TRIBAL HEALTH BULLETIN

ISSN 0971-4677

A Biannual Publication on Tribal Health

Vol. 23, No. 1
January 2016

Indexed in
Indian Science Abstracts
&
Medicinal and Aromatic Plants Abstracts

Health Services Delivery and Tribal Communities of Odisha: An Empirical Study

-Nilakantha Panigrahi

Socio-Economic Determinants of Disability: Example From Uttar Pradesh

-Binod Kumar Singh

Ethno-Religious Medicinal Plants of the Chothe of Manipur, North-East India

-Cheithou Charles Yuhlung and Mini Bhattacharrya

Determinant factors of tribal Children health in Karnataka: Special Reference to Soliga Tribe in Chamarajanagar District

-K.Papannanavar

Social and Health Status among Sahariya Tribal Women in Gwalior Division: A Situational Analysis

-AK. Agarwal, RN. Mahotre, Anju Agarwal and Ginisha Gupta

Awareness towards Prenatal & Postnatal Care among Korku Tribal Women of Betul District, Madhya Pradesh

-Rajul Raikwar and K.K.N. Sharma

Inclusiveness of National Rural Health Mission: A case study of Kupwara district in state of Jammu and Kashmir

-Rizwan Ahmed Lone

Socio-Economic and Demographic Characteristics of three most backward Tribes of Madhya Pradesh

-Revendra K. Sharma and J. Roy

Prevalence of Sickle Cell Disease In Tribal Belt of Chhattisgarh

-Rajesh Tembhurnikar, Pankaj Tembhurnikar and Sadhna Bagde

National Institute for Research in Tribal Health
(Indian Council of Medical Research), Jabalpur

INFORMATION FOR CONTRIBUTORS

Tribal Health Bulletin, a biannual publication on Tribal Health, publishes original papers, review articles, notes and communications on various aspects of tribal health. Authors should submit the typescripts in duplicate neatly typed in double space with a wide margin of at least 4 cm on each side (along with soft copy in a CD-ROM). Articles should be sent together with a certificate that the contribution is the own original work of the author(s) and has not been published or sent for publication elsewhere. Contributors are requested to send their articles, manuscripts, and review material to **the Editor, Tribal Health Bulletin, Regional Medical Research Centre for Tribals (ICMR), Nagpur Road, P.O. Garha, Jabalpur482003. (M.P.), India. Authors may also submit papers in electronic format to: E.mail: bulletin_rmrct@yahoo.com.**

The research paper should include (i) title page with running title (ii) abstract (iii) nomenclature of symbols used (iv) tables/figures typed/drawn on separate sheets along with their captions in serial order as they appear in the text. The text of observational and experimental articles is usually (but not necessarily) divided into the following sections: Introduction, Methods, Results, and Discussion. Experimental investigation papers must state in the Methods section that 1) informed consent was obtained from all human adult participants and from parents or legal guardians of minors, with the name of the appropriate institutional review board having approved the project (wherever applicable). 2) the maintenance and care of experimental animals complies with the guidelines for the human use of laboratory animals (wherever applicable). The title page should include: title of the article, authors' names and institutional affiliations, the corresponding author's name, mailing address, telephone and e-mail address. The title should be brief, clear, concise, and should provide broad indication of the content of the paper. An abstract of about 200 words for research papers and about 150 words for review articles should be provided along with the paper. References should be numbered in the order in which they appear in the text. Abbreviate journal names according to the Index Medicus system. At the end of the article, the full list of references should follow in the Vancouver style. (See International Committee of Medical Journal Editors: Uniform requirements for manuscripts submitted to biomedical journals- www.icmje.org).

Journal articles

The following information is included for journal articles:

author(s), article title, abbreviated journal title, year, volume number, page numbers.

Example:

Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. N Engl J Med. 2002;347:284-7.

Morgenstern H. The changing association between social status and coronary heart disease in a rural population. Soc Sci Med. 1980;14A:191201.

For a journal article written by more than six authors, list the first six authors followed by the phrase 'et al'

Books / Monographs

The following information is included, in the following order: author(s), book title, edition number (if not the first), city, publisher, year.

Example:

Murray PR, Rosenthal KS, Kobayashi GS, Pfaller MA. Medical microbiology. 4th ed. St. Louis: Mosby; 2002.

Chapter in a book

The following information is included: author(s) cited, chapter title, editor(s), title of the book in which the work appears, city, publisher, year, volume number (if applicable) and page numbers.

Example:

Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. In: Vogelstein B, Kinzler KW, editors. The genetic basis of human cancer. New York: McGraw-Hill; 2002. p. 93-113.

Scientific or technical report

Issued by funding/sponsoring agency: Yen GG (Oklahoma State University, School of Electrical and Computer Engineering, Stillwater, OK). Health monitoring on vibration signatures. Final report. Arlington (VA): Air Force Office of Scientific Research (US), Air Force Research Laboratory; 2002 Feb. Report No.: AFRLSRBLTR020123. Contract No.: F496209810049

Dissertation

Borkowski MM. Infant sleep and feeding: a telephone survey of Hispanic Americans [dissertation]. Mount Pleasant (MI): Central Michigan University; 2002.

Conference proceedings

Harnden P, Joffe JK, Jones WG, editors. Germ cell tumours V. Proceedings of the 5th Germ Cell Tumour Conference; 2001 Sep 13-15; Leeds, UK. New York: Springer; 2002.

Conference paper

Christensen S, Oppacher F. An analysis of Koza's computational effort statistic for genetic programming. In: Foster JA, Lutton E, Miller J, Ryan C, Tettamanzi AG, editors. Genetic programming. EuroGP 2002: Proceedings of the 5th European Conference on Genetic Programming; 2002 Apr 3-5; Kinsdale, Ireland. Berlin: Springer; 2002. p. 182-91.

Electronic Material

CD-ROM

For referencing a CD-ROM, follow the format for a book and indicate the medium in square brackets after the title, i.e. [CD -ROM].

Example:

Anderson SC, Poulsen KB. Anderson's electronic atlas of hematology [CD-ROM]. Philadelphia: Lippincott Williams & Wilkins; 2002.

Journal article on the Internet

To reference a journal article published on the internet, provide the bibliographic details as for a print journal, with the following additions:

Abood S. Quality improvement initiative in nursing homes: the ANA acts in an advisory role. Am J Nurs [Internet]. 2002 Jun [cited 2002 Aug 12];102(6):[about 1 p.]. Available from: http://www.Nursingworld.org/AJN/2002/june/Wawatch.htm Article

TRIBAL HEALTH BULLETIN

Vol. 23 No.1 January 2016

Editor-in-Chief : Dr. Neeru Singh
Editor : Dr. S. Rajasubramaniam
Assistant Editor : Dr. J. Roy
Cover designing : Dr. R.C.Mishra

Editorial Board

Dr. V.G.Rao Scientist G
Dr. T. Chakma Scientist F
Dr. K.B.Saha Scientist E
Dr. Jyothi Bhat Scientist E
Dr. R.K. Sharma Scientist D

National Institute for Research in Tribal Health, Jabalpur

A Biannual Publication on Tribal Health

Published by the Editor,
Tribal Health Bulletin,
National Institute for Research in Tribal Health (NIRTH),
(Indian Council of Medical Research)
Department of Health Research,
Ministry of Health & Family Welfare,
Govt. Of India,
Nagpur Road, P.O. Garha,
Jabalpur-482 003 (M.P.), India.
Ph. : +91-761-2370800, 2370818
Email : bulletin_rmrct@yahoo.com
Website: www.nirth.res.in

- Health Services Delivery and Tribal Communities of Odisha: An Empirical Study — 1
  -Nilakantha Panigrahi
- Socio-Economic Determinants of Disability: Example From Uttar Pradesh — 17
  -Binod Kumar Singh
- Ethno-Religious Medicinal Plants of the Chothe of Manipur, North-East India — 37
  -Cheithou Charles Yuhlung and Mini Bhattacharrya
- Determinant factors of tribal Children health in Karnataka: Special Reference to Soliga Tribe in Chamarajanagar District — 43
  -K. Papannanavar
- Social and Health Status among Sahariya Tribal Women in Gwalior Division: A Situational Analysis — 51
  -AK. Agarwal, RN. Mahotre, Anju Agarwal and Ginisha Gupta
- Awareness towards Prenatal & Postnatal Care among Korku Tribal Women of Betul District, Madhya Pradesh — 60
  -Rajul Raikwar and K.K.N. Sharma
- Inclusiveness of National Rural Health Mission: A case study of Kupwara district in state of Jammu and Kashmir — 66
  -Rizwan Ahmed Lone
- Socio-Economic and Demographic characteristics of three most backward Tribes of Madhya Pradesh — 77
  -Ravendra K. Sharma and J. Roy
- Prevalence of Sickle Cell Disease In Tribal Belt of Chhattisgarh — 88
  -Rajesh Tembhurnikar, Pankaj Tembhurnikar and Sadhna Bagde

Statements and opinions expressed and published in the *TRIBAL HEALTH BULLETIN* are solely of author(s)/contributor(s). The Editorial Board disclaim any responsibility for the accuracy of statements made by the authors(s)/contributor(s). Proper citation should be made if any part of the article published in the bulletin is quoted.

HEALTH SERVICES DELIVERY AND TRIBAL COMMUNITIES OF ODISHA : AN EMPIRICAL STUDY

Nilakantha Panigrahi*

Abstract: *The land of Odisha is one of the largest abodes of tribal population in India. The state has housed 62 tribal communities, who constitute around 22.08 per cent of the total population. Almost 44.21 per cent of the total state geographical area has been constitutionally declared as scheduled area. During last six decades scheduled tribe communities and tribal dominated scheduled areas due to their backwardness have been specially treated under preferential welfare benefits. However, many of these communities and their habitations are deprived of getting basic quality services and became unapproachable due to various factors. In such a situation high backwardness among these communities are observed with respect to RCH indicators like ANC and PNC coverage, institutional delivery and/or safe delivery, immunization coverage, under-nutrition, IMR, MMR, age at marriage etc. This has impacted the qualitative growth of these communities and their region. The paper is based on the findings of an empirical study carried out in Malkangiri one of the most inaccessible tribal dominated districts of India. It tries to justify the fact that the state is yet to consider health services as the productive tool, while the tribal people and their region are yet to be considered as human endowments for a healthy growth of Odisha.*

Keywords: Scheduled Area, Health Institution, Disease and Treatment, Ethnic Healers.

INTRODUCTION

World Health Organization defines human health as a 'state of complete physical, mental and spiritual well-being and not merely the absence of disease and/or infirmity'. Human life is materially and socially productive and culturally meaningful if one is endowed with physical and mental well being. Humans everywhere transform the natural milieu of their habitat into a cultural milieu in so far as they modify their natural life to cultural one. The biological needs are common to all humans, and these are satisfied through cultural imperatives. The coping processes adopted by human being with their environment are both biological and cultural by nature. Gradually these biological and cultural forces became a kind of resource for human society is it rural and/or urban, tribal and/or non-tribal. The concept of health, disease, illness and sickness are inextricably intertwined with these social, cultural and economic factors, which are the product of and influenced by the well being of family members and on their access to resources. The socio-cultural factors more or less determine beliefs and practices related to health, disease and treatment. The social consequences of disease and illness though universal but are specific to the community in terms of their manifestations. The normative orientation of a community by and large determines the perceptions about the diseases, its symptoms and methods of treatment (Kroeger.1983)[1.]

*Associate Professor, Department of Anthropology and Tribal Development, Guru Ghasidas Viswavidylaya (Central University), Bilaspur, Chhatishgarh. E-mail: nilakantha.panigrahi@gmail.com

Disease perceptions on the one hand and treatment and healing choices on the other are interdependent. Thus, discourse on the native perceptions and *emic* understanding regarding disease is a necessity in understanding folk therapeutic behaviour. It is observed that, systematic investigation into folk system of disease classification has gained imperative consideration in Medical Anthropological studies from the late 1960s. Such studies have not only helped in better understanding of folk therapeutic behaviour, but also explored ethno-medical care in a systematic manner.

OBJECTIVES

The first section with a brief theoretical approach to medical anthropology reflects the study methodology and attempts to make an in-depth review of public policy on health care. The second section tries to examine the nature and quality of health services provided by health care institutions in Odisha. Thirdly, the paper based on empirical study critically reflects the availability of various types and quality of health service institutions at various levels of Malkangiri district, the study blocks and villages. Fourthly, the paper tries to reflect some of the perceptions of tribal people on disease and curative measures. It also quantifies the status of health condition and health care services in study villages with respect to disease pattern, sources of treatment, status of Traditional Birth Attendant and Traditional Healers. While concluding, the paper gives certain suggestions from policy perspective for the improvement of health services delivery and access of the tribal people to appropriate benefits to maintain good health. The paper tries to justify the fact that the state is yet to consider health services as the productive tool, and the tribal people, their region are yet to be considered as human endowments for a healthy growth of Odisha.

Medical Anthropology, Ecology and Tribal Population:

Medical anthropology is an inter-disciplinary field which studies "human health and disease, health care system and bio-cultural adaptation.[2] It is one of the latest and most developed areas of anthropology and applied anthropology, [3] which emphasizes culture and society being organized around or influenced by the issues of health, health care and related issues. The term medical anthropology is in use since 1963 as a level for empirical research and theoretical production by anthropologists in social processes and cultural representation of health, illness and the nursing care practices.[4] It is a new discipline within cultural anthropology of different ethnic groups.

Ethnography since 20th century has been a tool to seek knowledge in primary health care and rural medicine. The ethnographical knowledge by medical personnel's was abandoned when anthropology adopted ethnography as one of the markers of understanding people, their culture and cultural practices. The relationship between anthropology and medicine changed till the development of modern medical anthropology came in 1960s and 1970s. Contributors of medical anthropology had their primary training in medicine, nursing, psychology and psychiatry.[5]

Foster and Anderson (1978) [6] viewed the development of medical anthropology is due to the interest of early physical anthropologists, ethnographic interest in primitive medicine, studies on psychiatric phenomenon and anthropological work in international health. Since 1940s anthropologist have been helping health care providers to understand cultural differences in health behaviors.

Medical Ecology:

Anthropologists consider human population as biological as well as cultural entities. Human culture determines the responses of population towards environment and environmental problems along with the genetic and physiological problems. Adaptation of human beings with the changing environment brings changes and modifications in the larger political economy and socio-cultural system. The concept of adaptation was first applied by Alland (1970)[7] in medical anthropology which for him takes place through genetic changes, physiological responses, cultural knowledge and practices and individual coping mechanisms. Such a concept is based on two premises that health is determined by environmental adaptation and occurrence of diseases is due to the non-equilibrium in the environment (Ibid). Since the evolution of disease is determined by biological and socio cultural evolution of human population and of the society, it is understood that the development and epidemiological profile of different economic groups like forager, peasant, animal husbandry and industry varied due to their eco system, food pattern, domestication and pathogens. Medical ecology also assumes that bio medical disease categories are universal but varies as per time, geographical space, settlement pattern and type of economy. The extent of hemoglobin and body temperature varies according to geographical space. The infectious diseases like tuberculosis, malaria, small pox needs to be studied from historical context. Therefore, medical ecologists study the food pattern, body growth and development, geographical hazards and injuries, demographic change over time. Medical ecology has usually studied isolated populations living in rigorous environment like high altitudes, the arctic and tropical forests.[8] Since 1980s research studies have given by biologists and medical anthropologists to seasonality and health in agricultural populations, environmental and cultural regulations of fertility, migration and change in health status, work productivity in under nourished and infected population (Ibid).

Ethno -Medicine:

Ethno medicine the study of folk or primitive medicine largely encapsulates health beliefs, cultural values and social roles of human society in disease, treatment and health maintenance. Health ethnography also contains the values of traditional healers, patients, and medicine preparation procedure and ethno medical belief systems. The plurality of medicines are found in different folk societies which included the cosmopolitan medicine practices in North America; Humoral medicine derived from ancient Greek medicine observed in Latin America society; Ayurvedic medicine as observed in India and China. The

explanatory model of ethno medicine in 1977 explains the causes of illness, diagnostic criteria and treatment options, which vary according to the practitioners, patient and their family members and contributed in the cultural construction of the illness and treatment both in terms of treatment as a biomedical term to a culturally defined construction consisting of social and spiritual realms including sorcery, soul loss and spirit intrusion.

Culture psychiatry is another dimension of ethno medicine in which the participant observation, ethno symantic data, life history, interviews as ethnographic methods are popularly used by the healers in rural societies.[9] Since then the integration of ethno ecology and ethno medicine with the help of indigenous people's knowledge on medicinal plants and processing have been prompted. Anthropological principles and practices are applied to meet the multi cultural needs of the society in the areas of maternal and child health care, community responses to natural hazards, integration of HIV AIDS population with their main societies, managing the socio-psychological problem of refugees, riot victims, rural elders, drug addicts, ethnic minorities etc. The political economy of health basically propounded popularly known as Marxist theory or dependency theory analyses the impact of global economy on local and national health and suggests that any intervention of policy and practices should be in accordance to the understanding of social production of illness and poverty within the larger dynamics of class interactions, colonialism and world economic system.

MATERIALS AND METHODS

The study adopted a multi-stage stratified purposive sampling. Firstly, looking at the backwardness and inaccessible characteristics of different districts of the state, it was decided that Malkangiri district is most unreached by nature. Secondly, while comparing different Public Health Institutions (PHIs) of the district it was observed that Kudumulu-guma PHC is the most inaccessible and unreached region of the district and thus selected for the study. Thirdly, in cut off area of Kudumulugumma PHC two health sectors of Jodambo and Janbai have been selected. In these health sectors seven villages in three clusters consisting of neighboring villages were finally adopted. Two villages in cluster nearer to each health sector of Jodambo and Janbai adopted with different dominant tribal communities. Similarly, three villages in a cluster have also been selected at a distance of 7 kms from Janbai PHC headquarter. The objective behind is to assess the variations in the quality of health services provided by PHIs in surrounding villages and how different tribal communities have perceived and have access to health services.

The study has adopted ethnographic Field Work approach. More particularly it has followed in-depth interviews, group interviews, life histories and illness stories and participant observation. The study has also used various methods to collect secondary data from District Medical Office, PHCs, Additional PHC, NGOs and related organisations. The study carried out household survey in selected villages during the year

2009-10. It also adopted in-depth interviews with the help of check lists from dhais i.e. Traditional Birth Attendants (TBAs), *disharis* or traditional healers, members of Panchayati Raj Institutions, Multi-Purpose Health Workers (both male and female) *Anganwadi* workers of Integrated Child Development Service (ICDS), DOT Providers, T.B. Patients, Medical Officers etc.

Review of Literature:

The medical model of health services of 1950s and 1960s consider illness as the result of physiological difficulties and organic deficiencies. The 'Human Capital School approach'[10] attempted to measure the economic value of human being and gave the rationalities for 'investment in men', seems to have treated human being as a 'productive tool', which needs the cost of repairing and maintenance of human capital. The Health Care Service emphasizes the supply and demands of health service providers. Since the inception of state intervention in health service sector attempts are being made to establish a state controlled and/or center based health service delivery system.[11] High infant, child and maternal mortality and morbidity due to communicable diseases (malaria and respiratory infections), water borne diseases (cholera, gastro-enteritis, malnutrition, measles) and pregnancy related conditions forced the state to look after Primary Health Care (PHC) approach emphasized both on preventive and promotional health care in a more pragmatic and integrated manner. [12]

The research findings of few anthropologists in India and more particularly in Odisha on health care practices of the tribal people, their access to outreach health services provided by the state agencies and quality of health services are highlighted. The study of Dalton (1872)[13] and Bodding (1925)[14] reflects the progress of the anthropological studies on relatively isolate populations in hills and forests of India. Sarkar (1958)[15], Ray Choudhury, Bhowmick and Das (1976)[16] have emphasized the importance of understanding the social environment and cultural dimensions of health and diseases of the tribal population. Five basic categories of situations on which folk etiology in tribal communities are believed to be responsible for illness; viz., (i) sorcery, (ii) breach of taboo, (iii) intrusion of disease object, (iv) intrusion of disease causing spirit, and (v) loss of soul.

From Odishan context couple of research studies is analyzed to understand the concept of health perceived by tribal communities and major constraints faced by different stakeholders while accessing the health services and/or while providing health services in tribal region. The review purposively selects some of the related studies carried out since 1980 with a premise that the adoption of Tribal Sub Plan approach since 5th Five Year Plan period the state has adopted related tribal development programmes which would have brought expected results in changing the understanding of the tribal people on health and adoption of modern treatment. Nityananda Pattnaik et.al (1980)[17] has made an analysis on the health status and associated disease profile of the Bhuyan tribe, their dietary

habits, extent of malnutrition, belief regarding their diseases, traditional method of treatment and attitude towards the modern treatment. He found that the Bhuiyans with respect to their understanding on the concept of disease and treatment are largely guided by their age old cultural beliefs and practices. Sahu (1980)[18] focused his study among the Oraons of Sundargarh district who have access to the modern health facilities available around Rourkela Steel Plant and those who are residing in remote rural areas where the modern health facility is a dream. The change in the attitude and understanding of the Oraons is basically due the impact of Christianity, industrialization and their access to market. Basu's (1994)[19] study shows that the Kutia Konds and Dudh Kharias of Odisha have developed strong magico-religious health care systems and they wish to survive and live in their own style. Mahapatra (1994)[20] viewed that the concept of health–as understood and believed by almost all the tribal societies- is a functional one and it is mostly non-clinical in nature. As per the author's view the health in terms of the beliefs of most of the tribal's- is threatened not only by the evil spirit, including specialized disease spirits, but also by persons emanating evil, mystical powers like evil eye, evil mouth and evil touch or witch craft. The poor health seeking behavior among the tribal populations, in general, can be attributed to their social and living conditions, poor economy, illiteracy, ignorance, superstitions etc. All these factors lead to the presence of severe malnutrition, improper and poor sanitation, unsafe drinking water and low level of awareness on available health resources.

N.K. Behura (2003)[21] has emphasized the concept of human capital in relation to various health aspects with special reference to Odisha. Taking into account the indicators like infant mortality rate, under five mortality rate, institutional delivery and deliveries assisted by a health professional, he viewed that the health scenario of Odisha is not encouraging one. Other unique aspects of tribal people clearly examined and analyzed by the author include folk perception of ethno medicine, perception of etiology and treatment of diseases by herbal medicine. Shailabala (2007-08) [22] while undertaking the health accounts of Odisha sponsored by European Union provided the health accounts matrix for the state. She also concluded that health expenditure of Odisha is 4.45 per cent of SDP of Odisha. The out pocket expenditure incurred by households was about 3/4rth (72.73%), of total expenditure on health. The major share of expenditure of H&FW Department of the Government of Odisha goes to hospital and health administration. She also agreed that around 66 per cent of the total health expenditure by households is for purchase of drugs and medicines.

Health Policy and Health Service Approach:

Over the decades one observes radical changes in the state sponsored public health system approach. The early part of the 19th century have established the relation between sanitary conditions and health problems, while in the mid 19th century public health got a new face with the introduction of mass immunization, curative and hospital based services

which is popularly known as 'therapeutic phase'. The dominant thought during the period was that good health is predominantly due to the result of medical interventions and hospital services which later on found wrong. Understanding the magnitude of different health problems, different national and international bodies came forward to implement various health related special programmes. A few of them are Primary Health Care, Comprehensive Health Care, Basic Health Services, Community Health Centre, etc. Besides this, various Commissions and Committees like the Bhore Committee in 1966, the Srivastav Committee 1975 and the New Draft Health Plan of Government of India in1977, have influenced the growth of health programs in India. The glorious Alma Ata Declaration of 1978 and Health for All by 2000 A.D. have substantially contributed in bringing a revolution in providing health services to all. For the first time the National Health Policy of 2001 in India thought of achieving good health for all people by increasing the access rate into Public Health system by way of decentralization, up gradation of infrastructure and in strengthening the capacity of the public health in the name of mega programme under National Rural Health Mission of the nation.

In almost all the alternative health strategies emphasis have been made from “curative to preventive” approach, from “urban to rural” from “privileged to under privileged” and from “vertical mass campaigns to a system of integrated health services” forming a component of overall social and economic development. The Odisha State Integrated Health Policy (2002) of the H&FWD reflected its commitment to improve the health status of the people by providing health care in a socially equitable, accessible, and affordable manner within a reasonable timeframe. Panchabyadhi Chiksta scheme started in 2001 guarantees free treatment and medicine for five common diseases like malaria, leprosy, diarrhea, acute respiratory infection and scabies. The Navajyoti scheme introduced in 2005 in 14 backward districts of the state aimed to reduce the neonatal mortality. Still the health policies so far adopted are yet to bring satisfactory results. [23] Most of these programmes have been lacking to consider certain human factors like values, attitudes, motivation and commitment by the health service providers.

In spite of, when one looks at the status of different key indicators of health in Odisha one does not find a very encouraging scenario. A look into the data with respect to the growth of population in Odisha has gone down over the years, but the extent of decline was relatively higher during the 1980s as compared to 1990s partly because of the demographic transition due to low birth and low death (Register General of India, SRS Bulletin, various issues). In Odisha the Crude Birth Rate is 9.8 (2002) is still higher when compared with the BIMARU states, while the Crude Death Rate has also declined from 13.47 in 1980-82 to 12.7 during 1987-88 (HDR, 2004). A look into the rural and urban areas of Odisha with respect to the CBR and CDR, the data show that perhaps due to the poor health service delivery and low level of infrastructural development in rural Odisha there is a

mismatch in the birth and death rate of rural and urban areas of Odisha (Ibid). The life expectancy of the people of Odisha is lagging behind 15 other states and more particularly when compared with Kerala (Male-71.67 and Female 75 for 2001-06 (GoI, 2005)[24]. The life expectancy of females (61.15 years in 1996-01) in Odisha is lower to that of males (62.13 in 1996-01) (GOI, 2005).[25]

The Study Universe: Malkangiri District

Malkangiri predominantly a tribal dominated district is situated in south Odisha. Consequent upon the bifurcation of Koraput district (undivided) into four districts, Malkangiri came into existence with effect from October 2, 1992. The total geographical area of the district is divided into three Tahasils and seven Community Development Blocks. The district has 878 inhabited villages distributed over 108 numbers of Gram Panchayats. The rural population of the district accounts to the tune of 93.79 per cent. The sex ratio of the district is 996 per 1000 males, is above the state average of 972. The density of population per sq. km. is the second lowest (83), reflects that the population is very thinly distributed compared to other districts of the state. The geographical inaccessibility along with the thin distribution of population in the district many times creates physically unreached pockets and population (Census of India 2001). The predominant tribal communities of the district are the *Bondos, Koyas, Bhumias, Parojas, Kondhs, Gadabas, Didayis, Natias, Dharuas,* and the *Halvas who* maintain their distinct socio-cultural boundaries, which are reflected in dialects, dresses, customs, taboos, food pattern etc. Their subsistence economy is largely contributed by forest, livestock and shifting cultivation.

Study Village:

The study covered seven revenue villages distributed in two different health sectors of Kudumulugumma P.H.C. The two villages viz: Tarabeda and Janturai i.e the first cluster was selected under Jodambo Additional PHC. Kudumulugumma the block head quarter is situated at a distance of around 100 kms which is covered by 4 hours journey by walk, four hours journey by motor launch (the only mode of transport). The availability of launch service provided by Dam Project of the Water Resource Development Department is not regular due to frequent technical and non-technical problems. The second cluster of two villages selected under Janbai Subsidiary Health Center (SHC) is Khajurigumma and Karlamal. Both the villages are situated at a distance of 2.5kms and 4 kms from the Subsidiary Health Center at Janbai respectively which takes almost one hour to one and half hour by walk. Kudumulugumma the block head-quarters is located at a distance of 70 to 75 kms from both the villages (which takes 7 to 8 hours by walk, boat journey and public transport). The third cluster consists of three villages i.e. Lambasing, Banguru and Banguru Resettlement Colony-17. All these villages are linked by kutcha roads, which join the main road at a distance of 1 to 2 kms. The villages are covered under Janbai Subsidiary Health Center and are located at a distance of 12 kms physically separated by the water reservoir. The Banguru Resettlement

Colony-17 was started by the Revenue Department during the year 1962-63. Different hills, forests and streams also surround the villages of this cluster which physically separates during the rain. The study in total covers 292 (90.11%) tribal households belonging to different ST groups. The villages are largely mono-ethnic by nature dominated by the tribal households. The *Kondhs* (32.64%) and *Parajas* (43.71%) dominates in all the cut off villages of both the health sectors.

Adequacy of Health Infrastructure in study region:

Kudumulugumma is one of the PHCs of the district, which covers 320 villages. The PHC had a Medical Officer and one pre-P.G Doctor. The PHC under its jurisdiction has one Additional PHC at Jodambo, one Subsidiary Health Center (SHC) at Janbai and three Mobile Health Units. It covered a total population of 50,960 (2004). The average population covered under one health sub-center is 3640, which is above the norm adopted by the state (3000 population per Health Sub-Centre) for tribal areas. Out of 14 health sub centers of this PHC, 9 (64.28%) sub-centers had population strength beyond the norm fixed by the state. The average number of villages and habitations covered per health sub-center consists of 22.85, are much higher to cover in hilly terrains. These villages are situated at a mean radial distance of 21.67 kms. It is impossible for a Female Health Worker to cover such a distance by foot. In addition to the population criteria, the physical distance, number of villages/habitations, sex composition, road communication facilities, disease etc. of a region are the influencing factors for the delivery of outreach services. In case of Kudaumulugumma PHC, the short fall of staff observed in the position of Multipurpose Health Workers for male was 54.54 per cent (6 out of 11), and for female it was 21.42 per cent (3 out of 14). The shortfall in staff strength has highly influenced the delivery of health services, monitoring and supervision of health activities.

The Additional PHC at Jodambo was established in the year 1970s and has the provision of one Doctor, one Pharmacist, one lady Multi-Purpose Health Worker, and one Medical Attendant to provide out-door health services. Two female health workers working in the area were belonging to ST communities. Almost all the multipurpose health workers more or less stay at Kudumulugumma P.H.C headquarters, which is around 80 kms from the PHI. On an average they visit their operational area for 10 to 15 days per month. None of the health sub-center has sub-center building for accommodation. The PHI had no Doctor, whereas most of the time the Pharmacist was out of the headquarters. One health sub-center on an average covers around 28 to 42 villages/clusters/habitations, which are spread over an area of 18 to 22 kms. The population covered under this health sub-center ranges from 2770 to 3160. The Jodambo PHI area has a total number of 14 ICDS centers and 7 sub-centers of which only 11 centers have ICDS workers and 7 sub-centers have organisers.

The Subsidiary Health Center (SHC) at Janbai was started in the year 1974. Balimela Dam Project Reservoir separates the whole operational area of

this health sector. It has been provisioned with one Doctor, one Pharmacist, one Female Multi-Purpose Health Worker, and one Medical Attendant. It provides only out-door health services to the local. The total operational area of the SHC at Janbai is divided into four Sub-Centers. The Male Multipurpose Health Workers posted in all the sub-centers were reported vacant. Of the total four Female Multipurpose Health Workers, there were only two working in the area of which one was a local tribal woman. Shortfall of staffs in all the technical and para-medico categories have reduced the delivery of health services. None of the sub-centers have own building for accommodation. The number of villages distributed over the sub-center ranges from 20 to 25 km, which are spread over a radius of 20 to 27 km. There were 550 to 780 households which covered 2300 to 3990 population covered under each sub center. The area had 11 ICDS centers and 9 ICDS sub-centers.

Functioning of Mobile Health Units (MHU) in study region:

Mobile Health Unit is an approach started by Government of India to provide primary health services in the unreached pockets due to inaccessible operational area. The study has reviewed the progress of activities of the Mobile Health Units (MHUs) from August 2003 to July 2004 operating under Kudumulugumma PHC and Balimela Dam Project (BDP) hospital. The operational areas of these MHUs covered 4 GPs from Korkonda block, 2 GPs from Kalimela block and 12 GPs from Kudumulugumma block, consisting of 342 villages. The average number of patients treated per day was 36 to 68 persons. It was commonly complained that the supply of medicines to MHUs was not regular and many time short expiry medicines were also supplied. For example chloroquine, a basic medicine required in the area was not supplied on regular interval and as per the requirement. The villagers many times demand more injectables and syrups.

Status of Health condition and Health care services in study villages: Disease Pattern

Seasonal illness episodes of the *Kondhs* and *Parojas* were documented on the basis of their memory recall for a period of one year prior to the date of survey. There were in all 809-illness episodes reported during the year. The common ailments reported were malaria, fever, body pain, headache, cough, joint pain, skin diseases and diarrhoea. Of the total diseases reported among the tribal people during the study, fever accounts for 57.62 per cent of which malaria constitutes 61.81 per cent, whereas, diarrhea (10,04%), skin (5.08%), APD (4.81%) have also been reported. The disease pattern among the *Kondhs* and *Parojas* shows that the females have been affected from 430 episodes (53.15%) than males who suffered from 379 episodes (46.84%). The major diseases affecting females' were 173 episodes of malaria (60.95%), 91 episodes of fever (52.36%), 22 episodes of joint pain (73.33%), whereas, males suffered from 51 episodes of body pain (51.11%), 21 episodes of cough (60.00%), 19 episodes of APD/Gastric (51.35%), and 22 episodes of skin diseases (52.38).

Length of Illness:

The length of illness among the *Kondhs* and *Parojas* has been calculated till their first contact for treatment with any public health institution. In case of malaria and common fever, the average length of illness was relatively greater. Of the total reported cases, around 38.13 per cent of malaria patients (82) have suffered for 6 to 10 days, while 37.20 per cent (80) have suffered more than 10 days. Likewise, in case of fever, 31.88 per cent (8) have suffered for more than 6 days, while 38.18 per cent (97) have suffered for more than 10 days. In aggregate 28.92 per cent (234) have suffered for 6 to 10 days, while 50.34 per cent (408) have suffered for more than 10 days till they make use of health services from PHIs.

Sources of Treatment:

In total, 5.80 per cent illness episodes (47) have not sought any treatment, while 431 (53.27%) treatment episodes have attended government hospital and 217 (26.82%) treatment episodes have attended private source. Around 114 (14.09%) episodes have attended both private and public health institutions for their treatment on priority basis. This clearly indicates the transition of the tribal society, which was once depending on ethno-medicines, who have started adopting allopathic treatments. There are few serious ailments, which could not be treated by private sources. This led them to depend on public PHIs. They viewed that the regular absence of government health personnel in their operational areas affects the villagers to get health services from PHIs. Seven quacks are operating from Janbai who moves from village to village with regular intervals and provide allopathic treatments. The quacks maintain a good rapport with the villagers. They prefer to give injectables to raise more income. Few Bengali quacks have been operating at Janbai to provide health services even for last 35 years. The villagers feel quacks as more reliable and accessible at doorstep.

Status of Traditional Birth Attendant (TBA):

Traditional Birth Attendant (thus known as TBA or *Dhai*) in *Kondh* villages is popularly known as *'Dhokaris' who* play a very important role during pregnancy and childbirth. Due to the lack of facilities provided by PHIs for institutional deliveries in rural areas, TBAs have been playing an effective role. Due to their functional importance, government and non-government agencies have been providing training to TBAs *(Dhai).* In-depth interviews were carried out with 14 TBAs distributed over all the health sectors. Of them, 9 (64.28%) were STs in which four TBAs in each are belonging to *Paroja* and *Kondha* tribe, 3 (21.42%) were SCs and the rest 2 (14.28%) were belonging to other caste groups. The age classification of these TBAs indicates that around 57.14 per cent belonging to the age group of 41 to 60 years, while 35.71 per cent were above 60 years of age. About 92.85 per cent were reported as illiterate. The Health Workers feel that some of the TBAs still have operational viability, which can be made use for greater interest.

Traditional Healers or Disari:

Traditional tribal healers or magico-religious specialists play a very important role in health related issues. They are

popularly known as *Disari* who is also a specialist in ethnic medicine. They perform their role as a religious leader who forecasts the auspicious days and period to do festive occasions and also performs certain rituals. All *Disaris* do not play the role of traditional healer. The *Disaris* adopt the process of divination to invoke deities and spirits by chanting spells so as to ascertain the cause of affiliation. In almost all cases they prescribe certain food taboos and instruct to arrange for the prophylactic rite. Patients suffering from diseases caused due to physical and environmental factors have been treated directly with ethno-medicines. The study made in-depth interviews with 10 numbers of *Disaris* or traditional healers. The socio economic background of these *Disaris* reflects that around 90.00 per cent of them belong to ST groups and were within the age group of 41 to 50 years. Around 40.00 per cent of them were illiterate, while another 40.00 per cent of them were just literate. Around 80.00 per cent i.e. eight number of total TBAs provides health services within 5 to 10 number of villages, in a distance of 6 to 10 kms. Four healers (40.00%) have treated 11 to 15 patients each, while five (50.00 %) of them have treated more than 15 cases during last year. The study indicates that the ethno-practitioners are still playing important roles in the disease treatment regime of tribal societies. The transfer of skill on hereditary basis justifies the contribution of these agents to maintain good health in the village. They enjoy a substantial influence in and around the villages, which goes beyond ethnic boundaries. These traditional practitioners as a community of health service providers can be given training from time to time so as to infuse certain basic scientific knowledge pertaining to health and hygiene.

Perception of Tribal on disease and curative measures:

Tribal Belief System:

The Desia *Kondhs* and the *Pengo Parojas* are the numerically dominant community in the study villages. They consider that the treatment of patients is specific to age, sex and nature of the ailment. Common diseases reported in the village were fever, respiratory tracts infection, skin diseases, dysentery, body injury, conjunctivitis, cataract, anemia, worm infection, etc. Belief system of these tribal communities is an organized body of ideas, attitudes, and convictions centered on values, and are considered as organic part of life processes. They believe that it is a community product of group experiences and are so deep rooted that many times the society does not question their validity. The *Kondh* explains disease related beliefs as good and bad, right and wrong, links to natural and supernatural powers, which are both religious and magical by nature. The worldview of *Kondhs and Parojas* consists of nature and natural objectives, determines their life processes and influences their behaviour pattern about life and death, health and sickness. They say: why some germs attack few people and not others? This provides them with an internal logic and acceptable explanations to believe on witchcrafts, evil spirits, evil eyes, anti social action and taboos related to living. The folk world

of these communities can also be classified on the basis of secular and non-secular belief pattern. The secular beliefs include physical and natural factors like effects of different seasons like hot, cold, rain, sunray, food pattern, addiction etc. while the non-secular beliefs can be classified as *karma,* sins, wreath of evil eyes, demons, evil spirits, religious events, etc. They consider health as a state of physical and mental fitness in which person can able to perform his/her natural responsibilities. The state of fitness of human health is interpreted as free of diseases.

Both *Kondhs* and Parojas pointed out various physical, dietary, natural factors as causes of disease. This may be multi-causal or mono-causal explanations. However, they believe that specific disease occurs due to specific reasons. However, the villagers spontaneously linked illness to traditional and supernatural factors. The socialization processes of the younger generations through oral transmission bears greater impact to believe on these factors. More or less the religious beliefs of *Kondh* and the Parojas influence their understanding and behavior pattern towards health and diseases. Very few of them are partly closer to the modern understanding that diseases are caused due to both natural and manmade factors. Thus, both the Kondhs and the Parojas have a holistic and integrated understanding on their life processes as a whole.

Physical Environment:

The small single room used to prepare food, store grains, sleeping and keeping deities. Defecations by adult tribals are common in open field where as the children do it inside the village. This has enough contribution in contaminating water sources and resulting water borne diseases like dysentery, diarrhea and skin diseases. The animal sheds of both the tribes attached *to the* house breeds' mosquitoes, flies, and insects and makes poor sanitary situations. Animal dung, free movement of pigs and poultry largely pollutes while urine of animals and human being swamps. Creation of worms and other intestinal parasites of livestock many times attack their poor immune system. Distribution of houses in a compact space results ill ventilation and inadequate light inside the room. Spitting and urination by the children in front of their house pollutes the environmental sanitation of the village.

Personal Hygiene:

The tribal children below the age of 7 years rarely brush the teeth as the adult members do. All the children and adult members use to take hot water bath during winter and rainy seasons. Because of their poor economic conditions the *Kondhs* normally have two pieces of clothes for each member of the family. The washing of all clothes (apart from the daily bath) is made during the occasion of pollution and purity due to birth and death ceremony. They use white powder of kitchen to clean their clothes and a few have started using soap. Smoking of locally made raw *pika* or cigarettes (*Dhungia*) are popular among both males and old females. Even a boy or girl of 9 years old was also observed smoking. The tribal people consume various types of liquor made up of *raggi*, and *rice,* known as *pendum,*

landa, and palm juice. Above all the hygienic aspects of both the tribal communities are largely influenced by socio-cultural factors. The low level of education, poor awareness and lack of outward mobility makes their practices more traditional.

CONCLUSION

- Availability of health infrastructure in tribal region is inadequate both in quantity and quality of inputs.
- The tribal people still recognise and are guided by both natural and super natural factors as the causes of diseases. They are more influenced by their belief patterns.
- The common diseases, which affect tribal people, were reported as malaria and fever followed by skin diseases and diarrhoea.
- The extension workers engaged in delivery of health services in cut off area do not have a holistic understanding of diseases suffered by the tribal people. As a result, tribal communities normally do not accept the prescriptions made by the Health Workers.
- It was observed that the operational linkages in whatever form were observed functioning between the female Multi Purpose Health Workers and local functional institutions like TBAs do not contribute much for better functioning of local health institutions and outreach health service delivery system.
- In case of few serious ailments, which cannot be treated by private sources, the patients are depending on Public Health Institutions (PHIs), but their poor economic conditions do not allow them to avail specialized treatments from outside. Absence of doctors at PHC and SHC (very frequently even for long years) restricts the delivery of treatments provided from PHIs.
- Out reach services provided by MHUs have reached many unreached villages during their short duration of visits to a village are unable to cover the chronic cases like TB and in providing follow ups to TB patients.
- Quacks are the first person to provide health services to the villagers even in remotest corners. Even they identify special TB cases and link them for sputum tests directly.
- The physical absence of health workers acting as DOT Providers (DPs) in their operational areas for a longer period of time has affected the delivery chain of RNTCP. It has also affected the community processes which were useful for identification, motivation of TB patients for medicine intake and follow-up sputum tests.
- Training in the form of orientation and transfer of special skills on recurring basis are lacking in the health service delivery system. This affected the functioning of the health personnel and the health service delivery system. It also affected the establishment of a supportive monitoring mechanism.
- The state must consider health services as the productive tool, while the tribal people and their region as

landa, and palm juice. Above all the hygienic aspects of both the tribal communities are largely influenced by socio-cultural factors. The low level of education, poor awareness and lack of outward mobility makes their practices more traditional.

CONCLUSION

- Availability of health infrastructure in tribal region is inadequate both in quantity and quality of inputs.
- The tribal people still recognise and are guided by both natural and super natural factors as the causes of diseases. They are more influenced by their belief patterns.
- The common diseases, which affect tribal people, were reported as malaria and fever followed by skin diseases and diarrhoea.
- The extension workers engaged in delivery of health services in cut off area do not have a holistic understanding of diseases suffered by the tribal people. As a result, tribal communities normally do not accept the prescriptions made by the Health Workers.
- It was observed that the operational linkages in whatever form were observed functioning between the female Multi Purpose Health Workers and local functional institutions like TBAs do not contribute much for better functioning of local health institutions and outreach health service delivery system.
- In case of few serious ailments, which cannot be treated by private sources, the patients are depending on Public Health Institutions (PHIs), but their poor economic conditions do not allow them to avail specialized treatments from outside. Absence of doctors at PHC and SHC (very frequently even for long years) restricts the delivery of treatments provided from PHIs.
- Out reach services provided by MHUs have reached many unreached villages during their short duration of visits to a village are unable to cover the chronic cases like TB and in providing follow ups to TB patients.
- Quacks are the first person to provide health services to the villagers even in remotest corners. Even they identify special TB cases and link them for sputum tests directly.
- The physical absence of health workers acting as DOT Providers (DPs) in their operational areas for a longer period of time has affected the delivery chain of RNTCP. It has also affected the community processes which were useful for identification, motivation of TB patients for medicine intake and follow-up sputum tests.
- Training in the form of orientation and transfer of special skills on recurring basis are lacking in the health service delivery system. This affected the functioning of the health personnel and the health service delivery system. It also affected the establishment of a supportive monitoring mechanism.
- The state must consider health services as the productive tool, while the tribal people and their region as human endowments for a healthy growth of Odisha.

landa, and palm juice. Above all the hygienic aspects of both the tribal communities are largely influenced by socio-cultural factors. The low level of education, poor awareness and lack of outward mobility makes their practices more traditional.

CONCLUSION

- Availability of health infrastructure in tribal region is inadequate both in quantity and quality of inputs.
- The tribal people still recognise and are guided by both natural and super natural factors as the causes of diseases. They are more influenced by their belief patterns.
- The common diseases, which affect tribal people, were reported as malaria and fever followed by skin diseases and diarrhoea.
- The extension workers engaged in delivery of health services in cut off area do not have a holistic understanding of diseases suffered by the tribal people. As a result, tribal communities normally do not accept the prescriptions made by the Health Workers.
- It was observed that the operational linkages in whatever form were observed functioning between the female Multi Purpose Health Workers and local functional institutions like TBAs do not contribute much for better functioning of local health institutions and outreach health service delivery system.
- In case of few serious ailments, which cannot be treated by private sources, the patients are depending on Public Health Institutions (PHIs), but their poor economic conditions do not allow them to avail specialized treatments from outside. Absence of doctors at PHC and SHC (very frequently even for long years) restricts the delivery of treatments provided from PHIs.
- Out reach services provided by MHUs have reached many unreached villages during their short duration of visits to a village are unable to cover the chronic cases like TB and in providing follow ups to TB patients.
- Quacks are the first person to provide health services to the villagers even in remotest corners. Even they identify special TB cases and link them for sputum tests directly.
- The physical absence of health workers acting as DOT Providers (DPs) in their operational areas for a longer period of time has affected the delivery chain of RNTCP. It has also affected the community processes which were useful for identification, motivation of TB patients for medicine intake and follow-up sputum tests.
- Training in the form of orientation and transfer of special skills on recurring basis are lacking in the health service delivery system. This affected the functioning of the health personnel and the health service delivery system. It also affected the establishment of a supportive monitoring mechanism.
- The state must consider health services as the productive tool, while the tribal people and their region as human endowments for a healthy

SOCIO-ECONOMIC DETERMINANTS OF DISABILITY: EXAMPLE FROM UTTAR PRADESH

Binod Kumar Singh*[1]

Abstract: *More than one billion people in the world live with some form of disability or impairment. In the years ahead, disability will be an even greater concern because its prevalence is on the rise due to ageing populations and the higher risk of disability in older people as well as the global increase in chronic health conditions. Notwithstanding the solemnity of the issue, both awareness of and scientific information on disability issues are lacking. People with disabilities (PWD) are an important social issue in India. India is a home of 21.9 million disabled people. About one-sixth of the disabled persons in the country were enumerated in Uttar Pradesh (Census of India, 2001). They are valuable human resource for the country and seeks to create an environment that provide them equal opportunities, protection of their rights and full participation in society.*

The main objective of the study is to examine the geographical variations in disability prevalence in Uttar Pradesh of India and to identify the main factors that explain these variations.

Ecological study with the 70 districts of Uttar Pradesh as the units of analysis included. Iyengar and Sudarshan (1982) method is used to calculate the index value for a given indicator and the composite index value for each district based on information from the Annual Health Survey, 2010-11 to measure the spatial differentials in the prevalence of disability and its determinants. Simple correlation coefficients are obtained between each dependent variable (disability, rural disability, urban disability, disability prevalence among men and women) and the independent variables. Two multiple linear regression models are fit to obtain the best set of factors that explain the geographical distribution of disability and disability differentials.

Prevalence of disabilities (rural-urban and men-women) vary widely among districts of Uttar Pradesh. The prevalence of disability is strongly and significantly influenced by socio-economic, demographic and health & hygiene determinants and, of course, by environmental factors. The multiple linear regression analysis shows that the ageing, work participation rate, morbidity, chronic & acute illness, nutrition, personal habits, toilet facilities and source of drinking water are the main factors associated with the geographical variations in the prevalence of disability.

The models explained approximately 40% of the variance for rural disability and 30% for urban disability. The results obtained show the influence of education, unemployment rate and smoking on the geographical differences of disability prevalence. This study suggests the need to concentrate efforts on the improvement of socio-economic and health conditions of various aspects of persons with disabilities and reducing existing disparities in their status. The disability determinants are shown to be valid for use in health policy.

INTRODUCTION

The people with disabilities (PWD) are deprived of all opportunities for social and economic development. Vital services like health, education and employment are denied to them. In spite of several

* Senior Geographer, Directorate of Census Operations, Uttar Pradesh under the Office of the Registrar General, India New Delhi. E mail:bkscensus2011@gmail.com

international and national pronouncements the rights of the disabled has remained on paper. Given the magnitude of the problem it is important that disabled persons receive political attention. More than one billion people in the world live with some form of disability, of them nearly 200 million experience considerable difficulties in functioning. In the years ahead, disability will be an even greater concern because its prevalence is on the rise. This is due to ageing populations and the higher risk of disability in older people as well as the global increase in chronic health conditions such as diabetes, cardiovascular disease, cancer and mental health disorders. Many people with disabilities do not have equal access to health care, education, and employment opportunities, do not receive the disability-related services that they require, and experience exclusion from everyday life activities. Despite the magnitude of the issue, both awareness of and scientific information on disability issues are lacking (World report on disability 2011).[1]

Throughout history, persons with disabilities (PWDs) were largely invisible, and despite being the world's largest minority they continue to be in a number of places. People with disabilities (PWDs) are amongst the most marginalized and poorest of the entire world's population, whose basic rights are not well met and full societal acceptance has a long way to go. The UN Convention on the Rights of Persons with Disabilities 2006 notes that "persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments." [2] The extent that these impairments make someone disabled is dependent upon the level of attitudinal and environmental barriers in society. The more barriers the less likely persons with disabilities are able to participate in society.

Around 400 million disabled persons live in the developing world. It is estimated that at least 10 per cent of the developing world's population is disabled in one way or the other. As per 2001 census, 21.9 million or 2.13 percent of the total people were disabled in India. According to the NSSO 58th round the magnitude of the disabled persons was 18.49 million (1.8%) in 2002. [3] While official estimates of disability are low (around 2 percent), alternative estimates using better methods and more inclusive definitions suggest a higher prevalence of disability (4-8 percent). According to the latest estimates published in World Report on Disability 2011, as per *World Health Survey (WHO, 2002-2004)* the disability prevalence rate in India is 24.9 and as per *Global Burden of Disease (World Bank, 2004)* is 10.5 per hundred persons in 2004.[4,5]

The state of Uttar Pradesh is the home of 3.5 million disabled persons. The disability prevalence rate in Uttar Pradesh was 2078 per 100000 population. Around 78 percent of the disabled persons are residing in the rural areas of the state. One-third of them are children, 52 percent in the working age and 14.3 percent are aged. The disabled persons in Uttar Pradesh are disadvantaged of opportunity for social and economic development. The Persons with disabilities is a severely under-researched area, with limited data

on its prevalence and the effects on disabled themselves. The basic facilities like health, education and employment are denied to them. The State infrastructure is grossly inadequate and ill functioning where disabled are concerned. It is estimated that 1, 22,967 of the 2, 65,373 children out of school have disabilities. Around 56 percent of the disabled people in Uttar Pradesh are illiterate. About 68 percent of the disabled persons are unemployed, 51 percent are unmarried, 7.5 percent are widowed and 0.5 percent are either divorced or separated in the state. About 21.5 percent of the disabled persons belong to scheduled castes (Census of India, 2001).[6,7]

Millions are in the verge of collapsing due to severe disabilities. People with physical disabilities at least get noticed, but the others with mental illness are just written off. Along with the physical problems they also bear the brunt of social ostracism and stigma. Disabled are also not a homogenous group. There are different types of disabilities, with varying requirements. Each one's problem, needs and help required are different from one another. Given the magnitude of the problem it is important that disabled persons receive political attention. It is important to note that all the targets and policies of achieving social and economy equality will not be possible to meet if the concerns of the disabled are not addressed. There is need for policy level changes backed by adequate budgetary allocation. Disability is both a “lens” through which broader health policy issues can be viewed, as well as a specific set of needs of people with disabilities that health policy and systems need to address. Both prevention and management of disability are core issues in general in access to health. It is difficult to separate the interventions that are disability-specific from those that are related to health of the population in general. However, when it comes to diagnostic, screening and rehabilitative services for PWD, a disability-specific dimension enters health policy, particularly when institutional structures need to be reformed to improve access and outcomes for PWD. In much of the world, the literature on health and disability is typically framed within a medical model: India is no exception. Thus, much of the literature on disability and health in India sees disability within a disease framework. Hence, PWD are viewed as “patients” in need of “treatment”. Empirical evidence also comes predominantly from the medical discipline, focusing on causes of disability and clinical trials; although some recent studies have focused on poverty correlates and social stigma issues that affect PWD. There is little information on access to health for PWD or their general and disability-specific health needs – except whether “treatment” was sought for the disability.

For several decades the classic health indicators based on morbidity and mortality have shown to be insufficient to rigorously describe, monitor, and evaluate the health status and health needs of the disabled population. The possible geographical differences among areas within a state are of great interest in public health and health policy as they

show the potential for identification and prevention that still exists. The finding of regional differences in a state, for example, should suggest consideration of factors affecting such variations can be modified. Thus, the study of the major variables and factors that determine these geographical differences is a matter of great interest because it helps to provide rational guidance on possible activities to reduce such differences and, in short, to increase the level of health in the whole population. None of the studies have investigated the factors that explain such variations. The objective of this work is to study the distribution of disability and its differentials among districts of Uttar Pradesh and to analyse the main factors explaining this distribution.

DATA AND METHODS

We carried out an ecological study using the 70 districts that make up the state of Uttar Pradesh as units of analysis (Figure 1). The dependent study variables are prevalence of disability, rural-urban disability prevalence and male-female disability prevalence. The information on prevalence of disability is taken from Annual Health Survey 2010-11, Fact Sheet, Uttar Pradesh, ORG &CCI, New Delhi. In this survey the data on any type of disability by gender and residence was collected in respect of all the usual residents. Any type of disability includes 'mental', 'visual', 'hearing', 'speech', 'loco-motor' and 'multiple'.

The independent variables considered are socioeconomic, demo-graphic factors, variables related with health and sanitation and certain risk factors associated with lifestyle. The social factors used are literacy rates, sex ratio, proportion of SC population, and male-female mean age at marriage. The economic factors used are work participation rates, dependency ratio, urbanization and wealth index. The demographic factor used is proportion of aged population (60+). Variables related to health used are infant mortality rates, under-five mortality rates, prevalence rates of major injury, any type of chronic and acute illness per 100000 population and full immunization. Variables related to nutrition used are birth weight, iron supplement and Vitamin A. Variables related to personal habits used are smoking, drinking alcohol and chewing with tobacco. Variables related to hygiene used are proportion of households using safe drinking water and proportion of households having toilet facility.

The statistical analysis is made separately for each of the five dependent variables: disability prevalence rates, rural-urban disability prevalence rates and male-female disability prevalence rates. Basic descriptive statistics are calculated. The quartile distribution of the main variables are presented using map. Pearson correlation coefficients are calculated between the independent variables and each of the dependent variables. Finally, variables showing a statistically significant simple association with the dependent variable, those with a high correlation coefficient even being not significant and those other study variables of conceptual relevance for public health purpose are used to fit a multiple linear regression model for each of the dependent variables, to obtain the model that included the variables that

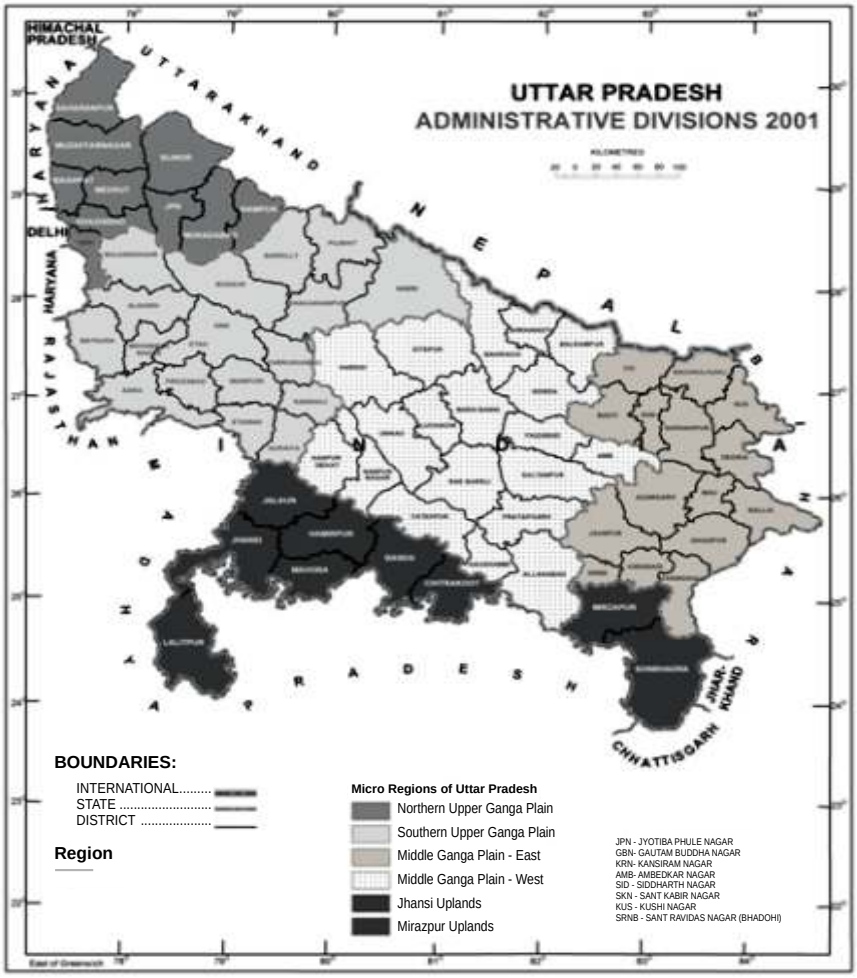


Figure-1

best explain the geographical distribution of disability. The calculations and statistical analyses are made using the statistical package SPSS. To determine the overall spatial variations in the levels of socioeconomic factors and disability differentials separately, the data are transformed using Iyengar and Sudarshan (1982) [8] method to calculate the index value for a given indicator and the composite index value for each district. In brief, it can be defined as follows;

Let X_{id} represent the value of the i-th development indicator in d-th indicator of a state (i=1,2,3….m: d=1,2,3……., n). If X_i is positively associated with development, then

$$\text{Index Value } (X_{id}) = \frac{Xid\text{-}Min\ (Xid)}{(Max\ (Xid)\text{-}Min\ (Xid)}$$

Where Min (X_{id}) and Max (X_{id}) are, respectively, the minimum and maximum of ($X_{i1}, X_{i2}, \ldots\ldots X_{in}$).

If, however, X_i is negatively associated with development, as for example, the under-five mortality rate or the infant mortality rate which should decline as the district develops, then the index value for X_{id} can be written as:

$$\text{Index Value } (X_{id}) = \frac{Max\ (Xid)\text{-}\ Xid)}{Max\ (Xid)\text{-}Min\ (Xid)}$$

The composite index is the simple

average of all the indices. One may argue that among the selected indicators one is more important than the other, and therefore, for the composite index, there is a need to give appropriate weight to each indicator. We have opted for a simple average to construct the composite index.

ANALYSIS

Patterns of geographical distribution of disability and its differentials

The pattern of geographical distribution of disability differentials have been studied under five parameters (overall disability prevalence rate, rural disability prevalence rate, urban disability prevalence rate, disability prevalence rate among men and disability prevalence rate among women).

i. Disability Prevalence Rate:

The descriptive analysis of the data shows large variations in the geographical distribution of disability. In figure 2 it can be observed that an area in the west (Upper Ganga Plain Region) and south (Uplands) of Uttar Pradesh has the highest prevalence of disability-which may be defining north-south and east-west gradient. This large variation can also be seen in table 1, where a difference of 924 points can be seen between the districts with highest (Saharanpur) and lowest (Jhansi) disability prevalence rates. Table 1 also shows large variations amongst district of Uttar Pradesh for most of the variables included in the study. To determine the overall spatial variations in the disability prevalence rate in Uttar Pradesh, the data are transformed using

Table 1: Descriptive statistics and correlation coefficients of variable included in the study

Variables	Mean	Maximum	Minimum	Correlation Coefficient				
				DPR	Rural DPR	Urban DPR	DPR men	DPR women
A. Dependent Variables								
1. Disability Prevalence Rate (per 100000 population)	***1269***	1764	840					
2. Rural Disability Prevalence Rate (per 100000 population)	1314	1864	862					
3. Urban Disability Prevalence Rate (per 100000 population)	1107	2547	689					
4.Men Disability Prevalence Rate (per 100000 population)	1431	2010	874					
5.Women Disability Prevalence Rate (per 100000 population)	1097	1731	605					
B. Independent Variables								
1. Social Determinants								
X_1 Literacy Rate (%)	71.2	86.2	49.1	0.1217	0.2557	-0.1093*	-0.0042*	0.2028
X_2 Sex Ratio (females per 1000 males)	943	1173	834	-0.3618*	-0.4215*	0.0016	-0.0461	-0.5317*
*X_3 Scheduled Castes (% of population)^*	20.7	34.7	11.4	0.1038*	0.0426	0.1052*	0.0937	0.0948
*X_4 Muslim Population (% of population)^^*	18.7	49.1	2.9	0.2287*	0.2674*	0.0274	0.1643*	0.2513*
2.Economic Determinants								
X_5Work Participation Rate (%)	39.8	48.7	28.2	0.2775	0.3402	-0.1230*	-0.0209	0.4540
X_6 Dependency Ratio	82.1	114.3	56.2	-0.1900	-0.3690	0.2001*	0.0372	-0.3320
*X_7 Urban Population (% of population)^*	22.3	67.6	3.5	0.0342	0.2973	-0.2977	-0.1937	0.2223
3.Health Determinants								
*X_8 Aged Population (> 60) % of population)^^*	7.01	8.35	5.38	-0.1493*	-0.2629*	0.1527	0.0778	-0.3106*
X_9 Infant Mortality Rate (per 1000 live births)	71	103	36	-0.0282*	-0.1785*	0.2429	0.1799	-0.1946*
X_{10} Under-five Mortality Rate (per 1000 live births)	94	142	52	-0.0927*	-0.2469*	0.1530	0.0707	-0.2148*

Table Contd....

Variables	Mean	Maximum	Minimum	Correlation Coefficient				
				DPR	Rural DPR	Urban DPR	DPR men	DPR women
X_{11} *Prevalence of Major Injury (per 100000 population)*	1250	4362	113	-0.1526*	-0.1779*	-0.0734*	0.0234	-0.2490*
X_{12} *Prevalence of Chronic illness (per 100000 population)*	7390	18848	2034	-0.3068*	-0.3435*	-0.0836*	-0.0288*	-0.4644*
X_{13} *Full Immunization (%)*	45.3	73.8	13.5	-0.2769*	-0.2580*	0.0397	0.0464	-0.4079*
X_{14} *Households using Safe Drinking Water (%)*	96.6	100.0	80.1	0.3011	0.2867	0.2723	0.3409	0.2231
X_{15} *Households having Toilet Facility (%)*	36.0	79.9	9.9	0.1781	0.3827	-0.1534*	-0.0339*	0.3234
X_{16} *Birth Weight*	28.2	78.2	11.8	0.3530	0.2905	0.2354	0.2021	0.4193
X_{17} *Iron Supplement*	10.6	36.0	2.8	0.1178	0.1919	-0.0847	-0.0764	0.2587
X_{18}*Vitamin A*	37.2	71.1	15.1	-0.0352	-0.0194	-0.0351	0.0172	-0.0645
X_{19} *Breastfeeding*	17.7	54.7	1.2	-0.1321	-0.1510	-0.0699	-0.0684	-0.1642*
X_{20} *Prevalence of Smoking (per 100000 population)*	12.4	24.3	4.9	0.3390*	0.3007*	0.0662	0.2062*	0.3803*
X_{21} *Prevalence of Drinking Alcohol (per 100000 population)*	6.8	21.6	2.5	-0.0233	0.0067	-0.1354	-0.0131	-0.0209
X_{22} *Prevalence of Chewing with Tobacco (per 100000 population)*	21.0	43.5	3.5	-0.2059*	-0.2750*	-0.0453	-0.0817	-0.2825*

*DPR: Disability Prevalence Rate ; ^ Data pertains to 2011 census; ^^ Data pertains to 2001 census; * p<0.05; ** p<0.01*

Table 2: Disability Prevalence Rate in Uttar Pradesh, 2010-11

Category	Range Distribution of Disability Prevalence Rate(DPR) per 100000 population	No. of Districts	Percentage of Districts	Cumulative Percentage
Very High	Above 1500	14	20.0	20.0
High	1301 to 1500	13	18.6	38.6
Medium	1101 to 1300	24	34.3	72.9
Low	1000 to 1100	14	20.0	92.9
Very Low	Below 1000	5	7.1	100.0
Total		70	100.0	100.0

choropleth method to categorise the districts on the basis of prevalence rates observed for each district. Districts are classified into very high (disability prevalence rate > 1500), high (between 1301 and 1500), medium (between 1101 and 1300), low (between 1000 and 1100) and very low (below 1000) (Table 2). The distributional pattern of levels of disability prevalence rate is uneven and presents a very complex picture (Figure 1). Three distinct regions formed by one-fifth of the districts under the very high level of DPR, one lies in the Upper Ganga Plain region (one pocket each in the northern and southern part), second one lies in the Middle Ganga Plain Region and third one lies in the Jhansi Uplands. The thirteen districts which fall under the levels of high DPR formed three distinct regions, one lies in the Upper Ganga Plain Region, second one lies in the Middle Ganga Plain Region, and third one lies in the Jhansi Uplands. These two categories jointly cover about two-fifths districts of the state. Three distinct regions formed by over one-thirds of the districts under the medium level of DPR. The districts which lie under low and very low levels of DPR form two distinct regions, one lies in the Middle Ganga Plain region and other one lies in the Uplands of Uttar Pradesh. Together these two regions cover about one-fifths districts of the state (Figure 2).

***ii. Rural Disability Prevalence Rate*:** The descriptive analysis of the data shows large variations in the geographical distribution of rural disability. In figure 3 it can be observed that an area in the west (Upper Ganga Plain Region) and south (Uplands) of Uttar Pradesh has the highest prevalence of disability-which may be defining north-south and east-west gradient. This large variation can also be seen in table 1, where a difference of 1002 points can be seen between the districts with highest (Bareilly: 1864 per 100000 rural population) and lowest (Lalitpur : 862 per 100000 rural population) rural disability prevalence rates. To determine the overall spatial variations in the rural disability prevalence rate in Uttar Pradesh, the data are transformed using choropleth method to categorise the districts on the basis of prevalence rates observed for each district. The range of variations in rural disability prevalence rates is classified into five categories of very high, high, medium, low and very low (Table 3). One-fifths of the districts share very high level of rural disability (> 1500) and majority of them are concentrated in the Upper Ganga Plain Region (Figure 3). Twelve districts share high level of rural disability prevalence rates between 1301 and 1500 and unevenly distributed across the regions. The category of medium level of rural disability prevalence rate covers about thirty-seven percent of the districts and majority of them are distributed under the Middle Ganga Plain region. Six districts come under the low level of rural disability and these are located in Middle Ganga Plain region except Banda district which is located in Jhansi Uplands. There exist three distinct regions under the very low level of rural disability prevalence rate below 1000, one lies in the Uplands, Ballia district is located in the east Middle Ganga Plain region while Muzaffarnagar is located in the northern Upper Ganga Plain region (Figure 3).

***iii. Urban Disability Prevalence Rate*:** The descriptive analysis of the data shows large variations in the geographical distribution of urban disability. In figure 4 it can be observed that an area in the west (Upper Ganga Plain Region) and south (Uplands) of Uttar Pradesh has the highest prevalence of disability-which may be defining north-south and east-west gradient. This large variation can also be seen in table 1, where a difference of 1858 points can be seen between the districts with highest (Ballia: 2547 per 100000 urban population) and lowest (Jhansi : 689 per

Table 3: Rural Disability Prevalence Rate in Uttar Pradesh, 2010-11

Category	Range Distribution of Rural Disability Prevalence Rate (RDPR) per 100000 population	No. of Districts	Percentage of Districts	Cumulative Percentage
Very High	Above 1500	20	28.6	28.6
High	1301 to 1500	12	17.1	45.7
Medium	1101 to 1300	26	37.1	82.9
Low	1000 to 1100	6	8.6	91.5
Very Low	Below 1000	6	8.6	100.0
Total		70	100.0	100.0

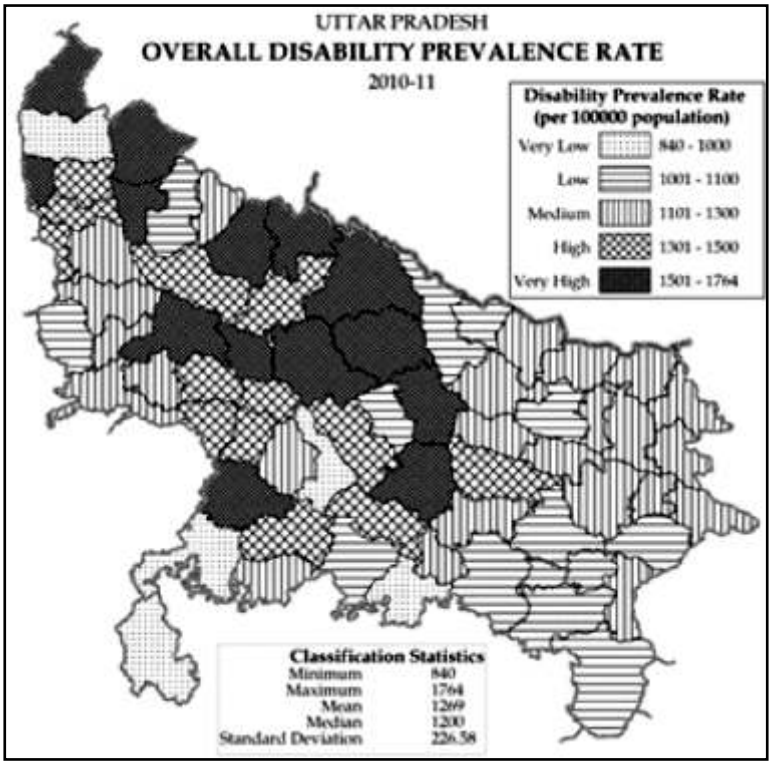


Figure-2

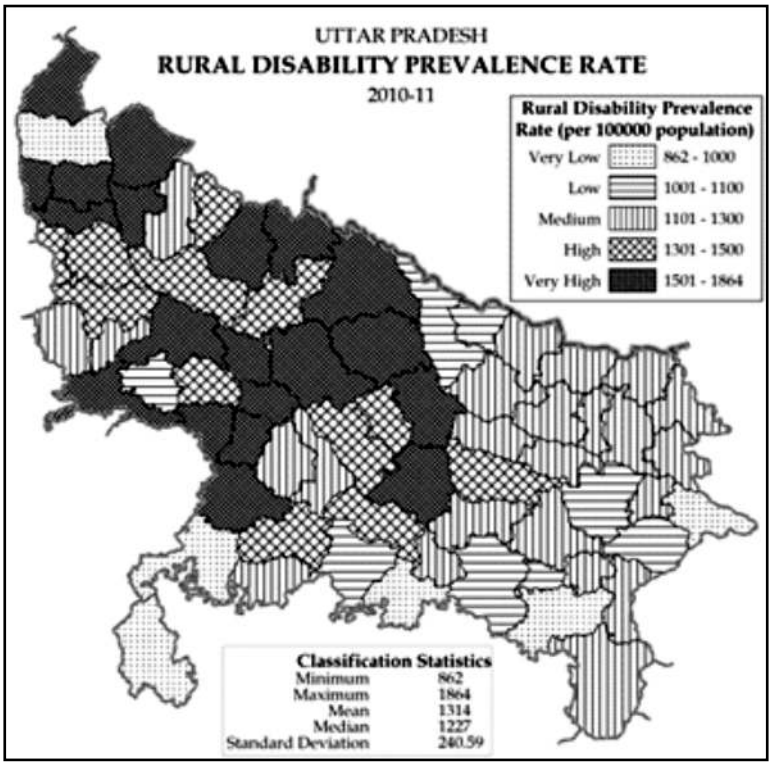


Figure-3

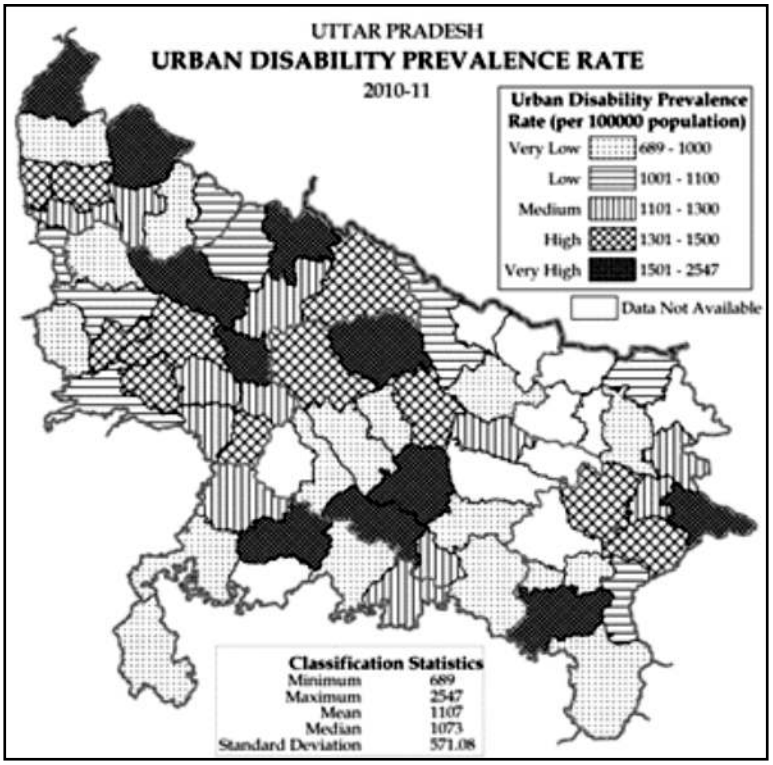


Figure-4

100000 urban population) urban disability prevalence rates. It is worth to mention that urban disability prevalence rates have not been reported in 11 districts of the state by AHS. These districts are Kanpur Dehat, Maharajganj, Ambedkar Nagar, Sultanpur, Shrawasti, Balrampur, Siddharthnagar, Basti, Sant Kabir Nagar, Kushinagar and Jaunpur. To determine the overall spatial variations in the urban disability prevalence rate in Uttar Pradesh, the data are transformed using choropleth method to categorise the districts on the basis of prevalence rates observed for each district. The range of variations in urban disability prevalence rates is classified into five categories of very high, high, medium, low and very low (Table 4). Eleven districts share very high level of urban disability (> 1500) and majority of them are unevenly distributed (Figure 4). Eleven districts share high level of urban disability prevalence rates between 1301 and 1500 and unevenly distributed across the regions. The category of medium level of urban disability prevalence rate covers about one-fifths districts and majority of them are distributed under the Upper Ganga Plain region. Eight districts come under the low level of urban disability and are unevenly distributed. As many as seventeen districts come under the very low level of urban disability prevalence rate below 1000 and majority of the districts are concentrated in the eastern and southern parts of the state (Figure 4).

***iv. Men Disability Prevalence Rate*:** The descriptive analysis of the data shows large variations in the geographical distribution of disability among men. In figure 5 it can be observed that an area in the west (Upper Ganga Plain Region) and south (Uplands) of Uttar Pradesh has the

highest prevalence of disability among men-which may be defining north-south and east-west gradient. This large variation can also be seen in table 1, where a difference of 1136 points can be seen between the districts with highest (Sitapur: 2010 per 100000 males) and lowest (Jhansi : 874 per 100000 females) disability prevalence rates among men. To determine the overall spatial variations in the disability prevalence among men in Uttar Pradesh, the data are transformed using choropleth method to categorise the districts on the basis of prevalence rates observed for each district. The range of variations in men disability prevalence rates (MDPR) is classified into five categories of very high, high, medium, low and very low (Table 5). Seventeen districts share very high level of disability among men (> 1500) and majority of them are located in Upper Ganga Plain (Figure 5). As many as 33 districts share high level of men disability prevalence rates between 1301 and 1500 and unevenly distributed across the regions. The category of medium level of men disability prevalence rate covers thirteen districts and majority of them are distributed under the Middle Ganga Plain and Upland regions. Four districts come under the low level of men disability; two districts each are located in the Upper Ganga Plain and Jhansi Uplands region. Three districts namely Kanpur Nagar, Lalitpur and Jhansi come under the very low level of men disability prevalence rate below 1000 (Figure 5).

***v. Women Disability Prevalence Rate*:** The descriptive analysis of the data shows large variations in the geographical distribution of disability among women. In figure 6 it can be observed that an area in the west (Upper Ganga Plain Region) and south (Uplands) of Uttar Pradesh has the highest prevalence of disability among women-which may be defining north-south and east-west gradient. This large variation can also be seen in table 1, where a difference of 1126 points can be seen between the districts with highest (Saharanpur: 1731 per 100000 females) and lowest (Basti: 605 per 100000 females) disability prevalence rates among women. To determine the overall spatial variations in the disability prevalence among women in Uttar Pradesh, the data are transformed using

Table 4: Urban Disability Prevalence Rate in Uttar Pradesh, 2010-11

Category	Range Distribution of Urban Disability Prevalence Rate (UDPR) per 100000 population	No. of Districts*	Percentage of Districts	Cumulative Percentage
Very High	Above 1500	11	18.6	18.6
High	1301 to 1500	11	18.6	37.2
Medium	1101 to 1300	12	20.3	57.6
Low	1000 to 1100	8	13.6	71.1
Very Low	Below 1000	17	28.8	100.0
Total		59	100.0	100.0

* Urban disability in 11 districts have not been observed/reported in the AHS 2010-11

choropleth method to categorise the districts on the basis of prevalence rates observed for each district. The range of variations in women disability prevalence rates (WDPR) is classified into five categories of very high, high, medium, low and very low (Table 6). Six districts share very high level of disability among women (> 1500) and are located in western part of the state except Jalaun (Figure 6). Eleven districts share high level of women disability prevalence rates between 1301 and 1500 and majority of them are concentrated in the western part of the state. The category of medium level of women disability prevalence rate covers seventeen districts and majority of them are distributed under the Upper and Middle Ganga Plain regions. Four districts come under the low level of women disability; two districts each are located in the Upper Ganga Plain and Jhansi Uplands region. As many as 32 districts come under the very low level of women disability prevalence rate below 1000 and majority of the districts are concentrated in the eastern part of Uttar Pradesh (Figure 6).

Patterns of socioeconomic and health determinants

This study follows Iyengar and Sudarshan (1982) mechanism to calculate the index value for a given development indicator and the composite index value for each district. The composite index in this study reflects a concise level of development of a district with respect to socio-economic and health characteristics of the population. The value of the composite index is an average of all indices for a given district. Thereafter, all the districts are ranked on the basis of average score. A district having a higher value of index gets better rank. The value of the composite index ($\overline{X_d}$) for a given district is calculated as follows;

$$\overline{X_d}) = 1/22 \sum_{i=1}^{22} X_d$$

In the present spatial perspective, an analysis of socioeconomic and health determinants have been considered to be the performance of twenty-two variables, as indicated in table 1, have been arranged into categories of very high, high, medium, low and very low (Table-7).

The composite index values of development vary widely. The index values range from 0.30 in Shrawasti (Nepal bordering district) in the northern part to 0.70 in Kanpur Nagar in the central part. The graded distribution of development determinants shows that 8.6 percent districts record the very high level (0.60 and above) and form three

Table 5: Disability Prevalence Rate (Men) in Uttar Pradesh, 2010-11

Category	Range Distribution of Men Disability Prevalence Rate (MDPR) per 100000 population	No. of Districts	Percentage of Districts	Cumulative Percentage
Very High	Above 1500	17	24.3	24.3
High	1301 to 1500	33	47.1	71.4
Medium	1101 to 1300	13	18.6	90.0
Low	1000 to 1100	4	5.7	95.7
Very Low	Below 1000	3	4.3	100.0
Total		70	100.0	100.0

Table 6: Disability Prevalence Rate (Women) in Uttar Pradesh, 2010-11

Category	Range Distribution of Women Disability Prevalence Rate (WDPR) per 100000 population	No. of Districts	Percentage of Districts	Cumulative Percentage
Very High	Above 1500	6	8.6	8.6
High	1301 to 1500	11	15.7	24.3
Medium	1101 to 1300	17	24.3	48.6
Low	1000 to 1100	4	5.7	54.3
Very Low	Below 1000	32	45.7	100.0
Total		70	100.0	100.0

discontinuous distinct regions, one in the western part (Ghaziabad, Baghpat and Gautam Buddha Nagar); second one in the central part (Kanpur Nagar and Lucknow); and third one in the Jhansi Uplands (Jhansi district). Thirteen districts namely Meerut, Firozabad, Muzaffarnagar, Bijnor, Mahamaya Nagar, Etawah, Rampur, Mathura, Agra in the western part and Ballia, Sultanpur, Varanasi and Rae Bareli, share high index values and form two sporadic regions under the high level (0.55 to 0.59) of development. Over one-fifths (27.1%) districts of the state to descend in subordination to medium level (0.50 to 0.54) of composite development and they constitute two patchy regions. One which is relatively large in size establishes in the west-central part of the state including the districts of Saharanpur, Jyotiba Phule Nagar, Moradabad, Bulandshahr, Bareilly, Aligarh, Farrukhabad, Mainpuri, Kannauj, Auraiya, Hamirpur and Unnao. Second lies in the eastern part comprising five districts of Deoria, Jaunpur, Gorakhpur, Gonda and Ambedkar Nagar. These regions are separated by an interrupted narrow region of very high level of development. Fifteen districts of low level (0.45 to 0.49) of development constitute four notable regions. One which is relatively compact ascertains in south-western part of the state (Jhansi Uplands) including the districts of Jalaun, Lalitpur, Banda and Mahoba. Second region is relatively small but packed together lies in the north-central part comprising three districts of Pilibhit, Shahjahanpur and Hardoi. Third region is comparatively large in size situated in the eastern part of the state including Sant Ravidas Nagar Bhadohi, Allahabad, Fatehpur Azamgarh, Kushinagar, Mau, Faizabad and Sant Kabir Nagar. Fourth one is sporadically distributed across the states including districts of Barabanki, Kanpur Dehat and

Table 7: Levels of Development in Uttar Pradesh, 2010-11

Category	Range Distribution of Composite Index Values	No. of Districts	Percentage of Districts	Cumulative Percentage
Very High	0.60 and above	6	8.6	8.6
High	0.55 to 0.59	13	18.6	27.2
Medium	0.50 to 0.54	17	24.3	51.5
Low	0.45 to 0.49	19	27.1	78.6
Very Low	Below 0.45	15	21.4	100.0
Total		70	100.0	100.0

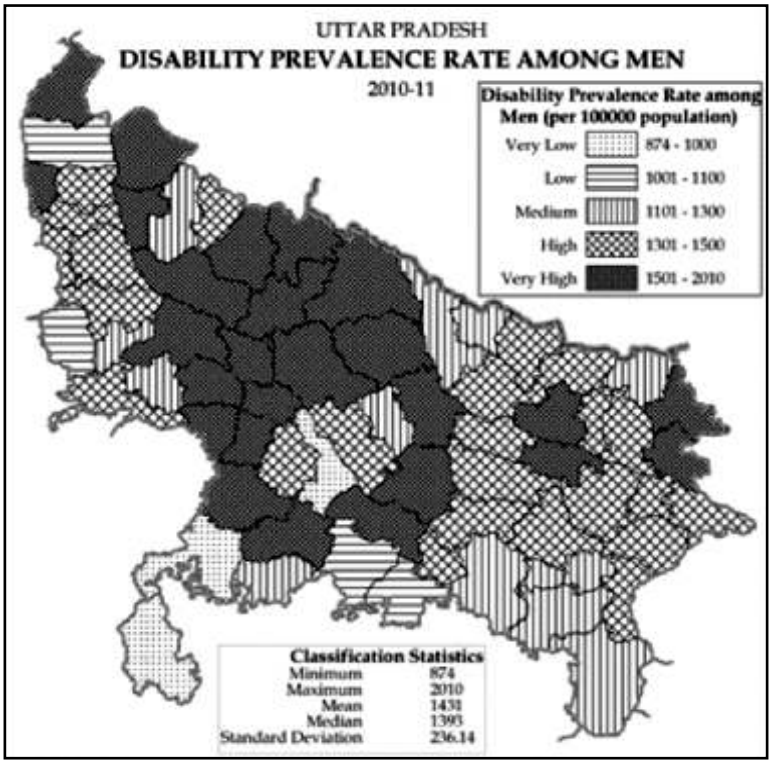


Figure-5

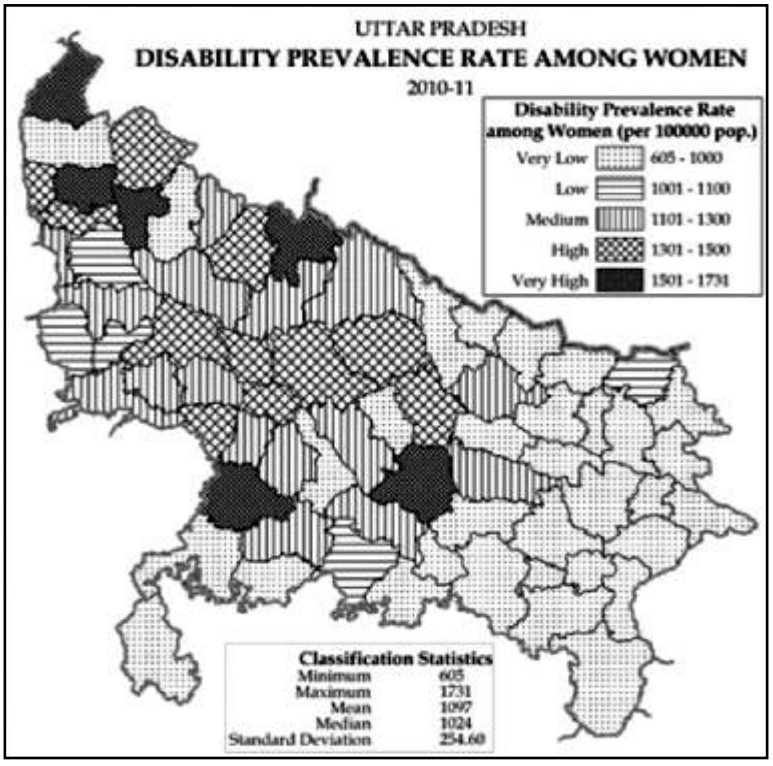


Figure-6

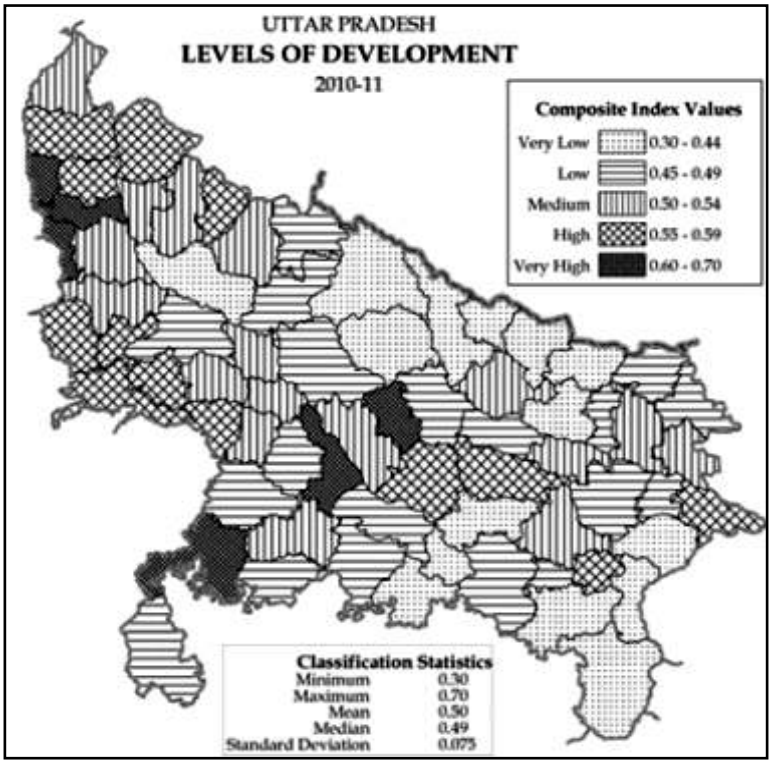


Figure-7

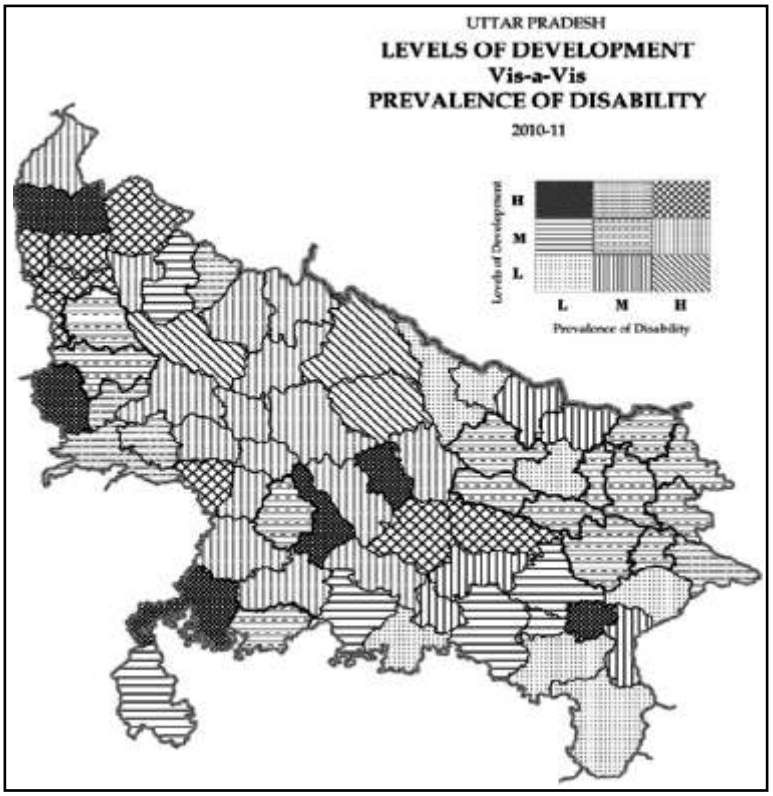


Figure-8

Etah. The districts of relatively very low level (below 0.45) of development form a continuous region in the eastern Uttar Pradesh to cover ten districts and one compact region in the Mirzapur Uplands as shown in Figure 7. Only Chitrakoot district form a isolated region in the Jhansi Uplands. The concluding remark of the distributional patterns of determinants of development is characterized by gradual decrease from west to east towards southern part to north-eastern part of the state is due to high levels of selected positive variables and low levels of selected negative variables.

Dimensions of Relationship

The analysis of the dimension of relationship between levels of development and prevalence of disability helps to understand how far the socio-economic and health determinants affect disability in the state. Figure 8 reveals the relationship between socio-economic and health determinants (independent variables) and disability (dependent variable). The horizontal and vertical categories of index show different levels of development and disability. Spatial dimensions of development and disability are presented with the help of composite index values arranging the districts into categories of high (0.55 and above), medium (0.45 to 0.54) and low (below 0.45). Figure 8 depicts that about 27.2 percent of districts have high level of development. Over one-halves of districts (36) fall under the medium level of development (0.45 to 0.54). Rests of the fifteen districts come under the low level of development (below 0.45).

There are nineteen districts in low level of disability prevalence rates (below 1100 per 100000 population), with six districts (Kanpur Nagar, Lucknow, Jhansi, Muzaffarnagar, Mathura and Varanasi) in high level of development, six medium (Moradabad, Jaunpur, Sant Ravidas Nagar Bhadohi, Lalitpur, Allahabad and Banda) and remaining seven districts (Basti, Ghazipur, Mirzapur, Chitrakoot, Bahraich, Sonbhadra and Shrawasti) low level of development. Clearly, a conspicuous area of low level of disability vis-à-vis high level of development is concentrated in the highly urbanized part of the state. The districts of low prevalence of disability with medium and low levels of development constitute two distinct belts one in the Jhansi Uplands and its adjoining areas and other one in the Nepal bordering districts. There are twenty-four districts in the medium level of disability prevalence rates (1100 to 1300 per 100000 population), with fourteen districts of the same level of development, five districts (Firozabad, Mahamaya Nagar, Ballia, Rampur and Agra) with high level of development and five districts (Chandauli, Pratapgarh, Siddharthnagar, Kaushambi and Balrampur) with low level of development. As many as 27 districts come in the high level of disability prevalence rates (above 1300 per 100000 population), with eight districts (Ghaziabad, Baghpat, Gautam Buddha Nagar, Meerut, Bijnor, Etawah, Sultanpur and Rae Bareli) of the same level of development, sixteen districts with medium level of development and three districts (Kheri, Budaun and Sitapur) with low level of

development. The most impressive feature of the distribution of the association is the most of the western, central and southern districts have high level of development with low and medium level of prevalence of disability. This may be caused by wide range of variations in socio-economic and health variables in Uttar Pradesh.

Measurement of Relationship

For causal analysis between socio-economic & health determinant and five selected major measure of disability (ODPR, RDPR, UDPR, MDPR and WDPR), a correlation matrix has been prepared for twenty-two independent variables measured for the general population of the state of Uttar Pradesh (Table 1). The above study indicates the dynamic ability of development factors have affected the spatial patterns of disability differentials. The simple association between the independent variables and each dependent measures of disability is computed and tested with assumption that linear relationship existed in all cases. Table 1 reveals that among the twenty-two variables, only 12 are significant at 99 percent level of confidence at 65 degree of freedom in their relationship with overall disability prevalence rate (ODPR). They are X_2 (sex ratio -0.3618), X_3 (proportion of SC population to total population (0.1038), X_4 (proportion of Muslims to total population 0.2287), X_8 (Aged Population (> 60) % of population -0. 1493), X_8 (Work Participation rate 0.0282), X_9 (Infant Mortality Rate (per 1000 live births) -0.0282), X_{10} (Under-five Mortality Rate (per 1000 live births -0.0927), X_{11} (Prevalence of Major Injury -0.1526), X_{12} (Prevalence of Chronic illness -0.3068), X_{13} (Full Immunization-0.2769), X_{20} (Prevalence of Smoking +0.3090) and X_{22} (Prevalence of Chewing with Tobacco -0.2059). Only four variables X_3, X_4, X_5 and X_6 have direct relationship, whereas remaining eight bear inverse relationship with ODPR. The significant association of RDPR (rural disability prevalence rate) with determinants of development is found significant in a total of 12 out of 22 variables. Similarly, in case of UDPR, a total of 8 out of 22 variables are found significant; 5 in case of MDPR and 14 in case of WDPR.

The correlation analysis shows several variables that are significantly associated with DPR. Besides the proportions of SC, Aged and Muslims, work participation rate, dependency ratio, urbanization, immunization coverage, variables associated to life style and nutrition and health variables (such as IMR and under-five mortality) had statistically significant correlation coefficients with RDPR, UDPR, MDPR and WDPR. In case of overall disability prevalence rate, the percentage of smokers also showed a statistically significant correlation. Other variables had rather high correlation coefficients, but these did not reach statistical significance. The analysis also shows that momentous development determinants which have well-to-do impacts on the overall disability prevalence. This signifies that higher the level of development, lower is the prevalence of disability.

Finally, variables showing a statistically significant simple association with the dependent variable, those with a high correlation coefficient even being not significant and those other study variables of conceptual relevance for public health purposes are used to fit a multilevel linear regression for dependent variables, to obtain the model that included the variables that best explain the geographical variations.

Table 8 shows the final results of the multiple regression analysis made on the dependent variables, in which we initially included the independent variables that had shown a statistically significant association or a high correlation coefficient in the simple analysis. As can be seen, in case of ODPR, the proportion of SC population to total population, infant mortality rate, under-five mortality rate and percentage of households using safe drinking water were found significant, which explained slightly more than 40% of the geographical variations in ODPR. The proportion of SC population to total population was the variable that most influenced the geographical distribution of ODPR. The association is positive for variables those are highly significant, included in the model, that is, ODPR increases with increasing percentage of Muslims, SC population, aged population and underweight children. The coefficient for percentage of Muslim population is 0.004*, which means that this is significant at 1% interval and increase of 10 percent in Muslim population the disability prevalence is likely to increase by 0.004 X 10 i.e., 0.04 percentage point. The coefficient for percentage of SC population is 0.024**, significant at 5% interval and increase of 10 percent in percentage share of SC population the disability is likely to increase by 0.024

Table 8: Multiple regression models of Overall Disability Prevalence Rate in districts of Uttar Pradesh

Parameters	Coefficient	Standard Error	t	p	95% confidence Interval	
X_2 : Sex Ratio	-0.95	0.93	-1.02	0.311	-2.81	0.91
X_3 : SC population (% of pop)	12.25	5.29	2.31	0.024**	1.65	22.85
X_4 : Muslim population (% of pop)	8.73	2.87	3.04	0.004***	2.98	14.48
X_5: Work Participation Rate (%)	-8.50	14.01	-0.61	0.546	-36.54	19.53
X_6: Dependency Ratio	-6.63	5.24	-1.26	0.211	-17.13	3.87
X_8 : Aged Population 60+ years (% of pop)	105.04	51.62	2.03	0.046**	1.70	208.37
X_9: Infant Mortality Rate	3.52	2.55	1.38	0.173	-1.59	8.62
X_{11}: Prevalence of Major Injury (per 100000 opulation)	0.05	0.05	1.09	0.281	-0.04	0.15
X_{12}: Prevalence of Chronic Illness (per 100000 population)	-0.01	0.01	-0.68	0.500	-0.03	0.02
X_{13} : Full Immunization (per 100000 population)	-3.13	2.62	-1.19	0.238	-8.37	2.12
X_{16} : Birth Wight < 2.5 kg (% of children born)	5.75	2.66	2.16	0.035**	0.43	11.07
X_{17} : Iron Supplement	-2.88	4.87	-0.59	0.557	-12.64	6.88
Constant	1671.74	1340.63	1.25	0.217	-1011.82	4355.31

***- Significant at 1%; **-Significant at 5%

X 10 or about 0.24 percentage point. The coefficient for aged population 60+ years is -0.046**, significant at 5% interval and increase of 10 percent in aged population the disability is likely to increase by -0.046 X 10 or about 0.46 percentage point.

DISCUSSION

The results of this study highlight two important facts. Firstly, the overall disability prevalence rate and disability differentials show large variations among districts in Uttar Pradesh, with a north-south and west-east geographical pattern. Secondly, these differences are mainly explained by proportions of Muslims, SCs, Aged population and underweight children. Regardless of the magnitude of the differences, the consistent geographical variation in ODPR can be interpreted from the perspective of the indicator's validity for monitoring population health, and from the point of view of the practical utility of disability differentials in public health. One of the commonly accepted criteria for evaluating the validity of health indicators is that they show some variation in accordance with the main variables of epidemiological interest, of which geographical area is one (Cohen MM, 1995)[9] Thus, the variation observed among the districts of Uttar Pradesh can be interpreted as showing the goodness of the indicator in reflecting the health status of different populations in the state and in capturing the differences among them.

The results obtained by multiple linear regression analysis show that the most important explanatory factor for the inter-district differences in ODPR is the aged population. The underweight children also had an important effect on the geographical distribution of disability. Both of these factors show that social and economic circumstances are more important determinants of disability differences among populations, especially Muslims and SCs, than other factors.

Another important finding of this study is the strong influence of levels of development on the geographical distribution of disability. The results of this work should be viewed with caution. One limitation is the ecological nature of the investigation. However, the objective of this study is neither to draw conclusions about the factors determining the disability status of people, nor to establish causal associations about the disability and the factors that determine it, but to identify the factors involved in the regional differences of disability prevalence. From this population perspective, it seems that ecological studies would be the most appropriate type of study, as they would try to establish relations at the population level, which is the arena for public health action.

In conclusions, the factors that explain the geographical distribution of disability in Uttar Pradesh-socio economic levels of development, nutritional status and ageing-support the indicator's validity as a reflection of the health status of the population. The current status of disability and disability differentials can play an important role in several areas of disability policy, such as identification of PWD, monitoring the resource mobilization, rehabilitation, studying health inequalities and their trends over

time and establishing the health needs of the PWD.

REFERENCES

1. World Health Organization (WHO), 2011: World Report on Disability 2011, accessed from www.handicapincifre.it/documenti/ICF_18.pdf on 3 March 2011.
2. United Nations, 2006: Conventions on the Rights of Persons with Disabilities, General Assembly resolution 61/106, annex 1 of 13 December 2006
3. NSSO, 2002: Disabled Persons in India, NSS 58th Round (July-December 2002), National Sample Survey Organisation. Office of the Registrar General & Census Commissioner, India: Annual Health Survey 2010-11 Fact Sheet. Uttar Pradesh
4. World Health Organisation, 2008: The Global Burden of Disease, 2004 Update. Geneva, Switzerland: WHO Press, 2008: 120-1
5. World Bank, 2006: Development and the Next Generation. World Development Report 2007: Washington DC: The World Bank.
6. Census of India, 2001: “The First Report on Disability”, Registrar General, New Delhi.
7. Census of India, 2001: Instructions to the Enumerators for Filling up the Household Schedule, op. cit., :18-22.
8. Iyengar NS,P. Sudarshan,: 'A Method of Classifying Regions from Multivariate Data', Economic and Political Weekly, 1982;Special Article: 2048-52.
9. Cohen MM, McWilliam L. Measuring the health of the population. Med Care 1995;33: DS21-42.

ETHNO-RELIGIOUS MEDICINAL PLANTS OF THE CHOTHE OF MANIPUR, NORTH-EAST INDIA

Cheithou Charles Yuhlung* and Mini Bhattacharrya[1]

Abstract: *This paper highlights the significance and usage of ethno-religious medicinal plants among Chothe tribe of Manipur. It is a rejoinder to an earlier paper which identifies about 47 ethno-medicinal plants in the treatment of various ailments among the Chothes. The Chothe, for time immemorial have been using various ethno-religious medicinal plants for certain religious ceremonies and rituals, however, only eight (8) plants have been identified to have ethno-religious significance in the study. Therefore, the paper stresses the importance and regrets of delimitation in the study for various explained and unexplained reasons and also as a caution. Thereby, encouraging the researchers and scholars to map such valuable ethno-religious medicinal plants and document these from tribal communities as early as possible before it completely disappears from their practice.*

Keywords: Ethno-religion, medicinal, herbal plants, Chothe, native-Americans.

INTRODUCTION

The Chothe is an old indigenous tribe of Manipur, situated in the North-Eastern region of India. They are spread in two districts of Manipur, viz.: Bishnupur and Chandel with eighteen (18) villages (i.e. twelve's census recognized villages and six new hamlets). The Census of India 2011 gives the total population of Chothe as 3585 and a literacy rate of 69.79 %.[1]

India is one of the 12 mega-biodiversity countries of the world with 45,000 plant species while the concentrated hotspots of India are the North-Eastern region, Western Ghats and Andaman and Nicobar Islands. Till date about 3,000 plants have been officially documented as having medicinal potential but more than 6,000 plants are used by the traditional herbal practitioners.[2] The North-east India comprising eight states is a cultural hotspot zone too. It is inhabited by about 220 communities including various ethnic groups, tribes and sub-tribes having distinctive cultural traits different or similar from each other. The region is also very rich in flora and fauna species. Therefore, the discovery, identification and mapping is undergoing in the field of academic and scientific research to explain the unexplained phenomena about the people, culture and area from different context.

OBJECTIVE OF THE STUDY

The basic objective of this paper is to identify certain herbs and herbal medicinal plants used for certain religious purposes by the Chothe tribes, besides using it in the treatment of various ailments.

AREA OF THE STUDY

The study area is Manipur, India. The

* Corresponding author, [1]Prof. and HOD, Department of Anthropology, Gauhati University, Guwahati, Assam 781014 Assam -14 E mail: charlesyuh@gmail.com; mini_bthakur@yahoo.co.in

study covers select three Chothe villages from the two districts of Bishnupur and Chandel respectively.

MATERIALS AND METHODS

The primary data was collected using simple random interview-scheduled guide techniques as its tool by going to the field in 2013-14, among select ten (10) village elders from three dominant Chothe villages i.e. Lamlanghupi, Ajouhu (Purum Khullen), and Tampakhu (Purum Tampak). Since, the study population is small, the number of respondents have been limited to only ten (10) because many knowledgeable and senior citizens are no more alive. Moreover, the traditionalists who practice ethno-medicine have been greatly reduced to only few elders because of the influences of modernisation, westernisation, Christianity and advancement in science and tech-nologies. However, for the comparative analysis of the data, secondary sources like published works and papers available in the different websites were used.

DISCUSSION

The Chothe, since time immemorial haveused various herbs and herbals plants in the treatment of various human ailments, sicknesses and diseases by applying different methods before advanced technology and pharmaceutical medicines were available. However, the application of certain herbal plants is dualistic in the usages.

In the previous paper 'Ethno-medicine practice among the Chothe of Manipur, North-east India' in *Tribal Health Bulletin* (2015) about 47 medicinal plants have been identified for the treatment of about 55 varieties of ailments and diseases orally or externally by these ethno-medicinal plants. Out of which, there are 26 Herb plants,[3] 14 Shrubs, 6 Trees, and 1 Climber/creeper. In the treatment about 30 are leaves, 7 stem, 5 whole plant (leaf and stem/ flower), 4 rhizome, 4 flower, 8 fruit, 3 seed, 1 bulb, 3 bark and 2 root (see Table 1, of Yuhlung and Bhattacharyya 2015).[4]

Interestingly, the medication method of these herbs depends upon the expertise of the village priest or local medicine man, and they are actual users and have the knowledge to classify these herbal plants as medicine or for different religious purposes. The origin of such usage is related to their magico-religious myths and belief. Their explanation varies from person to person but shares similar or same objectives. However, their mythical belief is that it nullified from the evil causes or wards of the evil-spirit from contacts, nightmares, bad dreams, minor illnesses or diseases. Most herbs and herbal plants are exclusively used for medications. But certain plants like ginger and turmeric are often used in divinations and rituals ceremonies that concern the person, or family or village rituals. This tradition has been handed down orally generation after generations, and the significance have not been documented by any, so far among the Chothe tribe.

The given table shows that out of eight (8) herbal plants identified having religious purposes- four (4) belongs to *Zingiberaceae* family, one each from *Asteraceae, Alliaceae, Annonaceae* and *Rubiaceae* families. In the category of the parts of the plants used, four are

rhizomes from family of *Zingiberaceae*, three leaf, and one bulb are used for different religious purposes. For example, *Eupatorium cammonoi* (Ariphung or Renglei, or Laangtharei in Meitei) is used in personal ritual as well as in the treatment of gastritis and other related problems. Similarly, a small amount of the dry leaf of *Goniothalamus sequipedalis (*Aham/ Khoichu Leikham) is burnt and the ash is mixed in half a glass of water and is given to person with fever who they believe must have contacted the forest (evil) spirit on his journey. The Chothe used this dry herb leaf as incense at home during ritual or any ominous day. Besides, this green herb leaf is used by village priest to brush off people from head to shoulder who return from cemetery after burial to ward off evil spirits from following them. Likewise, Morris E. Opler also describes that the American Indian tribes or Native Americans like Chiricahua and Mescalero Apache also “brush off their own bodies with green grass” just before the members return to the village from the burial in order to wade off any ghost. Other similar practices are like; bathing, burning clothes and smoking their bodies with 'ghost medicine.[5]

Another interesting fact about Chothe is that about 10-20 ml of the liquid obtained by smearing the thunderbolt stone or meteoroid against a stone mixed with little water is given to a person who suffers from viral fever or stomach-ache with a belief that the person must have come in contact with gases of evil-spirit. Is the curative property the presence of small amount of radio-active element in the stone? They also use the fresh fermented rice beer residue (i.e. the fermented rice) when a person get his/ her leg or hand sprained or fractured. The solid fermented rice beer is wrapped with cloth around the sprain or fracture part for 2/ 3 days. Sometimes fresh crushed turmeric is mixed along with it and applied as paste on the injured part, if the injury is very serious. Such beliefs also need scientific validation.

Table 1: Plants used in Religious Purposes

Sl. no	Botanical Name (Family)- [Common Name]	Chothe Name/ [Manipuri Name]	Part of plant used	Mythical Beliefs and their usage for Religious Purposes
1.	*Eupatorium, cammanoi* (Asteraceae)- [Hempagrimony]	*Ariphung/ Renglei/ [Laangtharei]*	Leaf	Personal and Family Rituals. The Chothe used three or five or seven or nine leaf twigs for certain types of ritualistic offerings, especially related to water and air borne sickness with a belief to appease the evil spirits, that the plant is God’s gift.
2.	*Curcuma zedoaria* (Zingiberaceae)- [Turmeric]	*Aisan/ [Yaingang]*	Rhizome	Divination and Evil Spirit Dispeller. It is used in specific village rituals. Mythically the colour and smell is believed to have power to dispel the evil spirit spell so it is apply by a person on the forehead while on strange journey (esp. night time) or when having bad dreams and nightmares.
3.	*Curcuma caesia* [Zingiberaceae]-	*Aisan ahang/ [Yaimu]*	Rhizome	Gastritis, Against Magical Spells and Charms. The dark colour, its rareness and its unusual

Table Contd...

Sl. no	Botanical Name (Family)-[Common Name]	Chothe Name/ [Manipuri Name]	Part of plant used	Mythical Beliefs and their usage for Religious Purposes
	Black turmeric/ Ginseng			growth style is belief to have magical property and is especially used as anti-dotes for any poisonous things eaten including contagious magical spelled stuffs.
4.	*Zingiber officinale* [Zingiberaceae]-Ginger	*Aithing/ [Shing]*	Rhizome	Evil Spirit Divination. Besides using it as culinary item, the Chothe used in certain village rituals in divination. Mythically they believed that the strong pungent smell and taste acts as antidotes for certain poisonous things eaten or repellent of evil spirits.
5.	*Allium sativum* Linn. [Alliaceae]-Garlic	*Satun/ [Chanam]*	Bulb	Dispeller. The typical strong smell is belief to dispel the evil spirits from harming or getting close to humans.
6.	*Goniothalamus sequipedalis* [Annonaceae]-	*Aham/ [Khoichu Leikham]*	Dry leaf	Evil Spirit Dispeller. A person when returned from night journey or cemetery warms himself with the smoked of the dried leaf with a belief that if any evil spirit that accompanies him leaves him alone or sometimes the leaf is smoked inside the house so that the evil spirit is ca st out by its strong repelling smell. Sometimes the ash is applied on the forehead before taking a night journey or strange places. Sometimes the ash is mixed in water and drank to free from feverish problems of possession.
7.	*Zingiber cassumunar* [Zingiberaceae]-Cassumnar ginger	*Aidou [Tekhal yaikhu]*	Rhizome	Evil Spirit Dispeller. On a child's naming ceremony day a piece of rhizome is made into a bead by the priest and is made to wear as necklace with a mythical belief that the evil spirit cannot harm and bring sickness to the child till he grows up.
8.	*Meyna laxiflora* [Rubiaceae]	*Theipi* [*Heibi*]	Leaf	Village Ritual. The lea ves are prepared as chutney in certain village religious ritual and offered to typical village gates deities.

Main question arises – Why the Chothe use such herbal or ethno-medicinal plant for religious purpose? Some may think it is superstitious belief or co-incident while some may wonder the mysticism. The answer is unexplainable scientifically, but mythically it is a very important herb of gods.

According to the Chothe, Meitei and other cognate tribes of Manipur's beliefs, if a person fall sick from certain air or water borne diseases like viral fever and chronic cases, they believe it was due to the wrath or curse of the evil spirit that comes into contact. Therefore, in such cases they would first consult the priest or use ethno-religious medicines immediately like with thunder-bolt stone or turmeric or other appropriate available items. But, rather if the sick patient is directly taken to hospital and treated with modern medicinal method, the person is certain to die for wrong diagnosis. Similarly, people who suffer from the practice of magical witchcraft and spells like love charms or spell of destruction

cannot be cured with modern medication, despite temporary make well belief. But they if consulted the specialised religious priest and he performs certain appropriate rituals and is treated with some ethno-medicine, the patient have better chance for full recovery. Such is the power, belief and practice of the usage of ethno-religious medicinal plants treatment in the region of Manipur.

Therefore, in Chothe the *Eupatorium cammonoi* plant is literally known as 'gods flower'. This herb grows well in moderate climate for at least three years. But it is very sensitive and fragile with the concept of pure and pollution. Perhaps, if a person who cooks food and did not wash his/ her hands well and plucks the leaf, the plant is sure to fade and decay soon. Such is the mystery of this sensitive herbal plant.

Significance of Religious Ethno-medicinal Knowledge

The invaluable knowledge of religious ethno-medicine of Chothe is usually retained by the village priest, local medicine men, village elders and grandparents. Apart from general ethno-medicinal plants, certain highly valuable medicinal plants are kept secret with themselves with a clear intention. According to (late) Pr. Roushi (87/M) a local medicine man of Ajouhu said that “In earlier days, we do not freely share certain invaluable ethno-medicinal knowledge and its usage methods, it was kept secret to oneself. It is believed that if one shares such information simply the medicinal power reduces its value and potency in curing”.

Similarly, N.S Jamir from the perspective of Naga tribes of Nagaland said that traditional knowledge is confined chiefly to the folk-healers and old-folks residing in villages. They believed the knowledge of the medicinal efficacy of plants are lost to posterity so they do not divulge the secret in fear that their professional supremacy will be at stake and the use of medicinal potency of the plants would be weakened or nullified.[6] Rajkumari also states that amongst the Chiru tribe of Manipur, the traditional knowledge system is restricted to few identified persons in the community and the knowledge is generally inherited through the oral transfer and that generally in family lineage as there is no written document.[7]

Hence, it is pertinent for such reasons that folk healers did not openly disclose or freely share their secret knowledge and expertise to others. But only sometimes at the latter stage that they do shared to their most trusted person like his son or disciple, who knows the significance and can wisely continue the usage to help others in times of serious cases.

Y. Tomalsing of Lamlanghupi and Roushi said that 'in earlier days, there used to be tight competition among the folk healers in the ethno-religious medicinal treatment, and to the extent of prolonging or suppressing the sickness of the patient, and at times, softly killing the rival folk healer with their magical witchcraft'. This implies that there used to be magical psycho-warfare among folk healers in the treatment of various ailments and diseases, and this mental warfare of superiority did not allow someone to simply take advantages of one's skill and talent without proper consultation.

CONCLUSION

Most important aspect this work is that there is already delimitation in the study. Although, the Chothe claimed the use of its religious ethno-medicinal plants to be extensive and wide in the past, but now it has been reduced to just few negligible people. The reason is that most knowledgeable people have expired and also because the deteriorating ecology have directly impacted in the destruction of the habitat of rare herbs and herbal plants. Therefore, the opportunity to identify and mapped more on the ethno-religious medicinal plants have been limited to this few herbs mentioned, which is a sad story for the Chothe, but leaving rooms for unexplored tribes of the world in the area.



Figure 1: Khoichu leiham/ leikham *(Goniothalamus sequipedalis)*

ACKNOWLEDGEMENTS

The authors thanked the entire Chothe community, and especially to Mr. H. Thambaljao, Y. Tomalsing, and (Late) Pr. Roushi, besides others for providing their invaluable ethno-religious medicinal plant knowledge. This paper would not be made possible without their kindness to share it with us.

REFERENCES

1 Census of India 2011. (Population census).

2 Jaiswal Vidhan. Culture and ethnobotany of Jaintia tribal community Meghalaya Northeast India – A mini review. Indian J Traditional Knowledge. 2010; 9(1):38-44.

3 Yuhlung, Cheithou Charles, Mini Bhattacharyya. Ethno-medicine practice among the Chothe of Manipur, North-east India. Tribal Health Bulletin. 2015; 22 (1&2): 40-58.

4 Ibid.: (Yuhlung, Cheithou Charles, Mini Bhattacharyya, Ethno-medicine practice among the *Chothe* of Manipur, North-east India. Tribal Health Bulletin. 2015;22 (1&2): 40-58.

5 Opler Morris E. An interpretation of ambivalence of two American Indian tribes.In: Reader in comparative religion: An anthropological approach, 3rd editors.William A. Lessa, Evon Z. Vogt. New York: Harper and Row Publishers, 1972.p.468-478:

6 Jamir NS, Lanusunep Narola Pongener. Medico-herbal medicine practiced by the *Naga* tribes in the state of Nagaland (India), *Indian Journal of Fundamental and Applied Life Sciences. 2012; 2 (2): 328-333. An Online International Journal, http://www.cibtech.org/jls.htm, (accessed on 02-02-2014).*

7 Rajkumari Ranjana, PK. Singh, Ajit Kumar Das, BK Dutta. Ethno-botanical investigation of wild edible and medicinal plants used by the *Chiru* Tribe of Manipur, India, Pleione. 2013;7(1): 167-174. http://www.pleione.info/, (accessed on 02-09-2013).

DETERMINANT FACTORS OF TRIBAL CHILDREN HEALTH IN KARNATAKA: SPECIAL REFERENCE TO SOLIGA TRIBE IN CHAMARAJANAGAR DISTRICT

K. Papannanavar*

Abstract: *India is known for its diversity in social, cultural, religious and ethical aspects. But tribal and other down trodden communities differ from upper caste socially and economically. Poor literacy rates also occur. Ill health and other problems have reciprocal relation with one to other. Most of the tribal communities are comes under Below Poverty Limit (BPL) categories, and unable to fulfill necessary medical and nutritional requirements. Hence infant mortality, under nutrition, ill health is common in tribal communities. Therefore State and central government has been making efforts to implement health programs for their upliftment. Yet tribal children suffer from poor health status. The present study highlights and determinants factors of health in soliga tribal community in Karnataka state and Chamarajanagar District.*

Key words: Tribe, Soliga Community, ill health, determinants and under nutrition**.**

INTRODUCTION

India is diverse land with social, cultural, religious and ethnical characteristics despite number of communities having some similarities. However, tribal and other downtrodden communities differ from other upward caste by poverty, ill health, illiteracy and other social problems making them vulnerable communities. Mainly, because, they do not have landed property and strong economic background. the tribal communities in India have been put aside by the social, economic and political mainstream. As a result tribal people suffer from ill health, illiteracy and poverty. These have reciprocal relation with one to another as in case education and ill health, or malnutrition and poverty and ill health and poverty. Specially, in Karnataka state, soliga tribal community is severely affected community. Existent data reveals that present Indian poverty status is 30.9% in rural area and 26.4% in urban area, particularly affecting tribal populations. 2011 census report highlights issues such as sex ratio is per 1000 male only 990 female particularly, below 0.6years sex ratio is very poor issues and is 1000 male child : 957 female children. Infant mortality is per 1000 births 47 deaths occur in Tribal communities. Indian national family health survey (NFHS-3) showed that 43% of children 0.59 months old were under weight. Child growth standards rate also does not match WHO standards. Karnataka state's child under nutrition status is ranked 12th rank in the nation and low birth weight is 18.7%, wasting is 17.6%, stunting 43.7%, anaemia is 41.8% and total child under nutrition status is 30.7%. Karnataka state is one of the most vulnerable state in health and nutrition. Another area of importance is child under-nutrition index. Table 1

* Teaching Assistant, Dept of Sociology, Davangere University, Davanagere-577 002,
E mail ::kpnavardbl@gmail.com

highlights child under nutrition status of socio-economic groups.

As can be seen from table 1 tribal's form lowest quintile and are settled in forest area. Here, low birth weight 23.7%, wasting 27.6%, stunting 53.9%, anaemia 50.5%. About 38 % of tribal children suffer from under nutrition. Thus it clearly shows Tribal communities also most vulnerable to under nutrition in Karnataka.

Hence, number of health programmes was implemented to counter this situation. Yet tribal children's health status continues to be low. for the present study, highlight the determinants of tribal children health in Chamarajanagar district, Karnataka state.

Importance of the Study

1. Since 1950 numbers of health programmes have been initiated for tribal population and child health, but still millions of poor children including tribal children suffer from malnutrition and ill health.
2. Poverty is one of the obstacles to health maintenance and close interlink with food practices. Particularly Soliga tribal children suffer from ill-health and malnutrition.
3. Mother's age at child birth and birth of interval are most important elements in child health. Soliga ribal girls are married below the 18 and bear child bythe age of 18 with short intervals..
4. Majority of Soliga tribal's reside in the district of Chamaraja Nagar, Karnataka state and study intends to find out the total health issues among this community.

Table 1: Child under nutrition index by socio-economic groups

	Prevalence of low Birth weight	Prevalence of Wastly	Prevalence of Stunting	Prevalence of Anaemia	Child under nutrition index
Lowest wealth quintile	25.4	25.0	59.9	48.8	39.8
Second wealth quintile	25.4	22.0	24.3	48.7	37.1
Middle wealth quintile	23.7	18.8	48.9	43.1	33.6
Fourth wealth quintile	21.8	16.6	40.8	39.9	29.8
Highest wealth quintile	17.4	12.7	25.2	31.3	21.7
SC	22.3	21.0	53.9	47.3	36.5
ST	23.7	27.6	53.9	50.5	38.6
OBC	21.3	20.0	48.8	43.5	33.4
Other	20.7	16.3	40.7	36.9	38.7
Rural	23.3	20.7	50.7	45.0	34.9
Urban	19.3	16.9	39.6	37.3	28.3
Boys	19.7	20.5	48.1	43.4	32.9
Girls	22.5	19.1	48.0	42.7	33.1
India	21.5	19.8	48.0	43.1	33.1

Source: EPW April 2014, Vol XLI X VI 14 page no 99

OBJECTIVES

1. To highlights the Soliga tribe children's age for height and weight status.
2. To trace the performance of tribal children in public life.
3. To find out the determinants of health and food practice in tribal children.
4. To design recommendation for tribal children's health & nutrition.

METHODOLOGY

Present study has conducted in Chamarajnagar district, Karnataka state where Soliga tribal community has been residing for long time. The sample consists of 300 respondents. Sample has been selected by simple random sampling method and sick and under nurished child's mothers were respondents. This study based on Anganawadi documents for children age for weight and height measurement. Primary data was collected through specially designed partly structured interview schedule through face to face interviews. Collected data were coded, tabulated and appropriate statistical methods were employed for data analysis and interpretation.

Demographic Status of Soliga Tribe:

Karnataka state is host to 4.07% tribal population in total state population. Major tribal communities are Naikda, Gond, Koli Dhor, Marati, Meda, Soliga, Jenu Kuruba, Yerava, Hasalaru, Kadukuruba and Koraga. Jenu Kuruba and Koraga communities were recognized as PVTGs (particularly vulnerable tribal groups). Tribal sex ratio is 990 for 1000 male and child sex ratio is 964 female for 1000 male soliga in the Chamarajanagar District. Soliga community is most populated tribe in this district. These tribal groups are living in hilly and forested areas. Most of the Soliga tribal people are not availing health and welfare facilities due to lack of transport and distance. Recently some NGO groups are serving to these tribal causes. Total tribal population of the district is 2.83% in Karnataka State. Especially soliga tribal population is 33,819, Male 16,860 and female 16,959. Tribal sex ratio is 1025 women for 1000 men and child sex ratio is 945 female child for 1000 male child. Tribal literacy rate is 54.99% male have 62.11% female have 48.11%.

Tribal Children's age at weight and height:

The weight and height of the child age is major determinants of health and its equal proportionate indicates good health. According to the WHO standard ratio, a normal child weight at birth is 2500g or more. In Indian situation birth weight is 2000g and it is taken as normal weight. However, low weight and height at the age of 0-5, 6-10 and 11-15 leads to a number of problems like infant mortality, post-natal death, etc. BMI is considered as an indicator good health or healthy body.

As per proportion of age at weight and height about 33.1% of children suffer from micro nutrition or under nutrition. Generally, Tribal children and mother suffer from ill health & under nutrition. Present study has tried to highlight this aspect of children's age at weight and height. Table 2 shows the status of age at weight and height in forms of good,

normal and low at the age of 0-5, 6-10 and 11-15 years. Weight at the age of 0-5, 6-10 and 11-15 year is, 33%, 34% and 33% and 47%, 46% and 45% respectively. In general weight was low. Forty-five per cent or more Soliga children suffer from underweight problem. Only 20%, of children's weight is good. Hence normal weight is a health issue in Soliga children.

Height is another indicator of healthy body. Here, 41%, 40% and 39% of tribal children's have normal height respectively in the above groups. But abot 30%, children come under the low level height. Thus showing that number of tribal children lack proportionate weight and height at the age of 0-5, 6-10 and 11-15 years.

Availability of Food grains and Food Patterns of Soliga tribe

Food availability and food pattern have close relationship in tribal health. About 32% of Indian people come under BPL (Below poverty limit) and they cannot get the minimum required calories per day. Most of BPL people are Dalits and tribal Communities. Generally, tribal food consists of Vegetarian, Non-vegetarian items locally available from forest etc. WHO recommends that an average male and female adult should consume minimum 1800 and 1200 calories per day for healthy living. But in India about 33.1% children still suffer under nutrition as well as hunger problems. Government has been providing food through Public Distribution System for eradication of poverty and hunger. But only few type of food grains are distributing by PDS and have failed to provide minimum Calories per day. This is essential to fulfill requirement by various food grains known as proportional food and that supply minimum calories. Tribal children pose a health and nutrition issue for policy makers. The present study intends to highlights the availability of food grains and food patterns of Soliga tribe.

Table.3 shows availability of food grains and food pattern of soliga tribe. Due poor economic class tribals fall under BPL and covered under public distribution system. Present data shows majority of Soliga tribe (58%) have received PDS benefit and receive food grains for daily

Table 2: Tribal children age at weight and height status

Years	Weight				Height			
	Good	Normal	Low	Total	Good	Normal	Low	Total
0-5	20%	33%	47%	100%	30%	41%	29%	100%
6-10	20%	34%	46%	100%	20%	40%	35%	100%
11-15	22%	33%	45%	100%	23%	39%	38%	100%

Source by: Field work

Table 3: Availability of food grains and food patterns of Soliga tribe

Availability of food grains				Food patterns		
Time	PDS	Agri	Purchase	Veg/fruit	Non-veg	Other pattern
Daily	58%	40%	28%	45%	66%	26%
Occasionally	42%	60%	62%	55%	34%	74%
Total	100%	100%	100%	100%	100%	100%

Source by: Field work

use. Next source of food grains are agriculture and forest (60%) but these sources are available only occasionally. Even though tribal people also purchase the food grains occasionally (62%), but Soligas daily food requirement is only through PDS.

Table 3 also shows food pattern of the Soliga tribe. Present study has stated that vegetables and fruits, non-veg and other patterns are common food pattern in this community. Above food items are most delicious and have rich calories in the food sectors. Data indicates that, majority of the respondents agree to vegetarian (55%), other food is (74%) consumed occasionally. So it shows vegetable and fruits are not available due heavy price of these items. Soliga tribe consume non-vegetarian daily. But non-vegetarian food does provide minimum calories for children or others. Due to this, Soliga children suffer from mal nutrition and ill health.

Determinants of health in Soliga children

Health has number of determinants which affect child health. Usually, mother's age has a effect on child bearing and child health. Number of studies confirms this U-shaped relationship between mother's age at birth of child and infant mortality. Basically, mother's age at birth of child and birth of interval are main determinants of child health. Particularly, in India even till number of girls were married at below 18 years. It causes number of problems like child death, neonatal death etc. Often in tribal communities number of marriages are held at below 18 years. Birth of interval is also short and less than two years that has high risk for child survival and mother's physical strength. Present study tries to identify the determinants of health in Soliga children.

Table 4 indicates that determinants of health in tribal children. Generally, mother age of birth of child and birth of intervals are most important determinants of Soliga's children's health. About 45% of mothers gave birth to first child by the age of 18 years and 35% of mothers got first child by the age of 18 to 25 years. Only 20% of tribal mothers were got first child at the age of 26 and above years. This is a good development in soliga community. But upper age should be widely followed by the tribal people for good health level.

Table 4: Determinants of Health in Soliga children.

	Mothers age at birth of child				Birth of interval				
	Below 18yrs	18 to 25yrs	26 above	Total		below 2 yrs	2 Yrs	3 Yrs	Total
I Child	45%	35%	20%	100%	1st child to 2nd child	35%	48%	17%	100%
II Child	30%	51%	19%	100%	2nd child to 3rd child	21%	59%	20%	100%
III Child	10%	25%-	45%	80%	3rd child to 4th	11%-	56%	33%	100%
IV Child	10%	20%	25%	55%	4th child to above	09%	35%	26%	100%

Source by: Field work

About 45% and 30% of tribal women who gave birth to first child below 18 years which directly affect children health. Biggest problem is 30% of tribal mother's age is around 18.

Birth of interval, about 35 % of mothers first child to second child birth interval is below 2 years. Hence, 48% of mothers birth interval is 2 years. This is general and minimum interval of child to child. Second to third child (21%) and third to fourth (11%) children birth interval is below 2 years. One interesting thing is 2 year interval is common practice in Soliga tribe and 20%, 33% and 26% of mothers second to third, third to fourth and fourth and above child birth interval is 3 years. This is also good practice in this tribe.

Performance of tribal children in public life:

A proverb express “sound body in a sound mind” it means, healthy body can do anything. According to WHO latest data says about 1.6 million children globally are suffer from anaemia and micronutrient like Iron, Vitamins A, Zinc and Iodine deficiency that leads to number of health problem like night blindness, underweight, physical weakness and intellectual deficits. Especially, school children are unable to learn and work. Moreover, they aresusceptible to disease, reduced life expectancy, diminished work capacity and lower productivity. Above these burdens affect on tribal children life. Basically, tribal people reside at forest area though they do not have access to health sector. Due to this tribal children suffer from micro nutrient and other health ailments.

Table 5 highlights the tribal children's socio-economic, sports and entertainment and intellectual performances. Data is analysed through, good, normal, low and very low activities. Firstly, good number of mothers (36%) express that their children's socio-economic performance is normal. About 20% and 39% of mothers opined that their children's socio-economic performance is low and very low level respectively. It shows that tribal children's socio-economic performance is incritical condition. This performance needfs attention to including in the national mainstream, firstly they should integrate into general social life. Secondly, in sports and entertainment performance, 23%, 32% and 41% of mothers express to their children's performance is normal, low and very low level respectively. This is also considerable issue in the tribal children and again data proves they have suffered through poverty and malnutrition. Thirdly, intellectual performance, about 40% of mothers express their child's performance is very low and 33% mothers are express their children's intellectual performance is very low. Data shows tribal children's socio-economic (36%), Sports and entertainment (23%) and intellectual performance (24%) is normal level, but tribal children should improve their performance Finally study shows health is affects the tribal children's performance.

Table 5: Performance of tribal children in public life

Performance	Good	Normal	Low	Very low	Total
Socio-Economic	10%	30%	20%	39%	100%
Sports & Entertainment	6%	23%	32%	41%	100%
Intellectual performance	3%	24%	33%	40%	100%

Source by: Field work

CONCLUSION AND SUGGESTION

Presently poverty has been spread all over the world and it effect on health of tribal. Mainly, developing and under developed countries have been suffering from hunger and malnutrition. Actually, poverty is direct causes of malnutrition. It clearly arises from economic consequences on tribal children. Particularly, poor and most vulnerable sections are not able to provide adequate calories to their children. Because of this deficiency of iron, vitamin A, Zinc and Iodine leads number of health problem like night blindness, cognitive and physical development, more suspect to disease and reduced life expectancy.

The Govt. should initiate programs to remedy these health problems. Present study highlights disproportion age at the weight and height, food availability and food pattern is also low in nutrition. Mother's age at birth of child is below 18 years; Birth of interval is also below 2 years. Performance of socio-economic, sports and entertainment and IQ performance are low in tribal children. All these factors indicate about tribal children health status and need to be addressed. Present study has suggests some immediate actions pertaining to soliga tribal children.

Suggestions are following here:

1) Popularize the child health programme through public and private media channels.
2) Health education should be implemented at the primary school level to 10 level.
3) Govt. should increase budget on health sectors and be vigilant to install frequent check-up of tribal child health.
4) Govt. should initiate specific action plans for these areas and community.
5) Strengthen the rural infrastructure and transport system.

Finally, health is paramount role in child development, Human development index and national building. Unfortunately, Indian mechanism could not highlight properly and resolve the requirement. As a result still number of tribal mothers and children's are suffering from under nutrition and ill-health..

REFERENCES

1. Aguayovictor Singh, Gayatri Badgiyanina. Scoring Child Nutrition in India. Economic and Political weekly April 5th 2014; Vol XLIX, (14): 97-103.
2. Bisai Samiran, Saha Kalyan B et al. An overview of tribal population in India. Tribal health Bulletin. 2014;.20: 48- 51.
3. Manoj Pandey, DuttaBhaskar, Social welfare and Household consumption expenditure in India 2004-05 to 2011-12, Economic & Political weekly, August 2 2014, Vol XLIX, (31): 113-121.
4. Gupta Monika Das, Muralidharan, Universal health coverage, Economic and Political weekly, August 30 2014, Vol XLIX, (.35): 29-32.
5. Nagapally Srikanth, Burden out of Pocket health payments in Andhra Pradesh, Economic and Political weekly, October 18 2014, Vol XLIX, (42): 64-72.

SOCIAL AND HEALTH STATUS AMONG SAHARIYA TRIBAL WOMEN IN GWALIOR DIVISION: A SITUATIONAL ANALYSIS

A.K. Agarwal,* R.N. Mahotre,** Anju Agarwal,** Ginisha Gupta***

Abstract : *The present investigates the health status and health condition among the tribal women of Gwalior district, Madhya Pradesh by drawing upon data from Health Survey, conducted during 2013. The tribal women showed poor standard of living, education and other socio-demographic indicators. The paper also lists out social status as a female gender discrimination pre and post marriage. The study outlines the women's role in social and economic sphere and pre and postnatal life, status of delivery, postpartum care, contraceptive use etc.*

Key Words: Tribal Women; Social Status; Health status.

INTRODUCTION

India as a whole is characterized by sharp gender disparities and women's status varies considerably from region to region. In all frontiers of human societal pursuits including economic, educational, scientific, legal, political, official, political and religious sphere Indian women suffer profoundly. It is in culture, a set of collective experiences of ideas, norms, values and beliefs associated with a people are defined wherein, gender role inequalities and socialization determines the position of women in a society.[1] The status of any social group is determined by its levels of health-nutrition, literacy education and standard of living. The tribal women, constitute about half of the total population. However, the health of tribal women is more important because tribal women work harder and manage family life. Higher infant mortality rate among tribals, low nutritional level; lower life-expectancy; and higher fertility rate have been reported by various studies.[2] The tribal women are less literate than men. The tribal women share problems related to reproductive health. When primary and secondary subsistence activities are counted, women work more than men. Additionally, myths like their childbearing state, emotions, inability to carry heavy loads, lack of self-confidence, paucity of imagination and real creativity are used to validate women's subordination in the society. Tribal societies are by and large characterized as egalitarian societies especially in relation to the hierarchical character of caste society. However status of women varies in different societies. All societies offer its children the presence of 2 genders and related roles, according to kinship, sexuality, work, marriage and age. Further, it also

* Ex Associate Professor of BMC Sagar, Associte Professor ,**Demonstrator, *** Resident (MD Std.), Deptt. Of Community Medicine, G.R.Medical College Gwalior, 474009 (MP)
Corresponding Author E mail: anilanjuindia@rediffmail.com

defines the broad guidelines for undertaking these roles through a body of attitudes, specifications, metaphors and myths.[3]

In the present study an effort has been to describe the status of Sahariya tribal women based on the survey conducted in Sheopur and Shivpuri districts of Gwalior division in 2013. The main tribal group in Gwalior division of Madhya Pradesh is Sahariya. According to the 2011 Census of India, Sahariya is the fourth populous tribe with a total population of 416,070, constituting 11.2 percent of the total ST population 45, 36547. The Saharias are mainly found in the districts (Morena, Sheopur, Bhind, Gwalior, Datia, Shivpuri, Vidhisha and Guna districts of Madhya Pradesh and Baran district of Rajasthan. Their habitations are located outside the main villages which is called Saharana. It is generally a cluster of houses. It is made of some stone boulders and roofing is also of stone slabs-locally called as Patore. In some villages mud structures are also constructed. They live in joint families. Most Saharia's are cultivators. Sahariya tribes also have male child preference but do not discriminate against girls through practicing female infanticide.

Social status of Saharia tribe women

Marriages of girls below the legal age was in practice and constitutes 8.5% and these proportions are higher than boys (4.6%) and than those STs at the national level (2.1%). Saharias also prefer male child but do not discriminate against girls through female infanticide or sex determination tests. Boys and girls do not have similar inheritance laws. Tribal girls do not inherit land, except in matrilineal societies or under special circumstances.[2]

Among sahariya tribes, the father of the bridegroom pays a price to the father of the girl (bride). Widowed or divorced women are free to marry again. As incidence of child labor is high among the tribes, girls are no exception. Girls care for younger siblings, perform household jobs and work in the fields along with their brothers. This leaves no time for education of girls; consequently there is gender gap in education.

Among Saharia tribes girls are not considered as burden because of their economic value. The girl child socialization has objectives of inculcating the virtues of good housewives and motherhood, together with behavioral pattern that are consistent with obedience. Any girl who becomes pregnant before marriage, the matter is discussed in the village council and either the boy has to marry the girl or has to pay the compensation to her family. If a child is born in her natal family and it does not have an effect on her marriage prospects in any way.

The girl child is denied education. The girls study up to primary or middle level and get married. Sometimes girls are withdrawn from school after three years (when they have learned to write their names) to work, with preference for education given to boys. There is major gender disparity, in terms of more limited educational opportunities available for girls. *Due to* patriarchy, the eldest son inherits all property except the ornaments of the mother that is given to eldest

daughter. Upon the death of the male head of the household, women retain rights to the family holdings and continue to live there until their death. In the study area monogamous marriages are prevalent. In case of a premature death, marital discord or i.e., If the eldest husband dies she remains the wife of the brother/brothers. Young widows are rare in these societies. However it is at the discretion of the widow if she wants to go into the affiliation. Among Sahariya, in case of the birth of a child after the husband's death irrespective of the time gap, the child if it be born in the husband's house, *chaukhandu* (born within the four walls), has full inheritance rights. Woman is responsible for the continuity of patrilineage. As replacement of women is not easy in Sahariya, rights of sexuality are ignored, but right on the womb remains.

In the traditional societies every-day living is usually carried on gender division of labour. In the study area, the division of labor is mainly between herding and agriculture. In all other tasks concerned with life in the village, such as crafts, house building, watermills and work on boundary walls, there is division between men's work and women's work. Major portion of agriculture is done by women including weeding, hoeing, planting, harvesting and thrashing except ploughing. The other activities of women include looking after the house, children and cattle. Food processing and cooking is women's job. Women are responsible for the cattle, water fuel and fodder. Tribal women are very strong and courageous in handling of environmental imperatives as can be seen in the trekking and work pattern under the severe limitations.. Several studies dealing with pastoral societies indicate that the position of women in such societies is not very high because the actual care of the livestock and handling of economic affairs is entirely a male domain. However among Sahariya's, though women do not directly help in handling of livestock, they do look after their husbands during migrations. They cook for them and carry loads.

Women's role as wives, mothers, and organizers and as basic foundation of other dimensions of social life is of extreme importance among Saharias. Men usually go out for pastoral duties, then socialization of children auto-matically becomes mother's business, at least in the early years of life. The role of women in childbirth, funerals and fairs and festivals is an important part of village life. Here women are carriers of traditional information in absence of written records. They are crucial actors in the preservation and dissemination of such knowledge. They are not only competent food producers and house makers but are also the transmitters of rich local oral traditions. Women's supremacy is restricted within the family domain and does not extend to social or political spheres. It is interesting to note that although by convention every village Panchayat has a female member, the lady never bothers to attend the meeting or to take any active interest in the proceedings of Panchayat. Women have a secondary importance in public affairs and community decision-making. Women are generally bypassed and marginalized either they lack the requisite skills, or because women's heavy and unending

domestic responsibilities makes attending meetings and participating in decision making difficult. As the religious sphere is most dominating among tribals it constitutes a major field for male domination. The women are deprived of public authority. The religious sphere is a major field for male dominance, and a strategy to deprive women of public authority. However, female labour is central to all economic activities among tribal. The workload that is associated with these activities most unlikely does not give women any time to indulge in community affairs. The wage earning tribal women cannot make their own decision to work or have control over their earnings. All women agree that like men, women should also have the prospect to remarry. The study group does have provision for remarriage of a divorcee or a widow.

Tribal women talk about their homes, children and emotions; while men talk about work, innovations, ideas and politics. Tribal women in the study area are separated by language. They speak local language; Hindi is mostly understood and spoken by men. Tribal women under study area think it does not affect women social position whether she is educated or uneducated. Among tribal in the study area the concept of women's space is where only women may sit, work or enter freely at any time is relatively informal and flexible and depends on the separation of activities that result from the sexual division of labour. In the study area, there are no such private or intimate spaces for women, though men have public space to hold meetings, settle disputes, and discuss political and farming issues. When women occupy public spaces like water source, water spring, field etc., men usually do not join them. The women interact with each other, not with their men as couples. In the study area, the interaction between individual men and women varies according to kinship relation and relative age, which ranges from relaxed informality to extreme avoidance, marked by women covering their head and men averting their glances. Men who are not related, especially elders do not come closer to the area where group of women are sitting. Tribal women in the study area recognize the fact that they have been discriminated against in education, income, consumption, status and access to power; they have a worst health record than men; they suffer from social, cultural and legal discrimination and often from violence. They are discriminated on grounds of equity and efficiency. There is need for quantitative measurement, for a complete set of cultural and rights indicators to assess women's rights.

Few tribal women are free from threat and violence at the hands of their husbands. Violence often becomes a tool to socialize family members according to prescribed norms of behaviour with an overall perspective of male dominance and control. Kelkar (1991) situates violence against women 'in the socio-economic and political context of power relations' and it should include 'exploitation, discrimination, upholding of unequal economic and social structures, the creation of an atmosphere of terror, threat or reprisal and forms of religio-cultural and political violence (Kelkar, 1991).[4] However, the violence in the form

of female foeticide and infanticide is not present among tribals. Tribal women take pleasure in their voting rights and about 90 per cent of women in the study area exercised this right. Most of them follow the advice of their husbands or are under pressure to accept the wishes of their husbands.

Women in the study areas have no personal opinion on 'reproductive rights'. They are not comfortable with the idea of women regulating their own fertility.

Argument about social status of Sahariya tribal women

Tribal speak little of statuses and roles when mentioning about their social life. What they do talk of are the skills for managing the environment for making a living. They also talk of marriage, married life, children, and their socialization within a community of relationships. The Sahariya family has many forms and different structures. These have direct bearing on the status of women, not only in terms of the number and quality of relationships to which they have to adapt and the distribution of functions and roles, but also with regard to the allocation of resources. The beliefs and ideas held by locals have a vital influence on the lives of the men, women and children. For one thing, it reinforces the gender division of work, place, tools and language. According to religious beliefs, women are considered impure, that is why they are not allowed to use plough and interact with supernatural beings directly. The economic cycle and division of labor in the tribal areas has given an important role to the women. There is cultural similarity among the different tribal groups in the respective areas under study, as the women from different areas have the similar economic roles to play, necessitated by the demands of environment to grow food for their own consumption. The economic value and worth of women therefore as (a) an independent and necessary unit of economic activity without which the given economic system will not survive, (b) as complementary to the men as work force, in the organized functioning of the whole economic system. Role of women is not only of important in economic activities, but her role in noneconomic activities is equally important. Women's role as wives, mothers, organizers and as the basic foundation of other dimensions of social life is of utmost importance. The socio-economic equality of sexes can be observed in the attitudes and practices concerning marriage, divorce and household harmony. The tribal women work very hard, in some cases even more than the men. They are responsible for their own share of work and share the benefits of their own work as long as the unit of production and consumption remains in the home. Despite the fact that tribal women live their lives as dependents throughout their life cycle: as daughters, sisters, and wives; or as mothers of sons, they have far more power and independence than modern sub-urban housewives; there is no way for a man to force women to comply to his wishes. They are like invisible hands shaping and maintaining the structure of society but they are treated unequally under social welfare systems that affect their status and power in the family. They are paid less than men for equal work. According to Human Development

Report, 1995, the average female wage is only three-fourth of the male wage in the non- agricultural sector.[5]

HEALTH STATUS OF SAHARIYA WOMEN

There is a general agreement that the health status of the tribal population in India is very poor, deficient in sanitary conditions, personal hygiene, and health education (Basu, 1994).[5] Tribal mothers have high rates of anemia, and girl children receive less than the desired nutritional intake. All told, the whole tribal community is deficient in adequate food intake. The extent of knowledge and practice of family planning was also found to be low among the Scheduled Tribes (Kanitkar and Sinha, 1988).[7]

In the study area about 54% women are below age 30 and less than 4% reside in urban area. 89% of the tribal women are illiterate and their husband's educational status is also very poor. The mean number of children ever born was 2.6. Considering the life style behavior like chewing *pan masala or* tobacco, drinking alcohol, or smoking, it has been found that in study area Sahariya women are more prone to these activities. Alcohol consumption is more than 34% among the Sahariya tribal women.

Antenatal findings: The pregnancy-related health problems commonly reported among the tribal women is fatigue (52%). The second important pregnancy related problem among the tribal women is swelling of legs, body or face, (53%). Forty-two per cent of tribal women reported convulsions. The reported problem of anemia is almost (64%) among women in study area. Only 5% tribal women reported any vaginal bleeding. General check-up, which includes weight and height measurement, has been done on 45% population but only 32% of sahariya mother of study group had their blood pressure checked. Only 20% of births among tribal mothers were accompanied for an internal examination during any antenatal check-up. Again 31% of tribal mothers had undergone a blood test and only 28% had their urine test but none of them received X-ray or sonography. For all the items of antenatal advice, Sahariya women received less advice, only 54% received advice on dietary conditions during pregnancy from the health workers. About 33% of tribal women of study area received advice on delivery care. However, advice on newborn care was received by almost 40%. It is very distressing to note that only about 7% of tribal women received advice on family planning. The incidence of ANC is less frequent among the tribal women of study area. More than 50% of tribal women did not receive even a single dose of TT vaccine during their last pregnancy, and only 29% received the complete TT injection (all 3 doses). Only 25% of tribal women were given IFA tablets and among them. Only 70% received enough tablets for at least three months. 72% of the tribal women of study area were consumed all the tablets given to them. Also 11% of tribal women reported that antenatal care service is either too far from their place or it is inconvenient for them to visit or they had no time to visit.

Post Natal findings: One of the important major thrust areas of the RCH Programme in India is to encourage and

promote deliveries under proper hygienic conditions under the supervision of trained health professionals. It is shocking to note that more than 85% of the most recent delivery among the tribal mothers had been taken place in their own home. Only about 10% of the deliveries of tribal mothers have been taken place in health facilities. Only 5% of the births among the tribal mothers took place in facilities operated by non-governmental organizations or trusts. Only 10% of the recent births among tribal mothers of study area has been conducted by a trained personal and 75% of the births among the tribal mothers was attended by untrained persons. There is an immediate need to sensitize the tribal women about this risk. The proportion of deliveries by caesarian section was lower (10%) among the tribal women than the non-tribal women average (26%) and it is a major cause for higher maternal mortality in tribal women.

Postnatal advice: The health of a mother and her new born child depends not only on the health care she receives during her pregnancy and delivery, but also on the care she and the infant receive during the first few weeks after the delivery. Only 15% of the births among the tribal women were followed by a check-up within two months of the delivery, 35% of these check-ups took place within 2 days of birth. For 42% of births among the tribal women, mothers who received a postpartum check-up also had their abdomen examined during the check-up. Advice on breastfeeding and baby care was considerably more common among the tribal women (58% and 65% cases respectively). Least important was the advice given on family planning, which was 21% among the tribal women.

Postpartum Complications: Tribal mothers in study area reported of severe postpartum complications (massive vaginal bleeding as well as very high fever) for 8 percent of births and any symptom of postpartum complications for 29 percent of births. However postpartum complications were higher than the national average.

Breast-Feeding & Contraceptive: among the tribal women 17% of the children began breastfeeding within one hour of birth and 25% started breast-feeding within one day of the birth. Most of the tribal children began breastfeeding more than one day after birth (61%). However about two thirds of tribal (67%) squeezed the first milk from the breast before they began breastfeeding. This practice is contrary to recommendations for feeding infants formulated by the WHO. Only about 10% of the currently married tribal women were using some method of contraception and only 1% of the tribal women were using traditional methods and 3% were using other methods like folkloric methods. Modern methods of contraception were used by only 1% of tribal women. Again, among the current contraceptive user, terminal method were used by 12% of tribal women. Among the women who are currently using contraception, 15% of the tribal women had some contraceptive related problems. Overall 48% of tribal women some or the other reproductive health problem. Of all reproductive health problems, urinary tract infection was higher among the tribal women (36%).

Among the currently married tribal women, the symptom of bleeding after intercourse was high (8%).

Nutritional Findings: Physical measurements such as height, weight and body mass index reflect the total nutritional status over a lifetime. Nutritional status is also a very important indicator of assessing maternal health. The mean height among tribal and women is 148.8 cm, which is one cm less than all India average. 19% of tribal women are below 145 cm of height. The mean BMI for tribal women was 18.2. Though more than half of the women have a BMI between 18.2 – 24.3 kg/m2 (normal condition), still about 48% of tribal women have a BMI of less than 18.2 kg/m2 which indicates a high prevalence of chronic nutritional deficiency. Anemia is characterized by a low level of hemoglobin of the blood. In India, anemia affects an estimated 50% of the population (Seshadri 1998).[8] Tribal women have a high prevalence of anemia. About 8% of the tribal women are severely anemic compared to others. Only 33% and 43% of tribal women were moderately anemic or mild anemic.

SUMMARY AND CONCLUSION

These results suggests that there is a need to inform the mothers and families about the availability and benefits of antenatal checkups to help overcome traditional attitudes and other hurdles that prevent mothers specifically tribal mothers from seeking antenatal care for their pregnancies. The above discussion clearly brings out the differential in the health care and health condition among the tribal women The findings reveals that in each and every socio-economic, demographic as well as health parameters, the tribal women is poor. Malnutrition is pervasive among tribal women. There is also a high prevalence of anemia among the tribal women. The utilization of maternal health care is also very low among the tribal women. Use of modern methods of contraception is also significantly less among the tribal women. In India, the National Health Services have often neglected the tribal people in general and tribal women in particular.[9] In addition to the social and economic factors contributing to the low health status of this underprivileged group, cultural factors might also play a role. In 1982, with the establishment of the National Health Policy, the Indian government declared the need to improve the health status and quality of life of the underprivileged groups. But programs to improve the health status and quality of life of underprivileged groups cannot succeed unless they form part of a larger effort to bring about and overall transformation of society (Basu, 1992).[6] The interventions for improving the health status of women under the Government of India's Child Survival and Safe Motherhood Program, has not been significantly able to improve the services for women especially in the tribal areas. Therefore there is an urgent need to create awareness about this at the community as well as at an individual level. Health interventions must focus on tribal culture, medical training of the tribal people, and a knowledgeable health care delivery system catering to the needs of tribal women and the child.

REFERENCES

1. Bhasin, V.: Medical Anthropology: Tribals of Rajasthan, Kamla-Raj Enterprises, Delhi (2005).
2. Bhasin V.: Social dimensions of politics: The case of trival democracy in Sikkam. J. Hum. Eco. 1993; 4(1): 63-78.
3. Roy Burman J.J. Status of Tribal Women in India; Mainstream. 2012 March 10; Vol L No. 12.
4. Kelkar G. Violence Against Women in India: Perspectives and Strategies. Asian Institute of Technology, Bangkok; 1991.
5. Chaudhary SN. Status of Tribal Women in India) Mainstreamweekly.net/ article3314.html archives on 10.07.2014.
6. Basu S. Health and Culture among the underprivileged groups, *Health For The Millions*.Feb-Apr1992; 18(1-2): 23-4.
7. Kanitkar T., Sinha RK. A Report on Demographic study of Tribal population in santhal pargana in Bihar and , Bombay, India. Mumbai; 1988.
8. Seshadri Subadra. A Data base on Iron Deficiency Anemia (IDA) in India: Prevalence, Causes, consequences and Strategies for Prevention. Vadodara: The Maharaja Sayajirao University of Baroda1998.
9. Basu SK, Jindal A, Kshatriya GK. The determinants of health seeking behaviour among tribal populations of Bastar District, Madhya Pradesh. *South Asian Anthropologist,* 1990;11(1): 1-6.

AWARENESS TOWARDS PRENATAL & POSTNATAL CARE AMONG KORKU TRIBAL WOMEN OF BETUL DISTRICT, MADHYA PRADESH

Rajul Raikwar* and K.K.N. Sharma**

INTRODUCTION

The concept of human health is as old as human social history. Health is a natural state of human and it is the result of living in accordance with the natural law pertaining to the body, mind and environment. Health is a function, not only of medical care but also of the overall integrated development of society, cultural, economic, educational, social and political. Healthy health and a healthy society go together.[1] Reproductive health of women consists of health of the women after puberty and before pregnancy, and health care, utilization of health services during pregnancy, delivery and postnatal care. The nutritional status of pregnant women directly influences their reproductive performance and birth weight of their child. The education of women plays an important role in improving health of their children even in poor families. In case basic health needs are met by primary health care services including Family Planning Nutritional anemia & maternal malnutrition which is quite common among the rural women. The impact on maternal and child health of mild and moderate forms of malnutrition has been demonstrated by many studies. Early childbearing and other behaviors can have health risks for women and their infants.[2]

Maternal health influences the fetus and neonatal health in a number of ways. Mother & child are considered as single unit. During the antenatal period, fetus is a part of mother, during this period the fetus obtains all the building materials and oxygen from the mother's blood (Chetlapali, 1993).[3] After birth the child depends upon the mother, at least up to the age of 6-9 months (WHO, 1986).[4] Bang et al. (1999),[5] Belliner et al. (1987),[6] Gupta et al. (2008)[7] also worked on Reproductive & Child health care practices.

The Korku is a one of the scheduled tribe (ST) community predominantly found in the East Nimar, Betul and Chhindwara districts of Madhya Pradesh. The total population of Korkus in M.P. is 5, 59, 344 comprising 1, 38, 798 in Betul district (TRI Bhopal, 2014).[8] Korkus have derived their name from the combination of the word 'koru' meaning man and 'ku' which makes it plural meaning tribal men. The Korkus are a branch of the great Munda tribes and are

* Research Scholar, **Associate Professor, Department of Anthropology,
Dr. Hari Singh Gour Vishwavidyalaya, Sagar, M.P. E mail : kkksagar@gmail.com

placed here in the vicinity of the great tribe- the Gonds. Korkus are initially believed to be a hunting gathering community dwelling in the forests of Satpura ranges on either sides of the river Tapti. They socially consume liquor made from the flowers of the Mahua tree which is prepared in almost all the houses. (Wikipedia 2014)[9]

METHODOLOGY

The present study has been conducted among the Korku's women of Betul district, Madhya Pradesh. The concerned data has been collected from its predominated villages, i.e. Behda, Batlakurd, Neemkheda, Borkund, Dhabda, Bichhutekri and Veerpur. The study has been conducted among 200 women following purposive sampling regarding their awareness and practices towards prenatal & postnatal care with the help of schedule.

RESULTS AND DISCUSSIONS

Table 1 explains various kinds of information, gathered about feeding of colostrums. Ninety-one percent women said yes; whereas 9.5 percent women give no response. Regarding discard of first colostrums: 70 % women said yes; 26 % women said no; 4 % women give no response. Learning symptoms during pregnancy: 15 % women were advised for diet during pregnancy; 82.5 % women were not advised for diet during pregnancy; 2.5 % women give no response. 12.5 % women were advised for care of delivery during pregnancy; 85 % women were not advised for care of delivery during pregnancy; 2.5% women give no response. 75% women were advised for feeding during pregnancy; 45 % women were not advised for feeding during pregnancy; 2.5% women give no response. 15% women was advised for care of new born during pregnancy; 45% women was not advised for care of new born during pregnancy; 2.5% women give no response. 16% women were advised for family planning during pregnancy; 81% women were not advised for family planning during pregnancy; 3% women give no response. Availed checkup during pregnancy, Blood pressure check up, 51% women said yes; 46 % women said no; 3% women give no response. Blood group testing, 50% women said yes; 46.5% women said no; 3.5% women give no response. Weighted, 42.5% women said yes; 54.5% women said no; 3% women give no response. Stomach testing, 51% women said yes; 46% women said no; 3% women give no response. Information about awareness of AIDS, 2.5% women said yes; 94% women said no; 3.5% women give no response. Awareness towards vaccination during fever, 85% women said yes; 10% women said no; 5% women give no response. Disadvantages of vaccination, 20% women said yes; 75% women said no; 5% women give no response.

Table 2 shows the information about Concept of safe & un-safe sex. 4.5% women said prevention from STD is the concept of safe sex; 95.5 % women

Table 1: Awareness of prenatal & postnatal care

S. No.	QUESTIONS		ANSWERS		
		TOTAL WOMEN	YES	NO	NO RESPONSE
1.	Feeding of colostrums	200	183 (91.5%)	-	17 (9.5%)
2.	Discard of colostrums	200	140 (70%)	52 (26%)	8 (4%)
3.	**Awareness of prenatal & postnatal care**				
a.	Proper diet	200	30 (15%)	165 (82.5%)	5 (2.5%)
b.	Sign of danger during delivery	200	25 (12.5%)	170 (85%)	5 (2.5%)
c.	Care of delivery	200	30 (15%)	165 (82.5%)	5 (2.5%)
d.	Feeding	200	150 75%	45 23.5%	5 2.5%
e.	Care of newborn	200	30 (15%)	164 (82%)	6 (3%)
4.	**Availed checkup during pregnancy**				
a.	Weighted	200	85 (42.5%)	109 (54.5%)	6 (3%)
b.	Blood Pressure	200	102 (51%)	92 (46%)	6 (3%)
c.	Blood group	200	100 (50%)	93 (46.5%)	7 (3.5%)
d.	Stomach checkup	200	102 (51%)	92 (46%)	6 (3%)
5.	AIDS awareness	200	5 (2.5%)	188 (94%)	7 (3.5%)
6.	Awareness towards vaccination during fever	200	170 (85%)	20 (10%)	10 (5%)
7.	Disadvantages of vaccination	200	40 (20%)	150 (75%)	10 (5%)

give no response. Concept of un-safe sex.1.5% said not using the contra-ceptives; 65.5% said sex without contra-ceptives; 33% women give no response.

Table 3 shows the information about Mode of transmission & Way of spreading AIDS. 1% women said from sexual contact; 1.5% women said all (from affected person, eating together sexual contact, from affected mother to fetus); 97.5 % women give no response.

Table 4 shows the information about Information about menarche. Pre information about menarche, 35% women said yes; 64% women said no; 1 % women give no response. Source of the information about menarche, no women prefer radio, T.V., news paper & friend; 37.5 women said source of the information is family person; 60% women give no response. Age of first menarche, 6% women said first menarche start from the age of 11 year; 7.5% women said first

Table 2: Concept of safe & unsafe sex

Total women	Concept of safe sex					
200	**Decreasing the probability of child birth**	**Prevention from STDs/ disease**	**To be stress-free**	**Other**	**All of the above**	**No response**
	-	5 (4.5%)	-	-	-	195 (95.5%)
	Concept of unsafe sex					
	Not using the contraceptives	**Sex without contraceptives**	**Not using the contraceptives after menstrual**	**Having satisfaction**	**All of the above**	**No response**
	3 (1.5%)	131 (65.5%)	-	-	-	66 (33%)

Table 3: Knowledge regarding transmission of AIDS

Total women	MODES						
200	**Affected People**	**eating together**	**sexual contact**	**Affected Mother To Foetus**	**Other**	**all of the above**	**no response**
	-	-	2 (1%)	-	-	3 (1.5%)	195 (97.5%)
	WAYS						
	Sexual contact with homosexual	**From affected mother to foetus**	**transfusion of infected blood**	**unsterile injection**	**Other**	**All the of above**	**No response**
	-	3 (1.5%)	-	1 (0.5%)	1 (0.5%)	-	195 (97.5%)

Table4: Awareness about menarche

Total women									
200	**Pre information**	**Yes**	**No**	**No response**	-	-	-	-	-
		70 (35%)	128 (64%)	2 (1%)	-	-	-	-	-
200	**Source**	Radio	T.V.	News paper	Family	Friend	Other	No response	-
		-	-	-	75 (37.5%)	-	5 (2.5%)	120 (60%)	-
200	**Age of first menarche**	11 year	12year	13year	14year	15year	Not remember	-	-
		12 (6%)	15 (7.5%)	10 (5%)	35 (17.5%)	25 (12.5%)	103 (51.5%)	-	-
200	**Problem during first menarche**	Normal	Abnormal	Not remember	No response	-	-	-	-
		180 (90%)	8 (4%)	10 (5%)	2 (1%)	-	-	-	-
200	**Details of problem**	Feared	Cry	Dirty	Shame	Joy	Normal	Abnormal	No response
		12 (6%)	30 (15%)	15 (7.5%)	15 (7.5%)	15 (7.5%)	70 (35%)	5 (2.5%)	8 (4%)

menarche start from the age of 12 year; 5% women said first menarche start from the age of 13 year; 17.5% women said first menarche start from the age of 14 year; 12.5% women said first menarche start from the age of 15 year; 51.3% women give no response. Status of first menarche, 90% women in normal category; 4% women in abnormal category; 5% women in not remember category; 1% women give no response.

The finding of the study shows no- awareness that indicates need for more attention.. Weakly market is core place of any tribal community which is more suitable place for the mobile hospital facilities and poster display in their regional dialects for the health awareness. Visits of health worker to these places is satisfactory in providing better services. Socio-economic status of Korkus is improving. This study may be helpful for the concerned health administrator and persons for the evaluation of implemented health care programs.

ACKNOWLEDGMENT

We are thankful to district administration, chief medical officers, school principals & teachers in Korku women's for their cooperation during field work regarding concerned data collection.

REFERENCES

1. Basu SK. Health and culture among the under privileged groups in India In: Alok Mukhopadhyay,editor. State of India's health. Voluntary Health Association of India. 1992. P.175-186.
2. Yadav A. Demographic Profile among Raj Gonds Of Sagar District, Madhya Pradesh. Ph.D Thesis, Sagar: Dr. Hari Singh Gour Vishwavidyalaya;2003.
3. Chetlapali SK .A study of blood groups, serum proteins and reproductive performance among desia kondhs of Orissa. Ph.D Thesis, Punjabi University, Patiala.1993
4. World Health Organization: Annual global data on mortality, 1980-1984. Statistical Report. 1986:196-199.
5. Bang AT, Bang RA, Baitule SB, Reddy MH, Deshmukh MD. Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trial in rural India. The Lancet. 1999;354 (9194): 1955-1961.
6. Bellinger D, Leviton A, Waternaux C, Needleman H, Rabinowitz M. Longitudinal analyses of prenatal and postnatal lead exposure and early cognitive development. The New England Journal of Medicine. 1987;316: 1037-1043
7. Gupta M, Thakur JS, Kumar R. Reproductive and child health inequities in Chandigarh union territory of India. Journal of Urban Health. 2008; 85(2): 291-299.
8. Tribal Research Institute (2014): Reports, Government of Madhya Pradesh, Bhopal.
9. WWW.Wikipedia, Korku history. 2014

INCLUSIVENESS OF NATIONAL RURAL HEALTH MISSION: A CASE STUDY OF TANGHDAR BLOCK OF KUPWARA DISTRICT IN STATE OF JAMMU AND KASHMIR

Rizwan Ahmad Lone*

INTRODUCTION

In developing nations like India, a considerable chunk of its population is poverty ridden and having weak health. This poor health has become burden in their life because part of their income is spent on the health care. This poor health is mainly due to low public health care expenditure. In India, out of pocket expenditure on health may alone push 2.21% of population below poverty line in each year (World Bank, 2001). India is losing 6% of GDP annually due to premature death and illness (World Bank report, 2010). The private expenditure on health as percentage of total expenditure is 71.8% and per capita total expenditure on health is $ 51 in which Government contributes only $14 (World Health Statistics, 2013. The Infant mortality rate[1] (IMR)of country is 42/1000 live births and maternal mortality rate[2] (MMR) is 212/ 100000 live births which is far above the level committed under Millennium Development Goal of Infant mortality rate of 28/1000 live births and maternal mortality rate of 109 /100000 live births by 2015 (National Health Policy, 2012)

NATIONAL RURAL HEALTH MISSION (NRHM)

NATIONAL RURAL HEALTH Mission (NRHM) was launched on 12 April, 2005 throughout the country. The purpose of NRHM is to provide effective and affordable health care to the population especially to the rural poor and women of the country with special focus on eighteen states that includes Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Jammu and Kashmir, Madhya Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Odhisa, Rajasthan, Sikkim, Tripura, Uttar Pradesh and Uttrakhand. The NRHM is a Central flagship programme aimed to allocate the funds to these states for strengthening of their physical and human infrastructure. This commitment has been made by the Government to increase the share of public health expenditure to 2-3% of GDP during the period of 2005-2012.It is a flexible decentralized programme comprising the following components.

- A mission flexi pool.
- A reproductive and child health flexi pool.

* Former Research Scholar at Central University of Punjab, S/O Khazir Mohamad Lone, Mirpora, Trehgam, P.O. Trehgam-193224, Dist- Kupwara, Jammu And Kashmir,E mail:lonerizwank@gmail.com

[1]IMR is the probability of dying between birth and exactly one year of age expressed per thousand live births.

[2]MMR is the ratio of maternal deaths during a given time period per lakh live births during the same period.

- Pulse polio immunization
- Infrastructure maintenance, and
- A national disease control programme.

In order to ensure that the funds would be transferred to the implementing agencies without delay, the transfers are made directly to state level societies, bypassing the budget. Under this scheme every sub centre, primary health centre and community health centre receives Rs 10000, Rs 25000 and Rs 50000 annually to meet the local health activity. These funds are deposited in the joint account of Auxiliary Nurse Midwife and local Surpanch. In case of primary health centers and community health centers these funds are deposited in the accounts of Rogi Kalyan Smithies (RKS). Rogi Kalyan Smithi is a patient welfare committee whose members are people from community, Panchayat Raj representatives, NGOs, Health professionals. Besides these funds every sub centre, primary health centre and community health centre are given an amount of Rupees 10000, Rupees 50000 and Rupees100000 for construction and maintenance of these health centres. Every Village Health Sanitation and Nutrition Committee (VHSNC) is given 10000 per annum to meet the local needs such as sanitation campaign. To make the NRHM programme more accessible, the Government of India has introduced following sub schemes -

1. Janani Suraksha Yojana (JSY)
2. Janani Shishu Suraksha Karyakaram (JSSK)
3. Accredited Social Health Activist (ASHA)

GOALS OF NRHM

- Universal access to public health services such as Women's health, child health, water, sanitation & hygiene, immunization, and Nutrition.
- Access to integrated comprehensive primary healthcare.
- Reduction in Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR)
- Revitalize local health traditions and mainstream AYUSH.
- Prevention and control of communicable and non-communicable diseases, including locally endemic diseases.
- Population stabilization, gender and demographic balance.
- Task Group to improve guidelines/ details

REVIEW OF LITERATURE

Kumar (2005) in an article entitled "Budgeting for Health :Some considerations" revealed that low level of public health expenditure on one hand and mismanagement on other in delivering quality service had put India's health standard on knife edge.[1] In Andhra Pradesh rural Infant Mortality Rate was 71/1000 and in urban it was 35/1000. Similarly in Karnataka it was 65/1000 in rural and 25/1000 in urban.

Berman and Ahuja (2008) conducted a study entitled "Government health spending in India". Their findings are based on Pre-NRHM and Post-NRHM reform. The study identified that

during Pre-NRHM reform total health spending had increased by 38% during 1999-2000 to 2004-05 and in real per capita terms total health spending had increased marginally as it increased from Rs 205 to Rs 215 during the same period. During post NRHM reform, the total health expenditure of government increased by 41% between 2004 -05 to 2006-07.[2]

Devadasan et al (2008) in his study entitled "A conditional cash assistance programme for promoting institutional deliveries among the poor in India: Process evaluation results" discussed the inclusiveness of Janani Suraksha Yojana scheme.[3] It was found that most of the poor women were not aware of the programme, submitting the necessary document was a difficult task. There was also a long delay in receiving the benefits. The study also revealed that the amount of cash benefit varied from State to State. This was Rs 1400 in rural areas of Karnataka and Rs 700 in Maharashtra. The duration of payment to Jananai Suraksha Yojna beneficiary showed a significant variation among these states. In Maharashtra Janani Suraksha Yojana beneficiary received the cash assistance at the time of submission of bio-data while in case of Karnataka, the women were entitled to cash benefit even after one year of giving birth to a child.

Ahmad et al (2009)[4] in their study entitled "Rapid appraisal of National Rural Health Mission in Baramulla District of Jammu and Kashmir" revealed the short fall of manpower of different positions in the Baramulla District was 29%. The study also found the inequity in manpower at two CHCs .It was sufficient at CHC Pattan and insufficient at Chandoosa CHC. The admission of IPD-inpatient department at PHCs was non existent. JSY programme was found to be ineffective in maternity care .It was found that 96% of JSY beneficiaries used the private transport to reach the health centre. The study also mentioned that 82% of ASHAs received ASHA kits but they were not filled regularly.[4]

Duggal (2009) conducted a study entitled "Sinking flagships and health budgets in India". In his study he found that the principal cause of underdevelopment of health and health care is inadequate allocations to health sector in Government budgets. World health report 2008 shows that in low and middle income countries, over 6.5 billion people have to finance health care by borrowing and sale of assets for over a half of their health expenditure.[5]

Another study by Husain (2009) entitled "Health of National Rural Health Mission" revealed that public health care sector in India has shortage of manpower. He mentioned that at 11% PHCs, the shortage of doctors was 17% in high focus states. At CHCs only 49% of required specialists have been sanctioned and 25% were positioned. The study also mentioned misallocation of united funds to sub centres. It was only 49% at SCs and 36% at PHCs that received such funds during 2008-09.[6]

Joshy and George (2012) in their study entitled "Health care through community participation: Role of ASHAs" revealed that the ASHAs in Thane district of Maharashtra did not perform their proper functions. The study mentioned that the common task of ASAHs was

escorting pregnant women to nearest hospital and also distribution of drugs. The author also found the socio-economic background of rural women as important factor for choosing the job as ASHA as 92.5% ASHAs reported that they joined the ASHA scheme to support their families.[7]

Sing and Tamulee (2012) in an article entitled "Janani Suraksha Yojana: Impact on socio- economic conditions among beneficiary females". The study covered two districts of Bihar and the study revealed significant impact of JSY programme on institutional deliveries. The paper also showed the socio-economic impact on JSY programme on institutional delivery which was 56.8% among scheduled castes, 2.1% among scheduled tribes, 34% among other backward classes and 6.4% to the general category.[8]

Srinath and Veena (2012) in a study entitled "NRHM and IPHS" found insufficient training to the staffs of PHCs regarding the I.P.H.S norms. It was noted that the functionality of man power ranged from 25% at PHC 1 as high as 81% at PHC 2. At two PHC it was also found that the medical officers were unaware about I.P.H.S.[9]

OBJECTIVES OF STUDY

- To assess the inclusiveness of National Rural Health Mission in terms of manpower.
- To analyse the effectiveness of cash incentive given through Janani Suraksha Yojana for promoting institutional deliveries.
- To study the impact of Accredited Social Health Activist in promoting rural health.

HYPOTHESES

- NRHM has reduced the health care inequality gap.
- There is significant impact of Accredited Social Health Activist in promoting rural health.

METHODOLOGY

To fulfil the stated objectives, stratified random sampling technique was applied.

Selection of Health Centres: One CHC and one PHC and two Sub- Centres from selected block were randomly selected.

Sample from block

A sample of 22 ASHAs and 25 JSY beneficiaries from block were randomly selected. In addition to this sample, twenty IPD Patients from the CHC and PHC of block were interviewed. Further 2 doctors, 2 Female multipurpose health workers (FMPHW), and 2 Male multipurpose health workers (MMPHW) from CHC, PHC and Sub centre were randomly selected and interviewed. Two Village Health Sanitation and Nutrition Committee were also interviewed to assess their role in promoting rural health as also 30 households from two villages of block were also randomly selected to assess their awareness level about NRHM.

DATA COLLECTION

Both primary as well as secondary data were collected. The secondary data were collected from Divisional office NRHM Srinagar J&K, Directorate of Economics and Statistics, J&K, CMO office Kupwara,

BMO office Tangdhar. Besides this, secondary data were also collected from Publications of NRHM, Websites etc. Primary data was collected through different Interview schedules. These interview schedules were prepared separately for different stake holders namely Accredited Social Health Activists, Janani Suraksha Yojana beneficiary, Households, IPD patients, Health manpower comprising doctors, Female Multi Purpose Health Worker and Male Multi Purpose Health Worker

Table 1: Health manpower position at CHC Tangdar and PHC Gabra of the block

Health Institution	CHC			PHC		
Health Man Power	**IPHS**	**Position**	**Shortfall**	**IPHS**	**Position**	**Shortfall**
Administrative officer	01	01	0	-	-	-
GDMO	02	04	02+	02	02	0
Physician	01	0	01	-	-	-
Surgeon	01	0	01	-	-	-
Gynae	01	0	01	-	-	-
Paediatrician	01	0	01	-	-	-
Dental surgeon	01	01	0	-	0	01
AYUSH Doctor#	01	03	02+	01	01	0
Anaesthist	01	01^	0		-	-
Community Health Officer	01	0	01	-	-	-
Ophthalmic assistant	01	-	01	-	-	-
Radiographer	01	0	01	-	-	-
X-ray tech.	-	03	02+	01	0	01
LHV	-	01	0	01	0	01
Staff Nurse	10	03	07	03	-	02
FMPHW	01	01	0	01	01	0
Pharmist	01	03	02+	01	01	0
Health educator	-	-	-	01	01	0
Lab Technician	02	02	0	01	01	

Source: CMO office Kupwara

Note: ^ indicates that this duty is performed by the BMO and there is no separate man power for Anaesthesiologist.

Posts created and filled under NRHM

Case study of Tangdar block

Tangdar block is 60 kilometres away from the District Head quarter Kupwara, Jammu and Kashmir. The Block has tough terrain surrounded by disputed borders of Pakistan and India. The majority population lives in hilly areas disconnected by motor able roads. The whole Block was disconnected from communication till August 2013 and now only one village is connected by communication and remaining population is still without communication. The Block remains cut off with rest of the District Head quarter for a number days and weeks during winter season. As per Directorate of Health services Kashmir, health centres are distinguished in to three categories of A, B and C. The

category A includes those health centres which are located in inaccessible areas, B includes very difficult areas and C includes health centres located in difficult areas. It is to be noted that as per this classification Medical Block Tangdar has been placed in category A means inaccessible in terms of inadequate health care sector.

The data given in the Table 1 reveals that the CHC is functioning without adequate man power. The CHC has witnessed 100% shortfall of manpower to the norms given in Indian Public Health Standard. The 100% shortfall occurs in all the specialists including Surgeon specialists, Physician, Paediatrician, and Gynaecologist. The same level shortfall as per Indian Public Health Standard is witnessed in man power of Community health officer, Radiographer and ophthalmic assistant. This percentage of shortfall is 70% in case of Staff nurses. On the other hand surplus of man power in percentage points occurs in GDMO, AYUSH Doctor, X-ray technician and Pharmacist percentage of 100% surplus. As per norms of Indian Public Health Standard, the zero percent short fall of man power is witnessed in man power of administrative officer, Anaesthesiologist and Lab technician. Thus it can be interpreted from the given that dividing the Districts in to high focus and non high focus Districts and categorising the health institutions in to inaccessible (A), very difficult (B) and difficult (C) has come to be void because dividing the Districts and categorizing the health institutions was for the purpose of removing the disparities existing in the Public health care sector through augmenting the man power in these inaccessible areas which however still exists.

Manpower position at Sub Centres

As per the BMO office Tangdar the positioning of health man power at the two selected Sub Centres reveals that none of the selected Sub Centres are upgraded to the Indian Public Health Standard (IPHS). The percentage shortfall of ANM at Sub Centre Hajinard is 50%. The same percentage of shortfall occurs in man power of MMPHW. Similarly the percentage shortfall of ANM at Sub Centre Naichen is 100%. This indicates void vision of NRHM in reducing the health inequity in public health care sector. The population of this inaccessible area still lacks their fundamental right in terms of proper health care facilities though the NRHM has entered in its second phase of removing the vertical and horizontal imbalance in Public health care sector based on the concept of inclusiveness.

Distribution and level of awareness about JSY

20 JSY beneficiaries (80%) out of 25 selected JSY beneficiaries came to know about the JSY programme through ASHAs. Two (2) JSY beneficiaries (8%) got awareness about JSY through media. One JSY beneficiaries out of 25 selected JSY beneficiaries came to about JSY at hospital. Similarly two JSY beneficiaries got awareness about the JSY through relatives and neighbour. The clearly means that the ASHAs of this medical

block plays a significant role in promoting the institutional deliveries by creating a mass awareness about the JSY scheme

Indicators of ASHA in Tangdar Block

One ASHA (4.54%) of the total selected ASHAs covers the population of 1000 as per norms of NRHM. Three (13.63%) ASHAs out of 22 selected ASHAs serves the population of less than 500, 7 ASHAs (31.82%) has a population coverage of more than 500 and less than a1000, 4 ASHAs (18.19%) covers more than 1000 and equal to 1500 population. Similarly 1 ASHAs (4.54%) works for the population of more than 1500 and equal to 2000, 6 ASHAs (27.27%) covers population of more than 2000. Similarly in Tangdar Block only 1 ASHA (4.55%) of the 22 selected ASHA received incentives within a month. 15 ASHAs (68.18%) out of 22 selected ASHAs got their incentives more than a month and less than two months. This percentage is 27.28% of total selected ASHAs of the same Block who received their incentives more than two months.

Six (24%) JSY beneficiaries out of total selected JSY beneficiaries (25) belonged to APL category and 19 JSY beneficiaries (76%) out of 25 selected JSY beneficiaries belonged to BPL category. Twenty two JSY beneficiaries (88%) out of 25 selected JSY beneficiaries were escorted by their ASHAs at the time of their delivery in the health institution. In terms of satisfaction with the ASHAs, it was reported by 23 JSY beneficiaries (92%) out of 25 selected JSY beneficiaries that they are satisfied with the ASHAs work. The primary data on minimum time of receiving the JSY was also taken which reveals that none of JSY beneficiaries received their payment at the time of discharging from the hospital. It was 2 JSY beneficiaries (8%) out of the 25 selected JSY beneficiaries who received their payment with in the week after their institutional delivery. Similarly 4 JSY beneficiaries (16%) out of 25 JSY beneficiaries got their incentives more than a month and 19 JSY beneficiaries (76%) received their incentives more than a month. The cause of this delay in receiving the incentives was due the difficulties in fulfilling the requirements like photographs of the mother and her child, date of discharge from the health institution duly signed head of the institution demanded by the officials of NRHM. This type of delay in receiving the payment was maximum in case of mothers who had gone through caesarean type of delivery because they were not able to visit the hospital within a week after their delivery. According to Block accounts manager NRHM, the delay in receiving the payment was also due to temporary shortage of funds. One JSY beneficiary also reported she did not receive the incentives due to the fact that she was not having any male in the family to fulfil the requirements for receiving her incentives.

During primary survey the data on type of expenditure incurred by JSY beneficiaries from the incentives received for their institutional were also collected through interview schedules which revealed that 24 JSY beneficiaries out of selected JSY beneficiaries (25) incurred their incentives on house hold

expenditure and only 3 JSY beneficiaries expended it on health care. Out of these 25 selected JSY beneficiaries only one JSY beneficiaries saved her incentives in the bank account.

Average Monthly incentives and expenditures of ASHAs in the selected Block Tangdar

During the primary survey on ASHA's average monthly incentives and average monthly expenditure were also collected through interview schedules. It was found that average monthly incentives of ASHAs in Tangdar Block was Rs. 680 and average monthly expenditure of the ASHAs were Rs. 552 which was higher than the average monthly incentives and average monthly expenditure of the Block Kralpora of high focus District kupwara and Block Hazratbal of non- high focus District Srinager. The cause of these higher average monthly incentives in Tangdar block is that the Block comes under inaccessible area as per Directorate of Health Services, Jammu and Kashmir. The majority of the population lives in hilly areas which have no easy access to any other medical block and no other private health institutions. Majority of the deliveries are done within the same medical block. ASHAs of this medical block is alsohave higher than average monthly expenditure than other selected blocks of high focus and non – high focus District. The cause of this high average monthly expenditure is lack of proper transport facilities. The block has no heavy vehicles availability due to tough terrain. The fare of these light vehicles is higher than the fare heavy vehicles in other selected blocks of high focus and non – high focus District. Another cause of this high average monthly expenditure is that ASHAs have to very long distance to reach the CHC Tangdar, the only health institution in Tangdar where institutional deliveries are done.

Other key findings:

Households: Out of 30 selected households in Tangdar Block, 14 households reported that they knew about NRHM and 21 households expressed that only know about the ASHA.

ASHAs: Among the selected ASHAs of 22, only 18 ASHAs received the drug kit after their selection. 14 ASHAs (63.63%) out of the 22 selected ASHAs received drug kit only once and 4 ASHAs (18.88%) did receive their drug kit two times. It was found during the primary survey that none of the selected ASHAs received their drug kit for the 2013-14. It is worth to note that none of the selected ASHAs received their full incentives and on proper time as mentioned in the operational guide line NRHM, Jammu and Kashmir 2012-13 which envisages that ASHAs will be given their incentives on 10$^{th\ of}$ every month.

OPD/IPD patients: Seventeen patients out of 20 selected patients during the collection of first hand information reported that they are not aware about the NRHM and only 3 patients were aware about the NRHM. More over 15 patients

(75%) responded that are satisfied with the services provided by the health man power.

Health man power: The first hand information from the selected health man power reveals that they are not satisfied with the salary they receive for working in inaccessible areas as not only money matters as there were no residential facilities for doctors. They also expressed their non satisfory feelings for working only at their place of posting. Most of this health man power did not reach their health institutions on time and did not stay in the evening hours due to lack of proper transport facilities. It must be noted that under NRHM provides no incentives to para medical staff for working in inaccessible areas which has made them displeased for working in these areas.

CHC Tangdar: Block Tangdar has only one CHC covering a population of 56000. The CHC has only minor OT facilities. There is no mobile medical unit in the Tangdar Block. No telephone facility is there. However the physical condition of CHC is satisfactory as it has been newly constructed. The bed occupancy strength increased from 33 to 55 after NRHM. There are separate rooms for specialist consultation. There are no residential facilities available at CHC Tangdar.

PHC Gabra: PHC Gabra has building in good condition but without the basic facilities. There is neither the facility of water supply nor the facility of electricity. There are no institutional deliveries done in PHC Gabra as there is no gynaecologist in position and no labor room is available. More over it was found during the field survey that health centre remains without the doctors for a number of days due to lack of accountability. The available doctor of this institution in spite of their posting at this institution remains available at CHC Tangdar for number of days and nights.

Sub Centres:

Hajinard: This Sub Centre works in rented building having only one room available for use. The physical condition of this Sub Centre is not good. There is no bathroom attached to this Sub Centre. Due only room facility, the sub centre has a store and providing health care facility without maintaining secrecy. The Sub Centre remains closed off during the time when the only available ANM remains on leave. SO it must be noted that the Sub Centre Hajinard does not fulfill the criteria of Indian Public Health Standard (IPHS).

Naichein: This selected Sub Centre also works in rented building. The Sub Centre lacks in terms of water supply and toilet facilities. However the Sub Centre has three rooms available for use. The Sub Centre also does not fall in the scale of Indian Public Health Standard (IPHS) in terms of both physical as well as man power.

Village Health Sanitation and Nutrition committee VHSNC

As per the orders of Ministry of Health and Family Welfare, GOI vide their NO.Z.18015/15/2011-NRHM -11dated 25-07-2011 that of renaming the Village

Health and Sanitation committee (VHSC) as Village Health Sanitation and Nutrition committee (VHSNC). In each selected Block two village Health Sanitation and Nutrition Committee were interviewed for their role and the utilisation of RKS funds. It was reported that they received only Rupees 5000 during 2011-12. There was no allocation of funds to Village Health Sanitation and Nutrition committee (VHSNC) during 2012-13. Further none of the selected Village Health Sanitation and Nutrition committee (VHSNC) was fully aware about their roles. Further during the field survey it was found that none of the selected households expressed satisfaction level for their duties even though the selected households reported that they do not know about the this committee as they have never conducted such a meetings at the village level.

Block level NRHM Sammelans

The operational guidelines of NRHM 2012-13, State Health Society, Jammu and Kashmir provides for creating of Block level NRHM Sammelans for creating the awareness among the prominent citizens and health officials. As per the guideline 2012-13 a sum of Rupees 20000 has been approved for each sammelans at block level. However in practice no such Block level NRHM Sammelans were constituted in two selected blocks. This shows a sign of poor implementation, lack of efficient and accountable management in the state.

National Rural Health Mission is a commendable step taken by Government of India in removing the rural- urban health gap inequality and also in bringing about the inclusiveness in Public health care delivery system throughout the country. However, it was found during study that there still existed some bottlenecks in the proper and effective implementation of the mission which may be removed through the following suggestions.

- All the employees hired under NRHM are on contractual basis. At least some employees should be regularized on performance basis for the better implementation of the mission.
- Incentives should be given to Para-medical staff with a view to motivate them as they are provided to doctors.
- There should be deputation of health specialists in high focus districts as per Indian Public Health Standard so that health manpower gap inequality could be bridged.
- Funds should be timely allocated to Community Health Centers, Primary Health Centers and Sub- centers.
- Sub centres should be beefed up in terms of both health manpower as well as physical infrastructure.
- Every PHC should be computerized for proper maintenance of records of all Sub centre under its Jurisdiction.
- Incentives given to ASHAs should be increased and there should be regular replenishment of medicine kits.
- Proper monitoring and evaluation should be done at the State and District level to improve the imple-mentation of mission.

REFERENCES

1. Kumar SKA. Budgeting for health: Some considerations. Economic and Political Weekly. 2005; 40(14):1391-1396.
2. Berman P, Ahuja R. Government Health Spending in India. Economic and Political Weekly.2008; 44(16):52-59.
3. Devadasan N, Elias M, John D, Grahachary S. Ralte L. A conditional cash assistance programme for promoting institutional deliveries among the poor in India: process evaluation results. *Reducing financial barriers to obstetric care in low-income countries*, 2008167-198.

   http://www.jstor.org/stable/40278915. Accessed on 2013 April,09
4. Ahmad SK, Bhat IA, Qadri F. Rapid Apraisal of NRHM in Baramulla district, J&K. 2009
5. Duggal, R. Sinking Flagships and Health Budgets in India. Economic and Political Weekly, 2009, 44(33),14-17 http://www.jstor.org/stable/25663438 Accessed on 2013 April, 09
6. Husain Zakir. Health of National Rural Health Mission. Economic & Political Weekly.2009, January 22, 2011vol xlvi no 4:52-60
7. Joshi SR, George M. Health Care through community participation, Economic & Political Weekly. 2012Vol. XLVII,(10): 70
8. Sing SH, Tamulee P. Janani Suraksha Yojna: Impact on Socio Economic conditions among Beneficiary Families. International Journal of Scientific and Research Publications. 2012;2(10), 1-4.
9. Srinath V, Veena R. NRHM and IPHS-Standards in Periphery Health Centre's. International Journal of Pharma Medicine and Biological Sciences. 2012;1(2), 207-216.

SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF THREE MOST BACKWARD TRIBES OF MADHYA PRADESH

Ravendra K. Shama* and J. Roy**

Abstract: *As per recent census tribal population of the country constitute 8.6% of the total population. With the increase in absolute number of tribal population of the country, its contribution to total population and its strength in urban areas have also increased in the last four decades. Baigas, Bharias and Saharias are three most backward tribal communities (PVTG) of Madhya Pradesh. A comparative study on socio-demographic characteristics of three PVTGs of Madhya Pradesh based on census data revealed that despite their growth rates and sex ratios were higher than state average, their literacy rates were lower. PVTGs of the state are poor and primarily depend on agriculture labour for their livelihood. In contrast, other ST communities are mainly involved in cultivation. The study indicates that among all three PVTGs, Saharias are most backward. Overall, the socio-economic indicators of all three tribal communities are lower as compared to tribal communities and non-ST population of the state.*

INTRODUCTION

The Scheduled Tribes are enumerated in 30 Indian States/UTs and the number of individual ethnic groups notified as Scheduled Tribes are 705. The tribal population of the country, as per 2011 census, is 10.43 crore, constituting 8.6% of the total population. The absolute number of tribal population of the country increased overtime in last four decades (1971-2011), with the growth of tribal population of the country, along with the contribution of tribal population to total population of India increased over time. The proportion of tribal population increased from 7.8% in 1981 to 8.1% in 1991, 8.2% in 2001 and in recent census in 2011 it became 8.6% to total population of India. The decadal population growth of the tribals during Census 2001-11 was 23.7% against the 17.7% of the entire population. About 90% of tribal populations are living in rural area of India. Though the contribution of tribal population living in urban area to total tribal population of the country is negligible, however the tribal population increased gradually in the urban areas over the years and it rose to 2.8% in 2011, indicating huge migration to urban areas for livelihood.

Tribal communities differ from other communities owing to their languages, economic activities, social structure, traditional beliefs, practices and distinct cultural background. Economic and education level of the tribes varies from tribe to tribe. Socio-economic and

*Scientist – 'D', **Technical Officer-A, National Institute for Research in Tribal Health, (Indian Council of Medical Research), Post Garha, Jabalpur – 482003. M.P.
Corresponding author- E mail: jyotivan@yahoo.com

demographic characteristic of a population depends upon its social and cultural practices and place of residence. Tribal communities live in various ecological and geo-climatic conditions ranging from plains and forests to hills and inaccessible areas. Tribal groups are at different stages of social, economic and educational development. While some tribal communities have adopted a mainstream way of life, at the other end of the spectrum, some are still at primitive stage. In 1975, Government of India identified the most vulnerable tribal groups, from the developed and advanced tribal groups as they used to put away the major portion of tribal development funds and separately grouped them into a category called Particularly Vulnerable Tribal Groups (PVTGs) making it a total of 75 PVTGs out of 705 Scheduled Tribes, having a total population of 27,68,322 spread over 17 states and one Union Territory (UT), in the country (2001 census). The PVTGs in general are socially as well as economically very backward, low rate of literacy, relatively small population size, dwindling in numbers and some of the groups are at the verge of extinction.[1-3]

Madhya Pradesh state in the Central part of India is a home to a large tribal population, who has been largely cut off from the mainstream development. This makes Madhya Pradesh one of the least developed states in India, with an Human Development Index (HDI) value of 0.375 (2007-8), at 20th rank among Indian States/UTs and was much lower than the national average (0.467).[4,5] Out of 46 Scheduled Tribes notified in the state, three are declared as PVTGs, and these tribal groups are Baigas, Bharias and Saharias. These tribes live in undulating hilly terrains and dense forests far from modern amenities. Though, they have been put into one category 'PVTG' yet each of them is at different level of development, are socially and culturally distinct and facing different kinds of problems.

In the present study an attempt has been made to throw light upon the socio-demographic characteristics of three most backward tribal communities (PVTGs) of Madhya Pradesh and also to compare these tribes with total scheduled tribal, non-scheduled tribe population and total population of the state based on recent census data.

MATERIAL AND METHODS

Study Area and Population:

Madhya Pradesh, nicknamed the "heart of India" due to its geographical location in India, is the second largest state in the country by area. The state is surrounded by five states viz. Uttar Pradesh in the north-east, Chhattisgarh in the south-east, Maharashtra in the south, Gujarat in the west, and Rajasthan in the northwest with an area of 308,252 sq km and records for 9.38% of the land area of the nation.[6] Though the state of Madhya Pradesh came into existence on November 1, 1956 but it came into its

present form on November 1, 2000 following its bifurcation to create a new state of Chhattisgarh. With a total population of 72,626,809 in 2011 Madhya Pradesh comprised about 6% of country's population, whereas with 15,316,786 ST populations, state comprised about 15% of country's ST population.[7] A total of 46 tribal groups are notified as scheduled tribes in the state and out of this three are notified as particularly vulnerable tribal group (PVTG).

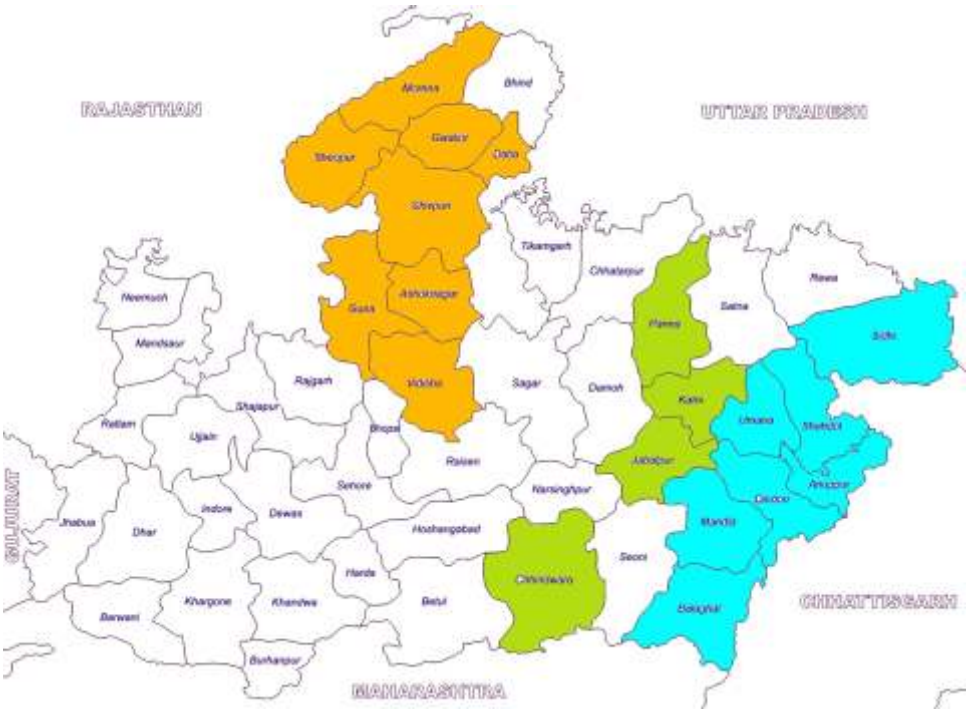
PVTGs of Madhya Pradesh :

There are three most backward tribal groups (PVTGs) living in Madhya Pradesh are Baiga, Bharia and Saharia.

Baiga is a PVTG tribe found in Madhya Pradesh. The Baigas are found in eastern part of Madhya Pradesh, they are divided into sub-castes–Bijhwar, Narotia, Bharotiya, Nahar, Rai Bhaina, and Kadh Bhaina. Earlier Baiga tribes used to practice shifting cultivation in forest areas and lived a semi-nomadic life. They saw themselves as people of the forest, who could only live on the produce of the forest. Tattooing is an integral part of their lifestyle of the Baiga tribe. They eat coarse grain, *kodo*, and *kutki* drink pej, eat little flour and are normally content with what little that they get.[8,9]

Bharia is a small Dravidian-speaking tribal group of Madhya Pradesh. They mainly live in Chhindwara district, their habitat is known as Patalkot, which is bowl-shaped, deep depression in the hilly region, completely isolated valley about 400 meters below consisting 12 villages near Tamia. Patalkot was totally in-accessible by road and one enters along a foot-path only. But recently the Madhya Pradesh Government established good road inside the Patalkot valley. There are hundreds of medicinal plant species in the Patalkot valley, and the Bharias have a deep knowledge of the herbs and medicinal plants growing within their valley.[8,9] In the census, Bharia tribe includes Bhumia, Bhuinhar Bhumia, Bhumiya, Bharia, Paliha, and Pando sub-groups.

Saharia tribe is also known as Sahar, Sehariya, or Sahariya, is a Munda speaking tribe in the Madhya Pradesh. The major territory of Saharia is Gwalior and Chambal division, i.e. Morena, Sheopur, Bhind, Gwalior, Datia, Shivpuri, Vidisha and Guna districts of Madhya Pradesh. Major economy of the tribe is cultivation although majority of the Saharia earn their livelihood as agriculture labour. Some believe that the tribe's name means "companion of the tiger". They inhabit clusters of houses in areas called Saharana outside the main villages. Forest plays an important role in the economy of the Saharia. The main business is gathering & selling of forest wood, gum, tendu leaf, honey, mahua and medicinal herbs. Their traditional occupations also include making baskets, mining and quarrying, and breaking stones.[8,9]



Map not to scale
Note: *Orange color shows Saharias inhabited districts; Light Green shows Bharia inhabited district; Light Blue color shows Baiga inhabited districts.*

Data and indicators

The data for present study is compiled from different tables of 2011 census. The different indicators like total population and tribal population are computed from Primary Census Abstract (PCA) for total population and tribal population. The sex-ratio is defined a females per 1000 male population, urbanization as proportion of urban population to total population. Literacy rates are effective literacy rates, i.e. proportion of literates in 7+ years population. But, the work participation rate is defined a proportion of workers in total population. The definition of main and marginal workers is as defined in the Census, 2011. Those who have worked for the major part of the year (183 days or more) preceding 12 months to the collection of census information are considered as **Main Workers** and those did not work for at least 183 days in the preceding 12 months of census taking are considered as **Marginal workers.**[7,10] A person who did not at all work during the reference period was treated as **non-worker**. The non-workers constitute Students, household duties who were attending to daily household chores like cooking, cleaning utensils, looking after children, fetching water etc.

Similarly, a person is classified as **cultivator** if he or she is engaged in cultivation of land owned or held from Government or held from private persons or institutions for payment in money, kind or share. It includes effective supervision or direction in cultivation. **Agriculture Labour** are persons who merely works on another person's land for wages in money or kind or share, has no risk in the cultivation, no right of lease or contract on

land. **Household Industry** is defined as an industry conducted by one or more members of the household at home or within the village in rural areas and only within the area of the house where the household lives in urban areas. All workers, i.e., those who have been engaged in some economic activity during the last one year, but are not cultivators or agricultural labourers or in Household Industry, are **'Other Workers'** which include all government servants, municipal employees, teachers, factory workers, plantation workers, those engaged in trade, commerce, business, transport banking, mining, construction, political or social work, priests, entertainment artists, etc[7].

RESULTS

Tribal Population in Madhya Pradesh state:

Total scheduled tribe population of M.P. contribute to about 20% (1981-19.2%; 1991- 19.9%; 2001-20.3% and 2011-21.1%) of total population and most of tribal people are living in rural area of M.P. occupy about 25% (1971-19.8%, 1981-23.8%, 1991- 25.3%, 2001-25.8% and 2011-27.2%) of the rural population of the state. Decadal growth rate of population of Madhya Pradesh showed a continuing decreasing trend in overall population (1981 to 1991- 27.2%, 1991 to 2001-24.3%, 2001 to 2011-20.3%) as well as among tribal population (1981 to 1991-31.8%, 1991 to 2001- 26.4%, 2001 to 2011-25.2%). Even with the decreasing growth rates, growth of tribal population has been higher than the non-ST population in the matching census years (Table 1).

Decadal growth rate of ST population was maximum (48.7%) in 1971-1981 with gradual decrease over the decades (Census of MP, 2011). Growth rate of tribal population was 31.8%, 26.4%, and 25.2% during 191-99, 1991-01, 2001-11 as compared to respectively 27.2%, 24.3%, and 20.3% in total population (Table 1).

Population of PVTGs in Madhya Pradesh:

Three PVTGs living in Madhya Pradesh, viz. Baiga, Bharia and Saharia comprises respectively about 2.7%, 1.3% and 4.0% of total tribal population of the state (Census, 2011)[11]. According to 2011 census, the total population of Baiga tribe is 4,14,526, and they inhabit in the eastern districts of the state i.e. Shahdol (99,299), Umaria (87,177), Singrauli (45,142), Mandla (43,331), Dindori (42,109), Anuppur (30,211), Sidhi (26,392), Balaghat (25,226) and Jabalpur (9,539). Whereas the Saharias primarily inhabit in northern districts i.e. Shivpuri (1,91,243), Sheopur (1,44,600), Ashok Nagar (75,547), Guna (65,352), Gwalior (45,637), Vidisha (42,854), Morena (10,150) and Datia (9,289). In the census, Bharia tribe includes Bhumia, Bhuinhar Bhumia, Bhumiya, Bharia, Paliha, and Pando sub-groups and now exclusive figures for Bharia tribe are available. According to Census 2011, the population of Bharias (including all sub-groups) is 1,93,230, and they are mainly inhabit in Katni (64,363,), Panna (38,465), Chhindwara (31,847) and Jabalpur (23,875) districts[12].

Among the PVTGs, the proportion of Baigas and Bharias shows a stagnation

or a marginally decline, whereas, the Saharias shows a marginal increment. The share of Bharias in total ST population declined to 1.3% in 2011 from 1.7% in 1981. The proportion of Baigas almost remains unchanged and varies from 2.8% in 1981 to 2.7% in 2011. But on the other hand, the proportion of Saharia tribe in total ST population of the state was 3.6% in 1981, which increased to 4.0% in 2011.

The trend in decadal growth rate showed a reducing trend in growth of total population (27.2% in 1981-91, 24.30% in 1991-01, 20.3%, in 2001-11) and ST population (31.8% in 1981-91, 26.4% in 1991-01, 25.2% in 2001-11). The decadal growth rates among PVTGs are not uniform, i.e. in case of Baiga, the decadal growth rate declined consistency in concurrence with growth rates of total ST population but Bharia and Saharia tribal groups confirm increasing trend in growth of population. As per the recent decadal growth (2001-2011), growth of all the three PVTGs of M.P. were more or at same rate than the corresponding figures of total population of Madhya Pradesh (20.3%) and total ST population (25.2%). But the growth of Bharia population was much lesser during 1981-91 (10.2%) and 1991-01 (10.4%), which increased considerably in 2001-2011 (26.7%). The decadal growth rate declined from 28.0% during 1981-91 to 24.5% in 2001-11 in case of Baigas. However, in case of Saharia tribe, it steady increased from 27.1% in 1981-91, 35.8% in 1991-01 and 36.6% in 2001-11 (Table 1).

***Sex ratio*:**

Trend in sex ratios reveal that sex ratio has increased over the period in almost all the population groups of Madhya Pradesh. In total population it increased from 919 in 2001 to 931 in 2011 and similarly in non-tribal population (906 to 917), tribal population (975 to 984) during 2011 and 2011 census, which is an

Table 1: Population and decadal growth in Madhya Pradesh, 1981-2011

Census year/ decades	Total Population^			Primitive Tribes of M.P#		
	Total	Non-ST	Scheduled Tribal	Baiga	Bharia	Saharia
1981	38168507 (100.0)	30822580 (80.8)	7345927 (19.2)	205681 (2.8)	125338 (1.7)	260939 (3.6)
1991	48566242 (100.0)	38884332 (80.1)	9681910 (19.9)	263219 (2.7)	138131 (1.4)	331574 (3.4)
2001	60348023 (100.0)	48114549 (79.7)	12233474 (20.3)	332936 (2.7)	152472 (1.2)	450217 (3.7)
2011	72626809 (100.0)	57310025 (78.9)	15316784 (21.1)	414526 (2.7)	193230 (1.3)	614958 (4.0)
1981-1991	27.2	26.2	31.8	28.0	10.2	27.1
1991-2001	24.3	23.7	26.4	26.5	10.2	35.8
2001-2011	20.3	19.1	25.2	24.5	26.7	36.6

^values in parentheses are proportion of ST & non-ST population in total population
value in parentheses are proportion of PVTGs in total ST population

encouraging finding. At individual level, sex ratio among PVTGs Baiga, Bharia and Saharia are better than overall sex ratio in total and non tribal population of the state. Among PVTGs, Saharia has lowest sex ratio (Table 2).

Tribal population in the state has relatively much higher child sex ratio (0-6 years) as compared to child sex ratio in total population and non-ST population, but all categories it is respectively lower than the overall sex ratio, which is a matter of concern. As per 2011 census, the child sex ratio was 952 in tribal population as compared to 906 in non-tribal population and 918 the state average. Baigas has much better child sex ratio (980) as compared to Bharias (948), Saharia (932) and total ST population (952). The Bharias and Saharias have lower child and overall sex ratios as compared to total ST population which is a matter of concern for PVTGs.

The proportion of child population in the age group of 0-6 years reflects a fertility trend in a population. More than 18% of the tribal population was recorded in the 0-6 years as compared to about 14% in non-tribal population and 15% overall in the state. This reflects higher fertility rates among tribal population as compared to non-tribal population in the state. But among PVTGs, it is further higher, i.e. 18.8% in Baigas, 19.3% in Bharias and 22.7% in Saharia tribe (Table 2). The proportion of children in this age group among three PVTGs is higher than the total population, non tribal population and ST tribal population of the state reflecting higher fertility.

Urbanization

Urbanization, the proportion of people living in urban areas, is gradually increasing due to the migration of rural population to urban areas. It has increased in the last decade (2001-11) in all the groups. About 28% of total population is residing in urban areas as compared to one-third of non-tribal population in the state, however only 6.8% of state's tribal was enumerated in 2011 in the urban areas. But urbanization among the three PVTGs is much lesser than the total population, and tribal population of the state. Only 4-5% of populations of these PVTGs are residing in the urban areas and Saharias are less urbanized among PVTGs.

Table 2: Demographic Indicators in tribes of Madhya Pradesh, 2011

Indicators	Total Population	Non-tribal Pop	Tribal Pop	Primitive Tribes of M.P.		
				Baiga	Bharia	Saharia
Sex Ratio	931	917	984	997	980	943
Sex Ratio (0-6 yrs)	918	906	952	980	948	932
% 0-6 Yrs. Popn	14.9	13.9	18.5	18.8	19.3	22.7
% Urbanized	27.6	33.2	6.8	4.9	5.4	3.8

Literacy Status

The information on literacy was collected in all censuses and a steady increase has been observed in overall (total) literacy over the decades among total population in the state. As per census 2011, total literacy rate is 69.3% in the state, whereas it is 74.1% in non-tribal population, 50.6% in state tribal population. But among PVTGs only 47.2% in Baigas, 47.9% in Bharias and 42.1% in Saharias can read and write. Male literacy rates in Baigas (56.4%), Bharias (57%) and Saharia (51.7%) are lower than male literacy rate in total tribal population (59.6%) and total population (78.7%). Similar to male literacy rates, female literacy rate in Baiga (37.9%), Bharia (38.7%) and Saharia tribe (32.0%) are also lower compared to the rates in tribal population (41.5%) and total population (59.2%). Among three PVTGs in the state, Saharias are the least educated (Table 3).

Working Status

According to 2011 census, about 44% of the total proportion of Madhya Pradesh engaged in some economic activity, but relatively less population (41.8%) of non-ST population engaged in economic activities and about half of tribal population (49.9%) is economically active. The work participation rates (WPR) in Baigas (51.4%) and Bharias (49.1%) are almost similar to WPR in total tribal population (49.9%), but among Saharias (44.9%) it is relatively lower and comparable to state average (43.5%). Conversely, the proportion of non-workers is highest among Saharia tribe. The workers are primarily divided into two categories - main workers and marginal workers. The proportion of main worker in total population is 31-32% in tribal population and non-ST population, but among PVTGs it varies from 23.3% in Bharias, 25.1% in Baigas to 28.8% in Saharias. The proportion of marginal workers among total population is 12.2% and 10.6% in non-ST population but this proportion is 18.1% in tribal population of the state and varies from 26.4% in Baigas to 16.1% in Saharias. The Saharias which has highest proportion of main workers among PVTGs have lowest proportion of marginal workers. But Baigas have relatively equal proportion of main and marginal workers, and Bharias have comparatively higher proportion of marginal workers as compared to main workers.

Distribution of main and marginal workers

Both main and working are further divided into four categories, i.e. cultivators, agriculture labour, household industrial workers, and other workers. The proportion of cultivators and agriculture

Table 3: Literacy Status of Madhya Pradesh, 2011

Indicators	Total Population	Non-tribal Pop	Tribal Pop	Primitive Tribes of M.P.		
				Baiga	Bharia	Saharia
Total Literacy	69.3	74.1	50.6	47.2	47.9	42.1
Male Literacy	78.7	83.4	59.6	56.4	57.0	51.7
Female Literacy	59.2	63.9	41.5	37.9	38.7	32.0

Table 4: Working Status of Madhya Pradesh, 2011

Indicators	Total Population	Non-Tribal Pop	Tribal Pop	Primitive Tribes of M.P.		
				Baiga	Bharia	Saharia
Total Workers	43.5	41.8	49.9	51.4	49.1	44.9
Main workers	31.3	31.1	31.8	25.1	23.3	28.8
Marginal workers	12.2	10.6	18.1	26.4	25.8	16.1
Non workers	56.5	58.2	50.1	48.6	50.9	55.1

labour in main workers is 41.5% and 45.4% among tribal population of the state as compared to 36.2% and 29.2% respectively in total population of the state. Among PVTGs the proportion of cultivators varies from lowest 17.9% in Bharias to 28.2% in Baigas, and agriculture labour from 52.4% in Baigas to 64.4% in Saharias. Thus the PVTGs have more agricultural labour than cultivators, and Bharias and Saharias have even lesser than half of the cultivators other tribes of the state. Though PVTGs have less cultivators compared to other tribes of the state, but Baigas and Bharias have more main workers in household industries and others workers compared to state tribal population. But only, 0.7% and 12.5% of tribal main workers are engaged respectively in household industries and other occupations as compared to 2.9% and 31.8% of state average. The proportion of household workers varies from 0.5% in Saharia to 1.5% in Bharias and similarly, others workers varies from 14.8% in Saharia to 21.5% in Bharias (Table 5).

Similar to main workers, most of marginal workers are either agriculture labourers or cultivators in tribal population. About 73% tribal marginal workers are agriculture labourer and 16% as cultivators compared to 63% agriculture labour and 18% cultivators in total population. The proportion of cultivator varies from 6% in Saharias to 9% in Baigas, but the agriculture labourer varies from 73.5% in Baigas to 81.3% in Saharias. Baigas and Bharias have more marginal workers in household industries than total tribal marginal workers.

Table 5: Distribution of working Population, 2011

Indicators	Total Population	Non-tribal Pop	Tribal Pop	Primitive Tribes of M.P.		
				Baiga	Bharia	Saharia
A. Main workers						
Cultivators	36.2	34.7	41.5	28.2	17.9	20.3
Ag. Labour	29.2	28.4	45.4	52.4	59.0	64.4
HH Ind. workers	2.9	3.4	0.7	1.4	1.5	0.5
Other workers	31.8	37.0	12.5	17.9	21.5	14.8
B. Marginal Workers						
Cultivators	18.4	19.6	15.6	9.0	6.8	6.0
Ag. Labour	62.7	57.8	73.4	73.5	74.5	81.3
HH Ind. workers	3.5	4.5	1.4	1.9	2.0	1.2
Other workers	15.4	18.1	9.6	15.6	16.8	11.5

Moreover, all three PVTGs have higher workers in other category (mostly government or private salaried jobs) as compared to that in total tribal population of Madhya Pradesh. Thus PVTGs have better participation in household industries and others workers as compared to other tribes of the state, but among three PVTGs, Saharias have lowest participation in household industries and other workers categories both in main and marginal workers (Table 5).

DISCUSSION AND CONCLUSION

The analysis based on the census 2011 data reveals that all three PVTGs in Madhya Pradesh has higher growth rates than state average and total tribal population. As generally it is believed that these PVTGs either have stagnant growth rate or a diminishing growth rates. But our analysis shows that all PVTGs have higher growth rate than state average growth rate. Though the growth rate of Bharias was very low during 1981-2001, but during 2001-11 it was higher than state total population and total tribal population average growth rates. The population growth rate of Saharia has been very high throughout last three decades. A higher proportion of less than 15 years population indicates a high fertility rates in tribal population. About 23% of Saharias tribe population is less than 15 years, it may be because of very high fertility or a high mortality in older age groups in this community.

The tribal population in general and PVTGs in particular have better sex ratio as compared to total tribal and total state population, but child sex ratio is relatively poorer among Bharias and Saharias. Though only 7% of state tribal population resides in urban areas as compared to 28% of state average, but urbanization is further lesser among PVTGs. Among PVTGs, Saharias are least urbanized and have relatively poorer sex ratios. Similarly, tribal as such have lower literacy rates compared to total population and non-ST population, but PVTGs have further lower literacy rates. Saharias have lowest literacy rates both for males and females among PVTGs. Most of tribal communities depend on agriculture either as cultivator or a agricultural labourer. But PVTGs of the state relatively poor participation in cultivation and mostly depends on agriculture labour work for their livelihood. Though the PVTGs of state have poor participation in cultivation both among main and marginal workers compared to total ST population of the state, but have significantly higher participation in household industries and other paid jobs. This may be due to Government and NGOs programme /initiatives in these communities to improve their participation in jobs.

Overall, study shows that socio-economic indicators are still lower in tribal communities in the state as compared to non-ST population and these are far lower in PVTGs. A comparative analysis of all three PVTGs in the state shows that all three PVTGs have relatively higher growth rates and better sex ratio compared to other tribal communities and state as a whole. But literacy rates, work participation rates and proportion of cultivators among Baigas and Bharias are relatively comparable to rates/

proportion of total tribal population but among Saharias it much lesser. Among all three PVTGs, Saharias are at the bottom based on their Socio-economic status. These communities who have been identified as most backward tribal communities need special programmes for their education and sustainable development.

REFERENCES

1. ML Patel. Agrarian Transformation In Tribal India. New Delhi: M.D. Publications Pvt. Ltd. 1998. p. 313.
2. RN Sharma, RK Sharma. Problems of Education in India. New Delhi: Atlantic Publishers & Distributors.2004. pp. 46.
3. R Sahani, SK. Nandy. Particularly Vulnerable Tribal Groups in India: An Overview. Journal of the Anthropological Survey of India. 2013; 62(2) : 851-865.
4. A Gandhi, C Kumar, P Saha, BK Sahoo, A Sharma. India Human Development Report 2011: Towards Social Inclusion. New Delhi: Institute of Applied Manpower Research, Planning Commission, Government of India, Oxford University Press.2011.
5. UNDP. 2011. Madhya Pradesh: Economic and Human Development Indicators.
6. Map of India. Madhya Pradesh Geography. Maps of India. Available from: http://www.mapsofindia.com/ madhya - pradesh / geography, accessed on 15 February, 2016.
7. Census of India. 2011. Primary Census Abstract: Total. Delhi: Registrar General of India.
8. HL Shukla. Tribal Heritage of Madhya Pradesh. Delhi: B.R. Publishing Corporation.1986.
9. DN Tewari. Primitive tribes of Madhya Pradesh: Strategy for development. New Delhi: Tribal Development Division, Ministry of Home affairs, Govt of India.1984.
10. BK Singh. Work Force in India: Evidences from 2001 and 2011 Censuses. Tribal Health Bulletin. 2014; 21(1):43-57.
11. Census of India, 2011. Primary Census Abstract, Madhya Pradesh. Bhopal: Director of Census Operations, Madhya Pradesh.
12. Census of India, 2011. Primary Census Abstract: Scheduled Castes and Scheduled Tribes Series. Delhi: Registrar General of India.

Letter to the Editor

PREVALENCE OF SICKLE CELL DISEASE IN TRIBAL BELT OF CHHATTISGARH

Rajesh Tembhurnikar*,Pankaj Tembhurnikar and Sadhna Bagde

Abstract: *Sickle cell disease (SCD) is a genetically transmitted multisystem disease that includes a group of disorders that differs in severity sign and symptoms. This disease is frequently seen in Central India, in and around the vicinity of Chhattisgarh among caste like kurmis, satnami, mahar, other backward caste communities.It causes high morbidity and mortality .We have studied the cases of SCD from 2001 to 2015. Prevention through genetic and by marriage counseling, can significantly reduce this disease in susceptible communities.*

Keywords: AVN: Avascular necrosis, SCD: sickle cell disease; HGP: Haemoglobinopathies, VOC: Vasculo occlusive crisis, RBC. Red blood Cells, THR; Total Hip Replacement.

INTRODUCTION

Sickle cell disease is an inherited blood disorder that affects red blood cells. Sickle cell disease patients carry mostly hemoglobin S, an abnormal type hemoglobin. These red blood cells attain sickle-shape (crescent shape) in presence of low oxygen levels and have difficulty passing through small blood vessels. When sickle-shaped cells block small blood vessels, normal blood flow is hampered causing complications such as sequestration, splenomegaly, anemia, chest infection, jaundice, fever etc. Sickle cell disease. Can be of 2 types: Sickle Cell Anemia (SS), Sickle Beta-Thalassemia. So far we have studied SCD patients from 2001-2015.

RESULTS

Provides the details of patients examined and treated by us in Chhatisgarh. Among these we present here pictorially the case

Table 1: Study sickling cases in Districts of Chhattisgarh

District of Chhattisgarh	Sickle Cell SS	Sickle Cell AS
Bilaspur	16	07
Raipur	19	10
Rajnandgaon	24	06
Bastar	22	09
Kabirdham,	24	08
Durg	26	10
Dhamtari	15	06

* Associate Professor (Orthopedics), Near Maharashtra Mandal, 2/502, Choubey Colony, Raipur (C.G.)
E-mail: dr.rajesh56@gmail.com

patient with dactilytis and pelvic necrosis. (Figure 1-4)

Osteonecrosis femoral head(AVN) is common skeletal manifestation observed in SCD in our study. Here there was an involvement of 65% articular surface femoral head requiring replacement. In cases of early bone ischemia, different intertrochantric osteotomies were attempted in younger children with necrosis of femoral head.

In cases of hand foot syndrome and dactylitis conservativel supportive and symptomatically care was given with reduction in morbidity.

Finally as SCD is an inherited disease, parents were counselled to intake folic acid and ,avoiding dehydration & other precipitative causes. They were requested to attend regular follow-ups to stay healthy.



Fig 1: Clinical Photo_2



Fig 2: Clinical photo pt 3 SCD



Fig 3: X-ray of Pt 2 SCD



Fig 4: X-ray of Pt 3SCD

Back Cover : A Baiga Woman

