura, it has been observed that one adult consumes approximately 250 gm of *muia* per day.

Let a review of literature is presented as below for *muia* and for leaves & shoots of bamboo, leaves of banana and leaves of sesame plant.

Nutraceutical” a term combining the words ‘Nutrition’ a ‘Pharmaceutical’, is a food or food products that provide health & medical benefits, including prevention & treatment of diseases. It has become a popular science during recent years. Studies on ancient and Tribal food materials will provide newer imports in the field of nutrition. A neutraceutical is demonstrated to have a physiological benefit and provide protection against chronic diseases². This term was coined in the late 1980s by Dr. Stephen L. De.Felice, M.D founder and chairman of the Foundation for Innovation in Medicine (FIM).

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It is reported that tribal people of Tripura also believe that *Muia* has certain medicinal importances and they are utilizing *Muia* for following medicinal purposes.

1. A thick transparent watery liquid is obtained from the hollow internodes of the female bamboo called *Tabashir* in Hindi, *Bansa Rochana* in Sanskrit and *Wakthwi* in Kokborok. This *Tabashir* is composed of silicic acid with traces of iron, calcium, alum, alkalies and organic matters. The *Tabashir* obtained from bambusa arundinacea is largely used as cooling tonic and as an aphrodisiac. It is also useful in Asthma, Cough, Poisoning cases and paralytic complaints.
2. In Ayurveda, the stems and leaves are used in *Kapha*, diseases of blood, leucoderma, wounds and piles and inflammatory conditions.
3. According to the indigenous system of medicines, the burnt roots are applied to ring worm, bleeding gum and to painful joints.
4. The leaves are good as eye wash and in fever. The leaves are given to animals during parturition, from a supposition that they cause a more rapid expulsion of the placenta. Nutrition has great deal for survival of society & for its people and exploration of the nutritional status is still unfolded in case of Tribal people of Tripura. That is why concentration is given on searching and followed by screening of different ingredients of their dishes. The aim of this work is to study the CNS Depressant activity of the *muia*.

Preparation of Extract of Muia

Very young stem of bamboo (*Melocanna baccifera*) i.e. *muia* was collected. Removing the outer shell and internodes, 1 kg of *muia* was pieced (1.5mm in length), since certain compounds get denatured in sunlight it was dried under shade to avoid decomposition and followed by grinding into fine powder by electric grinder. After shed dry, it was 56.7 gm and soaked into 200 ml methanol. The extract was filtered through cotton followed by vacuum suction.

Screening of CNS Depressant Activity

Healthy adult albino swiss mice weighing between 18-30gm were divided into three groups of six animals. The animals were housed under standard environmental condition ($25\pm 2^{\circ}\text{C}$) and relative humidity ($50\pm 5\%$) and fed with standard diet and water ad libitum. The animals were acclimatized to laboratory environment for a period of 14 days before performing the experiments.

The first group of three comprised the control, and the remaining two groups were administered with standard and test drugs. The test doses were prepared in DMSO (Dimethyl sulfoxide/sterile water to get the desired concentration of the extract.

- *Actophotometer*: Photocell or Actophotometer is the instrument used to measure the locomotor activity of animals. The movement of the animal interrupts the beam of light falling on a photocell, at which a count is recorded and displayed digitally.

Steps Involved

- Weighing and numbering of the mice.
- Turning on the equipment (checked & made sure that all photocells are working for accurate recording)
- Each mouse was placed individually in the actophotometer for 10 minutes.
- The basal activity scores was obtained.
- Each mouse of control group was given vehicle/5ml water. After 30 min the record was taken.
- Mice of the remaining two groups were administered intraperitoneally test sample (150mg/kgbw) and standard drug (4mg/kgbw).
- After 30 min the mice were placed again in the actophotometer for recording the activity score.

Result and Discussion

Result of the application of the sample is shown in the Table.

Mean number of locomotor activity produces in control before oral administration of vehicle is 566.17 (± 16.964 SEM), 496.83(± 21.657 SEM) in Test Group and 480.17(± 17.917 SEM) in standard.

But when we obtained the scores after 30 mins of administration of the extract of *Muia*- test sample and Standard drug, it has been observed that the number of locomotor activity reduces. In case of test sample it is 286.17($\pm 29.333^{***}$ SEM) and standard drug diazepam, the mean number is about 49.00 \pm 5.550 while locomotor activity increases in normal control (629.33 \pm 23.156).

Results of CNS Depressant Activity of *MUIA*

Sl. No	Treatment	Dose	L. Activity B.T (10 min duration)	L. Activity A.T (10 min duration)	Mean \pm - SEM B.T	Mean \pm - SEM A.T
1	Control Vehicle	5ml/kg	589	601	566.17 \pm 16.964	629.33 \pm 23.156
2			599	672		
3			595	681		
4			552	595		
5			489	546		
6			573	681		
1	Standard Diazepam	4mg/kg	531	55	480.17 \pm 17.917	049.00 \pm 5.550***
2			464	46		
3			431	35		
4			505	64		
5			432	32		
6			518	62		
1	<i>Muia</i>	150mg/kg	551	324	496.83 ± 21.657	286.17 \pm 29.333***
2			494	254		
3			441	214		
4			505	342		
5			432	205		
6			558	378		

L. Activity-Locomotor Activity, BT-Before treatment, AT-After treatment (After 30 min)

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- . It has been observed that the effect of sample is not similar to that of standard drug diazepam,
- But the sample has the DNA Depressant activity.
- The values were considered significant at $p < 0.05$ when compared with control group vs. diazepam and test group.

Conclusion

The Tribal's most common traditional food ingredient is *muia*. It has the CNS depressant property. From the findings we hypothesize that CNS depressant drug can be produced from the young bamboo stem i.e *melocanna baccifera* through a suitable formulation.

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Prevalence of Malnutrition Among Rural Tribal Adolescent Boys of Tripura.

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Introduction

Malnutrition refers to the impairment of health from an imbalance of nutrients, is of public health significance among adolescents all over the world. When the impairment is due to dietary deficiency it is called undernutrition and due to excessive quantity of food consumption, is known as overnutrition. Malnutrition is a widespread nutritional disorder in developing countries (Bisai et al., 2014). Undernutrition in childhood is one of the reasons behind the high child mortality rate in developing countries like India. It is also highly detrimental for health in those children who survive to adulthood (Pelletier, 1994; Chakraborty and Bose, 2009). Malnutrition creates lasting effect on the growth, development and physical fitness of a person. It is a leading health problem among tribal children in India (Mukhopadhyay and Biswas, 2011). To reduce the risks of malnutrition, early diagnosis of it and prompt undertaking of appropriate intervention programs are necessary.

Anthropometry is widely recognized as one of the useful technique to assess the nutritional status of a population. As in other stages of the life cycle, in adolescence nutritional status is best assessed by using anthropometric measurements (de Onis et al, 2001). It is highly sensitive to detect malnutrition.

Tripura the smallest state of north-eastern India is inhabited by more than nineteen classified tribes and ethnic groups with diverse languages and cultures (Barman, 1983). The Tripuri tribes belong to Tibeto-Burmese ethnic group (DevVarman, 2004; Sarkar and Sil, 2015). They constitute about half of all the Scheduled Tribes found in the state (Sarkar et al., 2012).

Objectives of the present study

- 1) To determine the current prevalence of malnutrition among rural adolescent tribal boys of Tripura.

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- 2) Evaluation of socioeconomic & demographic characteristics of tribal populations of Tripura.
- 3) To compare with other regional tribes to measure the magnitude of malnutrition.

Materials & Methodology

The subjects included in this analysis were participants of a cross-sectional study comprising 555 Tripuri tribal boys aged 8+ – 16+ years. These boys were selected from Govt. schools located around 30 villages (rural areas) covering six districts of Tripura, using multistage cluster sampling method. The students were mostly lower-class rural Hindu and Christian Tripuri tribal boys. Of the original sample, 21 boys were excluded during the measurements because of several reasons like noncooperation at the middle of measurements, signs of physical deformity and unavailability of valid date of birth documents. A questionnaire proforma was completed by the parents to assess socio-economics & demographic status. Data on per capita expenditure were used to assess the income level of the participating families.

Height was measured barefooted to the nearest 1 mm in centimeters using an anthropometer. Body weight was measured to the nearest 0.5 kg using a manual weighing scale, with the subject barefoot and wearing minimal clothing, following standard anthropometric techniques (Weiner and Lourie, 1969). Age of the subjects was recorded in complete years. All the subjects who had completed 8 years but less than 9 years were grouped as 8+ and likewise age group were calculated (Eveleth and Tanner, 1990). Date of birth was verified by checking birth certificates. The precision of the single observer was assessed by the technical error of measurement (TEM), calculated as the square root of the sum of squared differences between duplicate measurements, divided by 2 times the number of subjects measured (Ulijaszek and Kerr, 1999). The observer's TEM values were well below the maximum acceptable TEM reference values (Ulijaszek and Kerr, 1999). BMI (kg/m²) was also calculated for each individual.

Malnutrition status was assessed using the classification of World Health Organization (WHO, 1995), using the 2007 WHO growth reference data for 5-19 years (WHO, 2007). Height-for-age below 3rd percentile was classified as stunting. The prevalence of thinness was evaluated using BMI-for-age below 5th percentile and overweight as BMI for age e" 85th Percentile of the WHO reference data.

Results

All the rural Tripuri boys belong to the lower socioeconomic class. About 9% of the fathers and 3% of the mothers had passed matriculate or above. 17% of the fathers and 27% of the mothers are illiterate. Approximately 30% of the mothers were housewife and thereby did not work outside the home. 56% of mothers worked as manual workers in small industries or in Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGS). On the basis of per capita expenditure, 2.7% of the families had a high spending capacity (per capita expenditure e"3000 Rupee/month). For 72% families their house is made up of mad walled or bamboo. 50% of families have slab latrine (semi-sanitary) and 33% have pit latrine. 78% families use traditional firewood as their source fuel for cooking.

**Table 1: Prevalence of under-nutrition (stunting and thinness)
among tribal boys of Tripura**

Age years)	Tribal boys (n)	% Stunting (Height for age) < 3rd Percentile	% Thinness (BMI for age) < 5th Percentile
8+	61	50.82	34.43
9+	60	26.67	25
10+	64	31.25	20.31
11+	63	52.38	38.1
12+	62	38.71	16.13
13+	60	43.33	36.67
14+	62	33.87	29.03
15+	61	21.31	22.95
16+	62	27.42	17.74
All ages	555	36.22	26.67

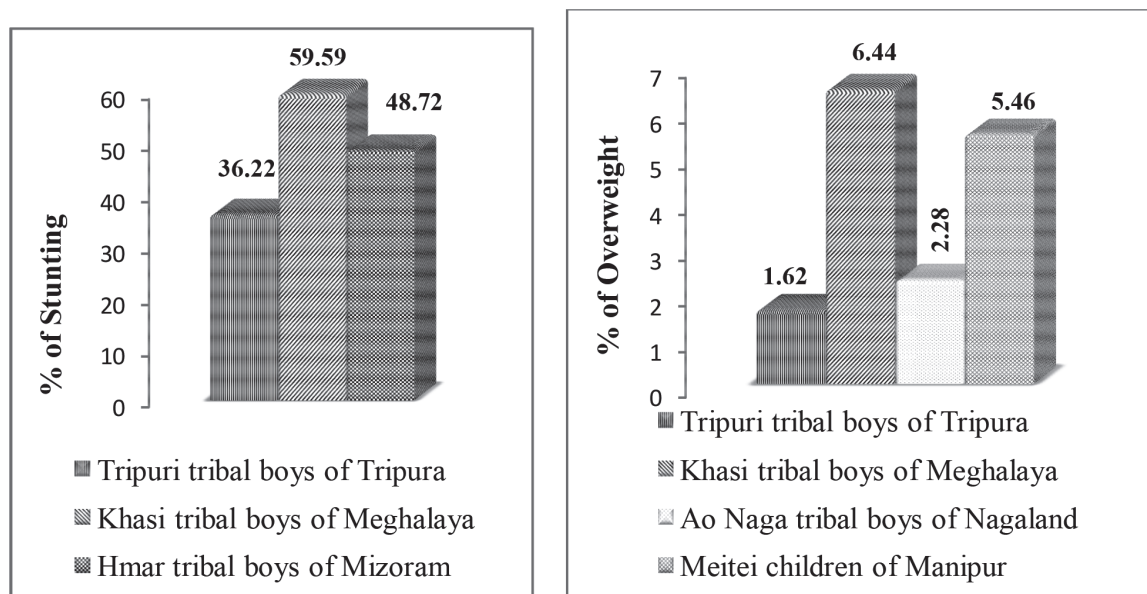
Prevalence of stunting (height for age < 3rd percentile) and thinness (BMI for age < 5th percentile) for the studied boys are presented in Table 1. The overall prevalence of stunting was 36.22% for Tripuri boys. Prevalence across age groups fluctuated from 21.31% to 52.38% below the 3rd percentile. The overall prevalence of thinness was 26.67% for Tripuri boys. Prevalence across age groups fluctuated from 16.13% to 38.1% below the 5th percentile. Also presented in Table 2, the prevalence of being at risk of overweight as defined by the WHO (i.e., BMI-for-age ≥ 85th percentile of the WHO reference data). The overall prevalence was low: 1.6% for the studied boys.

Table 2: Prevalence of over nutrition (overweight) among tribal boys of Tripura

Age (years)	Tribal boys (n)	% Overweight (BMI for age) ≥ 85th Percentile
8+	61	0
9+	60	0
10+	64	1.56
11+	63	1.59
12+	62	4.84
13+	60	0
14+	62	3.23
15+	61	0
16+	62	3.23
All ages	555	1.62

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Figure 1: Comparison of malnutrition status of the study boys with other tribes of north-east India



Discussion

Assessments of malnutrition among children and adolescents are significant in developing countries like India where the vast majority of the populations are undernourished and underprivileged. The health and nutritional status of tribal preschool children in India were explored on nationwide studies (NNMB, 1978). Several studies have been conducted on the anthropometric assessment of nutritional status in preschool children (NNMB, 1978; Mahapatra et al., 2000; Urade et al., 2004; Kaur et al., 2005; Bisai et al., 2014), but much less such information can be found about older children and adolescents. Among the most important reasons for this lack of information is the difficulty of interpreting anthropometric data in these age groups (de Onis and Habicht, 1996). This study provided us an opportunity to evaluate the suitability of applying the 2007 WHO growth reference data to the ethnic populations from Tripura.

Figure 1 represents the comparison of malnutrition status of the Tripuri boys ranging in age from 8+ to 16+ years with other tribes of north-east India. The all age combined prevalence of stunting among Tripuri boys (36.22%) was found to be lower than Khasi tribal boys of Meghalaya (59.59%) (Khongsdier and Mukherjee, 2003) and Hmar tribal boys of Mizoram (48.72%) (Maken and Varte, 2012). The all age combined prevalence of Overweight among Tripuri boys (1.62%) was found much lower than Khasi tribal boys of Meghalaya (6.44%) (Khongsdier and Mukherjee, 2003), Ao Naga boys of Nagaland (2.28%) (Longkumer, 2013) and Meitei childrens of Manipur (5.46%) (Dkhar and Singh, 2012).

The Tripuri tribal adolescent boys show a high prevalence of stunting and moderate prevalence of thinness. Poor nutrition and lower socioeconomic condition of the tribal boys from rural areas may be adversely influencing their health and nutritional status. The

undernutrition (thinness) and overnutrition (overweight) status of Tripuri boys is better than that of other tribal boys of north-east India. In this study, considering the demographic and socioeconomic characteristics of the study population, the moderate to high prevalence of stunting and thinness estimated by using the WHO reference data is likely to reflect true levels of malnutrition.

Conclusion

This study revealed a high prevalence of stunting and moderate prevalence of thinness among the tribal boys of Tripura. Both underweight and overweight coexisted among these boys, although the prevalence of overweight was low. Nutritional status of rural tribal adolescent boys of Tripura is found to be comparatively better than other tribes of northeast India. This study signifies the necessity of nutritional intervention for upgrading their health & nutritional status. These programs should also include various ways in which they can enhance their socio-economic status through improved education and employment opportunities.

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Nutritional Status of Adolescent Tripuri Boys of Agartala

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Introduction

According to census 2011, Tripura has a population of 3,671,032 which constitute 0.3 per cent of India's population. Tribal population in India constitutes 8.61% of the total population where as in Tripura, Bengalee represent more than 68 percent of state's population, while the indigenous population (scheduled tribe) amounted to around 31.8 per cent. The state's scheduled tribes consist of 19 ethnic groups. The largest such group is the Kokborok - speaking Tripuris, which had a population representing 17.0 per cent of the state's population and 54.7 per cent of the scheduled tribe population. The vast majority of the tribal populations reside in rural areas of the country. Tripuri is one such primitive tribe resident in Tripura, India. The tribal populations of India are recognized as socially and economically underprivileged.

Malnutrition denotes impairment of health arising either from deficiency or excess or imbalance of nutrients in the body. Adolescence is an important period in the individual's life. Adolescents represent around 20% of the global world's population and around 84% of them are found in developing countries. Adolescents constituted 22.8% of the population in India as on 1st March 2000.

Adolescence is an important stage of growth and development in the lifespan. This period is very crucial since these are the formative years in the life of an individual when major physical, psychological and behavioral changes take place. Adolescent may represent a window of opportunity to prepare nutritionally for a healthy adult life.⁶ Although nutritional status can be evaluated in many ways, the BMI is most widely used because its use is inexpensive, non-invasive and suitable for large-scale surveys.

Information is scanty on the anthropometric and nutritional status of various tribal populations of India and it has been recently suggested that there is urgent need to evaluate the nutritional status of various tribes of India.

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Data regarding nutritional status of adolescent Tripuri boys of Tripura is also scarce. Therefore, the present study was undertaken on a group of adolescent Tripuri tribe to assess the nutritional status based on Body Mass Index and to analyze the percentage prevalence of Chronic Energy Deficiency (CED). Thus the present study is unique which has enlightened about the nutritional status of adolescent Tripuris of Agartala, Tripura.

Materials and methods

Study area- This community based cross sectional study was conducted in Agartala, the capital city of the state Tripura, India.

Sampling Method- The data was collected from school going students of four different higher secondary schools of the city after taking prior permission from head of the institutions. Students were separated in different age groups starting from age group 12 to 18. Individuals from different age group were selected by simple random sampling procedure. Age of each student was confirmed from school record.

Sample size and inclusion & exclusion criteria- A total 138 individual was selected for collection of data. Physically challenged boys were excluded from the study.

Variables- Anthropometric variables such as height, weight and mid upper arm circumference (MUAC) were taken following standard techniques. Height and MUAC were recorded to the nearest 1.0 mm and weight was recorded to nearest 0.5 kg respectively. Body Mass Index (BMI) was computed using standard equation: $BMI = \text{Weight (kg)} / \text{height (m}^2\text{)}$.

Ethical consideration- Ethical approval was obtained from Calcutta University Ethics Committee before commencement of the study.

Method of analysis- Nutritional status was evaluated using internationally accepted World Health Organization BMI guidelines. The classification is shown in table 1. The data so collected were compiled in MS Excel and analyzed using SPSS.

Table 1: BMI classification and ranges

Classification	BMI Range
Underweight	<18.50
• Severe thinness	• <16
• Moderate thinness	• 16-16.99
• Mild thinness	• 17-18.49
Normal range	18.50-24.99
Over weight	≥25.00
• Pre-obese	• 25.00-29.99
Obese	≥30.00
• Obese class I	• 30.00-34.99
• Obese class II	• 35.00-39.99
• Obese class III	• ≥40.00

Results

From the study it is found that 52.90% of adolescent Tripuri boys is underweight (BMI < 18.5). Severe thinness (BMI < 16) is 20.29% in adolescent Tripuri boys. 100% population of age group-12, 68.75 % of age group-13 and 62.5 % of age group-14 is underweight. 77.27% population of age group-12 and 37.5% of age group-13 is of severe thinness. None were found to be obese and overweight. MUAC is found to be significantly positively correlated with BMI [$r = 0.883$ and 0.980 ($p < 0.01$)].

Age, mean and standard deviation (SD) of the anthropometric variables are presented in the table below (Table 2). Subjects' nutritional status (NS) based on BMI is provided in Table 3.

Table 2 - showing age, mean and standard deviation (SD) of the anthropometric variables.

Age in years	Number (%)	Height (cm) Mean \pm SD	Weight (Kg) Mean \pm SD	BMI (kg/m ²) Mean \pm SD	MUAC (cm) Mean \pm SD
12	22 (15.94)	163.54 \pm 2.40	51.65 \pm 3.84	15.17 \pm 1.06	18.05 \pm 1.21
13	16 (11.59)	162.57 \pm 2.81	50.30 \pm 3.16	17.42 \pm 1.71	20.78 \pm 1.78
14	16 (11.59)	161.68 \pm 2.63	49.18 \pm 3.18	17.88 \pm 1.63	21.28 \pm 1.53
15	29 (21.01)	159.72 \pm 2.48	47.57 \pm 3.79	18.65 \pm 1.47	22.21 \pm 1.22
16	20 (14.49)	157.75 \pm 2.92	44.47 \pm 3.95	18.82 \pm 1.28	22.86 \pm 1.26
17	15 (10.87)	150.52 \pm 2.77	39.41 \pm 3.39	19.02 \pm 0.73	23.44 \pm 1.00
18	20 (14.49)	138.12 \pm 2.54	28.95 \pm 2.39	19.31 \pm 1.30	24.36 \pm 1.18
Total	138	--	--	--	--

Table 3- Distribution of Tripuri Boys According to the Various Grades of under nutrition Based on BMI.

BMI	Category	Percentage of sufferer
<16.0	Grade 3 thinness	20.29%
16.0 -16.99	Grade 2 thinness	11.59%
17.0 -18.49	Grade 1 thinness	21.01%
18.50 -24.99	Normal	47.10%
25.0 -29.99	Overweight	00%
>30.0	Obese	--
Total		100%

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Discussion

The problem of malnutrition received recognition of planners and policy makers right from inception of five-year planning; a large number of national nutritional programs were implemented to combat the menace of malnutrition. Still malnutrition persists. Calculation of individual BMI from weight and height, however, still remains a valid tool for epidemiological studies on assessment of nutritional status especially at the community level.

There is a dearth of information on the anthropometric and nutritional status of the tribal population of India. Some recent studies that have called for an urgent evaluation of the nutritional status of the tribes of India have used BMI as the measure of nutritional status.

It is generally accepted that a BMI value of less than 18.5 is indicative of chronic energy deficiency (CED) across ethnic groups. In the present study, a high rate of CED among the adolescent Tripuri boys has been reported. The overall extent of undernutrition is very high in adolescent Tripuri boys of Agartala (52.90%). The present study demonstrated a significant positive correlation between MUAC and BMI.

Conclusion and recommendation

This study revealed that a vast majority of the adolescent Tripuri boys of Agartala are undernourished. The percentages of malnourished adolescent boys are quite alarming and steps need to be taken to improve their nutritional status. Hence it is essential to implement adolescent friendly health services to improve the nutritional status. Considering the results of this study, it is suggested that a comprehensive strategy should be implemented in disadvantaged groups of the state in order to prevent adolescent undernourishment. Efforts are needed to use the school system favorably for improving the nutritional status of boys.

In future, studies should be done on adolescent boys in urban as well as rural sectors to identify the factors responsible for this problem, which may in turn help to adopt and implement the proper strategies for upliftment of whole community.

It is also proposed that further work be undertaken among other tribal populations in India since they constitute a sizeable portion of India's population. Moreover, since undernutrition has several underlying causes, future investigations should aim at identifying the likely causes of high rates of undernutrition among Indian tribal populations.

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Upper Arm Anthropometric Status among the Adults of the Mishing Tribe of Assam

Debashis Basu

Introduction

Nutritional anthropometry is concerned with measurement of the variation of physical dimensions and the gross composition of the human body at different age levels and degree of malnutrition (Jelliffe, 1966). More recently the anthropometric evaluation of the upper limb has become significantly valuable in the assessment of nutritional status of children and adults. In the present paper the nutritional status based on four indirect anthropometric measurements like Total upper arm area (TUA), Upper arm muscle area (UMA), Upper arm fat area (UFA), and Arm fat index (AFI) derived from Mid upper arm circumference (MUAC) and Tricep skinfold thickness (TSF) which play important roles since skinfold thickness measurement like at the site of Tricep can help to get an estimate of FM and along with MUAC it gives an proxy estimate for FFM (Wiskin et al, 2014).

As Frisancho(1981) opines that the utility of the measurements taken on upper limb to assess the nutritional status is based on the evidence that the organisms, when faced with nutritional restrictions utilises its nutritional reserves stored in the form of skeletal muscle protein, visceral protein, and fat. It is well known that the triceps skin fold thickness indicates the calorie reserves stored in the form of fat (Jelliffe, 1966; Frisancho, 1974 & 1980; and Garn et al., 1975,) and arm muscle size reflects the reserves of muscle protein (Jelliffe, 1966 and Frisancho, 1974 & 1980,), which remains responsible for the members in a population to be lean or obese otherwise. This assessment of obesity being considered as a serious concern in the developed countries as evidenced through a workshop on Childhood obesity organised by the International Obesity Task Force (IOTF) established in 1994, is significantly relevant as well in the developing countries

In the present paper an attempt has been made to explore the nutritional status resorting to four indirect anthropometric measurements viz., Total upper arm area (TUA), Upper arm muscle area (UMA), Upper arm fat area (UFA), and Arm fat index (AFI) which are derived from the anthropometric measurements of Mid upper arm circumference and Triceps skin fold thickness after following the method of Frisancho (1990).

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Materials and Method

Mishing :

Mishing are usually identified by their Assamese neighbours as Miri, so also does the Census but they themselves prefer to be known as Mishing (Singh, 1994). This major Indo-Mongoloid plains tribe of Assam, the Mishing spread over the districts of Sonitpur, North Lakhimpur, Dhemaji, Tinsukia, Dibrugarh, Jorhat, Golaghat, Darrang. A small portion of Arunachal Pradesh in the East Siang district is also inhabited by this population. They speak Tibeto-Burman language which is their mother tongue (Singh, 1994). They are primarily agriculturist. They have embraced Hinduism.

The selection of population, sample size, other anthropological findings, etc. are given elsewhere (Basu and Gajbhiye, 1999; Gajbhiye and Basu, 2004). Here in this paper the nutritional anthropometric assessment is reported resorting to four indirect anthropometric measurements viz., total upper arm area (TUA), upper arm muscle area (UMA), upper arm fat area (UFA), and arm fat index (AFI) derived from upper arm circumference (MUAC) and triceps skin fold thickness (TSF) being followed after Frisancho (1981, 1990). The measurement of MUAC is made in centimeters; the following formulae were used:

$$TUA = MUAC^2 / (4 \times \pi);$$

$$UMA = [MUAC - (TSF \times \pi)]^2 / (4 \times \pi).$$

$$UFA = TUA - UMA,$$

$$AFI = (UFA / TUA) \times 100.$$

In order to get bone-free arm muscle area the values were adjusted by subtracting 10.0 cm² for males and 6.5 cm² for females.

It is worthwhile to mention that sometimes, simply taking values of upper arm circumference and triceps skin fold thickness in to consideration, it seems to be difficult for proper interpretation of the above in the context of nutritional status as to why Frisancho (1981) opines the way of avoiding the said problem by converting those measurements in to fat and muscle areas. Keeping the above mentioned facts in mind, according to the recommendation made by Frisancho (1981), the assessment of nutritional status during adulthood is made with reference to fat and muscle areas. Those two direct anthropometric measurements were taken on 56 and 52 adult Mishing males and females, respectively hailing from Balipara Block of Sonitpur district in Assam. Those adult males and females are aged 25 years through 55 years. This sample is categorised in to six age cohorts for interpretation of four indirect anthropometric measurements; and is compared with the International Reference (NCHS) (Frisancho, 1990). So far the Indian Reference (ICMR) is concerned, it provides no option to get this present sample compared with the former (ICMR) due to its lack of similar pattern of data suitable for comparison.

Results

The mean values of four indirect anthropometric measurements viz Total upper arm area (TUA), Upper arm muscle area (UMA), Upper arm fat area (UFA), and Arm fat index (AFI) at six age cohorts of Mishing adult males and females are given in Table 1. The values of UMA, UFA relative to their corresponding heights for both the sexes are given in Table 3.

The mean values of BMI of the present tribal population with reference to other Indian population are shown in Table 4. In Fig.1 to Fig. 5 it shows graphical presentation for four indirect anthropometric measurements and BMI for both sexes respectively and graphic presentation of comparison of mean values of TUA (cm²), UMA (cm²), and UFA (cm²) of Mishng and NCHS males in Fig. 6 and females in Fig. 7. Fig. 8 shows comparison of mean values of AFI for Mishng and NCHS males and females.

In Table 1 it indicates that the mean values of Total upper arm area, Upper arm muscle area barring Upper arm fat area and Arm fat index in the males are higher than those of the corresponding values observed in their female counterparts. The mean values of TUA being 43.07(+4.32) cm² and 42.58 (+7.91) cm² at first two age cohorts (25-29.9 years and 30-34.9 years) are followed by higher values in the next three age cohorts, and eventually end up with sharp decline in the mean value of 41.97 (+6.07)cm² at the age cohort of 50-54.9 years. The same trend is also observed in the mean values of UMA in the Mishng males and females. So far the mean values of UFA in the Mishng males are concerned; it is more or less consistent with a marginal increase at 35-39.9 years age cohort while in the female counterparts the mean values in the first consecutive four age cohorts are observed to be higher than those of two mean values in last two age cohorts. There is sharp decrease in mean values at 45-49.9 years and 50-54.9 years age cohorts of females. In Table 1 it also appears that the mean values of UFA in the females of Mishng tribal population are observed to be higher as compared to those of their male counterparts. The same trend in terms of mean values of AFI for both the sexes is also observed. The pooled mean values of both the indirect anthropometric measurements viz., UFA and AFI in the females being 9.61 (±2.96) cm² and 24.95 (±5.21) respectively are observed to be higher than those of the Mishng males.

In Table 3 it exhibits the different values of UMA, and UFA by height of Mishng males and females as expressed through linear regression analysis. In Table 3 it shows that all the values of UMA, and UFA for both the sexes by height increase very slowly with the increase of height.

Discussion

In the present paper an attempt has been made to explore the nutritional anthropometric scenario among the Mishng adults resorting to the four indirect anthropometric measurements. In the present tribal population the mean values of TUA and UMA in the males are observed to be higher as compared to those of their female counterparts while it is the reverse scenario as observed in the mean values of UFA and AFI in the females. It is well known, so far the factors attributable to for higher deposition of fat among the females as compared to those of the males are concerned, and that sexual dimorphism regarding the fat deposition is significant (Wells, 2007; Singh & Mondal, 2014). The development of muscle and fat deposition improve with the increase of ages provided the individuals get an access of conducive relevant environmental factors which includes sufficient as well as consistent supply of nutritional requirements at optimal limit. But the state of health through indirect anthropometric measurements like TUA, UMA, and UFA indicates the status of age, sex, genetics, and other environmental factors' impact upon

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health of an individual (Rol-land-Cachera 1993, Sen and Mondal 2013). The nutritional status based on these indices has been carried out in other population like Santal by Chowdhury and Ghosh (2009), Bengali Muslim by Sen et al. (2011), Mish-ing adolescents by Sikdar (2012), Sonowal Kachari by Singh and Mondal (2014), College students of Tripura by Datta et al, (2015), Northeast Indian adolescents by Rengma et al. (2016), Sonowal Kachari children by Singh and Mondal (2014).

However, here the mean values are lagging far behind of the International Reference (NCHS) and over all those values over the age groups are not consistent as consistent observed in the NCHS values. It indicates, as already mentioned in the introduction that the muscle protein, and calorie reserves stored in the fat reflecting the muscle area and fat area, that consumptions of protein and fat are not consistent over the time. It is mention worthy that the major proportion of protein consumption (87%) of total protein remains the source of vegetables and that too during peak period, and at the same time, they consume fat of a proportion of 82.8% as compared to that of Recommended Dietary Allowance for fat as suggested by ICMR (Basu and Gajbhieye, 1999). Since they do practice of traditional age old agricultural activities their agricultural produces vary both in quality and quantity-thereby consumption of essential nutrients fluctuates; like difference of consumption of essential nutrients between lean period and peak period is reflected through the mean values of four indirect anthropometric measurements probably, not complying with the intake of nutrients which in turn, perhaps leave them vulnerable to undesirable nutritional consequences. Consequently the deficiency in calorie required for sustaining the livelihood during the period of nutritional restrictions and calorie expenditure, seems to be compensated by the calorie reserves stored in the form of fat already gained during the peak period.

Most of the males and female individuals fall in to the category of BMI Normal range and only a small proportions of males and females are reported hereby with the Thin category, which indicates that their intake of nutrients is not considered as enough as usually observed in the urban populations. The findings of nutritional investigation regarding the consumption of calorie being 2439 kcal/per capita (Basu and Gajbhieye, 2004) as compared to that of Recommended Dietary Allowance for calorie being 2875 kcal as suggested by ICMR, does not seem to be enough since this population remains a moderate group. Calorie intake with a larger variation changes time to time due to its resources' availability in different seasonal periods, which in turn makes the results drawn by anthropometry.

Eventually, taking the factors or results of the four indirect anthropometric measurements in to consideration, it is concluded that this population is at par with the other likely rural Indian populations having marginalized agricultural practises, but at the same time this population seems to be vulnerable to the consequences of nutritional restrictions.

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Table 1. Mean values of four indirect anthropometric measurements by age groups of Mishing adults

Age (Yrs.)		TUA (cm ²)		UMA (cm ²)		UFA (cm ²)		AFI	
		M	F	M	F	M	F	M	F
25-29.9	Mean	43.1	38.35	36.76	28.7	6.32	9.65	14.72	24.89
	SD	4.32	4.53	3.8	2.88	1.04	2.58	1.9	4.75
30-34.9	Mean	42.6	39.39	35.77	28.91	6.81	10.5	15.53	26.03
	SD	7.91	6.19	5.73	3.37	3.44	3.58	5.48	5.8
35-39.9	Mean	47.7	38.75	39.31	29.26	8.36	9.49	17.52	24.44
	SD	8.65	4.54	8.17	3.81	3.74	2.44	6.82	5.32
40-44.9	Mean	47.6	40.28	41.01	29.16	6.63	11.12	13.38	26.98
	SD	7.84	6.58	5.88	3.36	2.38	4.56	3.29	7.09
45-49.9	Mean	46.5	32.28	39.65	26.24	6.9	6.8	15.08	21.21
	SD	5.42	5.89	5.8	5.78	0.69	1.44	2.89	5.43
50-55	Mean	42.0	33.07	34.92	24.37	7.05	8.7	16.65	26.16
	SD	6.07	5.65	4.95	3.81	2.65	1.85	4.81	1.24
Pooled	Mean	45	38.02	37.95	28.41	7.06	9.61	15.52	24.95
	SD	7.07	5.41	6.06	3.62	2.64	2.96	4.63	5.21

**Table 2. Linear Regression: Ht. Vs. UMA (cm²), and UFA (cm²).
Among the Mishing adults**

Height (cm)	U M A		U F A	
	M	F	M	F
140	33.37	27.71	6.70	8.09
141	33.58	27.77	6.72	8.22
142	33.79	27.83	6.74	8.35
143	33.98	27.89	6.75	8.49
144	34.21	27.96	6.77	8.66
145	34.42	28.02	6.79	8.76
146	34.62	28.08	6.80	8.89

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Height (cm)	U M A		U F A	
	M	F	M	F
147	34.83	28.14	6.82	9.03
148	35.04	28.21	6.83	9.16
149	35.25	28.27	6.85	9.30
150	35.46	28.33	6.87	9.43
151	35.67	28.39	6.88	9.57
152	35.88	28.45	6.90	9.70
153	36.09	28.52	6.91	9.84
154	36.3	28.58	6.93	9.97
155	36.5	28.64	6.95	10.11
156	36.71	28.70	6.96	10.24
157	36.92	28.77	6.98	10.38
158	37.13	28.83	6.99	10.51
159	37.34	28.89	7.01	10.65
160	37.55	28.95	7.03	10.78
161	37.76	29.02	7.04	10.92
162	37.97	29.08	7.06	11.05
163	38.17	29.14	7.07	11.18
164	38.38	29.20	7.09	11.32
165	38.59	29.26	7.11	11.45
166	38.80	29.32	7.12	11.59
167	39.01	29.39	7.14	11.72
168	39.22	29.45	7.16	11.86
169	39.43	29.51	7.17	11.99
170	39.64	29.58	7.19	12.13
171	39.85	29.64	7.20	12.26
172	40.05	29.70	7.22	12.40
173	40.26	29.76	7.24	12.53
174	40.47	29.82	7.25	12.67
175	40.68	29.88	7.27	12.80

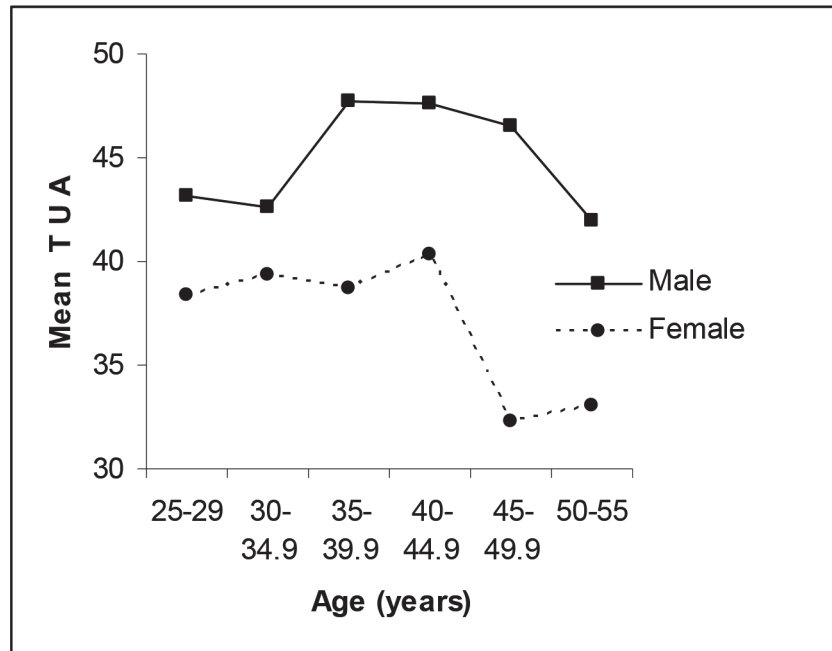


Fig. 1 Mean Total Arm Area (TUA)(cm²) values in the Mishing adults

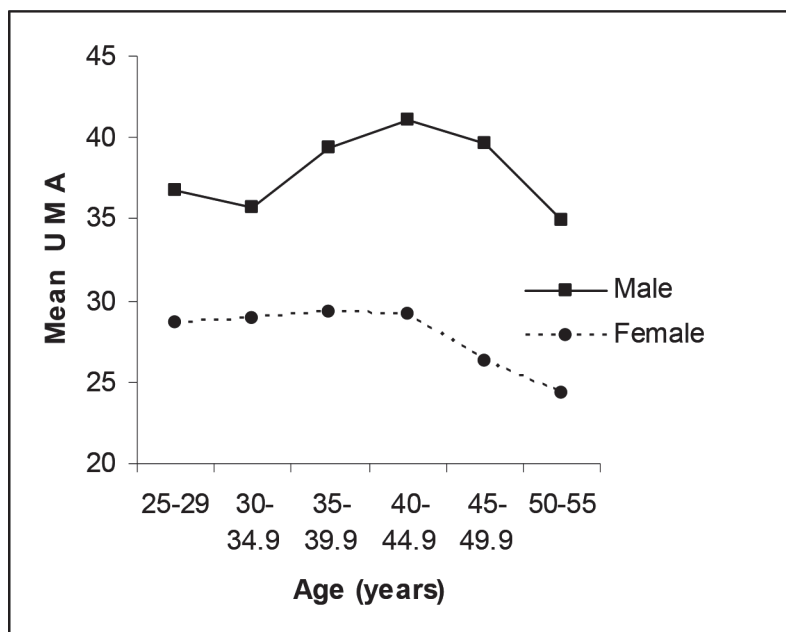


Fig. 2 Mean Upper Arm Muscle Area (UMA)(cm²) values in the Mishing adults

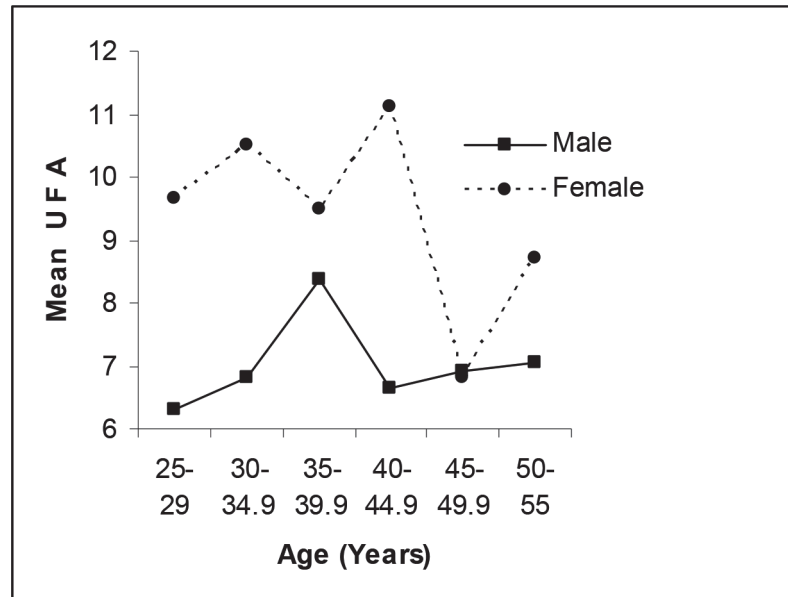


Fig. 3 Mean Upper Arm Fat Area (UFA) (cm²) values in the Mishing adults

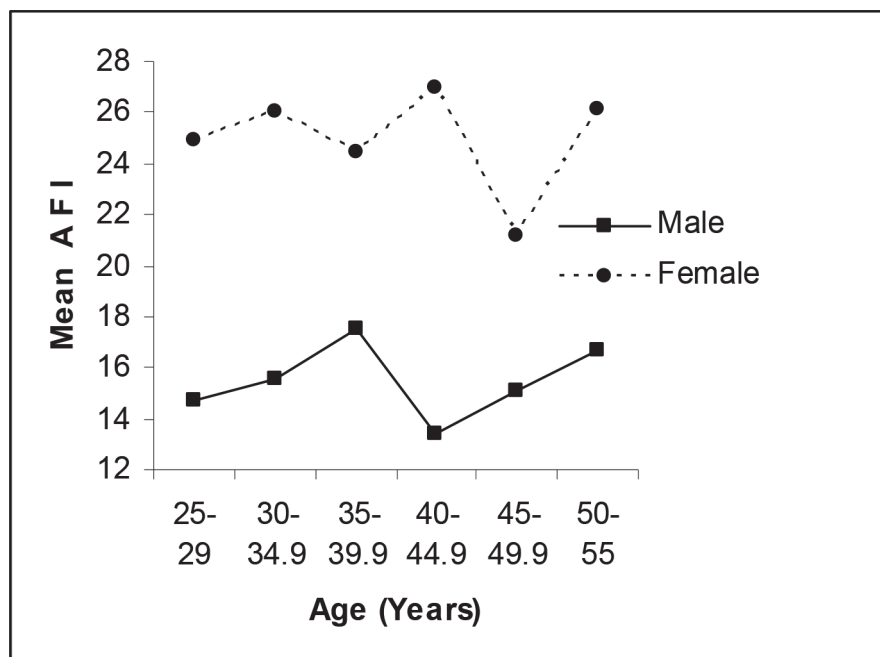


Fig. 4 Mean Arm Fat Index (AFI) values in the Mishing adults

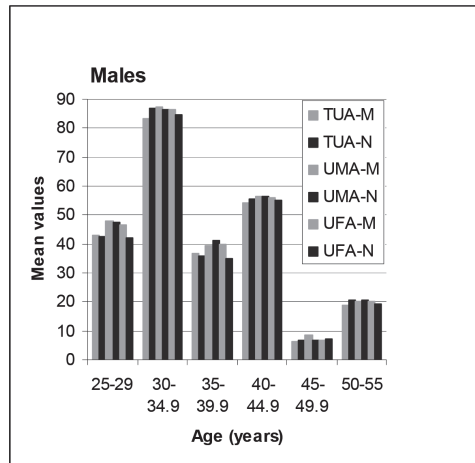


Fig. 6 Comparison of mean values of TUA (cm²), UMA (cm²), and UFA (cm²) of Mishig (M) and NCHS (N) males.

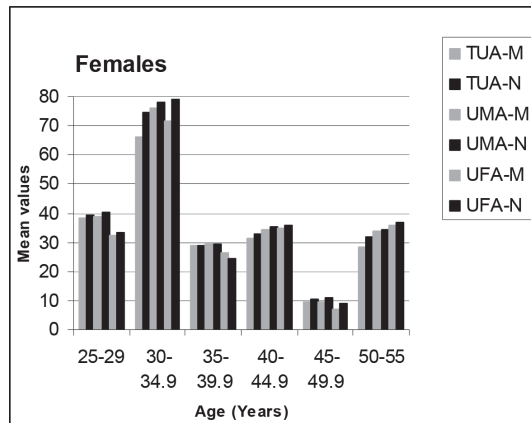


Fig. 7 Comparison of mean values of TUA (cm²), UMA (cm²), and UFA (cm²) of Mishig (M) and NCHS (N) females

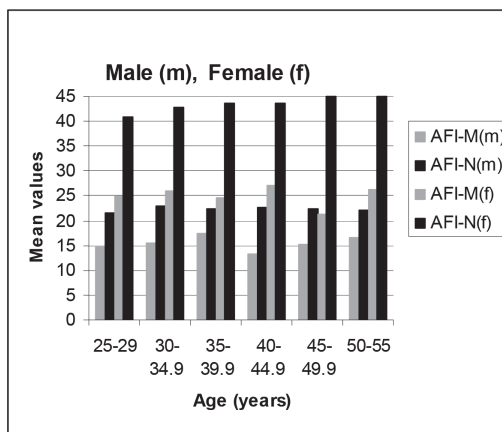


Fig. 8 Comparison of mean values of AFI of Mishig (M) and NCHS (N) males and females

Traditional Ethno Medicine & Ethno Botany

Lack of Ethics in Medical Practices of India

Sujit Debnath

Introduction

Medical ethics refers to the involvement of moral and ethical principles that adds values and judgments in medical profession. Important information about ancient medical ethics in India is found mainly in the Ayurvedic classics Charaka samhita and sushruta samhita. In ancient India there had been a rich public health system because of the use of Ayurveda medicine. But gradually Indian people have forgotten to use this medicine.

It is true that in modern time Allopathic medicine has come in India because of several reasons and it is also true that rapid developments in the medical field in the last century have revolutionized the field of medical practice. But yet it has several disadvantages like there is an unequal distribution of health services between the poor and the rich, the rural and the urban population, and also between tribal and nontribal people. Some time we see the patient who require very high quality treatment are often give only palliative treatment. Besides these there exist some other parts also that are appear as unethical and which are still present in Indian medical field.

Ancient Indian medical system

Ayurveda is one of the oldest medical systems in the world with a long record of clinical knowledge. It is one of the great gifts of the ages of ancient India to mankind. It is also a way of life that teaches us how to maintain and defined our health. Ayurveda treats men as a whole; that is body, Mind and soul .It is truly holistic and important medical system.

Ayurvedic literature deals elaborately with measures of healthful living the entire spun of life and its various phases. Ayurveda stresses a balance of three elemental energies or humors, vayuvata (air & spaces-‘wind’), pitta (fire& water-‘bile’) and kapha(water & earth –‘phlegm’). According to Ayurvedic medical theory, this three medical substances are important for health, because according to Ayurvedic literature when they (vayuvata etc.) exist in equal quantities, the body will be healthy and when they are not in equal amount , the body will be unhealthy in various ways. This Ayurvedic system also focuses on exercise, Yuga and meditation.

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Ayurveda was also called “the science of eight components” they are:

- Internal medicine (kayu cikitsa)
- Pediatrics (kaumarabhrtyam)
- Surgery (salya cikitsa)
- Eye and ENT (satakya tantra)
- Bhuta vidya has been called psychiatry
- Toxicology (agadatantram)
- Prevention of diseases and improving immunity and rejuvenation (rasayam)
- Aphrodisiacs and improving health of progeny (vajikaranam)

In Hindu mythology, the origin of Ayurvedic medicine is attributed to ‘dhanvantari’, that is the physician of the Gods.

Modern Indian Medical field

Although Indian people has forgotten their own traditional medical system, yet India recently giving more emphasis in the fields of agriculture , food production, infrastructure developments, transport, science and technology, commerce and industry as well as in health education and social welfare.

Now India has achieved a good position in the health care infrastructure in the world. It consists of a network of tertiary care hospitals at the state/national levels ; district hospitals and dispensaries at the district levels, A chain of community health centers at the block level, and primary health centers and sub-centers at the grass root levels though most of the centers are of Allopathic treatments.

Every state of India is divided into districts, which is the principle unite of administration in India. In each district, there is a district hospital and a district is divided into subdivisions, each having subdivisional hospitals these sub divisional hospitals are the basic unit of primary health care, these health centers provide universally comprehensive health care services to the community. Under these health centers, there are sub centers also

Beside, these rapid developments in medical field, in the last century had revolution in the field of medical practice. It is now possible to diagnose diseases faster and more accurately using advanced diagnostic techniques. Medical management has become more effective with refined medications having more specific actions and fewer side effects.

Lack of ethics in modern medical field

It is correct to say that India has now some development s in medical field, but there is several lacks of ethics in this field. It appears that many hospitals across the county need a lesson on the basic ethics of the medical profession. Some time we see that doctors are behaving with the patient not in proper way. It is a shame that helpless patients have to die suffering at the door steps of hospitals, just because of the staffs’ insensivity. It is the complete lack of respect for human lives on part of these so called ‘live savers’ that is most shocking. Extremely gruesome manifestations of these are seen in recent time at many hospitals. Which is just opposite to Kantian second maxim which says “... act as to treat humanity whether in thine won person or in that of any other, always as an end, and never as a means only.”

We some time see that doctors are receiving gifts from manufacturers of drugs, implements and instruments. They take these for granted that these companies will pay them their air travel in business or several facilities. The companies provide such kind of gifts only because the doctors are using their products.

According to charaka samhita, “we must do everything for happiness of us and everyone else on the planet because we belong to one source.” We are one family. ‘But in modern time Indian medical field is not comparable with this thought because in our country there is an unequal distribution of health services between the poor and the rich, the rural and the urban population, which are really unethical issues e.g. in India free health care services are provided by govt. hospitals and dispensaries while private practitioners and specialists and private hospitals provide health services for a fee. The services provided by the later are of better quality which are easily comparable to the services available in developed countries. But these services are beyond the reach of the poor because of the high cost involved. Here it is notable that govt. Hospitals do provide health services which are sometime reasonably of good quality, but they are overcrowded, have long waiting list and often lack cleanliness and courtesy. Although at the present time the govt. has been making efforts and has developed a vast network of rural health services, disparities still persist between urban and rural areas. Many of the primary health centers and sub centers remain without doctors or medicines these explain the differences in health indicators between urban and rural areas.’

Sometimes doctors are refused to provide proper treatment because of their internal fare such as, in practice, many doctors are refusing to provide treatment to AIDS patients, and such kinds of dangerous diseases. Because many doctors have the unfounded fear of contacting HIV or related microbe if they treat such patients

These are the several lacks of ethics in modern Indian medical field.

Government efforts

India govt. is taking now some responsibility if you look at the prevalent situation in India, their teaching of ethics as a formal part of the curriculum was largely absent. But the Medical Council of India is now trying to incorporate ethical issues under the MBBS Curriculum.

Another very important point is that as per the Delhi medical council act, even among qualified doctors, unethical action is taken against malpractice/negligent cases under the DMC act, 1997 and also consumer protection act, 1986 . And another important point is the launch of “National Rural Health Mission (NRHM)” by honorable prime minister of India, 12th April 2005.

Conclusion

At the conclusion I must say that for the proper development of the poor people and tribal and non-tribal people it is require giving them proper respect which is the main part of the medical ethics. This is why in Caraka samhita it is given that “the corner stone of medical ethics are compassion, integrity, respect, honest, courage, and conscientiousness.”

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Though Govt. is taking different steps to reduce unethical issues in medical field but these are not enough. In order to develop awareness about ethical values among students, more importance should be given to the teaching of medical ethics. Medical ethics should be made a compulsory course with requisite attendance for the award of medical degrees.

It is true that the modern medicine gives us quick relief. With quick relief modern medicine often comes with side effects. But Ayurveda treats men slowly as a whole i.e. body, mind, and soul. And it also has non-surgical methods of treatment. It is truly holistic and important medical system. So emphasis should be given to the development of Ayurvedic treatment also.

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Ethno Medicinal Uses of Plants by Indigenous Tribal Medicine Practitioners of Sepahijala District of Tripura and Improvement of Tribal Health Status

Rupajit Das

Introduction

Tripura is one of the seven states in the north eastern part of India with a geographical area of 10,491.69 sq. Km. It is bounded on the north, west, south and south-east by Bangladesh whereas in the east it has a common boundary with Assam and Mizoram. The total population of this state is about 36,71,032 as per 2011 census report and about 11,66,813 persons i.e. 31.78% of the total population of the state belonged to tribal community. The study area is situated in Jampuijala RD Block under Sepahijala district of Tripura State. Total tribal population in the study area is about 75,027 out of 79,564. The health service positions in this area have not satisfactory. As a result tradition of ethno-medicine practice has been continued in the study area since ancient time with the help of indigenous tribal practitioners (Kavirajes). Kavirajes generally work with different plants, particular parts of plants, plant extracts or use extract in different combination for the treatment of various ailments of tribal people and others. In spite of its acceptance, the knowledge of kavirajes on ethnomedicine are not properly documented and preserved. A total of 30 different medicinal plants were recorded along with their vernacular names, parts used and mode of utilization by indigenous tribal practitioners (Kavirajes) and tribal people of that area. The present study revealed that tribals are primarily dependent on medicinal plants for the treatment of different diseases at minimum cost and have to improve their health status.

Background

Botanical and forest plants have been used in traditional medicine for several thousand years. The knowledge of medicinal plants has been accumulated in the course many centuries based on different medicinal systems such as Ayurveda, Unani and Siddha. In India, it is

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reported that traditional healers use 2500 plants species and 100 species of plants serve as regular sources of medicines. During the last few decades there has been increasing interest in the study of medicinal plant and their traditional use in different parts of the world. Documenting the indigenous knowledge through ethno-botanical and ethno-medicinal studies is important for the conservation and utilization of biological resources. Today according to the World Health Organization, as many as 80% of the world's people depend on traditional medicine for their primary healthcare needs. There are considerable economic benefits in the development of indigenous medicines and in the use of medicinal plants for the treatment of various diseases. Due to less communication means, poverty, ignorance and unavailability of modern health facilities, most people especially rural people are still forced to practice tradition medicines for their common day ailments. A vast knowledge of how to use the plants against different illness may be expected to have accumulated in areas where the use of plants is still of great importance and significance.

Objectives

The objective of the study is to explore and enumerate the medicinal plants used by indigenous tribal patients and indigenous tribal medicine practitioners (Kavirajes) in Jampuijala RD Block under Sepahijala district of Tripura State in the treatment of various ailments and recorded it properly.

Materials and Methods

Data was collected through scheduled questionnaires and personal observations made during the field visit and deals with kavirajs . A total of 30 different medicinal plants were recorded along with their vernacular names, parts used and mode of utilization by indigenous tribal practitioners (Kavirajes) and tribal people of that area. The Kavirajes were interviewed on day time guided field-walks through areas from where they usually collect their medicinal plants, pointed out the plants, local name and described their uses. Each of the indigenous tribal medicine practitioners (Kavirajes) in Jampuijala RD Block under Sepahijala district of Tripura was selected based on their previous experience of using medicinal plants in treatment and the data obtained from one tribal practitioners (Kavirajes) was crossed verified with the other. Data also collected and recorded from 100 numbers of patients who use plants as a medicine.

Results and Discussion

The ethno medicinal aspect of indigenous tribal practitioners (Kavirajes) and tribal people of that area has been thoroughly studied for the first time. The present study reveals 30 different medicinal plants belonging to 26 families of angiosperms (Table 1) were reported to be used by indigenous tribal practitioners (Kavirajes) and tribal people of that area for the treatment of various ailments which includes Skin infections, Constipation, Kidney stone, Dysentery, Pregnancy Control, Catarrh and Cough, Rheumatism, Blood dysentery, Hematemesis, Abdominal pain, Spermatorrhea, Hysteria, Muscle pain, Joint pain, Jaundice, Sexual power, Diabetes, Insomnia, Pain in vagina, Ring-worm, Gonorrhea, Urinary, Menstrual

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pain, Mouth ulcer, Bone fracture etc. The results are summarized in table 1. Fabaceae contributed the largest number of plant species (3), followed by Lamiaceae (2), Piperaceae (2), Anacardiaceae (2) and others. In many cases, Kavirajes combined several species against a particular ailment.

Table No. 1 A total of 30 different medicinal plants were recorded along with their vernacular names, parts used and mode of utilization by indigenous tribal practitioners (Kavirajes) and tribal people of Jampuijala RD Block under Sepahijala district of Tripura

Sl. No	Scientific Name	Family	Vernacular name	Parts used	Disease and mode of use
1.	<i>Asparagus racemosus</i> L.	Liliaceae	Shatomuli	Root	Hematemesis: 3-4 teaspoons juice of <i>Asparagus racemosus</i> root are mixed with 1 cup of milk and 1 cup of water and then boiled to concentrate. It is taken daily at morning until cure. Blood dysentery: 4 teaspoons juice of <i>Asparagus racemosus</i> root are mixed with 9-10 teaspoons of milk. It is taken twice daily for 2-3 days.
2.	<i>Abroma augusta</i>	Sterculiaceae	Ulot kombol	Stem	Dysentery: 1 inch size stem of <i>Abroma augusta</i> are cut into 2-3 pieces and soaked in water for one night. The water is taken daily in the morning for 5 days.
3.	<i>Calotropis procera</i> (Aiton)	Asclepiadaceae	Akondo mudar	Leaf	Digestive disorders with abdominal pain: Oil obtained from seeds of <i>Brassica campestris</i> is put on the straight part of <i>Calotropis procera</i> leaf and rubbed. The leaf is applied to painful areas. This process is repeated 3-4 times daily till cure.
4.	<i>Kalanchoe pinnata</i> L.	Crassulaceae	Pathor kuchi	Leaf	Jaundice: 6-7 leaves of <i>Kalanchoe pinnata</i> is washed and macerated to obtain juice. The juice is mixed with 1 banana and yogurt (coagulated milk). 125 ml of the mixture is to be taken twice daily for a week. Joint and muscle pain: Paste obtained from macerated leaves of <i>kalanchoe pinnata</i> is heated slightly. The warm paste is applied to painful areas and bandaged.

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5.	<i>Mucuna pruriens</i> L.	Fabaceae	Alkushi	Seed, Root	<p>Pain in vagina and enlargement of vagina due to parturition: Root of <i>Mucuna pruriens</i> is boiled in water. A sterile cloth soaked in the solution is applied on the vagina. This fomentation is repeated each day for 7 days.</p> <p>Spermatorrhea: Seeds of <i>Macuna pruriens</i> are soaked in water or hot milk for 1 night. The seed pulp is then boiled in water and macerated to form paste. The paste is fried in small amount of clarified butter or ghee and mixed with sugar. 2 spoons of the mixture is taken twice daily for 7 days. 1 cup of milk is to be taken after eating it.</p>
6.	<i>Ocimum sanctum</i> L. <i>Ocimum Basilicum</i> L.	Lamiaceae	Tulshi	Leaf, Root, Seed	<p>Cough and throat infections: Equal volume crude juice of <i>Ocimum sanctum</i> leaves and honey are mixed. 1 teaspoon is taken daily 3-4 times till cure.</p> <p>Ring-warm: Equal volume of <i>Ocimum sanctum</i> leaf juice and lime (<i>Citrus aurantifolia</i>) juice are mixed. It is rubbed at the infected area.</p> <p>Spermatorrhea: 10 gm seed pulp of <i>Caesalpinia bonducella</i>, 10 gm seeds of <i>Ocimum sanctum</i> and 10 gm leaves of <i>Ficus religiosa</i> are mixed and crushed. The powder of the mixture is macerated. Pills are prepared from the mixture. 1 pill is to be taken with 1 cup of cow milk twice a day.</p> <p>Insect bite: Juice of <i>Ocimum sanctum</i> leaf is rubbed at the infected area. It works as antiseptic.</p>

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7.	<i>Polygonum hydropiper</i> L.	Polygonaceae	Bishkatali	Leaf	Menstrual pain: Paste obtained from leaves of <i>Polygonum hydropiper</i> is mixed with 1 powdered fruit of <i>Piper nigrum</i> . Pills are prepared from the mixture. It is taken thrice daily for 2-3 days. Abortion: 1 cup of juice obtained from macerated leaves of <i>Polygonum hydropiper</i> is to be taken.
8.	<i>Tagetes patula</i> L.	Asteraceae	Gada	Leaf	External bleeding: Paste of <i>Tagetes patula</i> leaves is applied to cuts and wounds. Note that the paste is to be used as soon as possible after preparation.

Sl. No	Scientific Name	Family	Vernacular name	Parts used	Disease and mode of use
9.	<i>Vitis quadrangularis</i> L.	Vitaceae	Harvanga	Whole plant	Bone fracture: <i>Vitis quadrangularis</i> plant is macerated to form paste. The paste is applied thickly over the fractured area and bandaged with leaves of <i>Musa sapientum</i> or <i>Alocasia indica</i> . If there is too much fracture, the area is ribbed with mixed paste of <i>Vitis quadrangularis</i> cord. <i>Paederia foetida</i> leaf, <i>Vitex negundo</i> leaf and <i>Datura</i> metal leaf in a ratio of 2:2:2:1. This procedure is repeated with 24 hours interval.
10.	<i>Terminalia arjuna</i> (Roxb)	Combretaceae	Arjun	Bark	Heart problem: 5-6 gm bark of <i>Terminalia arjuna</i> is powdered. The powder is boiled in 1 cup of cow milk and ½ liter water to make 1 cup. The mixture is filtered and taken daily in the afternoon for 1 month.

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11.	<i>Adhatoda vasica</i> Ness	Acanthaceae	Basak	Leaves	Cough and cold: Equal volume juice of <i>Adhatoda vasica</i> leaves and honey are mixed along with juice of <i>Zingiber officinale</i> Roscoe. 2 teaspoon of mixture are taken orally to cure severe cough problems.
12.	<i>Trichosanthes dioica</i> (Roxb.)	Cucurbitaceae	Potol	Fruit, Leaves	Acidity with constipation: 4-5 gm leaves of <i>Trichosanthes dioica</i> are boiled with ½ cup of water. 1 seed pulp of <i>Terminalia chebula</i> and 2-1 gm <i>Coriandrum sativum</i> are added into the boiled mixture. The mixture is filtered and taken daily in the morning in the empty stomach. The procedure is done for 5-7 days.
13.	<i>Piper longum</i> L.	Piperaceae	Pipul	Root	Catarrh with cough: Root of <i>Piper longum</i> is macerated to obtain juice. A red hot iron rod is immersed in the juice. 2 teaspoons are taken orally while still in a warm condition. This procedure is to be done thrice daily for 2-3 days.
14.	<i>Azadirachta indica</i> Juss	Meliaceae	Neem	Leaves	Skin infections: The crude extract of the leaves is applied locally for 4-5 days to cure skin infections and skin disease.
15.	<i>Lasia spinosa</i> (Linn.)	Araceae	Kantha	Rhizome	Arthritis and Rheumatic pains: The rhizome is boiled with water and garlic, applied locally to get relief from arthritis and rheumatic pains.
16.	<i>Leucas aspera</i> Link.	Lamiaceae	Ghal ghase / Dronful	Leaves	Wound and skin infections: The crushed leaves is applied locally and bandaged to cure to cure wounds.

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17.	<i>Litsea monopetala</i> (Roxb.)	Lauraceae	Bara Kukurchita	Leaves	Jaundice: The aqueous extracts of leaves is taken orally for 5-7 days to cure jaundice.
18.	<i>Clitoria ternatea</i> L.	Fabaceae	Aparajita/ Nilkantha	Root Leaves	Hysteria: 1 teaspoon juice of <i>Clitoria ternatea</i> root and leaves is to be taken immediately in the acute condition.
19.	<i>Holarrhena antidysenterica</i> L.	Apocynaceae	Kurochi	Bark	Blood dysentery: 1 cupful of <i>Holarrhena antidysenterica</i> is boiled with 4 cup water to make 1 cup. 1.5 gm solution with trace amount of honey is licked 3-4 times daily till cure.
20.	<i>Diospyros peregrine</i>	Ebenaceae	Gaab	Fruit	Excessive bleeding during menstruation: 6-7 gm of young fruit of <i>Diospyros peregrine</i> is macerated to obtain juice. It is taken orally twice a day for 3 days. Note that it should not be taken during first 3 days of menstruation.
21.	<i>Datura metel</i> L.	Solanaceae	Kalu dhutura	Leaves Root	Rheumatism: Leaves of <i>Datura metel</i> are macerated to obtain juice. Equal volume of juice and oil obtained from seeds of <i>Brassica campestris</i> are mixed and heated slightly. The warm mixture is applied to places where there is rheumatic pain. This is done 2-3 times daily till cure of the pain.
22.	<i>Piper nigrum</i> L.	Piperaceae	Gol morich	Fruit Leaves	Menstrual pain: Paste obtained from leaves of <i>Polygonum hydropiper</i> is mixed with 2 gm powdered fruit of <i>Piper nigrum</i> . Pills are prepared from the mixture. It is taken thrice daily for 2-3 days.

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23.	<i>Phyllanthus emblica</i> L.	Euphorbiaceae	Amloki	Fruit	<p>Urinary tract infection: 12 gm juice of <i>Phyllanthus emblica</i> fruit. 1 cup raw cow milk and trace amount of sugar candy are mixed. It is taken every morning for 7 days.</p> <p>Oral ulcers and constipation: The crude extract of the fruit is applied 2-3 times daily for 4-5 days to cure oral ulcers. The raw fruit is taken as laxative.</p>
24.	<i>Syzygium cumini</i> L.	Myrtaceae	Jaam	Young leaves, Seeds	<p>Diabetes: 2-3 gm powder of <i>Syzygium cumini</i> seeds is soaked in 1 cup water for one night. It is taken in the morning for 15 days. Note that this procedure is not applicable for patients with high blood pressure.</p> <p>Blood dysentery: Young leaves of <i>Syzygium cumini</i> are macerated to obtain juice. It is then filtered and heated slightly. 2-3 teaspoons warm juice are taken twice daily for 2-3 days. If possible, it is taken with goat milk.</p>
25.	<i>Solanum sisymbriifolium</i> Lam.	Solanaceae	Kontikari	Leaves Cord	<p>Catarrh with cough: 5 gm leaves and cord of <i>Solanum sisymbriifolium</i>, 12 fruits of <i>Piper nigrum</i>, 12 leaves of <i>Cinnamomum tamala</i>, 2 fruits of <i>Piper longum</i>, 5-6 gm bark of <i>Cinnamomum zeylanicum</i>, 5-6 gm rock salt and 24 gm sugar candy are mixed and boiled in ½ liter water. It is done in a clay pot. When it form 1 cup it is then cooled and filtered. The warm solution is taken once a daily for 7 days.</p>

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26.	<i>Punica granatum</i> L.	Lythraceae	Dalim	Bark	Intestinal disease(Otishar) 12 gm young fruit of <i>Aegle marmelos</i> , 12 gm bark of <i>Punica granatum</i> and 12 gm bark of kutraj are boiled in 1 liter water to make 250 ml. The mixture is then filtered. 30 ml is taken thrice a day till cure.
27.	<i>Mangifera indica</i> L.	Anacardiaceae	Aam	Young leaves Seed pulp	Dysentery: Equal amount young leaves of <i>Mangifera indica</i> and <i>Syzygium cumini</i> are macerated to obtain juice. It is heated slightly. 2-3 teaspoonfuls warm juice are taken daily for 2-3 days.
28.	<i>Abrus precatorious</i> L.	Fabaceae	Gunch/ Ratti	Seed pulp	Pregnancy control: The reddish portion of <i>Abrus precatorious</i> seed pulp is grinded. The powder is then entered into banana. It is taken orally before sleeping at night. It can prevent of being pregnant till 3 month. Note that nothing is to be eaten before and after 1 hour during eating it.
29.	<i>Caesalpinia bonducella</i> L.Roxb.	Caesalpinaceae	Nata karanja	Seed Pulp	Spermatorrhea: 10 gm seed pulp of <i>Caesalpinia bonducella</i> , 10 gm leaves of <i>Ficus religiosa</i> and 10 gm seeds of <i>Ocimum sanctum</i> are mixed and crushed. The powder of the mixture is macerated. pills are prepared from the mixture. 1 pill is to be taken with 1 cup of cow milk twice a day.
30.	<i>Lannea coromandelica</i>	Anacardiaceae	Jeol Bhadi Kamila	Bark	Loss of sexual power: Barks of <i>Lannea coromandelica</i> are mixed with barks of <i>Aegle marmelos</i> , barks of <i>Syzygium cumini</i> and barks of <i>Artocarpus heterophyllus</i> and soaked in water for one night. The solution is filtered and 500 ml is taken orally with 50 ml honey. This procedure is repeated daily in the morning for 3 days.

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Table No. 2: No. of patients had participated in scheduled questionnaires for their mode of treatments.

Sl. No.	Treatment	No. of patients	Percentage
1.	Kavirajes Treatment	43	43%
2.	Allopathic Treatment	33	33%
3.	Both Kavirajes and Allopathic Treatment	24	24%

Conclusion

The present study reveals 30 different medicinal plants belonging to 26 families of angiosperms (Table 1) were reported to be used by indigenous tribal practitioners (Kavirajes) and tribal people of that area for the treatment of various ailments which includes Skin infections, Constipation, Kidney stone, Dysentery, Pregnancy control, Ccatarrh and Cough, Rheumatism, Blood dysentery, Hematemesis, Abdominal pain, Spermatorrhea, Hysteria, Muscle pain, Joint pain, Jaundice, Sexual power, Diabetes, Insomnia, Pain in vagina, Ring-worm, Gonorrhea, Urinary, Menstrual pain, Mouth ulcer, Bone fracture etc. The results are summarized in table 1. Fabaceae contributed the largest number of plant species (3), followed by Lamiaceae (2), Piperaceae (2), Anacardiaceae (2) and others. In many cases, Kavirajes combined several species against a particular ailment.

In the present survey, it was observed that rural patients are more dependent on traditional ethno medicinal treatment used by indigenous medicine practitioners (Kavirajes). It is also revealed that 43% people of that area are fully depend upon kavirajes and 33% people depend on allopathy and 24% people are dependent on both allopathy and kavirajes. The use of ethnomedicinal information has contributed significantly in drug discovery efforts and thus mass screening of plants will provide immense scope in finding new drugs and lead compounds. The present study revealed that tribals are primarily dependent on medicinal plants for the treatment of different diseases at minimum cost and have to improve their health status.

Suggestions

The use of ethno medicinal information has contributed significantly in drug discovery efforts and thus mass screening of plants will provide immense scope in finding new drugs and lead compounds.

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Traditional Medicines of Tribals of Tripura

Happy Majumder

Introduction

Tripura is a small State in the North-Eastern Region of India with an area of 10491 square kilometre of land with its capital at Agartala. During the British imperialism in India, she was known as 'Hill Tipperah' a native state merged with India on the 15th October 1949.

Tripura has no mountain, but some of the peaks in the eastern ranges of hills reach a height of more than two thousand feet. There are six principal hill ranges running from North to South parallel to one another. The principal hill ranges from the East are the Jampai, Sakkan Thang, Langtarai, Atharamura, Baramura- all running in a Northernly direction and almost parallel to one another till they disappear in the plains of Sylhet. There are long river valleys extending over a vast area in different Sub-division. The hills are more or less covered with bamboo. Forests form a pre-dominant part of Tripura. The open and reserve forests cover about three-fourth of the total area of the district. The bulk of the forests in the hills is almost an unending stretch of dense bamboo, while in the remaining areas trees are distributed very wide apart, midway space being filled by thatch bamboo or groups of secondary coppice shoots and scrub jungle consisting of dense mass of climbers.

Need of the Study

Out of the five full fledged and two Union Territories which collectively constitute North-Eastern India, Tripura is the smallest administrative division. It accounts for only 4.11% of the Regional area. So far as the share in Regional population is concerned. Tripura is in the second place roughly 8% preceded by Assam 75%. It has however, a considerably high density of population per square kilometre.

Notwithstanding that there were Immigrants-tribal as well as non-tribal from other provinces and native states. The Bengalis hailing from the adjoining Districts of Sylhet in Assam Province, Tipperah, Noakhali, Chittagong, Chittagang Hill Tracts and Dacca Constituted the bulk of immigrant settlers in Tripura. The tribal Immigrants into the State had added more to its demographic Varieties than to its size. Out of the Nineteenth Enlisted tribes found to be settled in Tripura. Mog, Tripura, Reang, Noatia, Jamatia, Halam, Kuki, Chaimal, Uchai, Chakma, Garo, Khashi, Lushai, Bhutia, Lepcha, Bhil, Munda, Oraon and Santal are Known to have migrated to This State.

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The Mogs are rich cultured tribe among the nineteen scheduled tribes of Tripura. The rich heritage of Mogs has been contributing to the advancement of our civilization and culture. The Mogs of Tripura live largely in Sabroom, Belonia and Santirbazar Sub Division of South Tripura District. According to 2011 census Mog Population was 37,893 in the State of Tripura. Mogs are Arakan tribe and Migrated to Tripura through Chittagong Hill Tract. By religion they are Buddhist. Their language is grouped under Tibeto Chinese families which have also linked with Assam-Burmese Section of Language.

Mogs are dependent on plough cultivation. By nature they are not so much active for advancement of life. They have administrative social council chief of this council is called chowdhury Mog Community is by tradition famous for their folk medicine. Beside the normal Economic activities some of them earn through practicing treatment by using indigenous medicine.

The Study is mainly concentrated in the village Panchayet, Ratan Moni Mog Para under Satchand Block, Sabroom Sub-Division, and South District of Tripura. Purposive Sampling Method is used for Selection of one Village. One para of one Village was taken and total sample size was 30 households.

Objective of the Study

1. To study the socio-economic condition of Mog in Tripura.
2. To gather information about their socio-religious life.
3. To understand their Educational Status.
4. To understand their Medical facilities and equipments.

Method of Data Collection

Data was collected through well Structured scheduled. There were 30 families in the scheduled. Most of the answers were open and descriptive type to get clear picture of the study.

Social Status

The Mog have no social of class distinction among them and there is no such thing as superior or inferior groups within the community. One goes to the top of the community only by virtue of economic solvency and better circumstantial factors. The head man generally earn the title the Bomang Chowdhury and Tashilder. The task of these leaders is to maintain internal discipline and look after the main community activities.

Economic & Religious Status

The Mog of Tripura mainly belongs to Buddhism and inspired by the thoughts of Lord Buddha. They mainly depend on agriculture for their livelihood. They produce variety of crops mainly on Plough cultivation. The practice of Jhum cultivation has been discouraging and restricting by the Government. Level. Fishing is another process of food gathering to the Mogs. The chharas, rivers, lakes, ponds, water logged areas are the main sources of fishing. Fishing is done throughout the whole year. Fishing is done by an individual activity or by a joint venture. Generally fishing in the chharas, streams and rivers is done jointly and it is done in other water sources by individual venture.

Women enjoy a great deal of freedom among the Mogs. They are very strong, stout and industrious. All household duties are performed by them. In leisure time they weave their own garments. They are very fond of modern luxurious and like to put on gorgeous dresses and ornaments.

Educational Status

According to 2001 Census data the literacy rate is 64.84% & 2011 Census 73.04% in India. In Tripura the literacy rate is 73.66% according to 2001 Census data. Ratan Mani Mog para is backward. There are 525 people in total out of which 1 person has Master degree, 1 person is a Graduate, 9 people are doing their Graduation, 16 have passed their Madhyamik.

Traditional Medicine & Common Diseases

Folk medicine has been playing an important role in the rural life of India. Starting from the Aurvedic period up to the present century tribal people mostly rely on folk medicine. The tribals of Tripura use herbal medicine for various diseases. But the number of herbal practitioners among the tribals is gradually decreasing. Another difficulty with this system of medicine is that the identity of the medicinal plants is a well guarded secret which is not generally divulged to others. Tripura with its agro – climatic conditions possesses a rich flora, through deforestation, jhum cultivation etc have destroyed a good number of plants.

The present work includes 10 diseases belonging to 30 families collected from an intensive survey of the interior tribal areas of Sabroom sub-division, Ratan Mani Mog para, those are used as folk medicine for their usual diseases.

1. *Pyorrhoea*: The common disease means gum disease. The common people of Mog community use the chalta (Bengali Name) Kokbarak name Thaipolak. Parts used – fruit. A decoction of the fruit is used in pyorrhea for gargling.
2. *Skin Disease*: The people use the Lajjabati plants (Bengali name), Kokbarak name – Shyamsundra parts used root. Roots are used for fungal infection. Juice of the root is used in fungal infection in skin diseases. Decoction of the roots is used in white discharge as a vagina wash.
3. *Jaundice*: Plant name Arhar (Bengali name), Kokbarak name Muimasing parts used- leaves, seeds. Arhar plant is used for jaundice and secretion of milk. Juice of the leaves is given with a little salt in jaundice, but seeds and leaves are ground into a paste, wormed and applied over the mamma. This has the effect of stopping the secretion of milk.
4. *Constipation*: plant name Nil Aparajita (Bengali name), kokbarak name Krishnakali parts used flowers, roots. Nil aparajita's juice or the root is used in painful micturition. Flower is used in constipation of children.
5. *Fever, Epilepsy, Hysteria*: Plant name Sajina (Bengali name), Kokbarak name sajan. Parts used the root of the young tree, seeds. The root of the young tree is ground into paste & applied locally in chronic rheumatism as a poultice. Also used in a variety of conditions like intermittent fever, epilepsy, hysteria, enlargements of the spleen and dyspepsia. The oil expressed from the seeds is used externally for relieving pain of the joints in gout and acute rheumatism.

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6. *Burning & Pimple*: plant name Simul (Bengali name) Kokbarak name Borchuk, parts used Root, thorns. The juice of the young root is to be taken with sugar incase of Burning micturatin with pain & supermatorrhea. I pimples paste of thorns with chandan is used .
7. *Irregular Menstruation*: plant name Jaba (Bengali & kokbarak name),parts used bud & root. Buds pasted & taken with rice wash water & watery extract of the root is used in irregular Menstruation.
8. *Blood Pressure*: Plants name Hartaki(Bengali name) Kokbarak name Bakhala, Parts used fruit(ripe) . They are mild & efficient laxative also have sum effection on Blood Pressure as cadiac tonics. Powder of the fruit used to strength the gum. The fruit is an ingredient of the known preparation triphala .
9. *Fracture*: Plants name Harjora(Bengali name) Kokbarak name Naljora , parts used stem .Pasted stem applied in the effected part of the Fracture of the Bone.
10. *Cholera/Dysentery*: Plants peyara (Bengali name) Kokbarak name Gayam, parts used green leaves. Green leaves said to be taken Orally in DYSENTERY , Diarrhoea etc, their dcocation used in cholera for arresting vomiting and in diarrhea also.

Suggestions

1. Educational facilities should be given to the tribal people to gather scientific knowledge for taking modern health care.
2. Educated tribal youth should be recruited as a nurse aswelleas multipurpose worker.
3. Allopathy tribal Doctor should be recruited & posted in tribal remote areas.
4. Better transportation should be arranged for the remote villagers .
5. Educated Aurvedic Doctor should be recruited in remote area.
6. The chief of the Mog Community should be encourage the common people to take modern health care.
7. More & more health centre should be established in tribal remote areas.

Conclusion

In the end of my paper I can say that only spread of education shall change then traditional attitude. Today folk medicine Prescribed by the untrained prachiciner. It is true that Aurvedic Medicine is accepted in the modern world but till date it is bitterly true that there is no proper aurvedic guideline among the Mog community.

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Ethno-medicinal Practices among the Reang Tribes of Tripura

Dr. Nanigopal Debnath
Dr. Deepak Upadhyaya

Introduction:

Tripura is a small state located in the North-East part of India. In Tripura there are 19 different tribes, each with a distinct cultural heritage, living in immense communal harmony. According to the Census 2011, 31% of the total population of the state is tribal and they are Tripuri, Reang, Jamatia, Noatia, Halam, Mog, Chakma, Chaimal, Kuki, Lushai, Uchai, Bhill, Munda, Santal, Orang, Khasia, Garo, Lepcha and Bhutia. Ethnically the major tribes of the state are mainly of Mongoloid origin and have migrated from a place in between Mongolia, Tibet and Burma. The Reang is the second largest tribal community of Tripura and the only tribe of the state recognized as primitive tribes in India. Reangs belong to Mongoloid racial stock and Bodo group of the Tibeto-Burman linguistic family. The Reang dialect is locally known as “kau-bru”. The Reangs are said to have come first from Shan state of Upper Burma (now Myanmar) in different waves to the Chittagong Hill Tracts and then Southern part of Tripura and concentrated in Udaipur, Amarpur, Belonia and Gandachharra Sub-Divisions. Similarly, another group came through Assam and Mizoram Border.

Like the herbal medicine of India, which has turned into Ayurvedic, the Reang people also possess the knowledge and skill to extract medicine from various plants, leaves, roots, bark etc. to cure the illness of human as well as animals. It is often voiced that the Ayurvedic form of medical treatment was originally conceptualized by the Tripuri people vis-a-vis Kirata. The first Aryan migrants had even no knowledge of the Himalayas, as the earliest book of knowledge, Rig Veda had mentioned only once about it; what to talk about the plants and herbs growing in it. It was only in latest Veda that is, in Atharva Veda, details of herbal medicinal property was mentioned. Obviously, by the time they had come in contact and civilisational exchanges had taken place between the Kiratas and the Aryans (www.tripura.org.in). Therefore it is argued that from time immemorial, the Reang community has been using folk medicine and magic to cure and prevent common illness.

In recent times, interest on ethno-medicinal plant research has increased dramatically; social scientists are also paying interest on ethno medicinal studies. Many works have been

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reported from the different tribal communities in India. Probably, Caius (1935) is the first man who described the medicinal utility of ferns of India for the earliest time. Later on, Nayar (1957) contributed to the same. Chowdhury (1973), Vyas and Sharma (1988) and Padala (1988) contributed to the ethno botanical and medicinal uses of *Pteridophytes*. Kaushik and Dhiman (1995) published a compiled account on common medicinal *pteridophytes* of India. Ray and Sarma (2005) have given a description of ethno medicinal practices and beliefs of Savara tribes of Andhra Pradesh. Kumari (2006) gave an account on practice of folk medicine among the Saureas of Jharkhand. Ethno medicinal studies are relatively less in the North-East India. Guha (1986), Thakur (1999) have worked on the tribes of Assam. Methods of Ethno medicinal practice of indigenous people of Arunachal Pradesh have been reported by Duarah and Pathak (1997), likewise scholars like Kohli (1999), Choudhury (2000) and Bhasin (2005) have also worked on this aspect of medicine. Though, there are very few works available on the ethno botany in Tripura. Mention may be made of the works of Deb (1978), Devbarma (1976), Datta and Chakraborty (1983), Shil and Sharma (2002), Chakraborty (2003), Shil (2007) and Singh (2007) in this regard. However, the study on the folk medicine and magical methods of several ethnic groups of Tripura remained unexplored till date. In the present paper an attempt has been made to focus on the prevailing scenario of using herbal medicine and magic to cure and prevent common illness among the Reangs of Tripura.

Methodology

The study is basically a combination of both descriptive and explorative methods. A field survey was conducted among the Reang community of Gandachara sub-division of Dhalai District of Tripura to understand the ethno-medicinal knowledge and plant varieties that are being utilized by the Reang community to cure various ailments. The study was conducted in 2012 under the aegis of Centre for Study of Social Exclusion Inclusive Policy (CSSEIP), Tripura University. In the study 120 households were covered from the two villages, viz, Gandachara ADC village and Kalajhari ADC village under Tripura Tribal Autonomous District Council (TTADC) and a village medicine man (*Ochai*) was interviewed. The *Ochai*, holds a very important place in the Reang community and plays a crucial role to cure various diseases by applying two methods, viz, magic and herbal medicine.

Result and Discussion

Use of Ethno Medicine

It was observed that a large number of the tribal people of the area under study happened to use traditional ethno-medicine. It was observed about 27% of the Reang people are completely dependent on traditional ethno-medicines, further, 36% were recorded using only modern medicine and 37% Reang people are using both modern and traditional ethno-medicines. This is shown in the following diagram;

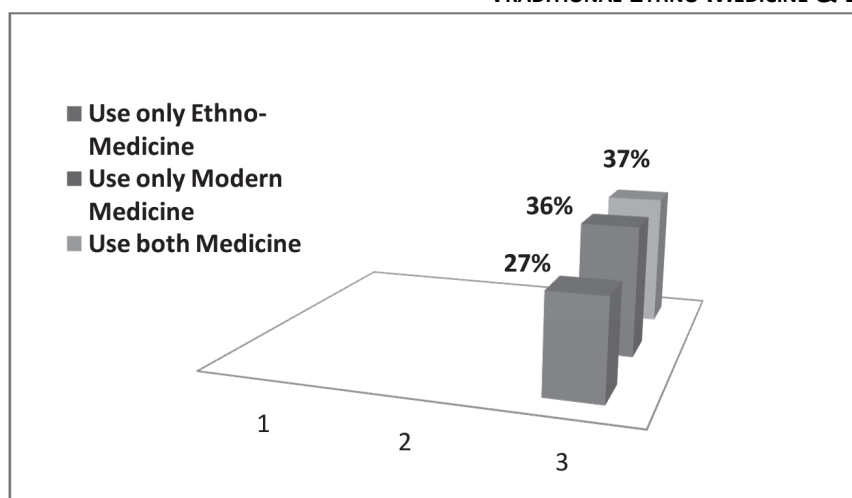


Diagram: 1. User of Ethno-medicine and Modern Medicine

It was also found from the survey that more often the ailments where the use of folk medicine was most prevalent were: cough (95%), fever (70%), colitis (45%), insect bites (22%), pox (15%), dysentery (7%) and diarrhea (19%). This is shown in the diagram-2;

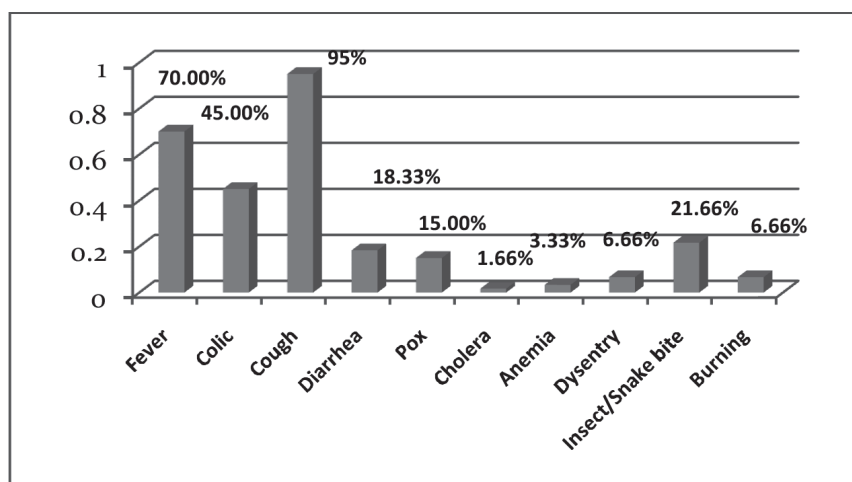


Diagram: 2. Disease and Users of Ethno Medicine

Ochai and Indigenous Methods of Treatment

It is also observed that the role of the traditional medicine man, commonly known as *Ochai*, plays a crucial rule to cure various diseases by applying magic methods as well as herbal medicine. While the magical method deals with the supernatural belief, the herbal medicine is based on natural or physical aspects. Both indigenous methods of treatment of Reang are believed to be primitive. The *Ochai* who was interviewed during the present

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survey was reported practicing traditional medicine for the past 26 years and his fame was such that he was often visited by people from far and wide.

Magico-religious methods

The *Ochai* is generally the specialist in the art of magic as well as herbal medicine. With the performance of magical rites he is believed to be able to cure ailing man. At the same times he also plays the role of the village physician. After observing the diseased person, the *Ochai* comes to know why and how that man has fallen ill. If any evil spirit is responsible for the illness, the *Ochai* performs magical rites as a device of treatment to drive away the evil spirit that caused the illness. To drive away the spirit the *Ochai* sometimes blows over the patient with utterances of incantations which is said to be effective and curative for the ailment. Otherwise, for this purpose, the *Ochai* performs ritual. In this ritual he sacrifices fowls, pigeons, goats, etc. and utters incantations to remove the spirit. These incantations are different for different illness and the animals to be sacrificed in the rituals also vary. Some example of diseases and nature of rituals are given below.

Modus Operandi of the Ochai

- Offerings to gods/goddess before treatment.
- Diagnosis of health condition of the patient.
- Prescription of a treatment plan to be followed by the patients.
- Magical process and chanting of incantations.
- Offerings after the process of treatment.

It is found that Reang people offer prayers and sacrifices as per direction of *Ochai* to appease the supernatural being, who may be responsible for the diseases. Sacrifices made for the different diseases are as follows:

Table-1: Disease and Sacrifice

Disease	Sacrifice and ritual
Fever	Performance of ritual by sacrificing two cocks near river.
Dysentery	Performance of ritual by sacrificing one white duck and other item of feast, Rice, salt, Vegetables etc.
Pox	Sacrificing two cocks near river and Worship to God.
Asthma	A hen is must with other offerings.
Gastric	No sacrifice is made except offering to God some Vegetables, Rice powder, Betel nut and leaves.

Sources: Field Study

Indigenous Methods of Herbal Medicine used by Reang

The Reang have their own indigenous methods of treating different diseases. The *Ochai* are also herbal specialist. They have considerable knowledge about the herbs and its medicinal uses. Generally, they gain the medicinal knowledge from their ancestors. As per the direction of *Ochai*, Reang people collect the plants/herbs and raw materials for medicine preparation from the nearby forests and fields. Medicines are prepared at home by boiling, crushing, mixing the materials and preparing the paste or decoction etc. Some ethno- medicinal plants/herbs used by Reang tribes of Tripura to cure the different diseases are arranged in the following table:

Table-2: Ethno Medicinal plants/herbs used by the Reang tribes in Tripura

Local name of the Medicinal Plants/Herbs	Scientific name	Part (s)used	Diseases treated
Agunishita	<i>Plumbago zeylanica</i> Linn	Leaves	Liquid of the leave's thrash is used in forehead to treat jaundice.
Amloi	<i>Phyllanthus emblica</i> Linn	Bark	Bark paste applied on the head 1 hour before the bath, reduce hair fall and relieves from dandruff.
Amotoi	<i>Ananas comosus</i>	Soft white leaf base	Paste of the soft leaf base is mixed with sugar and this paste is taken to cure hook-worm.
Amra	<i>Spondia spinnata</i>	Bark	Bark with Piper fruit is crushed and juice is taken with water for Diarrhoea.
Araokhuinaima	<i>Clerodendrum viscosum</i>	Root, leaves	Root and leaves juice is taken in stomach disorders.
Balmaimy	<i>Litsea glutinosa</i>	Bark	Bark powder is mixed with goat milk administered in chest pain. Stem bark paste applied and tied with bandage to heal wound.
Chorpai	<i>Andrographis paniculata</i>	Leaves	Leave juice is taken to reduce malaria fever.
Dungbaomdu	<i>Merremia umbellate</i>	Leaves	Whole plant is crushed and used in bone fracture.
Dron	<i>Leucus aspara</i>	Leaves and flower	Decoction of leaves and flower juice is taken to treatment in liver ailments and headache.
Ginghor	<i>Bryophyllum calycinum</i>	Leaves	Leave juice is used for diarrhoea and digestive problem.
Hakhnai	<i>Enhydra fluctuans</i>	Whole plant	Leaves are boiled in water and juice is taken in empty stomach the morning as a blood purifier.
Kalodutra	<i>Datur astramonium</i> Linn	Leaves	Poultice of the leaves are applied for any kinds of rheumatism.
Khumlekha	<i>Bougainvillea glabra</i>	Flower	Decoction of the flower is taken for lowering the blood-sugar level.

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Kamranga	<i>Averrhoa carambola</i> Linn.	Fruit	Fruit juice is eaten to cure jaundice.
Laichoblai	<i>Mallotus tetracoccus</i>	Leaves	Leaf paste is applied for treatment of skin diseases and ring worm.
Lalagunsita	<i>Alternanthera brasiliana</i> Linn.	Root	Root is crushed and juice is taken with water for regular menstrual cycle in women.
Maishebakv	<i>Clerodendrum philippinum</i>	Root	Root juices taken to prevent rheumatism.
Mourgiada	<i>Tinospora cordifolia</i>	Stem	Stem is boiled in water and sup taken to increase immunity and for the treatment of blood sugar.
Mukhoipaopi	<i>Piper longum</i> Linn	Whole plant	Decoction of the Whole plant is used for the treatment of diarrhoea and rheumatism.
Samsotimchi	<i>Mimosa pudica</i> Linn	Root	Dried root powder is administered to cure general fevers and fresh root is used for the treatment of toothache.
Sitri	<i>Urginea indica</i>	Bulb	Whole bulbs decoction is used for the treatment stomach disorders of cows and buffalos.
Samsota	<i>Centella asiatica</i> Linn	Whole Plant	Whole plant is taken in ailment of dysentery and stomach-ache.
Tarulata	<i>Cuscuta reflexa</i>	Whole Plant	Decoction of the plant is used for Strengthening the liver and kidneys and uterine problems.
Ttaokharung	<i>Oroxylum indicum</i>	Bark	The juice is extracted after crushing the stem bark and is taken for treatment of jaundice.
Urtoukchock	<i>Ricinus communis</i> Linn.	Leaves	Leaves juice is taken to prevent piles. Paste of the leaves is used for the treatment of ulcer.
Yak khunjur	<i>Urena lobata</i> Linn	Leaves	Leaf paste is applied with tied bandage to heal wounds.

Image of some medicinal plants and herbs



Basak

Mahabhringiraj

Jaba

Root of khatama



Kasa Kathang

Neem

Khum taya

Tulsi

Conclusion

The study highlighted that even in the 21st century Reang people have strong faith in their indigenous method of treatment. A good number tribal people depend upon only folk medicine and magical rites throughout their life. It is fact, due to insufficient modern medical treatment facility in the interior area they depend on their indigenous methods of treatment. The herbal medicine practised by *Ochai* is effective.

Hence documentation of ethno-medicinal practices is the need of hour and it is stongly recommended for further ethno-botanical research for the discovery of new drugs and low cost health care. But their magico-religious practice which is based on superstition cannot be accepted in the modern era; here scientific social awareness is required. The current study is believed to give some intellectual input to the social scientists, social worker, researchers, administrators and policy makers and such other people interested in herbal medicine for further appropriate action for the greater benefit of the Reang tribes in particular and for the humankind in general.

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Occupational Health Hazard, Health Insurance & Health Care Practices

Knowledge, Awareness and Attitude of the Towards HIV/ AIDS among Bodo Community in Assam

Chinmoy Misra

Introduction

New diseases have swept the world from time to time Human beings have managed to triumph over the majority of them but, there seems no cure or vaccine for the deadly and most potent infection—The Human Immune deficiency Virus (HIV). Acquired Immune Deficiency Syndrome (AIDS) is a clinical condition that results from infection with the Human Immune Deficiency Virus (HIV) which progressively damages the body's ability to protect itself from disease organisms. Haseline (1993) described AIDS as a progressive degenerative disease of major organs and systems including the immune system and the central nervous system. AIDS, according to the World Health Organisation (1994), is the end stage of infection with HIV virus characterized by a cluster of illness. Such cluster of illness often referred to as opportunistic infections arise as a result of the victim's suppressed immune system due to the HIV infection.

AIDS was first reported in the United States on 5th June, 1981 among a cluster of eight gay men (Homosexuals) in the city of Los Angeles, USA. Today it has spread to all the continents of the world. There is no country which is free from HIV/AIDS. Today it has spread from the high risk to the low risk general population and from urban to rural areas. India has seen a sharp increase in the estimated number of HIV infections since the first HIV/AIDS case in India was identified in Chennai, in 1986. According to an estimate from the National HIV Sentinel Surveillance in the year 2010 almost 2.4 million Indians were found to be HIV positive out of total population of 1.2 billion in the mid year of 2010. Between 2001 and 2009, however, HIV incidence fell by more than 25 percent and estimated national prevalence remained below 1 percent.

In Assam too HIV/AIDS has created serious problems. The first case of AIDS in Assam was reported in the Month of September 1990. However HIV positive rate in Assam is

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significantly decreasing from last few years though the number of case detection is increasing year by year. Up to January 2012, Assam has detected 6130 number of HIV Positive cases with a rate of 6.28 per thousand and the number of AIDS cases diagnosed is 1607. Out of 6130 HIV positive cases 3951 are male and 2179 are female (Source: Assam State AIDS Control Society) It is very pathetic to know that among these AIDS victims 274 are children within the age group of 0-14 years. The Government of India established a National AIDS control organization under the Ministry of Health and Family Welfare in 1989 to deal with epidemic. Since then various efforts have been made to

Despite widespread education efforts, of 15–29 year olds surveyed in 2005–2006, only 61 per cent of women and 84 per cent of men had heard of HIV/AIDS. Awareness varies by locations, with urban residents more aware of accurate measures of HIV transmission and prevention than rural residents, who account for 74 per cent of the Indian population [3]. HIV related knowledge, attitudes and their behaviours among different states of India vary due to India's diverse languages, distinct caste system and beliefs. Religious and cultural taboos exert a powerful influence not only on sexual attitudes and behaviour, but even on the discourse of sexuality. These factors also have an influence over access to health information and services. A National Health Survey showed that in Mizoram, two thirds of women and men have a comprehensive knowledge of HIV/AIDS while in Assam, West Bengal and Meghalaya, only 15 per cent of men and even less women have a comprehensive knowledge of HIV/AIDS.

Knowledge surely has a significant role in HIV prevention. Previous researches have indicated that increased knowledge about HIV/AIDS was associated with reduced fears of HIV/AIDS, greater comfort in dealing with people with HIV/AIDS, and reducing HIV/AIDS related stigma. From the beginning, anthropologists were in a unique position to lend to HIV research and prevention, concerning itself with how people view and act towards themselves and others under certain conditions and ask whether or not these processes have direct consequences for the spread and prevention of HIV. The idea that knowledge of risk does not necessarily translate into behaviour change is "as much a truism in public health as is the awareness in anthropology that what people say is no clear guide to what they do".

Significance of the study

Community people are vulnerable because they often do not know how serious the problem of HIV/AIDS is, how it is caused or what they can do to protect themselves. Physical, psychological and social attributes of adolescents make young people of the community particularly vulnerable to HIV and other sexually transmitted infections (STI'S). The HIV/AIDS pandemic is one of the most important and urgent public health challenges facing government and civil societies around the world. The vast majority of young people of any community who are HIV positive do not know that they are infected and only a few young people of a community who are engaging in sex know the HIV status of their partners. For solving such type of problems, this issue has special importance in the context of the emerging trends in new HIV cases in India that show that nearly two third of new infections

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are reported among people below 25 yrs of age (NACO 2010). Another equally important concern in the narrowing gender gap in new HIV infections suggesting an urgent need to address the issue and concerns of youth especially through reducing young women's vulnerability towards HIV/ AIDS.

Even for adolescents of a community who are not yet engaged in risky behaviours, HIV/ AIDS education is important for them so they are prepared for situations that will put them at a risk as they grow older. Somebody who is not aware of their HIV infection is more likely to pass the virus on to others. For solving such type of problems, it is pertinent that research is done on this important area because health today is a subject of universal phenomena.

Review of previous study

About 92.60% of participants had heard of HIV/AIDS and written correct abbreviation of HIV and AIDS, and 78.90% knew that causative agent of HIV/AIDS as virus. In a study done by Bhalla S et al in Gujarat reported that all participants heard of HIV/AIDS and of them only 60.6% participants had written correct abbreviation of HIV and 87.7% had written correct abbreviation of AIDS. In a study done by Abdul Basir Mansoor in Afganistan reported that 90.8% of participants aware of HIV/AIDS. In a study done by Lal P et al in Delhi among senior secondary school children reported that all participants heard of HIV/AIDS and of them only 19.9% participants had written correct abbreviation of HIV and 51.4% had written correct abbreviation of AIDS. In a study done by Basir Gaash in Srinagar reported that 76% of participants were aware of HIV/AIDS. In this study 78.90% of participants had mentioned virus as the causative agent of HIV/AIDS. In a study done by Singh et al in Kanpur reported 62.5%, Bhalla et al in Gujarat reported 90.5% participants had mentioned virus as the causative agent of HIV/AIDS. In a study done by Lal et al in Delhi among senior secondary school children reported that 72% of participants knew how to prevent HIV/AIDS 61.89% of participants had wrong perception regarding the availability of vaccine for HIV/AIDS; Benera et al in their study on under graduates at Delhi University reported that 59% knew that vaccination cannot prevent HIV/AIDS infection. 75.43% of participants knew that HIV/AIDS status can be confirmed by blood test; where as in the study of Selcuk Koksai et al in Turkey reported that 88% knew that HIV could be detected through blood test. In this study 56.38% of participants who knew that hugging and shaking hands with HIV/AIDS infected person will not transmit HIV virus. In a study done by Singh Sk et al reported 53.9% of participants, Selcuk Koksai et al reported 73.1%, Basir Gaash et al reported 82.22%, Bhalla et al reported 90.8% knew that shaking hands with HIV/AIDS infected person will not transmit HIV virus. Singh et al reported 52.33% and Bhalla et al reported 90.8% knew that hugging with HIV/AIDS infected person will not transmit HIV virus. In a study done by Singh et al reported 44.67% of participants, Lal et al reported 70.04%, Selcuk Koksai et al reported 58.3% of participants knew that mosquito bite from HIV/AIDS infected person will not transmit HIV virus. 78.51% of participants knew that sharing injections, needles and razors with a HIV/AIDS infected person will transmit HIV virus. In a study done by Basir Gaash et al reported 23.11% of participants, Bhalla et al reported 96.6%, Rekha Udgiri et al reported 50.35% and Lal et al reported 44.4% of participants knew that sharing injections with a needle from an

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HIV/AIDS infected person will transmit HIV virus. This study reported 72.13% of participants knew that infected blood transfusion will spread HIV virus. In a study done by Basir Gaash et al reported 73.3% of participants, Bhalla et al reported 96.65%, Kamala et al reported 75.5%, Rekha Udgiri et al reported 58.15% and Lal et al reported 31.1% of participants knew that infected blood transfusion will spread HIV virus. About 33.39% of participants knew that IV drug abuse will spread HIV virus in this study. Bhalla et al reported 84% of participants knew that IV drug abuse will spread HIV virus. In this study 53.70% of participants knew that using public toilets will not spread HIV virus, Lal et al in their study reported that 83.5% felt that by using public toilets will not spread HIV virus.

Objectives of the Study

- To analyse the socio-economic variables influencing HIV/AIDS awareness.
- To examine HIV/AIDS awareness, sources of knowledge and ways to avoid the disease.
- To verify stigmatizing attitudes towards HIV/AIDS patients
- To make a comparative study of male and female adolescents regarding their knowledge about HIV/AIDS.

Research Methodology

Descriptive survey method is applied for the collection of the data. A cross-sectional sample of 400 adult Bodo (200 males and 200 females) belonging to the age group of 18-48 years were enrolled for this study using random sampling technique. In evaluating the knowledge and attitude of the general population towards HIV, interview schedule method was applied and administered to the respondent after getting their consent. The set of questions were modified to serve the purpose of the study by referring to *Research Package: Knowledge, Attitudes, Beliefs and Practices on AIDS (KABP)*, World Health Organization. Data used in the study were derived from two principal sources, primary and secondary. The primary source comprised questionnaire and interview schedule while the secondary source was published journal, book etc... The study aimed at finding out the awareness among the students, (socially, economically and educationally background), an attempt has been made to know their information and attitude towards HIV/AIDS, which has threatened humanity globally.

In order to carry out the present investigation the following tools were used General information Schedule- It consists of items like name, address, sex, age, education etc. The investigator also made use of a structured interview schedule regarding knowledge towards the basic facts of HIV/AIDS. The responses were collected through Yes, NO and Not Sure process verbally.

Results

Results for the assessment of the knowledge and attitude of the Angami Nagas towards HIV have briefly been discoursed in the following pages.

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1) Knowledge of the Bodo's towards HIV

More than two out of every three people knew the correct full form of HIV. Thus, they were mindful about the severity of the infection to that extent. Also, one and all assumed they were well versed with the transmission route of the virus. Majority of the respondents attested a significant knowledge on the myth that HIV can be transmitted, by mosquito bite, or by hugging or by sitting next to someone with HIV, or by eating from the same table, or by buying vegetables from an infected shopkeeper. Similarly, one and all knew that the infection can be transmitted from an infected mother to a child during birth (Table 1).

Nevertheless their improbable claims fell apart, when mixed response were received to the queries that one can be infected with HIV, by kissing on cheeks, by using the same toilet, by residing with the person concerned or by drinking from the same bottle of an infected person. An important observation made out here is that the percentage of wrong response increased with the following questions respectively, least in kissing of cheeks, followed by using the same toilet, by drinking from the same bottle, with the highest percentage of wrong response noted, where one third of the subjects assumed that HIV could be transmitted by residing with the infected persons. This portrays the gravity of the problem, in understanding the transmission route of HIV (Table 1).

Table 1: Respondents' knowledge about HIV (n = 400 [males=200, females=200])

Knowledge Items	Males (%)		Females (%)	
	Yes	No	Yes	No
Do you know the full form of HIV?	77.0	23.0	68.0	32.0
Do you know how it is transmitted?	100.0	100.0	100.0	0.0
Can HIV be transmitted by mosquito bites?	0.0	100.0	0.0	100.0
Can HIV be transmitted by kissing on cheeks?	3.0	97.0	4.5	95.5
Can HIV be transmitted from infected mother to child during birth?	100.0	0.0	100.0	0.0
Can HIV be transmitted by using the same toilet as used by an HIV infected person?	22.0	78.0	20.5	79.5
Can HIV be transmitted by residing with an HIV infected person?	27.5	72.5	39.0	61.0
Can HIV be transmitted by hugging an infected person?	0.0	100.0	0.0	100.0
Can HIV be transmitted by sitting next to someone with HIV?	0.0	100.0	0.0	100.0
Is HIV transmissible by drinking from the same bottle of an infected person?	31.0	69.0	22.0	78.0
Can HIV transmitted by eating from the same table with an infected person?	0.0	100.0	0.0	100.0
Can HIV be transmitted by buying vegetables from an infected shopkeeper?	0.0	100.0	0.0	100.0
Is it easier to prevent than cure HIV?	100.0	0.0	100.0	0.0
Have you ever discussed about HIV/AIDS?	39.0	71.0	42.0	58.0
Who did you discussed HIV/AIDS with? (those who responded yes)				

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Of the same sex	73.7	52.9
Of the opposite sex	26.3	12.0
Spouse	0.0	20.7
Any other family members	0.0	14.4
Most used form of Media?		
Newspaper	48.0	49.5
Radio	0.0	.0
Television	52.0	50.5
First source of knowledge about HIV?		
Media	34.5	47.5
Family	0.0	20.5
School, friends	65.0	50.0
Health professionals	0.0	0.0
Church	0.5	0.0

Source: Field Survey, March, 2015

One and all believed that it was much easier to prevent than cure HIV. Also, every second individual responded discussing about HIV/AIDS and that they were most comfortable doing so with friends of the same sex. Under the most used form of media, two out of five people polled in for television, although not surprising, schools and friends were the first source of respondent knowledge on HIV/AIDS (Table 1).

2) Attitude of the Bodo's towards HIV positive people

Talking about their reaction towards someone who was infected with HIV, every second person sympathized with them. Majority of them had never interacted with an HIV infected person dead or alive. While a mixed response was noted when queried on whether they would care for their HIV infected siblings, with two out of five males stating they were not sure. In contrast, every second female confirmed that they would definitely do so. Also, from the response, two out of every five males revealed that they would leave their spouse if they were found to be infected with HIV, while their female counterparts were of the notion that they would ask him to stay at other place (Table 2).

Two out of every five respondents were not sure whether to reciprocate if an HIV infected person invited them to their place. Similarly, more than half of them gave the impression that they won't feel comfortable working with an HIV infected colleague. Also, two out of every three people supposed it was the person fault if one acquired it by unsafe sex, but not if one acquired it during blood transfusion. Likewise, HIV infection as a form of punishment from God was conceived by every second individuals. Also, two out of every three respondents were of the opinion that HIV infected person were promiscuous (Table 2).

**Table 2: Respondent's Attitude towards HIV and HIV positive people (n=400
[males=200, females=200])**

Attitude Items	Males (%)		Females (%)	
Reaction towards someone who is HIV positive?				
Sympathy	53.5		84.0	
Love	13.0		1.5	
Care	15.5		14.5	
Hatred	0.0		0.0	
No comments	18.0		0.0	
Ever interacted with an HIV infected person dead or alive?	Yes	No	Yes	No
	3.0	97.0	1.5	98.5
Would you care for your HIV infected siblings?				
Definitely will	23.0			50.5
Will not hesitate	27.0			23.0
Will not	2.0			0.0
Not sure	48.0			26.5
What will be your reaction if your spouse turns out to be HIV positive?				
Leave him/her	53.0			20.0
Ask him/her to stay at other place	47.0			80.0
Restrict him/her to a room	0.0			0.0
Abuse him/her	0.0			0.0
Accept him/her as he/she is	0.0			0.0
Will you reciprocate if an HIV infected person invites you to his/her place?				
Definitely will	24.5			17.5
Will not hesitate	33.0			33.0
Will not	1.5			5.5

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Am not sure	41.0			44.0
Would you feel comfortable working with an HIV infected colleague?	Yes	No	Yes	No
	10.0	90.0	31.5	68.5
Is it the person's fault if he/she acquires HIV infection by unsafe sex?	80.0	20.0	77.5	22.5
Is it the person's fault if he/she acquires HIV infection by blood transfusion?	0.0	100.0	0.0	100.0
Is HIV infection a punishment from God?	54.5	45.5	51.5	48.5
Are HIV infected person promiscuous?	60.0	40.0	51.5	48.5
Would you be ashamed if infected with HIV?	63.0	37.0	56.5	43.5
People with HIV should be ashamed of themselves?	76.0	24.0	63.0	37.0
Would you be ashamed if anyone in your family had HIV?	79.0	21.0	64.0	36.0
Would you remain silent if any of your family members acquired HIV?	80.0	20.0	68.5	31.5
Why would you want it to remain a secret if anyone of your family members contract HIV?				
Would not be allowed in public places	22.6			25.6
Would not be allowed to go to work /school	11.8			6.4
Would be physically abused	6.0			2.4
Would be verbally abused	53.2			58.0
Difficult to get access to care and treatment	6.4			7.6
	Yes	No	Yes	No
Did you ever get yourself tested for HIV?				
	5.0	95.0	3.0	97.0
Why didn't you get yourself tested for HIV?				
Afraid of the health staff attitude	22.4			26.7
Do not know where to get it	16.4			20.1
Afraid of the stigma	18.4			5.9
Do not feel at risk	41.5			47.3
Afraid of the result	1.3			0.0

Source: Field Survey, March, 2015

More than half of them responded that they would be ashamed if infected with HIV and at the same time they were also of the opinion that people with HIV should be ashamed of themselves. Also, one out of every two individuals was of the sentiment that they would be ashamed if anyone in their family had HIV, and that they would preferably remain silent if anyone in their family members acquired HIV. More than one fourth of them responded that fear of being verbally abuse is one of the main reasons that they choose it to be kept as a secret, if anyone of their family members acquired HIV. Also, majority of them had never got themselves tested for HIV as they perceive that they do not feel at risk (Table 2).

Discussion

One of the key challenges throughout the history of the epidemic has been to educate the most impacted communities and the public at large about HIV/AIDS. Without accurate knowledge, behavioural changes that reduce the risk of HIV infection are less likely to occur. Studies that addressed the knowledge of HIV consistently have found knowledge is high, but there continues to be inconsistencies within studies. As observed in our study, majority of them had the cognition for the correct full form of HIV. Most of them had a good level of knowledge on HIV transmission route. One and all knew that HIV could be transmitted through vertical transmission from mother to child during birth and certainly not by mosquito bites, by hugging, by sitting next to someone with HIV, by eating from the same table, or by buying vegetables from an HIV infected shopkeeper. However many misconceptions still remained, for instance, mixed response was noted in terms of the notion HIV being transmittable by kissing on cheeks, by using the same toilet, by residing with the person concerned, or by drinking from the same bottle used by an infected person. The findings of a high level of misconception relating to HIV transmission through casual contact has also been confirmed by some investigators, such as kissing as a common route of HIV infection and the possibility of transmission by a mosquito. Majority of the respondent also perceived that it was easier to prevent than cure HIV, having discussed about HIV/AIDS, mostly with friends of the same sex. Also, two third polled in for television as the most used form of media, although schools and friends were their first source of knowledge about HIV.

Many studies have revealed that members of the general public hold negative prejudicial and discriminatory attitudes towards person with HIV. Similar trait has also been noted in our study. While reporting their attitudes towards HIV positive person, half of them sympathize towards someone infected with HIV, though they had never interacted with an HIV person dead or alive. Where male respondents were not so sure when it came to whether they would care for their HIV infected siblings, but females were of the opinion that they definitely would do so. Also, two out of five males were of the opinion they will leave the spouse if she was infected with HIV, while bulk of the females responded they would ask him to stay at other place. At the same time, majority were not sure whether to reciprocate if an HIV infected person invited him/her to his/her place. More than half of the respondents were also of the opinion that they won't feel that comfortable working with an HIV colleague. They also believed it's the person fault if he/she acquired it by unsafe sex but at the same time they also considered that it was not the person fault if he/she acquired it at the time of blood transfusion. More than half of the respondent conceived HIV as a form of punishment from God and, they were also of the opinion, HIV infected person are promiscuous. Also, every second respondent polled in that they would be ashamed if infected with HIV and that people with HIV should be ashamed of themselves. Likewise, more than half of them responded that they would be ashamed if anyone in their family had HIV and preferably would want it to keep a secret, having fear mostly of being verbally abused. Multiple studies have also found that participants do not perceive HIV infection as very likely to happen to them. As noted in our study majority of them had never tested for HIV, as they perceived that they did not feel at risk.

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Conclusion

Overall adult Bodo's have a fairly good knowledge regarding HIV/AIDS, but negative attitude towards HIV and HIV infected persons still persists. Cultural and religion, though two different constructs, have been shown to play a crucial role in human decision making and behaviour. These two constructs are significant to individuals within a community as well as to the community as a whole and thus the influence it has, on views towards ill-health and risk behaviour particularly sexual behaviour could be a possible explanation for such kind of negative attitude outcome.

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Regional Disparities on the Performance of National Rural Health Mission: A Case Study in Mizoram.

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Introduction

National Rural Health Mission is a health care system which was introduced to provide accessible, accountable, and affordable quality health care system in rural and remote areas. The Indian Government, after independence has made it a priority to develop rural areas and since then the health sector has become an integral part of the socio-economic development plan. The planning commission was established in the year 1950 and from then on the phase of health planning was started. Various health care schemes and policies have been introduced in the country through Public Health Care system. As a result, various Experts Committees were also formed and based on their reports, different recommendations were done on different sectors such as Primary Health care as suggested by Bhole committee, Programme based approach by Mudaliar Committee to control Communicable diseases, family planning by Mukherjee Committee, creations of multipurpose health workers and female health workers by Kartar Singh Committee. However, with the progress in the development of health care system we see a shift from committee based programme to a policy based approach and in the year 1983, National Health Policy was formed. The major goal was to provide universal and comprehensive primary health care in the country. Reproductive and child health (RCH-Phase I) programme was launched in 1997. RCH-Phase II was again launched in 2005 along with National Rural Health Mission.

With the launch of different public health care programmes there has been a remarkable expansion of health infrastructure, Primary Health Centres were established throughout the country with a focus on free medical services to all. Since then efforts have been made to tackle several health related issues such as Population Control, Family Welfare, Maternal and child Health, Rural Health, Health Education, Strengthen Man Power, Control of communicable and non-communicable diseases, Nutrition and Community Health.

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Though the governments have undertaken various developmental plans to improve the public health care system, the level of performance in many of the states have not reach the desire level till date. These is mainly because of the fact that, India being a country with more of rural population and many of the villages are located in remote places which makes it difficult for them to access the public health care facilities that has been provided to them by the Government.

National Rural Health Mission

National Rural Health Mission was launched on 12 April, 2005 to provide effective health care to rural population especially to the selected 18 states which have weak public health indicators or weak infrastructure. The mission of the programme is to established a fully functional, community owned, decentralized health delivery system through a District Plan for Health, organizational structural reforms in health sector, inter-sectoral convergence, public and private partnership in health sector. It seeks to address the inter-state and inter-district disparities. It has as its key components provision of a female health activist in each village in the country with a trained female community health activist ASHA or Accredited Social Health Activist.; a village Health plan prepared through the local team headed by Village Health, Sanitation and Nutrition Committee (VHS&NC), strengthening of the rural hospitals, integration of vertical Health and family Welfare Programmes and Funds for optimal utilization of funds and infrastructure and strengthening delivery of primary health (NRHM, 2005-2012).

The key goal of the programme is to reduce infant mortality rate (IMR) and maternal mortality ratio (MMR), Total Fertility rate (TFR), prevention and control of communicable and non-communicable diseases including locally endemic diseases. Population stabilization, gender and demographic balance are also a part of the mission. It also aims at effective integration of health concern with determinants of health such as sanitation and hygiene, nutrition and safe drinking water. To revitalize local health traditions and mainstream AYUSH into public health system is also one of the visions of the programme. It seeks to improve access of rural people, especially poor women and children, to equitable, affordable, accountable and effective primary health care. (NRHM, 2005-2012).

The Mission attempts to achieve these goals through a set of core strategies including enhancement in budgetary outlays for public health, decentralized village and district level health planning and management, appointment of Accredited Social Health Activist (ASHA), strengthening existing PHCs, CHCs to meet the required public health facilities as per the Indian Public Health Standards (IPHS), strengthening sub-centre through Multi Purpose Workers (MPWs), strengthening capacities for data collection, assessment and review for evidence based planning, monitoring and supervision. (NRHM, 2005 – 2012).

Some of the activities under NRHM are as follows:

- Village Health Sanitation and Nutrition Committee.
- Accredited Social Health Activist (ASHA)
- Rogi Kalyan Smaitis (RKS)
- Mobile Medical Units
- National Ambulance Services

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- Janani Suraksha Yojana (JSY)
- Janani Shishu Suraksha Karyakarm (JSSK)
- Rashtriya Bal Swasthya Karyakram (RBSK)
- Mother and Child Health Wings (MCH Wings)
- Free Drugs and Free Diagnostic Service
- District Hospital and Knowledge Center (DHKC)
- National Iron+ Initiative

National Rural Health Mission in Mizoram

Mizoram is one of the states of North East India having international boundaries with Bangladesh and Myanmar to the South. The Northern part shares domestic boarder with Assam, Tripura and Manipur. Mizoram is situated between 23°36'2 N latitude and 93°00'2 E longitude and covers an area of approximately 21,087 square kilometres. Aizawl is the state capital and there are eight districts in the state. There are different tribes and ethnic tribes living in the state of Mizoram.

Before independence and before the enlightenment of Christianity, people believed in the practice of traditional medicine using herbs and other wild plants found in the state. The traditional medical practices appeared to be more dominant in the backward districts whereas modern health care facilities are more prevalent in the developed districts. With the introduction of modern education, people are now aware of the importance of availing the free health care system that has been provided to them as a part of the decentralized rural development programmes

National Rural Health Mission was started in Mizoram during the year 2005 in all the districts. The implementation of National Rural Health Mission has provided opportunity to carry out necessary improvement in the health sector especially in the rural areas which have weak public health indicators, weak infrastructure and manpower. There has been a remarkable improvement in the health sector after NRHM was introduced in Mizoram. However, the performance in some of the districts has not reached the desired level and therefore this directly brings down the overall performance of the state. GOI Categorized all Districts based on Standard Criteria in terms of IMR, MMR and RMNCH+A services deliveries etc, those district activities below standard criteria are categorized as "High Prioritized Districts". In Mizoram, we have 4 High Prioritized Districts, viz: Lawngtlai, Lunglei, Mamit and Saiha Districts (RMNCH+A, 2013).

Objectives

- To assess the regional disparities on the performance of NRHM.
- To study the service delivery mechanism of NRHM.

Methodology

The present study was conducted in Mizoram. The study consists of the eight districts in the state. They are: Aizawl, Champhai, Kolasib, Lawngtlai, Lunglei, Mamit, Saiha and Serchhip districts. These eight districts have been selected to study the over-all performance

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of NRHM in Mizoram. The major health indicators that have been used in this study to assess the regional disparities in the performance of NRHM are evaluating the performance of Infant Mortality Ratio (IMR) and Mother Mortality Ratio (IMMR). To study the service delivery mechanism of NRHM, a survey on the number of Public Health Care Facilities in terms of District Hospitals, Sub-Divisional Hospital, Community Health Centre, Primary Health Centre and Sub-Centre was also conducted. The involvement of civil society, community level workers as well as local governing bodies was also included in the study to understand the process of social mobilization in bringing the people together to participate in the programme.

The study is based on secondary sources of information.

- Secondary sources: Published and unpublished books, articles, journals, newspapers, census reports etc.

Collection of data was done fulfilling the objectives of the study. To assess the regional disparities on the performance and to study the service delivery mechanism of NRHM, data was collected from Health Department dealing with NRHM using their district report and census report.

Regional Disparities on the Performance of NRHM in Mizoram

The implementation of National Rural Health Mission has provided opportunity to carry out necessary improvement in the health sector especially in the rural areas which have weak public health indicators and weak infrastructure. The decentralized planning process of NRHM has made it easier to access public health care facilities for the poor and marginalised section in the society. Therefore, it is the right of every citizen to avail the health care scheme which has been provided by the Government to improve the health condition of the nation as a whole as a part of the national rural development programme. Many of the health programmes under National Health Mission have been channelized under this mission, making it imperative to evaluate the health outcomes under NRHM.

Table - 1 : Health Indicators and Demographic profile of Mizoram in comparison with the Nation

S/N	Item	Mizoram	India
1.	Total Population (2011 Census)	1,091,014	1,210,569,573
2.	Scheduled Tribe Population (2011 Census)	94.5	8.2
3.	Literacy Rate (2011 Census)	93.72	74.04
4.	Infant Mortality Rate (SRS 2013)	35	40
6.	Maternal Mortality Ratio (HMSIS 2012-2013)	61	178

Source: Census 2011 and Health and Family Welfare Department- NRHM, Mizoram

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From the above table we are able to understand that the number of population in Mizoram is comparatively low as compared to the total population in India. The scheduled tribe population clearly indicates that majority of the people living in the state belong to the 'Scheduled Tribe'. The literacy rate in the state is at 93.72 % which is very high as compared to the total literacy rate in the country. The infant mortality rate is at 35 while the nation is at 40. Maternal Mortality ratio of India is 178 and Mizoram is at 61.

Table-2 : District wise Distribution of Population in Mizoram

Sl. No	Districts	Persons	Persons Male	Persons Female	Sex Ratio	Density /Km	Literacy Rate
1	Aizawl	404, 054	201,072	202,982	1009	113	96.51 %
2	Lunglei	154, 094	79,252	74,842	944	34	84.17 %
3	Champhai	125, 370	63,299	62,071	981	39	91.15 %
4	Lawngtlai	117, 444	60,379	57,065	945	46	67.16 %
5	Mamit	85, 757	44,567	41,190	924	28	79.14 %
6	Kolasib	83, 054	42,456	40,598	956	60	91.34 %
7	Serchhip	64, 875	32,824	32,051	976	46	95.18 %
8	Saiha	56, 366	28,490	27,876	978	40	82.90 %

Source: Census 2011

The above table shows the district wise distribution of population in Mizoram as well as the district- wise literacy rate. We see here that Lawngtlai district has the lowest level of literacy rate with only 67.16%. The highest literacy rate is recorded in Aizawl with a percentage of 96.51. The level of education also plays an important role in improving the performance of NRHM in the state. The 4 High Prioritized Districts, viz: Lawngtlai, Lunglei, Mamit and Saiha districts are all below 90% which clearly shows that the level of education is poor as compare to the other districts in the state.

Lawngtlai and Saiha district have their own Autonomous District Council, the inhabitants of these two districts are the major tribes of Lai and Mara and they follow their own culture and traditions. Other indigenous inhabitants in the district are the Bru, Chakma, Pang and Bawm who are the sub- tribes found in the western rural areas of Lawngtlai district. The inhabitants of western rural areas of Lunglei district are mainly Chakma, Bru and Bawm. Chakma and Bru are also found in the rural areas of Mamit district. They speak different dialect and possess different social and cultural traditions which make it difficult for the medical team to communicate and make them aware of the benefits of the programme. Here we find the practice of traditional medicine more prevalent than any other district in the state.

TRIBAL HEALTH**Table - 3 : District-Wise Number of Hospitals and Health Care Facilities in Mizoram:**

S/N	Districts	Hospitals		District Hospital	Sub-Divisional Hospital	CHCs	PHCs	Sub-Centres
		Govt.	Private					
1	Aizawl	4	11	1	1	2	10	94
2	Champhai	1	1	1	0	2	11	59
3	Kolasib	1	1	1	0	1	5	30
4	Lawngtlai	1	1	1	0	1	6	37
5	Lunglei	1	1	1	1	1	9	71
6	Mamit	1	-	1	0	1	7	29
7	Saiha	1	1	1	0	0	4	24
8	Serchhip	1	-	1	0	1	5	26
	Total	11	16					
Total				8	2	9	57	370

Source: H&FW Dept, Mizoram and Statistical Handbook, Mizoram 2014

The above table has given us a clear insight on the present condition of infrastructure in the eight districts as far as Public Health care facilities are concerned. We see that all the eight districts have one district hospital each. Aizawl and Lunglei are the only two districts which have Sub-divisional Hospital. In Aizawl and Champhai district there are two Community Health Centres each while the rest of the districts have one. Aizawl district have the highest number of Primary Health Centres while Saiha has the lowest number. We also found that a good number of Sub-Centres are functioning in all the eight districts.

Aizawl district has the highest number of Government as well as private hospital and health centres among the eight districts. Saiha has the lowest number of hospitals and health care centres. Availability of health care facility is one of the main factors which affect the performance of NRHM especially in the rural areas.

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Table-4 : District-wise Performance of Infant Death and IMR in Mizoram:

S/N			2011-2012		2012-2013		2013-2014	
	Districts	Population	No of Infant Death	IMR	No of Infant Death	IMR	No of Infant Death	IMR
1	Aizawl	413190	103	26	253	59	351	75
2	Champhai	136270	102	42	55	24	53	22
3	Kolasib	83363	50	33	40	27	50	35
4	Lawngtlai	63970	62	31	49	28	57	35
5	Lunglei	131671	122	44	76	26	68	25
6	Mamit	151328	36	26	14	12	24	21
7	Saiha	76333	116	81	63	46	107	79
8	Serchhip	59472	55	50	40	36	28	31
	Mizoram							

Source: State HMIS: Health and Family Welfare Department- NRHM, Mizoram

The above table shows the district wise performance of Infant death and Infant Mortality rate from the year 2011 to 2014. In Lunglei district, we see the performance improving and the numbers have gone down from 122 (2011 – 2012) to 68 (2013-2014). Champhai, Kolasib, Lawngtlai and Serchhip are the average performing districts. Among the eight district the best performing district is Mamit with 36 infant death (2011 – 2012) and going down to 24 (2013 -2014).

In Aizawl district we see the number going up from 103 (2011 – 2012) to 351 (2013-2014). Saiha district has the highest number of infant death though we see a remarkable change in the number (63) in the year 2012-2013. However, the number again rose to 107 in the year 2013-2014. This clearly indicates that the level of people's participation is poor and that people need to be made aware of the benefit of the programme in order to improve the performance in the district.

TRIBAL HEALTH**Table-5 : District – Wise Performance of Maternal Death and MMR in Mizoram:**

S/N			2011-2012		2012-2013		2013-1014	
	Districts	Total Population	No of Maternal Death	M M R	No of Maternal Death	M M R	No of Maternal Death	M M R
1	Aizawl	413190	2	47	4	102	4	88
2	Champhai	136270	2	82	1	43	2	83
3	Kolasib	83363	1	66	3	202	0	0
4	Lawngtlai	63970	1	53	2	115	4	248
5	Lunglei	131671	2	72	1	34	2	74
6	Mamit	151328	2	142	0	0	1	87
7	Saiha	76333	1	70	1	73	2	147
8	Serchhip	59472	1	91	1	90	1	110

Source: State HMIS: Health and Family Welfare Department- NRHM, Mizoram

From the above table, we are able to understand that there is a huge difference in the performance of NRHM in the eight districts. Aizawl district has the lowest level of maternal death as compared to other districts. The performance of Champhai, Kolasib, Mamit and Serchhip is quite acceptable.

Lawngtlai district has the highest maternal death, followed by Saiha district. In Lawngtlai district we see the number of maternal death going up from the year 2011 to 2014, the same goes for Saiha district as well. The performance in Lunglei district went down from 72 (2011-2012) to 34 (2012-2013). However, we see the number rising to 74 (2013-2014). These three districts comes under the 'High Prioritized District' as the performance does not seem to improve and it needs better attention by the officials in order to improve the performance.

Role of civil society organization

National Rural Health Mission being implemented as a decentralized form of governance has provision for the involvement of civil society and NGOs, to conduct monitoring and evaluation. The role of these social organizations is to be in close contact with communities on health related issues, to be a part of various monitoring committees, giving suggestions regarding improving the functioning of public health system. NGOs with experience of capacity building are to conduct orientation for committee members about

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the process of community based monitoring. It also the duty of NGOs and Community Based Organisations to contribute the collection of information relevant to the monitoring process at all levels from the village to state level.

As a part of the social mobilization process, in all the villages in the state, village council and its members, women welfare association, Non-Government organization, community level workers are effectively taking part in the programme.

Village Health Sanitation and Nutrition Committee

The Committee has been formed in all the villages in the state. The Committee comprises of a minimum of 15 members, elected members of village council as leader of the committee. All those working for health and health related services, community members, beneficiaries and representation from all community are all a part of the committee. It is the duty of the committee to take collective action on health related issues. They are particularly envisaged as being central to 'local level community action' under NRHM, which would develop to support the process of Decentralised Health Planning. Thus the committee is envisaged to take leadership in providing a platform for improving health awareness and access of community for health services, address specific local needs and serve as a mechanism for community based planning and monitoring (H&FW: NRHM, Mizoram 2013). ASHA residing in the village are the member secretary and convener of the committee.

Accredited Social Health Activist

As a part of the NRHM programme, every village have been provided with ASHA. ASHA is a trained female health activist selected from the village itself, the duty of an ASHA is to create awareness on health and its social determinants and mobilise the community towards local health planning.

In all the villages in Mizoram ASHAs have been selected and trained. At present there are 987 trained ASHAs in the state.

Suggestion and Conclusion

National Rural Health Mission has been introduced in the country at a decentralized form of Government emphasising more on the participation of the local people in the development programme as the people themselves knows what is best for them. With the introduction of NRHM necessary reforms have been taking place within the state and there has been a remarkable improvement in the health sector.

In some of the backward districts in Mizoram, the performance has not reached the desire level. The government has been trying its best to implement the programme looking at the basic necessities of the rural people as far as health related issues are concerned. One of the major issues is that, in some of the rural areas, people still follow their traditional medicinal practices and are bound under their religious values and beliefs making it hard for them to accept the modern medical practices which they feel are against their traditional practices. The low level of education in some of the districts, especially among women,

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gender discrimination, and unhealthy lifestyle reduce the level of maintaining proper health care in the community. The weak primary health-care system not only contributes to high Infant Mortality Rate (IMR), high Mother Mortality Ratio (MMR), it also deprives the population of a potentially effective source of quality health care system. The poor conditions of rural roads, poor telecommunications system, lack of staff, no proper systematic monitoring and evaluation are also one of the main hindrance in achieving the programme goals and objectives.

However, in order to improve the performance of NRHM in the state, level of people participation has to improve, better social mobilization by community level workers, the officials as well as NGO's is needed. People should be well informed about the various benefits of the programme. This would require better awareness campaign, counselling and trainings. People should organise themselves to take action collectively by developing their own plans and strategies rather than being imposed from outside. As such, this requires some of the members in the society to take the initiatives to organise themselves as social mobilization staff in convincing the people to take part in the programme.

It is important to understand the needs and behaviours of a particular community keeping in mind the control and conduct of their domestic life, religion, social beliefs, values and traditions that are follow. Understanding such needs would make them feel included in the developmental programmes and it would be easier to bring them together to participate in the programme which would directly improve the level of performance of NRHM in the state.

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Reproductive Health Awareness among Bodo Women of Assam

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Introduction

Health is an important determinant of a person's quality of life. It is a subjective as well as objective evaluation of the physical, mental and social status (Kurukshetra, 2008). It has always been a major concern of community development and also essential for a balanced development of the individual within the family and as part of the community of the nation (Poverty, Health and Development, 2009). According to the World health Organization (WHO), health is "a state of complete physical, mental and social well being not merely the absence of disease or infirmity". The most important period of women's life is reproductive period. Reproductive health of the women means that they have the ability to reproduce and to regulate their fertility; and are able to undergo pregnancy and child birth safely. Reproductive health is one of the major issues today. It has come into focus primarily due to reasons-firstly the fact that population control policies are being enforced through women's bodies as they are seen as cause and solution for population growth and secondly because problems such as Human Immunodeficiency Virus (HIV) and Acquired Immuno Deficiency Syndrome (AIDS), Sexually Transmitted Infection (STIs), adolescent pregnancies, Reproductive Tract Infections (RTIs), maternal and child mortality and morbidity are alarmingly increasing. And the increasing of such problems highlight the urgent need for appropriate and effective interventions of sex related matters and access to reproductive health services and information (Yadav, Naresh, Women & Reproductive Health). Thus, to improve women's status there is a need to improve the health status of women, particularly tribal women who are the more vulnerable group in Indian society and to improve the health status, women themselves must be aware about the health related issues, services and programmes. Since, awareness or knowledge leads to action and provides inputs for changing health behaviors of the people by giving new information motivating for adopting new behaviors and stopping harmful practices.

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The present paper is an attempt to analyze the level of awareness regarding reproductive health related issues and utilization of reproductive health care services among Bodo women. The Bodos are one of the most important tribes of the North-Eastern India, particularly Assam. They belong to the Indo-Mongolian group of tribes who have been generally designed as kiratas. Bodos are living in a scattered manner throughout the North-Eastern region of India and some small Bodo group are living outside in India also like Burma, Nepal, Bangladesh, Sikkim and Bhutan. They are now largely concentrated in Bodoland Territorial Autonomous Districts (BTAD), consists of four districts, Assam.

Review of Literature

Basu, S.K. (1993), in the article 'Health Status of Tribal Women in India', found that the health status of the tribal women can be ascertained through several parameters like fertility, mortality, maternal and child health care practices, sexually transmitted diseases, etc. where the health status of tribal women is found to be lower than that of the Indian women in general on most of these aspects and the study also found lack of awareness regarding health among the tribal women which should be improved.

Meitei, M.H. K. *et al*, (2005), in their article 'Awareness and Prevalence of Reproductive Tract Infections in North-East Districts of India' revealed the awareness level of both males and females regarding Reproductive Tract Infections (RTI's) and found that males and females had a higher level of awareness of RTI only in a few districts out of the total districts of North-eastern states of India which shows lack of awareness among both male and female regarding RTIs and its associated risks in the region.

Chandraker, *et al*, (2009), in their article 'A Study of Reproductive and Child Health among Dhur Gond Tribal Community of Mahasamund District Chhattisgarh, India' the attempt was made to understand about the pregnancy related women reproductive health, infant and child mortality and also to assess the nutritional status of mother and children under the age five among Dhur Gond tribal community of Mahasamund district of Chhattisgarh, India and the study found that poor health status during child bearing period, low ante-natal care, high prevalence of malnutrition under age five of children and mothers due to low socio-economic condition, high illiteracy and lack of awareness.

Chakraborty, S. and Hajorika, P.J. (2011), in the article 'Misconception and Knowledge Regarding HIV/AIDS Among Married Women in the Reproductive Age Group in Assam, India' studied the level of knowledge among the married women about the epidemic HIV/AIDS and the impact of some socio-demographic factors viz. caste, locality and education etc. which plays a significant role in clearing concept and gathering knowledge about HIV/AIDS in Assam, India. The study reveals that rural, ST, and Muslim are the most vulnerable section of the population.

Rajasekhar K. (2012), in the article 'Awareness and Reproductive Health Practices among Rural Women in Andhra Pradesh: A Study', an attempt was made to find out the problems that rural women had experienced during their reproductive span to understand the complete picture of their reproductive health. The findings of this study highlight the need to educate women regarding the symptoms and consequences of reproductive health problems and the urgent need to expand counseling and reproductive health services especially in rural areas, particularly in the public sector.

Methodology

The present study has been conducted at No.2 Barigaon village under Udalguri district of Assam. The total population of the village is 1780, out of which 909 are males and 871 are female. Among 1780 total population, 1589 are Bodo (ST) population, (female 770) and (male 819), (Department of Economics and Statistics, Assam, 2011). Again, among the total 770 female populations, 362 are married women. Out of the 362 married women 150 women has been selected as sample of the study by using simple random sampling

Sources of Data Collection

The present study is exploratory in nature. Data for the present study has been collected by using both primary and secondary sources of data collection. Primary data has been collected from the field i.e. No. 2 Barigaon village through interview schedule along with the focus group discussion. The secondary data has been collected from books, journals, newspapers, hospital records and governmental reports like DLHS, NFHS, Census report, etc.

Socio-demographic Characteristics of the Respondents

The analysis of socio-demographic characteristic of the respondents shows about the religion, educational qualification, occupations, types of houses, ownership of agricultural land by the respondents' household, total size of agricultural land and monthly household income of the respondents.

Table 1 Socio-demographic Characteristic of the Respondents

Socio-demographic Characteristic	Characteristics	Frequency	Percentage (%)
Religion of the respondents	Christianity	37	24.7
	Hinduism (Bathou)	113	75.3
	Total	150	100
Educational qualification of the respondents	Illiterate	42	28
	Primary	39	26
	High school	57	38
	Higher secondary	09	06
	Graduate	03	02
	Total	150	100
Types of houses of the Respondents	Pucca	12	8
	Semi-pucca	25	16.7
	Katcha	113	75.3
	Total	150	100
Occupation of the Respondents	Private Job	01	0.7
	Government job	02	1.3
	Unskilled worker	46	30.7
	Housewives	101	67.3
	Total	150	100

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Ownership of agricultural land by the Respondents' Household	Yes	102	32
	No	48	68
	Total	150	100
Total size of agricultural land of the Respondents' Household	0-5 bighas	21	20.6
	6-10 bighas	39	38.2
	11-15 bighas	24	23.5
	16-20 bighas	10	9.8
	21-25 bighas	05	4.9
	26-30 bighas	03	2.9
	Total	102	100
Monthly Household Income of the Respondents	Below 5,000	48	32
	5,000-10,000	83	55.3
	10,000-15,000	12	08
	15,000 and above	7	4.7
	Total	150	100
Age at marriage of the Respondents	Below 18	34	22.7
	18-23	71	47.3
	24-29	43	28.7
	30-35	02	1.3
	Total	150	100

Source: Field study

The analysis of socio-demographic characteristics indicates that there were two religious groups of people in the village one is Christianity and another one is Hinduism following the traditional religion of the Bodos called Bathou religion. But majority (75.3 percent) of the respondents was following Bathou religion.

The distribution of women according to the educational qualification reveals that more than one-third (38 percent) of the respondent were educated up to high school level followed by 28 percent who were totally illiterate and little more than one-fourth (26 percent) of the respondents were educated only up to primary level; very less (6 percent) were educated up to higher secondary and few (2 percent) of the respondents were educated up to graduate level. Majority (75.3 percent) of the respondents' type of houses were kachcha made by both bamboo and mud and roofed with tin or thatches. Among the respondents, 67.3 percent were housewife engaged in household activities; 30.7 percent were unskilled worker; very less (1.3 percent) of the respondents were doing government job and 0.7 percent of them were doing private job. Though majority (68 percent) of the respondents' household has agricultural land, but 82.3 percent of them owned only in between 5 bighas to 15 bighas of agricultural land. Majority (87.3 percent) of the respondents' monthly household income were in between less than 5,000 to 10,000 in the village.

The data regarding age at marriage of the respondents shown in the table 1 indicates that almost half (47.3 percent) of the respondents were married under the age group of 18-23 followed by 28.7 percent which age at marriage was under the age group of 24-29 and 22.7 percent were married below age 18, and only 1.3 percent of the respondents were married under the age group of 30-35.

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Knowledge related to Reproductive Health Issues

Awareness regarding reproductive related health issues may prevent from many health problems related to it and can stop harmful practices. Knowledge related to reproductive health issues analyses the attendance of health awareness programme by the respondents, Knowledge about RTI/STI and HIV/AIDS, knowledge about modes of transmission regarding HIV/AIDS, family planning method and reproductive health programmes.

Table -2 : Awareness regarding Reproductive Health related Issues

Awareness regarding Reproductive Health related Issues	Characteristics	Frequency	Percentage (%)
Ever attended health awareness programme	Yes	59	39.3
	No	91	60.7
	Total	150	100
Knowledge of RTI/STI	Yes	18	12
	No	132	88
	Total	150	100
Knowledge of HIV/AIDS	Yes	49	32.7
	No	101	67.3
	Total	150	100
Knowledge regarding the mode of transmission of HIV/AIDS	Sexual intercourse with a HIV positive partner	49 (49)	100 (100)
	HIV positive mother to child through breast feed, pregnancy	48 (49)	98 (100)
	Receiving Blood transfusion, blood products that are contaminated with HIV	38 (49)	77.6 (100)
	Sharing needles, syringes with someone who has HIV	32 (49)	65.3 (100)
Knowledge of family planning method	Yes	82	54.7
	No	68	45.3
	Total	150	100
Knowledge of reproductive health awareness programme	NRHM	137 (150)	91.3(100)
	JSY	113 (150)	75.3(100)
	RCH	05 (150)	3.3(100)

Source: Field study

Table 2 indicates the analysis of knowledge related to reproductive health issues. Here, it is found that most (60.7 percent) of the respondents have never attended health awareness programme. There is also found low level of awareness regarding the RTIs/STIs

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and HIV/AIDS which was 12 percent and 32.7 percent respectively. Among the respondents who have knowledge about HIV/AIDS, all (100 percent) of them knows that HIV/AIDS transmit through sexual intercourse with a HIV positive partner; 98 percent knows that it spread from HIV positive mother to child through breast feed and pregnancy; 77.6 percent of the respondents knows that it spread through receiving Blood transfusion, blood products that are contaminated with HIV and 65.3 percent of the respondents knows that one can get HIV/AIDS through sharing needles, syringes with someone who has HIV.

Moreover, the study found more than half (54.7 percent) of the respondents to be conscious about the family planning method in the village. Regarding the knowledge of reproductive health programmes almost all (91.3 percent) of the respondents were aware about the National Rural Health Mission (NRHM); 75.3 percent were aware about the Janani Suraksha Yojana (JSY). But there were only a few (3.3 percent) of the respondents who were aware about the Reproductive and Child Health (RCH) programme.

Utilization of Reproductive health Care services

Utilization of reproductive health care services analyze about the antenatal checkup, times of antenatal checkup taken and place of deliveries of the respondents during last child. Antenatal attendance has the direct and significant influence on the health and reproductive behaviour of mothers including safe delivery and survival condition of children.

Table -3 : Antenatal Care taken by the respondents during last pregnancy

Types of antenatal care	Utilization of Antenatal Care by the respondents				Total
	Yes		No		
	Frequency	Percentage (%)	Frequency	Percentage (%)	
Antenatal checkup	109	74.1	38	25.9	147 (150)
Iron Folic Acid tablet	98	66.7	49	33.3	147 (150)
TT vaccination	101	68.7	46	31.3	147 (150)

Source: Field study

Table 3 reveals that among the respondents who have ever experienced pregnancy, majority (74.1 percent) have received antenatal checkup; again it is found that most (68.7 percent) of the respondents have received TT vaccination during their last pregnancy and 66.7 percent of the respondents have received Iron Folic Acid tablets during their last pregnancy.

Table - 4 : Place of Delivery of the Respondents last childbirth

Characteristics	Frequency	Percentage (%)
Private nursing home	08	5.7
Home	30	21.4
Government hospital	102	72.9
Total	140	100

Source: Field study

Table 4 indicates the place of delivery of the last childbirth of respondents. It shows that the respondents who have ever delivered child, majority (72.9 percent) of the respondent's place of delivery of the last childbirth were in government hospital; 21.4 percent of the respondent's place of delivery of the last childbirth were at home and only few (5.7 percent) of the respondents were delivered in private nursing home. All the respondents who have delivered their last child at home were assisted by old village women, family members, neighbours and friends during their child birth.

Thus, utilization of reproductive health care services showed in the Table 3 and Table 4 reveals that a good number of respondents utilizing the reproductive health care services in the village. Majority of them were found receiving antenatal care and delivering their child in government hospital.

Conclusion

The awareness regarding reproductive health related issues and utilization of reproductive health care services by the Bodo women are being highlighted in the present paper. Socio-demographic characteristics like region, education, occupation, income, age at marriage play a crucial role in maintaining the health and access to health related information. The study reveals lack of higher qualification among women in the village and majority of the respondents were housewives engaged in household activities. Majority of the respondents were married at their early age and some of them even before they reached at the marriageable age of 18 years. Health facilities like Primary Health Centre (PHC), district hospitals are far away from the village. Although health awareness programme is organized in the village but it is not organized frequently. The study found less awareness regarding RTI/STI and HIV/AIDS as most of the respondents were less educated and illiterate confined mainly to the household work and there is a lack of access to mass media among them which bound to be lack of access to health related information. But the study found to have a positive influence of ASHA workers, reproductive health programmes like National Rural Health Mission (NRHM), Janani Suraksha Yojana (JSY) on women in the area. Awareness about NRHM and JSY were also found to be high with the knowledge regarding the benefits covered under the schemes such as delivery care, cash incentives for institutional deliveries and free of cost institutional deliveries in the village and they are receiving these services. Still, there is a need to make the village women more aware regarding the reproductive

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health related issues, services and programmes. Health awareness programme should be organized frequently in the area. Women should be empowered educationally and economically so that they can take decision for their own betterment especially in rural area.

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Automated Segmentation Challenges in Detection of Cervical Cancer in the Tribals Of Tripura

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Dipanwita Banerjee

Introduction

Cervical cancer, one of the most common cancer inflicting women worldwide and the most common in developing countries [1] can be cured in almost all patients, if detected by high quality screening and treated. According to WHO [1],[2] every year in India alone there are 1 lakh 30 thousand women who are affected with cervical cancer. According to Chittaranjan National Cancer Research Institute's Cancer Registry Program [3], in the state of West Bengal, out of every 1000 women, aged between 30 to 60 yrs old, 18 are affected by Cervical cancer. To detect cervical cancer, the state does not possess the required infrastructure. Hence the real numbers of affected cervical cancer patients are still unknown. With lack of awareness and treatment, the deadly disease gets detected only in the Final Stage (i.e. CIN-3) of Cervical Cancer. Due to cervical cancer alone, 80,000 women die every year in our Country. However, cervical cancer incidence and mortality remain high in resource-poor regions, where high quality Pap (Papanicolaou smear) screening programs [4] often cannot be maintained because of inherent complexity and cost. An alternative method of cervical cancer screening, called visual inspection with acetic acid [5] is based on color change of cervix tissues when exposed to acetic acid. This inexpensive method helps to detect abnormal cells that turn white (acetowhite) following the application of 3%-5% acetic acid [6]. An analogous photographic method that permits archive and study is cervicography.

Cervicography or Colposcopy was first described by Dr. Stafl in 1981. In this method the uterine cervix is photographed with a special fixed-focus 35mm camera equipped with a ring flash that is used to provide enhanced illumination of the target region. Figure 1 shows the site of colposcopy and figure 3 shows a cervicographic image. During the image acquisition process the photographer manually moves the camera back and forth to get the image in focus.

The fixed focus of the camera preserves a constant distance between the camera and the cervix, which allows to have comparable pictures of the cervixes of all patients and to perform measurements of areas within the cervix. This is shown in figure 2. Immediately before the

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pictures are taken the cervix is washed with 3%-5% acetic acid for one minute. The acetic acid facilitates the removal of any remaining mucus and highlights the abnormal epithelium.

Later, an expert in cervical pathology projects those pictures onto a screen to get a magnified image of the cervix, where he can look for different characteristics of the infected or pre-cancerous epithelium. Invasive squamous-cell cervical cancers are preceded by a long phase of pre-invasive disease, collectively referred to as cervical intraepithelial neoplasia (CIN). Pap smear analysis and colposcopy reports are all based on a medical terminology system. There are two types of reporting systems used. The old system reported on five classes of results, which were Class I to Class V representing Normal, Cervical Intraepithelial Neoplasia (CIN) I, CIN II, CIN III and Cancer. The new and commonly used system is called The Bethesda System (TBS). TBS categorizes the Colposcopy or Pap smear analysis into two categories; normal and abnormal. The abnormal cervical cells are classified into two types; low-grade squamous intraepithelial lesion ((LSIL) which is called CIN I in the old system. Similarly, under the old system, the high-grade squamous intraepithelial lesion ((HSIL) is called CIN II, CIN III, or CIS)[77]. CIN may be categorized into grades I, II and III depending upon the proportion of the thickness of the epithelium showing mature and differentiated cells. Visual characteristics such as whitening of the infected regions, the vascular patterns within them and their margins can be used to define the CIN grade.

For epidemiologic investigations, a cervigram resembles a low-magnification colposcopic image. When additional screening techniques are available, visual methods like cervicography may be used at the initial examination level and patients with indicators of concern are then referred to colposcopic and/or Pap smear screening, or to treatment. Alternatively, DNA testing for a major risk factor for cervical cancer, human papillomavirus (HPV) infection, could be used as a primary screen with visual triage.

The US National Cancer Institute (NCI) of National Institutes of Health (NIH), has collected a substantial amount of biomedical information related to the occurrence and evolution of uterine cervical cancer in longitudinal multi-year studies carried out in Guanacaste, Costa Rica, and in the United States. The Guanacaste Project [7] is an intensive 7-year population based cohort study of HPV infection and cervical neoplasia among 10,000 women in Guanacaste, where the rates of cervical cancer are perennially high. The ASCUS-LSIL Triage Study (ALTS)[8] conducted in the United States, is a randomized clinical trial of management strategies for minor

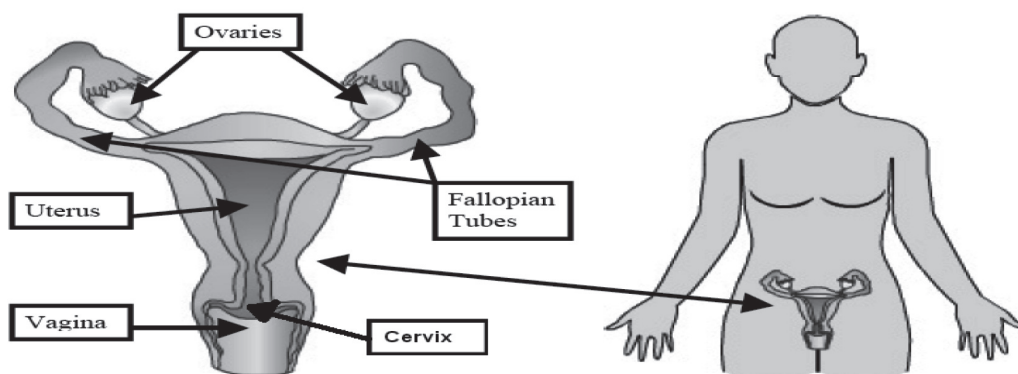


Figure 1- Site of Colposcopy

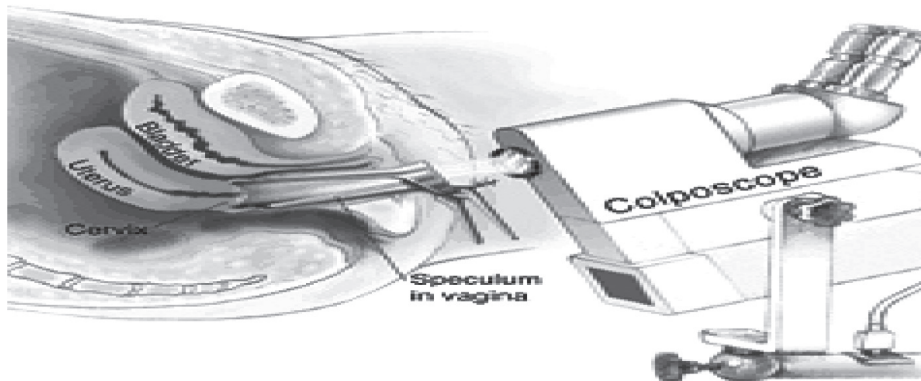


Figure 2- Digital Colposcope and image acquisition site

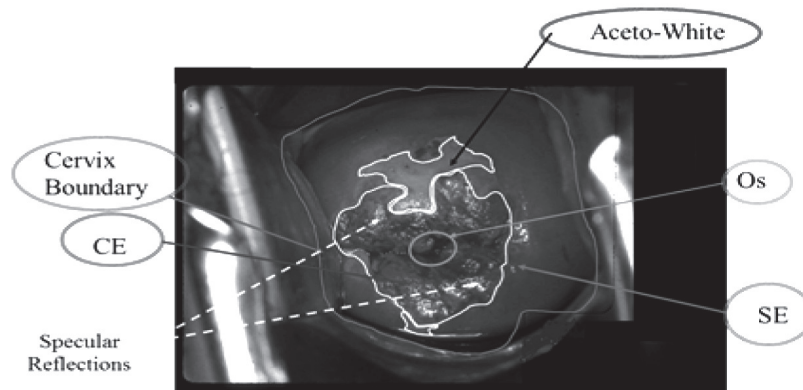


Figure 3- A typical Cervigram: marked are the cervix region, the columnar epithelium (CE), the squamous epithelium (SE), the acetowhite (AW), the entrance to the endocervical canal (Os) and the specular reflection artifacts.

Cervical cytological abnormalities, with two years of semi-annual follow-up. State-of-the-art visual, microscopic, and molecular screening tests were used in these studies to examine the origins of cervical pre-cancer/cancer. The Guanacaste and ALTS projects now have a variety of subprojects based on collected specimens, visual images, and outcomes.

Data collected includes patient age, sexual/reproductive history, laboratory test results; including Pap smear and cytology, and 100,000 cervicographic images in the form of 35mm color slides, as well as medical classifications for the cervigrams into diagnostic categories. NCI along with the US National Library of Medicine (NLM) and the American Society for Colposcopy and Cervical Pathology (ASCCP) have formed the NIH-ASCCP Research Group that plan to use these images for the training and education of colposcopic practitioners.

We propose to develop an automated system [9] which can be utilized by Health Workers in the remote areas of Tripura to detect cervical cancer in the tribal women.

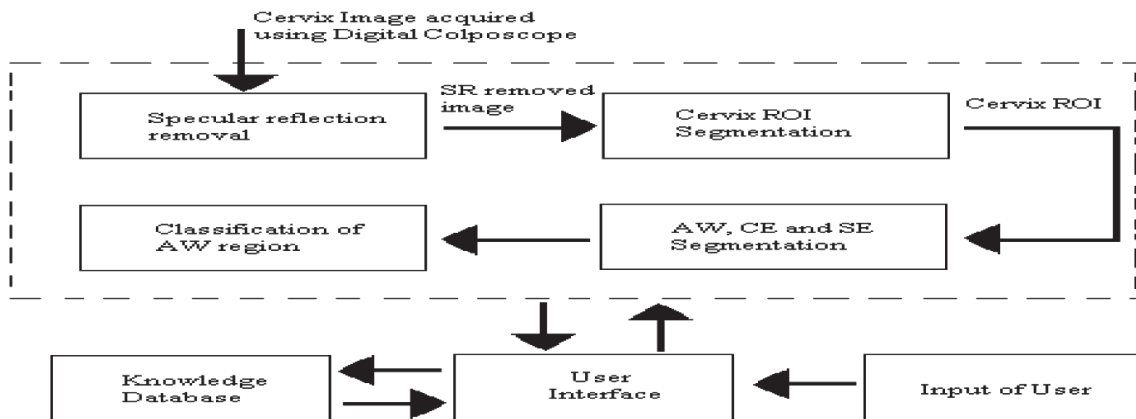


Figure 4- Block diagram of an Automated Multi-stage Analysis Edifice for CervigramSegmentation

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Person with Disability among Scheduled Tribes - A Glimpse

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Dr. Jayanta Choudhury

Introduction

The concept of Disability is complex and multi- dimensional. It is a complex terrain at the confluence of multiple terms related to medical, social, psychological or educational theories. The first studies on this topic began in the 60s in the United States. (Isabel M. and Corti N, 2010). Defining the term 'disability' is not an easy task as there is no single and universally accepted, unproblematic definition of disability. The definition varies from one country to another depending upon the socio-economic status of the nation. The definition of disability is seemed more liberal in developed countries whereas it seemed less liberal in developing countries.

Disability is an umbrella term, covering impairments, activity limitations, and participation restrictions. Impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations. Thus disability is a complex phenomenon, reflecting an interaction between features of a person's body and features of the society in which he or she lives (WHO, 2001).

The Convention on the Rights of Persons with Disabilities (2006), the first legally binding disability specific human rights convention, adopted by the United Nations gives two descriptions of disability. The Preamble to the Convention states that "Disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others." Again it emphasizes that "Persons with disabilities include those who have long term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others." Both the expressions reflect a shift from a medical model

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to social model of disability. In the medical model, individuals with certain physical, intellectual, psychological and mental impairments are taken as disabled. According to this, the disability lies in the individual as it is equated with restrictions of activity with the burden of adjusting with environment through cures, treatment and rehabilitation. In contrast in the social model the focus is on the society, which imposes undue restrictions on the behaviour of persons with impairment. In this, disability does not lie in individuals, but in the interaction between individuals and society. It advocates that persons with disabilities are right holders and are entitled to strive for the removal of institutional, physical, informational and attitudinal barriers in society. (MoSPI, 2012)

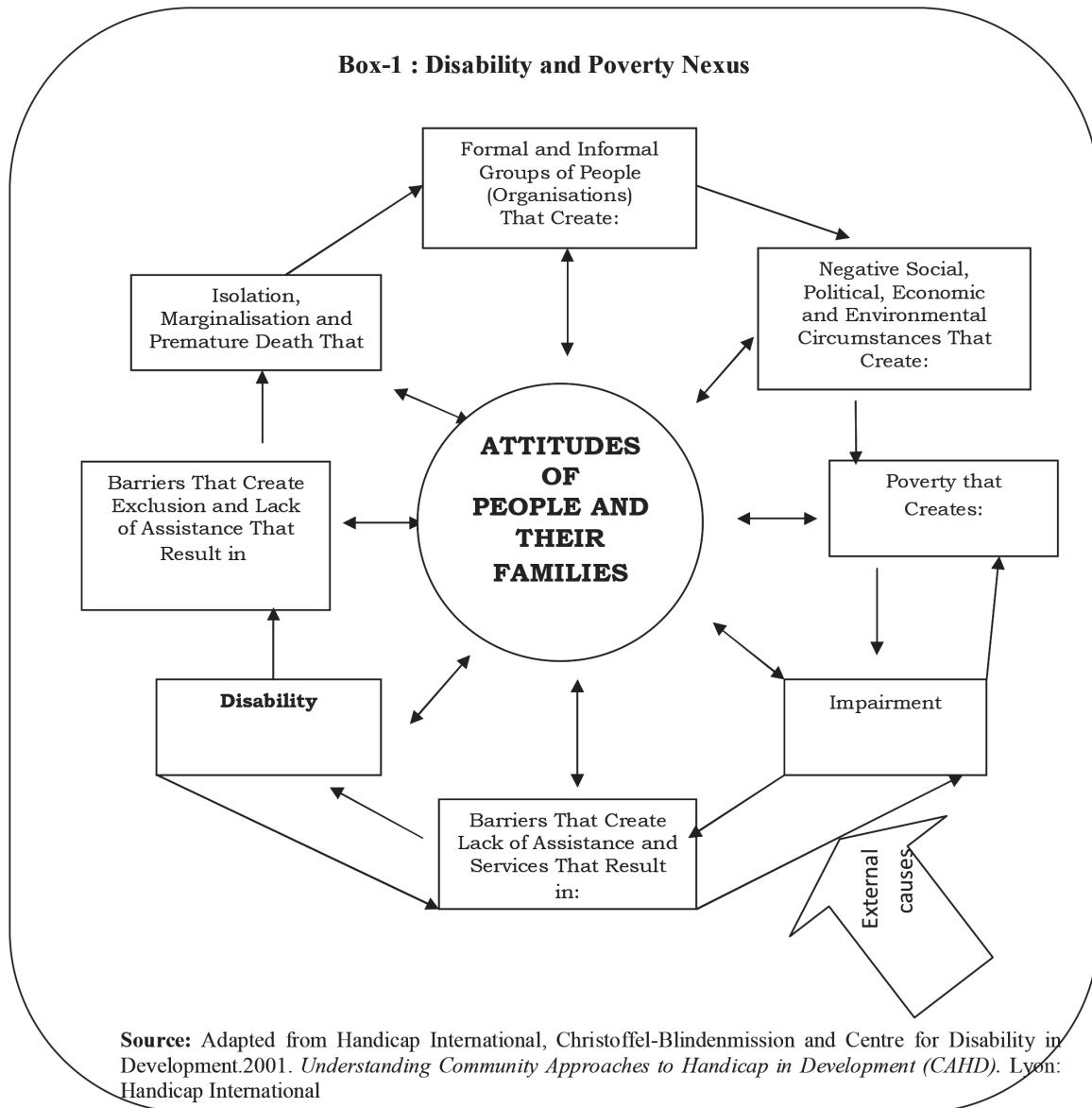
According to Person with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995, Disability is defined as:

- Low Vision
- Leprosy-cured
- Hearing impairment
- Loco motor disability
- Mental retardation
- Mental illness
- Blindness

Acts on Disability

- Mental Health Act (1987)
- Rehabilitation Council of India Act, 1992
- Person with Disability Act, 1995
- National Trust for the Welfare of Person with Autism, Cerebral Palsy, Mental Retardation and Multiple Disability Act, 1999

There is a negative correlation of poverty and disability, as illustrated in the following diagram, indicates that disability is both a cause and a consequence of poverty. The negative attitudes of people and organisations – responsible for the lack of delivery of assistance and services as well as violation of rights – are the cause of this negative correlation and impact the problems still faced by people with disabilities in Asia.

Box-1 : Disability and Poverty Nexus**Necessity of the Study**

People with disabilities are the largest minority group in the world. As a group they are starved of services and facilities available to the non-disabled and, consequently, they are the least nourished, the least healthy, the least educated, and the least employed. They have a long history of neglect, isolation, segregation, poverty, deprivation, charity and even pity. (Mishra A.K., Gupta R, 2006).

Most of the persons with disabilities have been facing several barriers that limit their participation in mainstream societal activities, thereby leading more or less secluded life. In general, the barriers include poor understanding of their abilities and aspirations and inadequate measures and services by the government agencies to rehabilitate them. PwDs

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require special measures to be given to enable them to overcome the challenge caused to them by disability. Due to lack of accurate and reliable data the benefits could not reach the people who are in actual need of them. In general, the search for a single prevalence rate is an illusion, and the range of estimates, and their varied origins, makes it difficult to say very much with assurance about people with disabilities (Singal N, 2009). Despite the increase in prevalence of disability worldwide, due to various reasons, not much attention has been paid to its evaluation, management and prevention (WHO 2002). It was found that the number of people with disabilities is increasing due to population growth, ageing, emergence of chronic diseases and medical advances that preserve and prolong life, creating overwhelming demands for health and rehabilitation services (Srivastava and Khan 2008).

Keeping the utmost necessity of reliable and easily available data on PwDs, in this paper there is an attempt to have a glimpse on the concept and prevalence of disability in India and also among the North eastern states with special focus on Tripura. The major emphasis of this papers is to highlight the proportion of PwDs belonging to Scheduled Tribes Category in India and among the Northeastern states.

Objective & Research Methodology

The present paper aims to assess the prevalence of person with disability (PwDs) especially belonging to the Scheduled Tribes (ST) category in Tripura. To this end emphasis was given on the proportion of total ST PwDs in India and in the North-eastern states with a special focus in Tripura. The study also encompasses the district wise comparison of prevalence of ST PwDs in Tripura with emphases on age- wise, gender-wise, type wise, location wise, age and gender wise, age and type wise, age and location wise comparison. The entire study was based on secondary information gathered from Primary Census Abstract, articles, journals, etc.

Results Discussion

The data regarding the prevalence of PwDs was incorporated for the first time in 2001 census. The Census (2001) used its own source for defining disability and classified disability into five types – seeing disability, speech disability, hearing disability, disability in movement and mental disability. But according to Census (2011), eight (8) types of disabilities were identified such as seeing disability, speech disability, hearing disability, disability in movement, mental retardation, and mental illness, multiple disability and disability of any other types. In this paper we have focussed on Census (2011) data in highlighting the prevalence of disability.

Prevalence of Disability among Scheduled Tribes In The North-Eastern States
Gender wise Disability

Table 1- State-wise proportion of Person with disabilities (PwDs) belonging to Scheduled Tribes (ST) category in Tripura

States	PwDs (in Total)			ST PwDs		
	Person	Male	Female	Person	Male	Female
ARUNACHAL PRADESH	26734 (1.93)	14245	12489	20264 (2.13)	10398 (2.22)	9866 (2.04)
NAGALAND	29631 (1.50)	16148	13483	26309 (1.54)	14139 (1.63)	12170 (1.44)
MANIPUR	54110 (2.11)	28783	25327	19630 (1.68)	10192 (1.73)	9438 (1.63)
MIZORAM	15160 (1.38)	8198	6962	14345 (1.38)	7647 (1.48)	6698 (1.29)
TRIPURA	64346 (1.75)	35482	28864	16508 (1.41)	8684 (1.48)	7824 (1.35)
MEGHALAYA	44317 (1.49)	23326	20991	38116 (1.49)	19662 (1.55)	18454 (1.43)
ASSAM	480065 (1.54)	257385	222680	53667 (1.38)	28106 (1.44)	25561 (1.33)
INDIA	26810557 (2.21)	14986202	11824355	2136678 (2.04)	1142434 (2.17)	994244 (1.91)

Source: Primary Census Abstract, 2011 (Figures in parenthesis indicates percentages)

Table 1 revealed the state- wise proportion of PwDs in Tripura and among the North-eastern states. It was observed that in India the proportion of PwDs was 2.21 percentages out of total population, which depicts an increasing trend as it was 2.13 percentages as per 2001 census. Among the North- eastern states Manipur ranked first with highest proportion of PwDs (2.11%) followed by Arunachal Pradesh (1.93%) and Tripura (1.75%). On contrary it was observed that PwDs belonging to ST category was highest in Arunachal Pradesh (2.13%) followed by Nagaland (1.54%) and Meghalaya (1.49%) and in Tripura it was only 1.41 percentages. Gender wise comparison depicts that the share of female PwDs dominated their male counterpart.

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Location Wise Disability

Table 2 – State-wise proportion of Person with Disability (PwDs) belonging to Scheduled Tribes in Tripura disaggregated by location and sex

States	Rural			Urban		
	Person	Male	Female	Person	Male	Female
ARUNACHAL PRADESH	17933 (2.27)	9207 (2.36)	8726 (2.19)	2331 (1.44)	1191 (1.53)	1140 (1.35)
NAGALAND	22114 (1.69)	11903 (1.79)	10211 (1.59)	4195 (1.04)	2236 (1.11)	1959 (0.96)
MANIPUR	17379 (1.65)	9065 (1.70)	8314 (1.59)	2251 (2.02)	1127 (2.07)	1124 (1.97)
MIZORAM	8424 (1.66)	4446 (1.72)	3978 (1.59)	5921 (1.12)	3201 (1.24)	2720 (1.01)
TRIPURA	15726 (1.41)	8273 (1.47)	7453 (1.35)	782 (1.59)	411 (1.68)	371 (1.49)
MEGHALAYA	33753 (1.58)	17485 (1.63)	16268 (1.53)	4363 (1.04)	2177 (1.09)	2186 (0.99)
ASSAM	50879 (1.39)	26648 (1.44)	24231 (1.33)	2788 (1.27)	1458 (1.33)	1330 (1.22)
INDIA	1923234 (2.04)	1025847 2.17	897387 (1.92)	213444 (2.04)	116587 (2.21)	96857 (1.87)

Source: Primary Census Abstract, 2011 (Figures in parenthesis indicates percentages)

Data revealed that the proportion of PwDs in rural areas was more than the urban areas (as per 2011 census it was 2.24 % in rural and 2.17 % in urban areas). However, on contrary the above table depicts that considering the social category wise disability, in India the proportion of ST PwDs in rural and urban areas was almost similar (2.04%). The proportion of PwDs in the rural areas of Arunachal Pradesh (2.27%) was more than it was in India (2.04%). The table also depicts an alarming picture that in Tripura (1.41% in rural and 1.59% in urban areas) and Manipur the proportion of PwDs among STs was more in the urban areas than their rural counterparts. Prevalence of disability was more among males than females and it was same in both rural as well as urban areas.

Age wise Disability

Table 3- State-wise proportion of Person with disability (PwDs) among Scheduled Tribes disaggregated by Age

Age Group	India	North-eastern States						
		Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
0-4	1,10,029	1006	963	1228	519	885	3015	2415
(%)	5.15	4.96	3.66	6.26	3.62	5.36	7.91	4.50
05-09	1,74,032	1580	1664	1567	958	1251	4016	3608
(%)	8.14	7.80	6.32	7.98	6.68	7.58	10.54	6.72
10-19	3,81,438	3881	4163	3620	2133	2875	8566	8418
(%)	17.85	19.15	15.82	18.44	14.87	17.42	22.47	15.69
20-29	3,05,649	2805	3693	3419	2058	2650	6269	7978
(%)	14.30	13.84	14.04	17.42	14.35	16.05	16.45	14.87
30-39	2,56,333	2426	3045	2626	1995	2130	4483	7153
(%)	12.00	11.97	11.57	13.38	13.91	12.90	11.76	13.33
40-49	2,33,748	2361	3247	2191	1994	1803	4101	6435
(%)	10.94	11.65	12.34	11.16	13.90	10.92	10.76	11.99
50-59	1,98,714	2106	2793	1826	1876	1426	2909	5399
(%)	9.30	10.39	10.62	9.30	13.08	8.64	7.63	10.06
60-69	2,40,665	2050	2659	1505	1348	1439	2498	5579
(%)	11.26	10.12	10.11	7.67	9.40	8.72	6.55	10.40
70-79	1,56,305	1286	2229	960	905	1088	1362	4101
(%)	7.32	6.35	8.47	4.89	6.31	6.59	3.57	7.64
80-89	55,361	549	1308	480	457	618	537	1798
(%)	2.59	2.71	4.97	2.45	3.19	3.74	1.41	3.35
90 & above	16,699	177	502	153	91	330	201	703
(%)	0.78	0.87	1.91	0.78	0.63	2.00	0.53	1.31
Age Not Stated	7,705	37	43	55	11	13	159	80
(%)	0.36	0.18	0.16	0.28	0.08	0.08	0.42	0.15
Total	21,36,678	20264	26309	19630	14345	16508	38116	53667

Source: Primary Census Abstract, 2011

Information regarding the age wise proportion of PwDs among the ST category can be gathered from the above table. It was observed that the prevalence of on or other type of disability was more in the age group of 10 to 19 years and the proportion was highest in Meghalaya (22.47%) followed by Arunachal Pradesh (19.15%), Manipur (18.44%) and Tripura (17.41%). In almost all the North eastern states the prevalence in more in the age group of 10 to 49 years and above 50 the proportion was almost declining. This also

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indicates that disability was predominant among the school- going and working age group which further had a negative impact on the attainment of education and literacy rates and also to their employment.

Type wise Disability

Table 4- State-wise proportion of Person with disability (PwDs) among Scheduled Tribes disaggregated by Types of Disability

States	Total number of PwDs among STs	Types of Disability							
		In seeing	In Hearing	In Speech	In Movement	Mental Retardation	Mental Illness	Any Other	Multiple Disability
Arunachal Pradesh	20264	4247	6244	1095	2508	913	476	2817	1964
(%)		0.96	30.81	5.40	12.38	4.51	2.35	13.90	9.69
Nagaland	26309	3641	7972	2075	3355	1077	900	4227	3062
(%)		13.84	30.30	7.89	12.75	4.09	3.42	16.07	11.64
Manipur	19630	7507	4536	627	1467	1218	420	2678	1177
(%)		38.24	23.11	3.19	7.47	6.20	2.14	13.64	6.00
Mizoram	14345	1964	3200	1107	1911	1529	777	1818	2039
(%)		13.69	22.31	7.72	13.32	10.66	5.42	12.67	14.21
Tripura	16508	2688	3716	986	2385	1325	640	3436	1332
(%)		6.28	22.51	5.97	14.45	8.03	3.88	20.81	8.07
Meghalaya	38116	6013	10521	2391	4626	2000	1994	7422	3149
(%)		15.78	27.60	6.27	12.14	5.25	5.23	19.47	8.26
Assam	53667	8750	13187	3641	7568	2729	1517	11460	4815
(%)		16.30	24.57	6.78	14.10	5.09	2.83	21.35	8.97
India	2136678	427213	412761	112669	479693	104912	56265	352096	191069
(%)		19.99	19.32	5.27	22.45	4.91	2.63	16.48	8.94

Source: Primary Census Abstract, 2011 (Figures in parenthesis indicates percentages)

As already mentioned earlier, in India around 2.4 percentages of ST PwDs generally suffers from one kind of disability or the other. Table 4 depicts the proportion of PwDs suffered from one or othe types of disability among the total STs Population in India as well

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as in the Northeastern states. It was observed that in India and in other North- eastern states majority of the PwDs suffers from disability in movement visual disability, hearing disability or disability of any other types. Manipur (38.24%) ranked first in having PwDs with seeing disability whereas person with seeing disability was least in Arunachal Pradesh (0.96%). Disability in hearing is more in Arunachal Pradesh (30.81%), Nagaland (30.30%) and Meghalaya (27.60%). Disability in movement is highest in Tripura (14.45%) followed by Assam and least in Manipur (7.47%). The proportion of person with mental retardation was highest in Mizoram (10.66%) followed by Tripura (8.03%). Tripura ranked second in having ST PwDs with disabilities of any other types. To sum up it can be said that the prevalence of person with disability in movement, mental retardation and any other types among STs was more in Tripura.

Prevalence of Disability Among Scheduled Tribes In Tripura Gender- wise

Table 5- District-wise proportion (in percentage) of Person with disability (PwDs) among Scheduled Tribes disaggregated by community and sex and location

States	ST PwDs			Rural			Urban		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
West	6537 (1.51)	3437 (1.58)	3100 (1.44)	6048 (1.50)	3174 (1.56)	2874 (1.44)	489 (1.67)	263 (1.85)	226 (1.51)
South	4393 (1.27)	2313 (1.34)	2080 (1.21)	4319 (1.27)	2271 (1.33)	2048 (1.21)	74 (1.25)	42 (1.43)	32 (1.08)
Dhalai	3457 (1.64)	1789 (1.68)	1668 (1.61)	3387 (1.65)	1757 (1.69)	1630 (1.61)	70 (1.41)	32 (1.27)	38 (1.55)
North	2121 (1.18)	1145 (1.26)	976 (1.11)	1972 (1.16)	1071 (1.24)	901 (1.07)	149 (1.55)	74 (1.55)	75 (1.70)
Tripura	16508 (1.41)	8684 (1.48)	7824 (1.35)	15726 (1.41)	8273 (1.47)	7453 (1.35)	782 (1.57)	411 (6.11)	371 (1.49)

Source: Primary Census Abstract, 2011 (Figures in parenthesis indicates percentages)

Information regarding the district-wise proportion of ST PwDs can be gathered from the table-5. It was observed that in Tripura around 1.41 percentages of total ST population suffered from one type of disability or the other. The proportion of ST PwDs was highest in Dhalai (1.64%) which was even more than the state aggregate followed by West, South and North Tripura district. Among them the male PwDs dominated their female counterparts. Although data revealed that in India PwD belonging to the rural areas was more than the urban counterparts but in case of PwDs belonging to ST category it indicated a contrast picture as it was seen that PwDs belonging to urban areas dominates those from rural areas. Gender wise comparison depicted that in urban areas of Dhalai (1.27% males and 1.55% females) and North (1.50% males and 1.70 females), the proportion of female PwDs was more than the males.

TRIBAL HEALTH
Age wise Disability

Table 6-Age wise proportion of PwDs in Tripura disaggregated by location and sex

Age Group	Tripura			Rural			Urban		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
0-4	885	440	445	862	425	437	23	15	8
(%)	5.36	5.07	5.69	5.48	5.14	5.86	2.94	3.65	2.16
04-09	1251	699	552	1212	684	528	39	15	24
(%)	7.58	8.05	7.06	7.71	8.27	7.08	4.99	3.65	6.47
10-19	2875	1491	1384	2725	1415	1310	150	76	74
(%)	17.42	17.17	17.69	17.33	17.10	17.58	19.18	18.49	19.95
20-29	2650	1386	1264	2505	1310	1195	145	76	69
(%)	16.05	15.96	16.16	15.93	15.83	16.03	18.54	18.49	18.60
30-39	2130	1193	937	2010	1120	890	120	73	47
(%)	12.90	13.74	11.98	12.78	13.54	11.94	15.35	17.76	12.67
40-49	1803	985	818	1687	930	757	116	55	61
(%)	10.92	11.34	10.46	10.73	11.24	10.16	14.83	13.38	16.44
50-59	1426	792	634	1362	749	613	64	43	21
(%)	8.64	9.12	8.10	8.66	9.05	8.22	8.18	10.46	5.66
60-69	1439	723	716	1381	687	694	58	36	22
(%)	8.72	8.33	9.15	8.78	8.30	9.31	7.42	8.76	5.93
70-79	1088	538	550	1053	523	530	35	15	20
(%)	6.59	6.20	7.03	6.70	6.32	7.11	4.48	3.65	5.39
80-89	618	294	324	601	291	310	17	3	14
(%)	3.74	3.39	4.14	3.82	3.52	4.16	2.17	0.73	3.77
90& above	330	136	194	317	132	185	13	4	9
(%)	2.00	1.57	2.48	2.02	1.60	2.48	1.66	0.97	2.43
Age Not Stated	13	7	6	11	7	4	2	0	2
(%)	0.08	0.08	0.08	0.07	0.08	0.05	0.26	0	0.54
Total	16508	8684	7824	15726	8273	7453	782	411	371

Source: Primary Census Abstract, 2011 (Figures in parenthesis indicates percentages)

The age- wise proportion of PwDs in Tripura belonging to ST category was depicted in Table 6. It was observed that the prevalence of disability was more within the age of 10 to 49 years and the gradually declines above 69 years unlike other North eastern states. The proportion was highest in the age group of 10 to 19 years (17.42%). Excluding the age groups of 4-9 years, 30-39 years and 50-59 years the proportion female PwDs dominates their male counterparts. Considering location wise disability the table depicts that the proportion of PwDs of the age-group of 10-19 years was noticeable in urban areas (19.18%) than rural areas (17.33%). Gender wise consideration revealed that female PwDs dominates their males. Comparing age-group wise disability data revealed that the prevalence of disability seems to be highest among females of the age- group 10-19 years (19.95%) residing in urban areas.

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Age and Gender wise Disability

Table 7- District-wise proportion (in percentage) of Person with disability (PwDs) among Scheduled Tribes disaggregated by age and sex

Age Group	Districts											
	West			South			Dhalai			North		
	P	M	F	P	M	F	P	M	F	P	M	F
0-4	314	152	162	242	118	124	187	95	92	142	75	67
(%)	4.80	4.42	5.23	5.51	5.10	5.96	5.41	5.31	5.52	6.69	6.55	6.86
05-09	407	218	189	353	210	143	303	169	134	188	102	86
(%)	6.23	6.34	6.10	8.04	9.08	6.88	8.76	9.45	8.03	8.86	8.91	8.81
10-19	1025	542	483	799	419	380	646	320	326	405	210	195
(%)	15.68	15.77	15.58	18.19	18.12	18.27	18.69	17.89	19.54	19.09	18.34	19.98
20-29	1017	535	482	729	377	352	546	283	263	358	191	167
(%)	15.56	15.57	15.55	16.59	16.30	16.92	15.79	15.82	15.77	16.88	16.68	17.11
30-39	871	498	373	582	306	276	400	225	175	277	164	113
(%)	13.32	14.49	12.03	13.25	13.23	13.27	11.57	12.58	10.49	13.06	14.32	11.58
40-49	771	420	351	471	259	212	351	182	169	210	124	86
(%)	11.79	12.22	11.32	10.72	11.20	10.19	10.15	10.17	10.13	9.90	10.83	8.81
50-59	609	334	275	378	217	161	276	150	126	163	91	72
(%)	9.32	9.72	8.87	8.60	9.38	7.74	7.98	8.38	7.55	7.69	7.95	7.38
60-69	569	294	275	388	195	193	314	154	160	168	80	88
(%)	8.70	8.55	8.87	8.83	8.43	9.28	9.08	8.61	9.59	7.92	6.99	9.02
70-79	477	227	250	243	117	126	236	121	115	132	73	59
(%)	7.30	6.60	8.06	5.53	5.06	6.06	6.83	6.76	6.89	6.22	6.38	6.05
80-89	285	136	149	149	74	75	123	55	68	61	29	32
(%)	4.36	3.96	4.81	3.39	3.20	3.61	3.56	3.07	4.08	2.88	2.53	3.28
90 & above	185	75	110	56	21	35	72	34	38	17	6	11
(%)	2.83	2.18	3.55	1.27	0.91	1.68	2.08	1.90	2.28	0.80	0.52	1.13
Age Not Stated	7	6	1	3	0	3	3	1	2	0	0	0
(%)	0.11	0.17	0.03	0.07	0	0.14	0.09	0.06	0.12	0	0	0

Source: Primary Census Abstract, 2011

Considering the age and gender wise proportion of disability it was observed that in West Tripura district the proportion male PwD belonging to 5 to 59 years dominated their females counter parts whereas in rest of the age group the proportion of female PwDs was more. In South Tripura excluding the age group of 5-9, and 50-59 years the proportion of female PwDs was more. The picture of Dhalai was almost similar to west except the age group of 10-19 years. On the other hand in North Tripura the proportion of male PwDs was more in the age group of 5-9 years, 30 to 59 and in 70-79 years.

TRIBAL HEALTH
Type-wise Disability
Table 8-District wise disability among ST PwDs disaggregated by Types and Sex

Types	West			South			Dhalai			North		
	Pers on	Ma le	Fem ale	Pers on	Ma le	Fem ale	Pers on	Ma le	Fem ale	Pers on	Ma le	Fem ale
In Seeing	1071	542	529	718	381	337	507	266	241	392	207	185
(%)	16.38	15.7 7	17.06	16.34	16.4 7	16.20	14.67	14.8 7	14.45	18.48	18.0 8	18.95
In Hearing	1420	731	689	933	470	463	780	403	377	583	329	254
(%)	21.72	21.2 7	22.23	21.24	20.3 2	22.26	22.56	22.5 3	22.60	27.49	28.7 3	26.02
In speech	394	203	191	280	142	138	181	94	87	131	71	60
(%)	6.03	5.91	6.16	6.37	6.14	6.63	5.24	5.25	5.22	6.18	6.20	6.15
In Movement	871	503	368	718	414	304	514	285	229	282	163	119
(%)	13.32	14.6 3	11.87	16.34	17.9 0	14.62	14.87	15.9 3	13.73	13.30	14.2 4	12.19
Mental retardation	470	239	231	425	222	203	262	142	120	168	80	88
(%)	7.19	6.95	7.45	9.67	9.60	9.76	7.58	7.94	7.19	7.92	6.99	9.02
Mental Illness	272	139	133	180	92	88	107	51	56	81	45	36
(%)	4.16	4.04	4.29	4.10	3.98	4.23	3.10	2.85	3.36	3.82	3.93	3.69
Any Other	1535	833	702	719	372	347	861	430	431	321	168	153
(%)	23.48	24.2 4	22.65	16.37	16.0 8	16.68	24.91	24.0 4	25.84	15.13	14.6 7	15.68
Multiple Disability	504	247	257	420	220	200	245	118	127	163	82	81
(%)	7.71	7.19	8.29	9.56	9.51	9.62	7.09	6.60	7.61	7.69	7.16	8.30
Total	6537	343 7	3100	4393	231 3	2080	3457	178 9	1668	2121	114 5	976

Source: Primary Census Abstract, 2011

District wise comparison on the type of PwD with one or other typed of disabilities can be seen in Table 8. It was observed that in almost all the district the prevalence of hearing disability, disability of any other types was more followed by seeing disability, disability in movement. Gender wise comparison revealed that in West Tripura district female PwDs suffered from almost all types of disability except in movement and any other types. Whereas in South Tripura district female PwDs suffered from speech disability, mental retardation, mental illness, any other types and multiple disabilities. In Dhalai female PwDs suffered from hearing, metal illness, any other types and multiple disability. In North female Pwds suffered from seeing disability, mental retardation, any other types multiple disability.

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Age and Type wise Disability

Table 9 -Age wise proportion of PwDs in Tripura disaggregated by types in West Tripura districts

Age Group	Types of Disability							
	In Seeing	In Hearing	In speech	In Movement	Mental retardation	Mental Illness	Any Other	Multiple Disability
0-4	28	76	6	22	10	3	149	20
(%)	2.61	5.35	1.52	2.53	2.13	1.10	9.71	3.97
05-09	50	69	41	27	25	5	149	41
(%)	4.67	4.86	10.41	3.10	5.32	1.84	9.71	8.13
10-19	133	205	111	111	86	28	272	79
(%)	12.42	14.44	28.17	12.74	18.30	10.29	17.72	15.67
20-29	111	208	94	115	106	46	281	56
(%)	10.36	14.65	23.86	13.20	22.55	16.91	18.31	11.11
30-39	111	172	51	113	92	53	233	46
(%)	10.36	12.11	12.94	12.97	19.57	19.49	15.18	9.13
40-49	119	162	40	108	67	60	168	47
(%)	11.11	11.41	10.15	12.40	14.26	22.06	10.94	9.33
50-59	129	139	29	104	38	26	111	33
(%)	12.04	9.79	7.36	11.94	8.09	9.56	7.23	6.55
60-69	157	143	16	85	35	18	78	37
(%)	14.66	10.07	4.06	9.76	7.45	6.62	5.08	7.34
70-79	125	133	5	101	3	14	62	34
(%)	11.67	9.37	1.27	11.60	0.64	5.15	4.04	6.75
80-89	72	70	1	54	5	9	17	57
(%)	6.72	4.93	0.25	6.20	1.06	3.31	1.11	11.31
90& above	33	41	0	31	2	10	15	53
(%)	3.08	2.89	0	3.56	0.43	3.68	0.98	10.52
Age Not Stated	3	2	0	0	1	0	0	1
(%)	0.28	0.14	0	0	0.21	0	0	0.20
Total	1071	1420	394	871	470	272	1535	504

Source: Primary Census Abstract, 2011

It was observed that in West Tripura seeing disability was noticeable in the age group of 60-69 years followed by children belonging to age group of 10-19 years. PwDs with speech and multiple disability generally belonged to the age- group of 10-19 years. PwDs with hearing and any other types of disability belonged to the age group of 20-29 years. On the other hand PwDs with mental retardation and mental illness was found to be in the age group of 30-39 years and 40-49 years respectively.

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**Table 10-Age wise proportion of PwDs in Tripura disaggregated
by types in South Tripura districts**

Age Group	Types of Disability							
	In Seeing	In Hearing	In speech	In Movement	Mental retardation	Mental Illness	Any Other	Multiple Disability
0-4	33	67	6	20	30	3	66	17
(%)	4.60	7.18	2.14	2.79	7.06	1.67	9.18	4.05
05-09	54	71	35	38	29	10	85	31
(%)	7.52	7.61	12.50	5.29	6.82	5.56	11.82	7.38
10-19	114	141	62	137	92	27	141	85
(%)	15.88	15.11	22.14	19.08	21.65	15.00	19.61	20.24
20-29	94	145	59	111	89	42	137	52
(%)	13.09	15.54	21.07	15.46	20.94	23.33	19.05	12.38
30-39	71	121	46	91	77	28	97	51
(%)	9.89	12.97	16.43	12.67	18.12	15.56	13.49	12.14
40-49	68	106	34	88	57	30	67	21
(%)	9.47	11.36	12.14	12.26	13.41	16.67	9.32	5.00
50-59	80	81	14	80	24	12	60	27
(%)	11.14	8.68	5.00	11.14	5.65	6.67	8.34	6.43
60-69	98	89	16	80	20	9	33	43
(%)	13.65	9.54	5.71	11.14	4.71	5.00	4.59	10.24
70-79	52	65	5	42	4	11	18	46
(%)	7.24	6.97	1.79	5.85	0.94	6.11	2.50	10.95
80-89	38	33	2	22	2	5	12	35
(%)	5.29	3.54	0.71	3.06	0.47	2.78	1.67	8.33
90& above	15	14	1	9	1	1	3	12
(%)	2.09	1.50	0.36	1.25	0.24	0.56	0.42	2.86
Age Not Stated	1	0	0	0	0	2	0	0
(%)	0.14	0.00	0.00	0.00	0.00	1.11	0.00	0.00
Total	718	933	280	718	425	180	719	420

Source: Primary Census Abstract, 2011

It was observed that in South Tripura seeing disability, speech , mental retardation, multiple disability was noticeable in the age group of 10-19 years. PwDs in hearing and mental illness was more in the age of 20-29 i.e. among working age group and children.

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Table 11-Age wise proportion of PwDs in Tripura disaggregated by types in Dhalai districts

Age Group	Types of Disability							
	In Seeing	In Hearing	In speech	In Movement	Mental retardation	Mental Illness	Any Other	Multiple Disability
0-4	33	38	3	10	19	2	73	9
(%)	6.51	4.87	1.66	1.95	7.25	1.87	8.48	3.67
05-09	34	71	28	33	22	7	86	22
(%)	6.71	9.10	15.47	6.42	8.40	6.54	9.99	8.98
10-19	60	133	53	94	61	20	183	42
(%)	11.83	17.05	29.28	18.29	23.28	18.69	21.25	17.14
20-29	59	110	34	87	51	11	162	32
(%)	11.64	14.10	18.78	16.93	19.47	10.28	18.82	13.06
30-39	45	92	24	44	33	17	129	16
(%)	8.88	11.79	13.26	8.56	12.60	15.89	14.98	6.53
40-49	57	64	21	51	33	17	81	27
(%)	11.24	8.21	11.60	9.92	12.60	15.89	9.41	11.02
50-59	62	77	8	41	21	6	52	9
(%)	12.23	9.87	4.42	7.98	8.02	5.61	6.04	3.67
60-69	69	95	5	58	15	14	51	7
(%)	13.61	12.18	2.76	11.28	5.73	13.08	5.92	2.86
70-79	50	62	3	52	5	6	26	32
(%)	9.86	7.95	1.66	10.12	1.91	5.61	3.02	13.06
80-89	23	29	1	28	1	7	11	23
(%)	4.54	3.72	0.55	5.45	0.38	6.54	1.28	9.39
90 and above	15	9	1	16	1	0	5	25
(%)	2.96	1.15	0.55	3.11	0.38	0.00	0.58	10.20
Age Not Stated	0	0	0	0	0	0	2	1
(%)	0	0	0	0	0	0	0.23	0.41
Total	507	780	181	514	262	107	861	245

Source: Primary Census Abstract, 2011

The above table depicts that majority of the PwDs belonging to the age group of 10-19 years suffered from one type of disability or the other except seeing disability which was found to be prominent in the age group of 60-69 years.

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Table 12-Age wise proportion of PwDs in Tripura disaggregated by types in North Tripura districts

Age Group	Types of Disability							
	In Seeing	In Hearing	In speech	In Movement	Mental retardation	Mental Illness	Any Other	Multiple Disability
0-4	29	47	2	12	13	4	28	7
(%)	7.40	8.06	1.53	4.26	7.74	4.94	8.72	4.29
05-09	35	36	17	22	17	3	46	12
(%)	8.93	6.17	12.98	7.80	10.12	3.70	14.33	7.36
10-19	60	81	38	46	39	16	94	31
(%)	15.31	13.89	29.01	16.31	23.21	19.75	29.28	19.02
20-29	50	113	30	44	36	16	50	19
(%)	12.76	19.38	22.90	15.60	21.43	19.75	15.58	11.66
30-39	44	91	16	40	27	13	30	16
(%)	11.22	15.61	12.21	14.18	16.07	16.05	9.35	9.82
40-49	47	60	10	34	17	14	20	8
(%)	11.99	10.29	7.63	12.06	10.12	17.28	6.23	4.91
50-59	32	43	6	24	13	6	20	19
(%)	8.16	7.38	4.58	8.51	7.74	7.41	6.23	11.66
60-69	40	56	5	26	5	3	18	15
(%)	10.20	9.61	3.82	9.22	2.98	3.70	5.61	9.20
70-79	38	34	4	18	0	2	13	23
(%)	9.69	5.83	3.05	6.38	0.00	2.47	4.05	14.11
80-89	12	22	2	12	0	4	2	7
(%)	3.06	3.77	1.53	4.26	0.00	4.94	0.62	4.29
90& above	5	0	1	4	1	0	0	6
(%)	1.28	0.00	0.76	1.42	0.60	0.00	0.00	3.68
Age Not Stated	0	0	0	0	0	0	0	0
(%)	0	0	0	0	0	0	0	0
Total	392	583	131	282	168	81	321	163

Source: Primary Census Abstract, 2011

Similar to Dalai, it was observed that in North Tripura district majority of the ST PwDs with one or other types of disability predominantly belonged to the age group of 10-19 years.

Conclusion

Person with disabilities have been among the most economically impoverished, politically marginalized, and least visible members of their societies globally. PwDs are the most vulnerable and marginalised sections of society cutting across caste, creed and community. They belong to a heterogeneous group composed of those born with a disability due to nutritional deficiencies or disease or those who became disabled as a result of accidents. This paper reflects that in Tripura PwDs of ST category predominantly belonged

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to the age group of 10 to 19 years, i.e. the school going age group and suffered from one or other types of disability. This may have negative impact on their studies as well as livelihood which in turn will push them in the arena of low literacy rate, poor income, poor health, etc. This will force them to be included in the poverty cycle.

In spite of various initiatives by government and NGO it was seen that the educational, social, health, transport and residential arrangements made by local, state, central governments or voluntary organisations frequently fall short of the requirement. So, it is the cry of the hour that the government organisation as well as the NGOs and researchers should come forward to prepare an accurate status report on PwDs which may include their socio economic condition. It was also needed that the PwDs should be aware of their schemes and benefits so that they should avail all those. They should be involved in various income generating projects and be provided with light works so that their livelihood and economic condition could be ensured. Keen focus of the authorities may help in the social inclusion of PwDs.

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Conclusion



Tribal Health in Tripura : Status, Challenges and Way Forward

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Introduction

It is well recognized that improvement in the health status of population is both an important means of increasing productivity and economic growth as well as an end in itself. The importance of improvements in health is also acknowledged in the Sustainable Development Goals of the UNDP, 2015 (SDG-3), which calls for a dramatic reduction in poverty and improvements in health, especially of the poor. In India, with its vast majority of poor population, ensuring the good health of the people is a challenging task.

India accounts for more than 20 percent of global maternal and child deaths, and the highest maternal death toll in the world estimated at 138,000. In a study made by United Nations it was seen that India's spending on public health provision, as a share of GDP is the 18th lowest in the world. Nearly 67 percent of the population in India does not have access to essential medicines. Infant Mortality Rate (IMR) in India was reduced from 67.6 in 1998-99 to 57 in 2005-06. Kerala heads the progress made so far with an IMR of 15/1000 births. Uttar Pradesh has the worst IMR in the country of 73/1000 births. During the year 2013-14 maternal Mortality Rate (MMR) is 4 deaths per 1000 births. India accounts for the largest number of maternal deaths in the world. Among them 79 percent of the children were between the age group of 6-35 months, and more than 50 percent of women, were anaemic, and 40 percent of the maternal deaths during pregnancy and child-birth relate to anaemia and under-nutrition. There were 585 rural hospitals compared to 985 urban hospitals in the country. Out of the 6, 39,729 doctors registered in India, only 67,576 are in the public sector. The ratio of hospital beds to population in rural areas is almost fifteen times lower than that for urban areas (WHO, UNICEF & UNFPA, Maternal Mortality in 2000).

In vocabulary of population, Tripura ranks second highest among the North-eastern states of India after Assam with the average annual exponential growth rate of 1.39% as revealed from the data of Census - 2011. The state ranks seventeenth position in terms of density of population, although, it is the second smallest state in the entire country after

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Goa. The total population of Tripura as per census, 2011 was 36,71,032 comprising 16,42,225 male and remaining 15,56,978 females. The decadal growth rate during 2001-2011 was registered as the sharpest. It declined from 16.03% for 2001 to 14.8% for the period of 2001 – 2011. The census 2011 also reveals that a decline of more annum during percentage points in decadal growth rate during 2001-2011 from the previous Census decade was recorded in Mizoram, Arunachal Pradesh and Tripura among the North - eastern states. The percentage of rural population of India declined from 72.19 to 68.84, where as in Tripura population declined from 82.9 to 73.8 during 2001 to 2011.

In this context, the present paper seeks to examine the status of health-care infrastructure and health status in the rural areas in general and more specifically in tribal areas of the in Tripura.

With the change of time, spread of education, growth and development of health infrastructure and health services etc, the matrix of health seeking behaviour of indigenous people swells to multidimensional structure. In addition, their health is adversely affected since their food habits are changing due to change in eco-systems, cropping patterns, degradation of environment, limited access to forestry resources etc. Tribals are also improving their interface with outside communities. This has resulted in further change in value system, culture, life style, living standards etc. Though, there is no scarcity of literature of tribal health, but most of the studies are scattered and dealt with some either specific area or ethnic group and thus the findings may not be generalized. Even, the studies are old while the relevance of such studies has been eroded over the time. In the northeast region tribals constitute a primary part of society and their health seeking behaviour is changing radically.

Outcomes for NHM in the 12th Plan are synonymous with those of the 12th Plan, and are part of the overall vision. The endeavor would be to ensure achievement of those indicators included in Millennium Development Goal. Specific goals for the states will be based on existing levels, capacity and context. State specific innovations would be encouraged every year depending on the performance of previous year. Process and outcome indicators will be developed to reflect equity, quality, efficiency and responsiveness. Targets for communicable and non-communicable disease will be set at state level based on local epidemiological patterns and taking into account the financing available for each of these conditions.

1. Reduce MMR to 1/1000 live births
2. Reduce IMR to 25/1000 live births
3. Reduce TFR to 2.1
4. Prevention and reduction of anaemia in women aged 15–49 years
5. Prevent and reduce mortality & morbidity from communicable, non-communicable; injuries and emerging diseases
6. Reduce household out-of-pocket expenditure on total health care expenditure
7. Reduce annual incidence and mortality from Tuberculosis by half
8. Reduce prevalence of Leprosy to <1/10000 population and incidence to zero in all districts

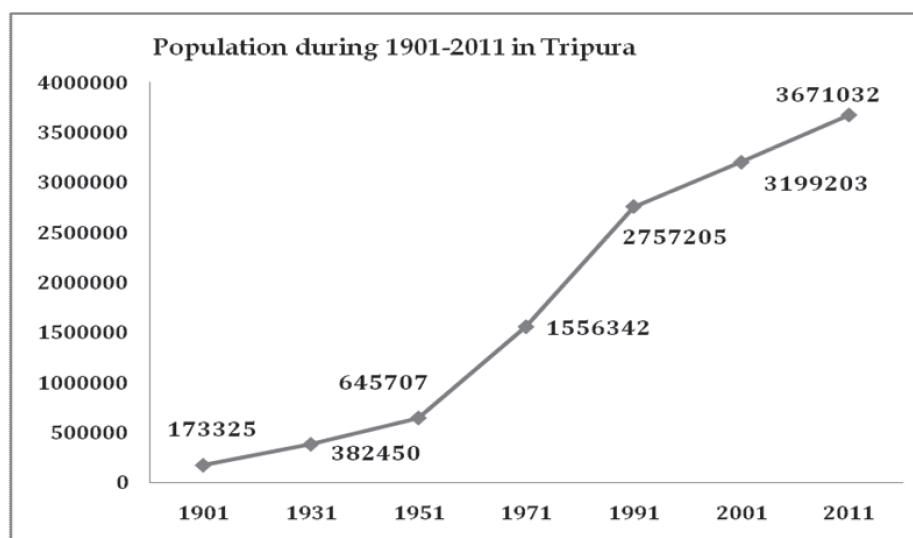
9. Annual Malaria Incidence to be <1/1000
10. Less than 1 per cent microfilaria prevalence in all districts
11. Kala-azar Elimination by 2015, <1 case per 10000 population in all blocks

Tribal Population in Tripura

Tripura - one of states in North-east India - is third-smallest state in the country, covers 10,491 km² (4,051 sq mi) and is bordered by Bangladesh (East Bengal) to the north, south, and west, and the Indian states of Assam and Mizoram to the east. In 2011 the state had 3,671,032 residents, constituting 0.3% of the country's population. The Bengali Hindu people form the ethno-linguistic majority in Tripura. The Kokborok speaking Tripuri people are the major group among 19 tribes and many sub-tribes.

In the demographic profile, total population in the state of Tripura is 3,671,032 (Census, 2011). The annual exponential population growth rate is 1.46%, which is the lowest among the Northeast states, yet it is still the second most densely populated state in the region with 305 persons per square kilometer. The economy of the state is basically agrarian. It can be said that Tripura lives in villages as almost 83% of population with 66.81% poor families live in rural areas.

As per Census 2011, 1,166,813 (32%) of the population is the Schedule Tribe in the State. There are 19 sub tribes among the Schedule tribes with their own cultural identity, namely (i) Tripuri (ii) Reang (iii) Jamatia (iv) Chakma (v) Lusai (vi) Mog (vii) Garo (viii) Kuki (ix) Chaimal (x) Uchai (xi) Halam (xii) Khasia (xiii) Bhutia (xiv) Kunda (xv) Orang (xvi) Lepcha (xvii) Santal (xviii) Bhil (xix) Noatia.



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Name of the tribes	Population (Census Years)			
	1981	1991	2001	2011
Tripuri/Tripura	3,30,872	4,61,531	5,43,848	5,92,255
Reang	84,003	1,11,606	1,65,103	1,88,220
Jamatia	44,501	60,824	74,949	83,347
Noatia	7,182	4,158	6,655	14,298
Uchai	1,306	1,637	2,103	2,447
Kuki	5,501	10,628	11,674	10,965
Halam	28,969	36,499	47,245	57,210
Lushai	3,734	4,910	4,777	5,384
Bhutia	22	47	29	28
Lepcha	106	111	105	157
Khashia	457	358	630	366
Chakma	34,797	96,096	64,293	79,813
Mog	18,231	31,612	30,385	37,893
Garo	7,297	9,360	11,180	12,952
Munda/Kaur	7,993	11,547	12,416	14,544
Santhal	2,726	2,736	2,151	2,913
Orang	5,217	6,751	6,223	12,011
Bhil	838	1,754	2,336	3,105
Chamal	18	26	226	549
Generic	0	0	7,098	48,356
Total Tribal Groups	5,83,770	8,53,345	9,93,426	11,66,813

Source: Census Reports, RGI, New Delhi and Economic Review 2012-13

Table-2: Sex Ratio among Scheduled Tribes by residence: 2001 - 2011

India / State	Sex Ratio in 2001			Sex Ratio 2011		
	Total	Rural	Urban	Total	Rural	Urban
India	978	981	944	990	991	980
Tripura	970	971	921	983	982	1,047

Source: Census, 2011

The sex ratio among the tribal dominated areas is very high in India as well as in Tripura. The overall sex ratio of our nation is declining and various measures have been taken to boost up the ratio, where as in the indigenous areas of our country already have good sign in respect of sex ratio. The sex ratio for the overall population is 940 females per 1000 males and that of Scheduled Tribes 990 females per thousand males. (Statistical report on Tribal in India, 2013)

Health Status of tribes in Tripura is lack of personal hygiene, poor sanitation, poor mother, child health services. The benefits covered under a health contract, absence of health education, lack of national preventive programmes, and lack of health services are responsible for the poor health of the tribals. Problems like in-sanitary food supplies, water contamination, and poor food in-take reflect on the health status of tribals. The tropical disease like malaria is still widespread in the tribal areas. Hence, better nutrition and good environmental health are the important aspects of village health services.

Health infrastructure and facilities in Tripura

Availability of health infrastructure is the indicator of service provided by the nation. The above table reveals that in every 5 years planning incorporated infrastructure in different sectors of health services.

Table-3: Availability Health facilities in Tripura up to 12th Plan

Name of Territory/ State	10 th Plan	11 th Plan	12 th Plan	12 th Plan (As on 31 st March, 2013)
Primary Health Centre				
India	22875	22370	24049	24448
Tripura	58	75	79	83
Community Health Centre				
India	3054	4045	4833	5187
Tripura	11	10	12	18
Sub Divisional Hospital				
India	3054	4045	4833	5187
Tripura	11	10	12	18

Source: Census, 2011

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The rural health-care infrastructure in India has been developed as a three tier system with Sub-Centre (SC), Primary Health Centre (PHC) and Community Health Centre (CHC) being the three pillars. The establishment of these health centres is based on the population norms of 5000 per Sub-Centre, 30000 per PHC and 120000 per CHC in Plain areas and, 3000 per Sub-Centres, 20000 per PHC and 80000 per CHC in Hilly/Tribal/Desert areas. Further, there will be six Sub-Centres per PHC and four PHCs per CHC (GOI, 2011). The growth of these health-care institutions, especially growth of the Sub-Centres is a prerequisite for the overall progress of the entire system. The Sub-centres is the most peripheral and first contact point between the primary health-care system and the community.

The Primary Health Centre is the first contact point between village community and medical officer. The third layer of India's rural health-care system is Community Health Centre. A Community Health Centre (CHC), manned by four medical specialists (i.e. Surgeon, Physician, Gynaecologist and Pediatrician) and 21 paramedical and other staff, acts as the referral centre for four PHCs and also provides facilities for obstetric care and specialist consultations.

Along with the availability of physical infrastructure, facilities and health workers, accessibility of health-care services is important for improving health of the people. The health-care facilities have to be accessible within safe physical reach to everyone at affordable cost without discrimination. However, the accessibility of health-care services within safe physical reach across the northeastern states is not quite satisfactory. According to the NITI Ayog Report, 2017 Tripura made tremendous progress with 22 percentage point's reduction in vacancies, bringing the vacancy position of staff nurses at CHCs and PHCs to zero.

Table-4: Health Infrastructure of Tripura

Particulars	Required	In position	Shortfall
Sub-centre	903	719	184
Primary Health Centre	135	79	56
Community Health Centre	33	12	21
Health worker (Female)/ANM at Sub Centres & PHCs	798	1169	*
Health Worker (Male) at Sub Centres	719	543	176
Health Assistant (Female)/LHV at PHCs	79	155	*

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Health Assistant (Male) at PHCs	79	140	*
Doctor at PHCs	79	119	*
Obstetricians & Gynaecologists at CHCs	12	0	12
Pediatricians at CHCs	12	0	12
Total specialists at CHCs	48	0	48
Radiographers at CHCs	12	7	5
Pharmacist at PHCs & CHCs	91	92	*
Laboratory Technicians at PHCs & CHCs	91	72	19
Nursing Staff at PHCs & CHCs	163	1098	*

Source: RHS Bulletin, March 2012, M/O Health & F.W., GOI

The above table argues that though in different planning period initiatives had taken for betterment of health facility and services but still shortage of expert, specialist and infrastructure is prevailing in Tripura. Basically grass root level infrastructure means health Sub-centre are running short, while as per guideline in every village there must be one sub-centre.

Table-5: Demographic, Socio-economic and Health profile of Tripura and India

Indicator	Tripura	India
Total Population (In crore) (Census 2011)	0.37	121.01
Decadal Growth (%) (Census 2011)	14.75	17.64
Crude Birth Rate (SRS 2013)	13.7	21.4
Crude Death Rate (SRS 2013)	4.7	7
Natural Growth Rate (SRS 2013)	9	14.4

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Infant Mortality Rate (SRS 2013)	26	40
Maternal Mortality Rate (SRS 2010-12)	NA	178
Total Fertility Rate (SRS 2012)	NA	2.4
Sex Ratio (Census 2011)	961	940
Child Sex Ratio (Census 2011)	953	914
Total Literacy Rate (%) (Census 2011)	87.75	74.04
Male Literacy Rate (%) (Census 2011)	92.18	82.14
Female Literacy Rate (%) (Census 2011)	83.15	65.46

Source: Census, 2011

The National Health Mission (NRHM) has been launched with a view to taking care of the basic health care needs of the rural areas/ masses. The aim of the Mission is to bring about significant changes in the health status of the rural people by adequately improving the health care services. The motto is to provide adequate opportunities for all in the delivery system for ensuring better standard of health care for the rural people with affordable cost of treatment. Under the Mission, numbers of the programmes are implemented to reach out of every home of rural Tripura and achieve the objectives of providing qualitative improvement in rural health care facilities. The programmes which are being implemented in Tripura under NRHM include MCH, immunization and various other national disease control programmes.

Table-6: Institutional Delivery 2007-2012

	2007-08	2008-09	2009-10	2010-11	2011-12
Intuitional Delivery	31395	31928	36707	40040	43709

In order to reduce the death of mothers during maternity period as well as to reduce child mortality rate in general, awareness programme or campaigns for ensuring delivery of child in recognized health institutions under the Rural Health Mission are being intensely carried out in the state. As provided for in 'Janani Suraksha Yojana', financial grants are also provided for child delivery at recognized health institutions. A large number of mothers have been benefited under the scheme during last year's. Average out-of-pocket expenditure per delivery in public health facility in Tripura is INR 4412 (NITI Ayog report, 2017).

Table-7: Achievement of JSY 2007-2012

	2007-08	2008-09	2009-10	2010-11	2011-12
Numbers of JSY Beneficiary	15547	20166	23216	20202	20871

Source: NRHM Tripura, 2013

In arrange to produce mass awareness regarding different diseases, social prejudices and to make people more conscious about health and available health facilities a series of awareness campaign had been carried out whole over State under different programme of NRHM like 'Haat Divas', 'Save the Girl Child' programme, Health Camps etc. As per NITI Ayog report, 2017 Tripura from base to reference year showing a decline in registration 9 percentage points.

Awareness about health care programmes and facilities is the essence for the success of any health care initiative which is closely linked with human development. The Government launched the *National Rural Health Mission* in 2005 to provide accessible, affordable and quality health care to rural population. One of the key components of the Mission is to provide every village with a trained female community health activist called ASHA or Accredited Social Health Activist. She is an honorary volunteer, receiving performance-based compensation for promoting universal immunization, referral and escort services for RCH, construction of household toilets and other healthcare delivery programmes.

Disaster Management Cells have been set up right from state level up to district and sub-divisional levels. Medical officers and paramedical staff are regularly given various trainings to properly manage all eventualities. All steps of IDSP are taken to the people about the possible outcome of any disease and possible measures are adopted to prevent the spread out of such disease.

Table-8: Achievement during last five years

Area of Treatment	2007-08	2008-09	2009-10	2010-2011	2011-12
Cataract Operation	6732	301	6346	7193	7431
No. of Eye Camp	207	281	243	227	223

Source: NRHM Tripura, 2013

Despite of these eye patients in remote areas of state get benefit of advice of eye specialists in issues of primary eye care, through IT allowed video conferencing provided by tele-ophthalmology centers. On the other hand during the period of 2007-12 eye examinations have been carried out in 1852 school benefiting a total number of 2,61,561 students. Out of them 7646 students have been provided with eye-glasses free of cost.

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Table-9: Year wise Distribution of HIV Positivity

Year	Total of testing of HIV	Total No. of HIV positive	Positive Rate
2010-11	40880	151	0.36
2011-12	53927	197	0.36
2012-13	64146	185	0.28
2013-14	75941	225	0.30
2014-15	82442	261	0.31

Source: SACS, Tripura, 2015

HIV/ AIDS have become an issue of concern for the last two or three decades and remains to be a major health problem whose solution continues to elude us all. The societies involved it in various activities and programme to respond towards the fight for spreading over the disease. AIDS control programme has been implemented to increase safe behavioural practices and knowledge about HIV/ AIDS among the high risk group. Apart from Tripura, the other 28 states have shown some incremental progress in the indicator means in Proportion of people living with HIV (PLHIV) on antiretroviral therapy (ART). It is less than 50 percent (NITI Ayog report, 2017).

Government of India launched the National Tobacco Control Programme (NTCP) in the year 2007-08, with the aim to (i) create awareness about the harmful effects of tobacco consumption, (ii) reduce the production and supply of tobacco products, (iii) ensure effective implementation of the provisions under “The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003” (COTPA) (iv) help the people quit tobacco use, and (v) facilitate implementation of strategies for prevention and control of tobacco advocated by WHO Framework Convention of Tobacco Control .

As per GATS-II survey report 2016-17 the tobacco use increased in Tripura nearly 64.5 percent. 44.4% of men, 10.3 percent women and 27.7 % of all adults currently smoke tobacco. The prevalence of Tobacco use among persons aged 15-17 has decreased from 15.8 percent in GATS I to 11.6 percent in GATS II in Tripura. 67.5 percent of men, 61.4 percent of women and 64.5 percent of all adults either smoke tobacco and or use smokeless tobacco.

Health Infrastructure and status in Tribal Areas

Providing health facilities is a crucial factor in effective health treatment for people in rural areas of India. Requirement Norms in Tribal Areas: One Sub-Centre for 3,000 population; One Primary Health Centre per 20,000 population; One Community Health Centre per 80,000 population

**Table -10: Number of Sub Centres, PHCs & CHCs in Tribal Areas of Tripura
(As on March, 2012)**

Tribal Population in Rural Tripura	Sub Centres		PHCs		CHCs	
	Required	In Position	Required	In Position	Required	In Position
988644	329	371	49	35	12	5

Source: RHS, 2012

The Sub-Centre is the most peripheral and first contact point between the primary health care system and the community. Each Sub-Centre is required to be manned by at least one Auxiliary Nurse Midwife (ANM)/Female Health Worker and one Male Health Worker.

The activities of PHC involve curative, preventive, promotive and Family Welfare Services. As per minimum requirement, a PHC is to be manned by a Medical Officer supported by 14 paramedical and other staff. It acts as a referral unit for 6 Sub Centres and has 4 - 6 beds for patients.

CHCs are being established and maintained by the State Governments. As per minimum norms, a CHC is required to be manned by four Medical Specialists i.e. Surgeon, Physician, Gynecologist and Paediatrician supported by 21 paramedical and other staff. It has 30 indoor beds with one OT, X-ray, Labour Room and Laboratory facilities. It serves as a referral centre for 4 PHCs and also provides facilities for obstetric care and specialist consultations.

In Tripura tribal areas, the number of Sub-Centres, at present is more than the required number, but the numbers of PHEs and CHCs are less than the required number of PHE and CHC.

The position of the construction of the Sub-Centre, PHE and CHC in the tribal areas of Tripura is given below:

**Table -11: Building Position for Sub Centres, PHCs and CHCs of Tripura Tribal Areas
(As on March, 2012)**

Total Number functioning	Govt. Buildings	Rented Buildings	Rent Free Panchayat/ Vol. Society Buildings	Buildings Under Construction
Sub-Centre				
371	266	38	67	114
Primary Health Centre				
35	35	0	0	23
Community Health Centre				
5	5	0	0	3

Source: RHS, 2012

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It has been observed that the construction of about 30% of the Sub-Centres and about 60% of the PHCs and CHCs were yet to be completed by March 2012.

The position of the Health Worker and Health Assistants in the Sub-Centre, PHC and CHC in the Tripura tribal areas is given below. It is observed that the post of about half of the Health Workers are yet to be filled up.

Table -12: Health Worker/Assistants at Sub Centre, PHC, CHC in Tribal Areas of Tripura (As on March, 2011)

Sub-Centre					
Health Worker [Female] / ANM			Health worker [Male]		
Required	Sanctioned	In Position	Required	Sanctioned	In Position
371	NA	167	371	NA	185
Primary Health Centre					
Health Worker [Female] / ANM			Health Assistants [Male]		
Required	Sanctioned	In Position	Required	Sanctioned	In Position
406	NA	190	35	NA	26
Health Assistants [Female] / LHV					
Required	Sanctioned	In Position			
35	NA	33			

Source: RHS, 2012

In Tripura the number of doctors posted in the PHCs of the tribal areas about 3 times more than their required number as evident from the following table.

Table -13 : Doctors (Allopathic) at PHCs in Tribal Area in Tripura

Required	Sanctioned	In Position
35	N.A.	101

Source: RHS, 2012

In the case of other supporting staffs of the health institutions in the tribal areas of Tripura the personnel in position as on March 2012 against required number are given below. The number of Radiographers and Pharmacists seems to be adequate, while the

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Nursing Staffs were almost 4 times more than the required number. But the availability of Lab Technicians was about 40% of the required number.

Table-14 : Technical staffs in Sub Centre, PHC, CHC in Tribal Areas of Tripura

Post	Required	Sanctioned	In Position
Radiographer at Community Health Centres	5	N.A.	4
Pharmacists at PHCs &CHC	40	N.A.	41
Lab Technicians at PHCs &CHCs	40	N.A.	15
Nursing Staff at PHCs &CHCs	70	N.A.	261

Source: RHS, 2012

Maternal and child health care practices

Child bearing imposes additional health needs and problems on women-physically, psychologically and socially. Maternal mortality was reported to be high among various tribal groups. The chief causes of maternal mortality were found to be unhygienic and primitive practices for parturition. From the inception of pregnancy to its termination, no specific nutritious diet is consumed by women. On the other hand, some pregnant tribal women reduced their food intake because of simple fear of recurrent vomiting and also to ensure that the baby may remain small and the delivery may be easier. The consumption of iron, calcium and vitamins during pregnancy is poor. The habit of taking alcohol during pregnancy has been found to be usual in tribal women and almost all of them are observed to continue their regular activities including hard labour during advanced pregnancy. More than 90 per cent of deliveries are conducted at home attended by elderly ladies of the household. No specific precautions are observed at the time of conducting deliveries which resulted in an increased susceptibility to various infections. Services of paramedical staff are secured only in difficult labour cases.

As far as child care is concerned, both rural and tribal illiterate mothers are observed to breast-feed their babies. But, most of them adopt harmful practices like discarding of colostrum, giving prelacteal feeds, delayed initiation of breast-feeding and delayed introduction of complementary feeds. Vaccination and immunization of Infants and children have been inadequate among tribal groups. In addition, extremes of magico-religious beliefs and taboos tend to aggravate the problems.

Tripura has made remarkable progress in Routine Immunization by increasing coverage throughout the State. As per the National Immunization schedule of Govt. of India, Routine Immunization is carried out in the State including ADC area to cover all children in the age group of up to 1 year. Overwhelming response has been shown in connection with

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Immunization of DPT. 120.6% children throughout the State has been immunized through DPT whereas the performance of all India level is 94.7 % as per record of Govt. of India Ministry of Health & Family Welfare (Monitoring & Evaluation Division) during the year 2006-2007. The success is same for the period of 2006-2007 in connection with OPV also (94.6 VS 120.8%). In connection with B.C.G vaccination performance (140.9%) is much better than that of all India performance which is 100.1%. During the year 2006-07 B.C.G vaccine was given to 679251 children which is much better for the period of 2005-2006 where the total was 64775 children. Measles Vaccine are also being given to children in an effective manner. The achievement of proposed need assessment is 122.2% in the State which is higher than the percentage of all India level (90.4 %) for the period of 2006-2007. In connection with Tetanus immunization (except Mothers) state performance (81.9% achievement of proposed need assessed) for the period of 2006-2007 is better than all India level performance which is 79 %. 37 Point Tribal Development Package was announced on 15th September 2003. The Package had one of the components on Immunization for all Children and pregnant women in ADC area for implementation by Health & FW Department. There are vast differences in the health status of mothers and children between tribal and non-tribal populations. The indicators comparing the maternal and child health, highlighting the under-achievements among the tribals. Compared to the NFHS 2 survey, the infant mortality, under-five mortality, and neonatal mortality have decreased, the proportion of home deliveries is at a standstill. There was a fall in the median months of exclusive breastfeeding, while it had shown improvement among others from 1.3 months to 1.9 months. The total fertility rate had shown a slight increase compared to the NFHS 2 survey.

Challenges and Way Forward

Thus, the review of various infrastructure and health profile in general and in tribal areas in particulars in the Tripura state simply demonstrates that the whole state is different from the other region of nation and it needs attention for development, social change and transformation since for a long time the region has been worse affected by ethnic unrest, insurgency, migration, development deprivation etc. To develop the health scenario of Tripura following measures may be taken not by the department only by all dwellers of Tripura too.

1. The State Government should venture upon the task of continuing research in the critical areas of health in tribal areas in the states. Tribal Research & Cultural institute should play the vital role in this regard.
2. Priority should be given to the development of health infrastructure in the state in general and inn tribal area in this regards. Deferent ongoing central government schemes and special grants from NEC may be explored.
3. Doctor, nurse, required medical equipments, medicine, bed is not available in most of the PHCs. These facilities should be increase in all the PHCs.
4. Re-alignment of the role of the State Government to focus on health. The corporate sector well equipped with fund and technology should concentrate on health. Investment in health sector from the private sector may be welcomed.

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5. Action plans should be formulated for effective implementation of health awareness campaign which has already been initiated and a permanent cell be created in the government for timely monitoring, regulating and evaluating the progress achieved by the government.
6. Health issues should not be treated in isolation. The concept of Health economy and health education should be given important. Almost half of the populations in tribal areas belong to Below Poverty Line. For increasing the economic condition of people different livelihood options should be provide. Majority of them involve with agricultural activities as well as wage labour activities. So, it is vital to focusing on micro enterprise development and service sector work. Again educational level needs to increase in tribal areas.
7. Traditional ethnic medicine as well as herbal medicine should be promoted. Traditional health practitioners should be involved in scientific documentation and research of their remedies.
8. To ensure regular health care of tribal population, rules should be framed for fixed tenure postings of Government health practitioners as well as other Para-medical staffs in all tribal areas.
9. Skill-up gradation of medical officers, Para-medical staff and other supporting staff should be undertaken through training interventions and encouragement for higher studies and performance based incentives. Intensive and practical training should be routinely given to the ASHA and AYUSH field workers.
10. An integrated and coordinated service delivery mechanism should be developed involving MPWs, AWWs, Village health guides and TBAs for implementing the reproductive and child health and family welfare programs.
11. Measures should be taken to improve the nutritional status of women and children in Tribal areas. Preventive Healthcare Program on Communicable diseases should be developed urgently.
12. Ensuring cent percent immunization should form an important component of health action plan. Effective implementation of the reproductive and child health program should be ensured. The focus of policy and programme interventions should be shifted from general IMR to peri-natal and neo-natal mortality; clean of livery; timely treatment and control of new born infections; treatment protocol for babies with low birth rates etc.
13. Maternal mortality rate should be reduced through the encouragement of larger institutional deliveries. Women education level should be increased. Women's are not well educated in the study area. Girls drop out student should be identify and try to join in school again.
14. The specific case of oriented proposals should be developed to deal with the major causes of childhood morbidity and mortality at all levels of care. Diarrheal diseases, measles, malaria and under nutrition.
15. The government has to ensure an enhanced investment in the supply of drinking water, sanitation and civic systems for prevention and control of water and vector born diseases.

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16. Vigorous and sustained efforts must be made to prevent the continuous spread of HIV / AIDS with focus on interventions involving high risk of population and arrangements be also made for medicinal and home based care of AIDS patients through clinical training and treatment protocols, generating awareness and sensitization of the health workers and community leaders.
17. Propagation of information about Govt. providing girl's education related schemes among the villagers. Dissemination of awareness among the villagers for making nuclear family and also aware them to maintain the minimum gap between two child.
18. Aware the people to use modern contraceptive method for both men and women for prevent unwanted pregnancy. It should be provided through local PHC or ASHA worker.
19. IEC technique should be use for all kind of awareness i.e. different women and child related Govt. scheme facilities, methods of disease prevention, different quotation against traditional belief. IEC may apply through poster, banner, news paper and TV channel also.
20. ASHA workers are playing an important role in the villages. But more services should be required particularly in hilly backward region. ASHA's responsibilities should link to patients with hospital. Delivery of pregnant women should be confirmed in Govt. hospital rather than home delivery through *dai* and aware them about incentive amount given by Govt.
21. Some villagers are still using traditional medicine which is produced by some witchcraft from local plants. People are mostly using ethno medicine for cough, headache, itching, fever, jaundice, eye problem, abdominal problem, joint pain, allergy etc. But these practices are not fruitful for all time. Therefore, it is need to aware the villagers to go hospital for proper scientific treatment. Capable NGOs can be
22. Regular pre natal check-up is necessary after pregnancy. Because numbers of women are not taken check-up during pregnancy in the tribal areas. After delivery post natal check-up of mother and child is also important for staying disease free. Check-up must be taken from reputed medical doctor or govt. hospital.
23. Polio, vaccination must be taken after birth of children. Some parents are still not well known about the importance of child vaccination.
24. For prevention of malaria it is important to create effective awareness mainly for maintain house hygiene consciously and must be use mosquito net during sleeping.
25. The entire health issue requires a multi-pronged approach, clear policy directions where there is a collaboration of various sectors so that a holistic view point is possible for resolving these complex health challenges. Effective public health measures need to address issues of food hygiene, availability of clean air and water and proper sanitation.

Designing of public health policy should factor in local specifications, with decentralization and devolution of power, the local bodies will have a greater role. Addressing state, district or block specific public health policy does not mean doing away with the role

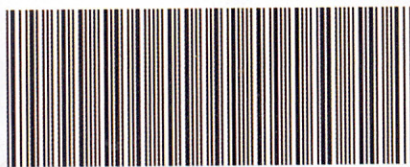
CONCLUSION

of the Central Government. It requires the Centre to be more proactive in addressing inequalities across states and to ensure appropriate regulatory and monitoring mechanisms. The presence of NGOs and CBOs is lower in tribal areas. There is need to increase the number of care providers and create suitable working conditions to ensure their availability in remote areas.

Further Reading

<http://www.medilexicon.com/medicaldictionary.php>
<http://www.sociologyguide.com/tribal-society/index.php>
<http://www.sociologyguide.com/tribal-society/characteristics.php>
<http://www.sociologyguide.com/tribal-society/geographical.php>
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