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Concerns and Compasses for the Anthropological Research on the Fetal and Infant Death among Tribal and Rural Settings in India

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Abstract: ***Children are important properties of a country, for that reason, diminution in infant and child mortality is likely the most important purpose of the Millennium Development Goals. Neonatal survival is a very sensitive indicator of population growth and socio-economic development. World Health Organization has generated enormous data related to these kinds of research. It has provided definitions, terminologies and technical guidelines in addition to throwing valuable information on fetal and infant death across the countries. Theoretically, these types of research have mainly quantitative though partially qualitative while on the basis of applied perspectives; it could be diagnostic as well as exploratory in nature. Multi-stage random sampling can be appropriate sampling for the study of concerning issues. Structured Interview Schedule will be used for interviewing the women, to provide a complete reproductive history of the births. This information will be used to calculate norms for direct estimates of fetal and infant mortality, according to Barfield & Committee on Fetus and Newborn. The result of these types of studies will identify the root causes of fetal and infant death in the tribal and rural settings of India. It would improve our understanding of the causes of failure of the health services in tribal and rural regions. Besides, it can be of help, to design the new health strategies and programs for the tribal and rural India. On the basis of above all discussion, it is urgent need to conduct such type of research in tribal and rural India.***

Keywords: Fetal death. Infant death. Tribal. Rural. India. Public Health Research. Anthropological Research

1. Introduction

Children are important assets of a nation, therefore, reduction in infant and child mortality is likely the most important objective of the Millennium Development Goals (MDG) [1]. The Infant Mortality is relevant to a demographic assessment of the population and is an import ant measure of a country's level of socioeconomic development and quality of life. Perinatal Mortality is an extremely sensitive indicator of health status of the population. These are also used for monitoring and evaluating population and health programmers Chhattisgarh has the highest level of Perinatal Mortality (64) and Infant Mortality (83.1) as compared to other state [2].

Nearly 4 million newborns die within 28 days of birth [3]. Over 130 million babies are born every year, and more than 10 million infants die before their fifth birthday [4]. Almost 8 million infant die before their first birthday. Every year over 4 million babies die in the first four weeks of life; 3 million of these deaths occur in the early neonatal period. Moreover, it is estimated that more than 3.3 million babies are stillborn every year; one in three of these deaths occurs during delivery and could largely be prevented. 98 percent of these deaths take place in the developing world. In developing countries; the risk of death in the neonatal period is six times greater than in developed countries [5]. Sample Registration System [6] has reported that about 0.76 million neonates die every year in India, which is the highest for any country in the world. India contributes more than any other country to global under-5 and newborn deaths. Due to demographic and cultural diversity, India faces numerous challenges with significant rural-urban, poor -rich, gender, socio-economic, and regional differences. More girls than boys are dying and newborns delivered in rural setting are twice as likely to die as those born in urban areas. Furthermore, neonatal mortality varies considerably between states and regions [7].

Every 6th death in the country pertains to an infant [8]. The Neonatal Mortality Rate (NMR) of the country declined from 52 per 1000 live births (1990) to 29 per 1000 (2012). The infant and under five child mortality has shown a steady decline over the last three years. However, the progress is not uniform across the states and even intrastate (inter-district) variations are quite evident from the recent surveys like the Annual Health Survey [9]. Moreover, the decline in Neonatal Mortality is slow and has not kept pace with the overall decline in child mortality [10]. Improved access to immunization, health care and nutrition programmes have resulted in substantial decline in IMR (Infant Mortality Rate) over the last five decades. However it is a matter of concern that the decline in Perinatal and Neonatal Mortality has been very slow.

A large proportion of women still do not have service of skilled health professionals at the time of delivery. However, on average, skilled birth attendants cover 66% of births worldwide, while it is alarming low in some parts of Africa and Asia. The first hours, days and weeks after childbirth is a critical period for both mother and newborn infant. More than 500 000 women die each year due to complications of pregnancy and delivery [11].

Neo-natal survival is a very sensitive indicator of population growth and socio-economic development. The survival rate of female infants correlates to subsequent population replacement [12]. Cutler et al. [13] stated that infant mortality is a commonly used indicator of welfare in poor

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countries, where 30% of all deaths occur in childhood as against 1% in richer countries. Infant and Child Mortality Rates reflect a country's level of socioeconomic development and quality of life and are used for monitoring and evaluating health programmes and policies[14].

Child Mortality Rates measure child survival, and reflect the social, economic and environmental conditions in which children live, including their access to health care(s) [15]. Pregnancy and childbirth are generally joyous moments for parents and families. Pregnancy, birth and motherhood, in an environment that respects women, can powerfully affirm women's rights and social status without jeopardizing their health [3].

The enabling environment for safe motherhood and childbirth depends on the care and attention provided to pregnant women and newborns by communities and families, the acumen of skilled health personnel and the availability of adequate health-care facilities, equipment, and medicines and emergency care when needed [3]. Almost all tribal women give birth at home without any assistance of skilled attendants.

2. Situation in India

India contributes to 16% of global maternal death; its contribution to the global burden of newborn deaths is higher when compared to that of maternal and under-5 deaths. The IMR (Infant Mortality Rate) at national level was 50 per 1000 live births in 2009 as compared to 53 in 2008. The IMR is higher in respect of female (52) as compared to male (49) [12]. The highest Infant Mortality Rate has been reported from Madhya Pradesh (67) and lowest from Kerala (12). Assam (61), Bihar (52), Chhattisgarh (54), Haryana (51), Madhya Pradesh (67), Orissa (65), Rajasthan (59) and Uttar Pradesh (63) recorded higher IMR as compared to the national average. The IMR is very high in rural areas (55 per 1000 live births) as compared to urban areas (34) [12].

The Neo-natal Mortality Rate which was stagnant at 37 per 1000 live births during 2003 to 2006 marginally came down to 36 in 2007, 35 in 2008 and stood at 34 during 2009. The Neo-natal Mortality Rate is very high in rural areas (38 per 1000 live births) as compared to 21 in urban areas in 2009. The Neonatal Mortality Rate also varies considerably among Indian States viz Madhya Pradesh (47), Uttar Pradesh (45), Orissa (43), Rajasthan (41), J&K (37), Himachal Pradesh (36), Haryana(35), Gujarat(34), Chhattisgarh(38) recorded higher Neo-natal Mortality Rate as compared to national average. The Post Neonatal Mortality Rate came down to 16 in 2009 from 24 in 2002. The Post Neo Natal Mortality Rate is high in rural areas (17) as compared to urban areas (13) [12].

The Perinatal Mortality Rate varies in the range of 37 to 35 since 2001 and stood at 35 in 2009. It is high in rural areas (39) as compared to urban areas (23) during 2009. The Perinatal Mortality Rate significantly varied across the States. Kerala with 13 is the best performing State, Madhya Pradesh and Chhattisgarh (45) are least performing States during 2009(Statistics Division, 2011). Still Birth Rate (SBR) came down to 8 in 2008 from 9 in 2007. However, it remained stagnant at 8 in 2009 also. The number of Stillbirths varied across the states between 1 (Bihar) and 17 (Karnataka) in 2009 [12].

3. Meaning and Definitions

Accurately defining and reporting perinatal deaths (i.e., fetal and infant deaths) is a critical first step in understanding the magnitude and causes of these important events. In addition to obstetric health care providers, neonatologists and pediatricians should know the current US definitions and reporting requirements for live births, fetal deaths, and infant deaths. Correct identification of these vital events will improve our local, state, and national data so that these deaths can be better addressed and reduced[16]. Following statements and definitions might explain the above matters.

According to Barfield & Committee on Fetus and Newborn

Barfield & Committee on Fetus and Newborn [16] has defined various aspects of fetal and infant death as below:

- ***Fetal Death:*** Death before the complete expulsion or extraction from the mother of a product of human conception, irrespective of the duration of pregnancy that is not an induced termination of pregnancy. The death is indicated by the fact that, after such expulsion or extraction, the fetus does not breathe or show any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. Heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps. For statistical purposes, fetal deaths are further subdivided as "early" (20 –27 weeks' gestation) or "late" (≥28 weeks' gestation). The term "stillbirth" is also used to describe fetal deaths at 20 weeks' gestation or more. Fetuses that die in utero before 20 weeks' gestation are categorized specifically as miscarriages.
- ***Infant Death:*** A live birth that results in death within the first year (<365 days) is defined as an infant death. Infant deaths are further subdivided as early neonatal (<7 days), late neonatal (7–27 days), neonatal (<28 days), or postneonatal (28 –364 days).
- ***Perinatal Death:*** Includes infant deaths that occur at less than 28 days of age and fetal deaths with a stated or presumed period of gestation of 20 weeks or more.

According to World Health Organization

World Health Organization[5] has defined various aspects of fetal and infant death as below:

- ***Neonatal mortality:*** This is death occurring during the first four weeks after birth. It also addresses perinatal mortality, which includes both deaths in the first week of life and fetal deaths (stillbirths). Although being newborn is not a disease, large numbers of children die soon after birth: many of them in the first four weeks of life (neonatal deaths), and most of those during the first week (early neonatal deaths). For every baby who dies in the first week after birth, another is born dead (fetal deaths or stillbirths). Causes and determinants of neonatal deaths

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and stillbirths differ from those causing and contributing to postneonatal and child deaths.

- ***Neonatal period:*** The neonatal period begins with birth and ends 28 complete days after birth. Neonatal deaths may be subdivided into early neonatal deaths, occurring during the first seven days of life (0-6 days), and late neonatal deaths, occurring after the seventh day but before the 28th day of life (7-27 days).
- ***Perinatal mortality***: The term "perinatal mortality" has been used to include deaths that might somehow be attributed to obstetric events, such as stillbirths and neonatal deaths in the first week of life. This approach does not raise the question whether babies above a certain weight or gestational age (and thus showing some potential for survival) showed any signs of life at birth or not.
- ***Stillbirth:*** Intrauterine death occurs either before onset of labour (antepartum death) or during labours (intrapartum death). Fetuses may die intra utero, before onset of labour, because of pregnancy complications or maternal diseases; however, no special reason can be found for many antepartum intrauterine deaths.
- ***Fetal death:*** This is death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles.
- ***Perinatal period:*** The perinatal period commences at 22 completed weeks (154 days) of gestation and ends seven completed days after birth.

According to National Center for Health Statistics and MacDorman and Gregory

Fetal death: "Fetal death" means death prior to the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy and which is not an induced termination of pregnancy. The death is indicated by the fact that after such expulsion or extraction, the fetus does not breathe or show any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. Heartbeats are to be distinguished from transient cardiac contractions; respirations are to be distinguished from fleeting respiratory efforts or gasps [17]. This definition has been adopted by the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS) as the nationally recommended standard and is based on the definition published by the World Health Organization in 1950 and revised in 1988 [18].

According to Child Health Division

Child Health Division [10] has defined various aspects of fetal and infant death as below:

- ***Neonatal Deaths:*** Neonatal deaths are deaths occurring during the neonatal period, commencing at birth and ending 28 completed days after birth.
- ***Post-Neonatal Deaths:*** Deaths occurring from 29 days of life to less than one year are called post-neonatal deaths.
- ***Infant Deaths***: Deaths of children less than 1 year of age.
- ***Still Birth***: Still birth is the birth of a new born after 20th completed week of gestation, weighing 500gm or more, when the baby does not breathe or show any sign of life after delivery.

According to NFHS III

NFHS III [2] has defined various aspects of fetal and infant death as below:

- ***Neonatal mortality***: The probability of dying in the first month of life.
- ***Postneonatal mortality***: The probability of dying after the first month of life but before the first birthday.

  Infant mortality**:** The probability of dying before the first birthday.

According to Save the Children

Save the Children [19] has defined various aspects of fetal and infant death as below:

- ***Neonatal Mortality Rate***: Death of neonates from birth to 28 days of age, per 1,000 live births in a given year.
- ***Early Neonatal Mortality Rate***: Death of neonates from birth to seven days per 1000 live births in a given year.
- ***Late Neonatal Mortality Rate***: Death of neonates from the eighth day after birth to 28 completed days per 1000 live births in a given year.
- ***Post Neonatal Mortality Rate***: Death occurring in children after 28 days till 364 completed days of age, per 1000 live births in a given year.
- ***Infant Mortality Rate*****:** Death occurring in children before they reach the age of one year, per 1000 live births in a given year.

4. Worth Mentioning Contributions

There is a vast literature available on the fetal and infant death. Majority of these studies have been carried out abroad. Lacuna of studies among the tribe and rural India is extremely high. It is noted that some National / International, Government/ Non-Government organizations, agencies and scholars have made remarkable contributions on various aspects of fetal and infant death.

World Health Organization [4] [5] [11] has generated enormous data related to these kinds of research. It has provided definitions, terminologies and technical guidelines in addition to throwing valuable information on fetal and infant death across the countries. Similarly, the United Nations Children's Fund [3] has published a report on the State of the World's Children along with complete information on maternal and newborn health.

National Center for Health Statistics [18] clearly defines the contents of the fetal and infant death and has given appropriate direction for conducting research in the field. Committee on Fetus and Newborn under the American Academy of Pediatrics led by the Barfield [16] has released a clinical report on Standard Terminology for Fetal, Infant, and Perinatal Deaths. The report appropriately explains and defines the terminology for live birth, fetal death, infant death, perinatal death, and miscarriage and gestation period. Child Health Division [7] [10] and Statistics Division [12] have provided immense data regarding various aspects of children's health. These reports present National and Inter-

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State wise systematic tables and their interpretations which are helpful to understand all dimensions of fetal and infant deaths.

The National Family Health Survey- II & III [14] [2] gives the fundamental overview related to the fetal and infant death. These studies have established comprehensive scenario of mother and child health in India. The result of these surveys shows that Children in rural areas of India have higher probability of dying before their fifth birthday to those of urban children. The overall infant mortality rate has witnessed sharp decline due to improvement in educational status of mothers. The infant and child mortality rates are much higher among Hindus as compared to Muslims. Scheduled caste and scheduled tribe children have higher rates of infant and child mortality to those of OBC and others. The postneonatal mortality rate is almost three times higher in households belonging to low standard of living in comparison to those of high standard of living. The gap between successive births has a strong effect on the survival chance of infants. Infant and child mortality rates decrease sharply as the length of the previous birth interval increases.

Save the Children [19] organization is the key player in this particular area of specialization and provides tremendous information and guidelines for undertaking research in field of fetal and infant death.

5. National Contributions

Child birth among the tribe like Birhor is a major crisis because of their following traditional delivery system. In their system, on start of labour pain, temporary small sized hut ("*Kurma"*) is built, instantly. Then pregnant woman is brought in "*Kurma"* where she delivers baby with help of traditional delivery expert ("*Suine"*) and other senior experienced women, generally mother. The dimensions of "*Kurma"* are 5(L) x4(B) x5(H), approximately. Its surface is dirty and contaminated. Its wall and roof are made up of wood and dry leaves of Chhind / "*Khar" (Phoenix dactylifera*). Thus delivery among Birhor women takes place in unsafe and extremely un-hygienic environment, which could be lethal for both newborn and mother. There is high risk of their getting exposed to microbes during delivery in such an environment which could lead to serious health complications for both newborn and mother. In some cases, it could be fatal for both. This type of unhygienic delivery practices among Birhors may be the root cause of their high prevalence of fetal and infant death rates[20]. The Birhor is the very diminutive tribal population of Chhattisgarh, sharing only 0.026% (1538 out of 57, 17,124) in 1991, 0.026% (1744 out of 66, 16,596) in 2001 and 0.039 % (3104 out of 78, 22,902) in 2011 of total tribal population [21] [22] [23]. The data indicates their stagnant population growth which in the tribal settings needs to be explored, urgently to find out the possible causes.

Mother's employment is associated with higher infant and child mortality. Gender differences narrow with mother's employment largely because of higher increase in male than in female mortality. There is little evidence to suggest that survival of girls is enhanced when mothers work [24]. Sharma [25] analyzed the data taken from three round of the NFHS conducted in 1992-93, 1998-99 and 2005-06; he revealed that infant mortality continues to decline gradually. Kumar et al. [26] found association of demographic and socio-economic factors with infant mortality.

Literacy rate and per capita income are negatively related to the infant mortality rate [27]. Regional differences in cognitive ability of 33 states and union territories of India is positively correlated with GDP, per capita income, literacy and life expectancy and negatively correlated with infant and child mortality [28].

State-level income in India appears to cause substantial variation in infant mortality in rural Indian households; non-agricultural growth is more effective in reducing rural mortality [29]. Shah & Dwivedi [30] explored less prevalent practice of essential newborn care among all cases irrespective of place of delivery and the health care personnel facilitating delivery among Bhil and others in Gujarat. Study of Roshan et al. [31] among Dhurwa tribe of Bastar reported that maternal age and education have substantial negative effect on infant mortality.

Tribal women's babies of central India experience higher incidence of sickness based on their practices of delay in initiating breastfeeding, unhygienic cord care practices, and inadequate number of visits for ANC and non-immunization of the mother against tetanus [32]. The findings of Sahu et al. [33] support the need of focus on age at first birth and spacing between two births for reducing infant mortality among scheduled tribes and rural India.

Greenstone & Hanna [34] analyzed the impact of environmental regulations, air and water pollution on infant mortality in India. In this study, they concluded that the most successful air regulation resulted in a modest but statistically insignificant decline in infant mortality in India. Sharma & Chakravarty [35] found high prevalence of still birth (49.50), early neonatal mortality (74.25), perinatal mortality (123.76) and infant mortality (166.66) among the Hill Korwas of Chhattisgarh and they concluded that Antenatal Care, low weight of mother, marriage of mothers at <19 years of age, medical facilities >5 km. were the causes of perinatal mortality among the Hill Korwas.

6. International contributions

Davis et al. [36] conducted a huge study on sex ratio at birth and fetal death among the Japanese and the U.S. whites. The study revealed that the sex ratio declines are equivalent to a shift from male to female births. The risk factor for reduced sex ratio at birth and fetal death cannot fully account for recent trends of racial or national differences. Cai & Feng [37] carried out a vast study on famine, social disruption and involuntary fetal loss; this study found that famine, revolutions, wars and other forms of social disruption are a recurring theme in human history which affects demographic losses. A report by National Committee on Vital and Health Statistics [38] showed that the maternal conditions are causes of early neonatal death.

The rates obtained from an ANC more nearly reflect the true magnitude of early fetal mortality than the measures previously reported [39]. The bacterial vaginosis is not

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strongly predictive of early miscarriage but may be a predictor after 13 weeks of gestation [40]. Nagi & Stockwell [41] found that the causes of infant death especially from the chronic diseases account for the largest number of death, in general.

Eberstein et al. [42] revealed that it is important that the pattern of interactions suggest an overall dependence of infant life chances on social circumstances. Rogers [43]stated the pronounced impact of birth weight on infant mortality and identified similarities and difference among Anglo, Hispanic, and American Indian babies with respect to cause specific infant mortality. Himes [44] concluded that the high mortality in the middle age range in the United States results in approximately a one-year loss of life expectancy. Li et al. [45] observed that the association was stronger for early miscarriage and among susceptible women with multiple prior fetal losses or sub fertility.

Cross [46] suggested that at least part of the rise in the early spontaneous fetal death rate can be attributed to the increased frequency of induced abortion in New York State for 1968-78. A vast analysis regarding cause of infant death has been made by Nam et al. [47]; this study affirmed that the cause of death specific analysis can be an effective bridge to facilitate syntheses of the wide ranging interdisciplinary research on infant health and mortality. Laurence & Roberts [48] observed that the miscarriage is a manifestation rather than a cause of anencephaly and spina bifida. Shelley [49] believed that a short interpregnancy interval after miscarriage may be preferable to reduced possibility of further miscarriage. Thangaratinam et al. [50] found that the presence of maternal thyroid autoantibodies is strongly associated with miscarriage and preterm birth. Akar et al. [51] stated that improving the status of women will necessarily remain a long-term objective to reducing maternal deaths.

7. Methodological Compasses

Nature of the Research

This type of research can be having two dimensions: on the basis of objectives of the study, theoretically it is mainly quantitative though partially qualitative while on the basis of applied perspectives, it could be diagnostic as well as exploratory in nature.

Research Planning

According to Barfield & Committee on Fetus and Newborn [16], initially it will be investigated by self-reported incidences of fetal and infant deaths. It would be followed by calculations of various indicators related to fetal and infant mortality rates. The relevant information will be collected on reproductive history namely, age at menarche and menopause, age at first marriage, history of pregnancy and contraceptive use. For each pregnancy, its order, the time of its termination and its outcome will be recorded. The outcome of each pregnancy will be coded into these exclusive categories: live birth (male or female), early fetal death, late fetal death, miscarriage, stillbirth, perinatal death, induced abortion, and currently pregnant. Anthropometric measurements such as weight and height would be taken on selected respondents besides recording their blood pressure.

Sampling Method

Multi-stage random sampling can be appropriate sampling for the study of concerning issues. According to multi-stage random sampling [52], i.e. districts of a state will be selected. Number of districts will be based on distribution of respective population in various districts of a state. In the next stage, one development block from each selected district will be picked up. In the subsequent stage, appropriate number of hamlets/villages will be selected from each selected development blocks; then each and every household will be selected from the hamlets/villages and finally appropriate number of eligible women i.e. women, in age group 15-49 years [2] [9] including widows, divorced and separated women will be randomly selected from each household. Numbers of state, districts, villages and the respondents will be exclusively depended on the nature, objectives and necessity of the research.

Tools for Data Collection

Structured Interview Schedule or Structured Questionnaire will be used for interviewing the women, to provide a complete reproductive history of the births. This information will be used to calculate norms for direct estimates of fetal and infant mortality, as per Barfield & Committee on Fetus and Newborn [16].

Structured Interview Household Schedule or Structured Household Questionnaire will be used to ascertain their socio-economic characteristics. Along with these tools, some Case Studies, Group Discussions (GDs), Focused Group Discussions (FGDs) and Non Participant Observation will also be carried out for the qualitative data as well as for the cross- checking of quantitative data.

In addition to the above tools, Photography and Audio-Visual recording will be done for testimonies of the specific events.

Factors Affecting Fetal and Infant Death

The numbers of factors are the causes of fetal and infant death in tribal and rural India. We will be suggested to testing those factors as hypotheses, some are mentioned below:

1) Delivery in the home is the main cause of fetal and infant death among the tribal and rural India.
2) Low age at marriage of the women (<18 years) is the cause of the fetal and infant death.
3) Poverty is the cause of fetal and infant death among the tribal and rural India.
4) Status of malnutrition among the women of tribal and rural India is the cause of fetal and infant death.
5) Consanguineous marriage is the cause of the fetal and infant death among the tribal setting.
6) Delivery through unskilled delivery specialist is the cause of fetal and infant death.
7) Low consumption of IFAT (Iron Folic Acid Tablet) by the pregnant and lactating women is the cause of fetal and infant death.
8) Lack of availability of supplementary food for pregnant and lactating women is the cause of fetal and infant death.
9) Lack of Antenatal Care (ANC) is the cause of fetal and infant death.

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10) Lack of Postnatal Care (PNC) is the cause of fetal and infant death.
11) Food taboos for pregnant and lactating women are the cause of fetal and infant death.
12) Taboos regarding pregnancy are the causes of fetal and infant death.
13) Taboos regarding lactating women are the causes of fetal and infant death.
14) Special food habit of the pregnant and lactating is the cause of fetal and infant.
15) Consumption of alcoholic liquor by the pregnant and lactating women is the causes of fetal and infant death among the tribal and rural India.
16) Consumption of tobacco by the pregnant and lactating women is the cause of fetal and infant death among the tribal and rural India.
17) Tobacco smoking by the pregnant and lactating women is the cause of fetal and infant death among the tribal and rural India.
18) Incomplete vaccinations of the infant are the causes of infant death.
19) Special kind of rituals relating to birth, birth ceremony and other are the causes of fetal and infant death among the tribal and rural India.
20) Inadequate room availability in the house of tribal and rural families in India is one of the causes of fetal and infant death.
21) Heavy workload by the pregnant and lactating women is the cause of fetal and infant death among the tribal and rural India.
22) Sexual transmitted infections (STIs) among the women of tribal and rural India are the causes of fetal and infant death among them.
23) Sexual transmitted diseases (STDs) among the women of tribal and rural India are the causes of fetal and infant death among them.
24) Sex during pregnancy is the causes of fetal and infant death.
25) Acute morbidity during pregnancy is the causes of fetal and infant death.
26) Severe morbidity among infant are the causes of fetal and infant death.
27) Inadequate feeding of colostrums is the cause of infant death.
28) Inadequate breast milk accessibility is the cause of infant death.
29) Lack of use of supplementary food for infant is the cause of infant death among the tribal and rural India.
30) Short birth intervals are the causes of fetal and infant death among the tribal and rural India.
31) Uses of traditional contraceptive materials are the causes of fetal and infant death the tribal and rural India.
32) Low and high age at menarche is the cause of fetal and infant death.
33) Low age at first child birth is the cause of fetal and infant death the tribal and rural India.

Key Issues

Following key aspects will be addressed in the research of fetal and infant death**.**

Socio-Demographic and Bio-Medical Traits

These are some socio-demographic and bio-medical traits which will be traced in these kinds of studies vis-à-vis social fabrics of the research settings, demographic characteristics of the respondents, nutritional status of the respondents, respondents' anemic conditions, grades of Blood Pressure (BP) of the respondents, grades of Blood Sugar (Diabetic status) of the respondents, estimation of Reproductive and Child Health (RCH) status of the respondents and their children, an appraisal of status of women's empowerment of the respondents, an evaluation of general health status of the respondents, etc.

Prevalence Study

Some prevalence studies will be essentially done in these kinds of studies vis-à-vis prevalence of miscarriage, prevalence of early fetal death, prevalence of late fetal death, prevalence of stillbirth, prevalence of perinatal death, prevalence of neonatal death, prevalence of post neonatal death, prevalence of infant death, prevalence of child death (<5 years), etc.

Causes of Fetal and Infant Death

However, phenomenon likes fetal and infant deaths have infinite and uncertain causes, but some are measurable and some are observable. The measurable and observable causes like biological (Genetic and physiological), socio-cultural, spousal violence, demographical, environmental, migration, violence and conflict (Intra-culture, Intra-national, Inter-cultural, International and or Domestic) and disastrous (Natural and man-made) can be tracing through systematic and scientific efforts. Besides these, some other bio-social causes are pursuing for a good research on the above-discussed issues: fetal and infant death vis-à-vis social-cultural determinant of fetal and infant death, demographic consequences of fetal and infant death, economical state of affairs and their impact on fetal and infant death, biological determinant of fetal and infant death, impact of reproductive health status on fetal and infant death, bio-social causes of Child Death (<5 years), traditional health seeking behaviour and its impact on fetal and infant death, etc.

8. Conclusion

Xaxa et al. [53] stated that "in the absence of a good civil registration system in the country, it is very difficult to get the latest reliable estimates of fertility and mortality. At the state level, there is data on fertility and mortality but there is no data generated for the scheduled tribes which is important for the targeted approach of planning and program implementation. This could also be one of the important factors for poor results from interventions in tribal areas and there is no way to monitor or evaluate the program". The finding of these kinds of studies will fill the lacuna of data regarding fetal and infant death among the tribal and rural settings in India. It would be of help to health service facilitator to enhance the health services in the tribal and rural settings of the country.

The result of these types of studies will identify the root causes of fetal and infant death among the tribal and rural settings of India. It would improve our understanding of the causes of failure of the health services in tribal and rural

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regions. Besides, it could be of help to design the new health strategies and programmes for the tribal and rural India.

The inference of these types of studies will establish the relationship between health and culture which is usually overlooked by the health services providers. Cultural anthropologists always focus on association between health and culture and suggest many a times to incorporate such socio-cultural norms and practices which have proved to be barrier in adopting modern medical health facilities.

The new theories, concepts, data, facts and methods will be deduced from these kinds of studies. It could be helpful to the other researchers who wish to undertake similar studies. Therefore, this type of study will serve as a milestone for future research. On the basis of above all discussion it is urgent need to conduct such type of research with humble consideration of the suggestions of Premi & Mitra [54].

9. Conflict of Interest

None

References

[1] Kapoor, S., & Riverside, U. *Infant Mortality Rates in India: District Level,Variations and Correlations.* [cited 2015 September 09] Available from www.isid.ac.in/~pu/conference/dec_10_conf/.../ShrutiKapoor.pdf.
[2] NFHS- III. *National Family Health Survey III.* Mumbai, India: International Institute for Population Sciences. 2007.
[3] United Nations Children's Fund. *Maternal and Newborn Health: The State of the World's Chilsdren.* New York,10017,USA. 2009.
[4] World Health Organization. *The World Health Report 2005: Make Every Mother and Child Count*. Geneva 27, Switzerland: WHO Library Cataloguing-in-Publication Data. 2005.
[5] World Health Organization. *Neonatal and Perinatal Mortality:Country, Regional and Global Estimates.* Geneva 27, Switzerland: WHO Library Cataloguing-in-Publication Data. 2006.
[6] Sample Registration System. *Maternal & Child Mortality and Total Fertility Rates.* Office of the Registrar General of India. New Delhi: Government of India. 2012.
[7] Child Health Division. *Child Death Review.* Ministry of Health & Family Welfare. New Delhi: Government of India. 2014.
[8] Sample Registration System. *Maternal & Child Mortality and Total Fertility Rates.* Office of the Registrar General of India. New Delhi: Government of India. 2011.
[9] Annual Health Survey. *Annual Health Survey.*Office of the Registrar General of India & Census Commissioner, Vital Statistics Division. New Delhi: Government of India. 2012.
[10] Child Health Division. *India Newborn Action Plan.* Ministry of Health & Family Welfare. New Delhi: Government of India. 2014.
[11] World Health Organization. *Technical Consultation on Postpartum and Postnatal Care.* Geneva 27, Switzerland: Department of Making Pregnancy Safer. 2008.
[12] Statistics Division.. *Family Welfare Statistics in India.* Ministry of Health and Family Welfare. New Delhi: Government of India. 2011
[13] Cutler, D., Deaton, A., & Lleras-Muney, A. The Determinants of Mortality. *Journal of Economic Perspectives* 2006 *;* 20(3) : 97–120.
[14] NFHS- II. *National Family Health Survey II.* Mumbai, India: International Institute for Population Sciences. 2000.
[15] Van den Berg, M., Birnbaum, L. S., Denison, M., De Vito, M., Farland, W., Feeley, M., et al. The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds. *Toxicological Sciences* 2006 ; 93(2) : 223–241.
[16] Barfield,W., & Committee on Fetus and Newborn. Clinical Reports : Standard Terminology for Fetal, Infant, and Perinatal Deaths. *Pediatrics* 2011 ; 128(1): 177-181.
[17] National Center for Health Statistics. Public Health Service Producer.[cited 2015 September 09] Available from http://WWW.cdc.Gov/nchs/data/misc/mvsact92b.pdf.
[18] MacDorman, M. F., & Gregory, E.C. Fetal and Perinatal Mortality: United States, 2013. *National Vital Statistics Report* 2015; 23: 1-24.
[19] Save the Children. *Save the Newborn Child.* Unicef: Government of India. 2014.
[20] Sahu, S. K., & Premi, J. K. *Man and Reproductive Health among the Birhor Primitive Tribe of Chhattisgarh: A Bio-Cultural Study in Prespective of Involvement.* Raipur, Chhattisgarh : School of Studies in Anthropology, Pt. Ravishankar Shukla Univercity . 2008.
[21] Census of India . *Tribe Wise Distribution of Population in Chhattisgarh, India*. Office of the Registrar General of India. New Delhi: Government of India. 1991.
[22] Census of India. *Primary Census Abstract*, *Population of Scheduled Castes and Scheduled Tribe, Chhattisgharh, India*. Office of the Registrar General of India. New Delhi: Government of India. 2001.
[23] Census of India. *Primary Census Abstract*, *Population of Scheduled Castes and Scheduled Tribe,Chhattisgharh, India.* Office of the Registrar General of India. New Delhi: Government of India. 2011.
[24] Kishor, S., & Parasuraman, S. *Mother's Employment and Infant and Child Mortality in India.* International Institute for Population Sciences, Mumbai India and Macro International Inc. Calverton, Maryland, U.S.A. Calverton: Macro Internationl Inc. 1998.
[25] Sharma, S. Childhood Mortality and Health in India. *Working Paper* , University of Delhi: Institute of Economic Growth 2008: 1-32.
[26] Kumar, D., Dolla, C., Verma, A., Goel, A., & Sehgal, V. Demographic and Socioeconomic Correlates of Infant Health in a Primitive Tribe of Chhattisgarh. *National Symposium on Tribal Health.* Jabalpur:

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Regional Medical Research Centre for Tribals, Indian Council of Medical Research 2007 : 279-284.
[27] Agrawal, D., & Hedau,V. Determinants of Infant Mortality Rate of India. *International Journal of Research in Management, Science and Techonology* 2014 ; 2 *(2)* : 1-11.
[28] Lynn, R., & Yadav, P. Differences in Cognitive Ability, Per Capita Income, Infant Mortality, Fertility and Latitued Across the States of India. *Intelligence* 2015 ; 49 *:* 179-185.
[29] Bhalotra, S., & IZA. *Fatal Fluctuations? Cyclicality in Infant Mortality in India.* University of Bristol and IZA. Bonn,Germany: The Institute for the Study of Labor. 2007.
[30] Shah, B. D., & Dwivedi, L. K. Causes of Neonetal Deaths among Tribal Women in Gujrat, India. *Southern Demographic Association* 2013 ; 30(4) : 517-536.
[31] Roshan, R., Oraon, J., & Kuma, V. Infant Health Status of Bastar - A Case Study of Dhurwa Tribe. *Asian Mirror* 2014 ;1 (1) : 1-2.
[32] Niswade, A., Zodepy, S. P., Uphade, S., & Bangdwala, S. Neonatal Morbidity and Mortality in Tribal and Rural Communities in Central India. *Indian Journal of Community Medicine* 2011 ; 36 (2) : 50–158.
[33] Sahu, D., Nair, S., Singh, L., Gulati, B. K., & Pandey, A. Levels, Trends & Predictors of Infant and Child Mortality among Scheduled Tribes in Rural India. *National Institute of Medical Statistics* 2015 : 709-719.
[34] Greenstone, M., & Hanna, R. Environmental Regulations, Air and Water Pollution and Infant Mortality in India. *American Economic Review* 2014 ; 104 (10) : 3038-3072.
[35] Sharma, S., & Chakravarty, M. *Tribal Perinatology* (1st Edition ed.). Delhi, Indai: Academic Execellences. 2006.
[36] Davis, D. L., Wevester, P., Stainthorpe, H., Chilton, J., Jones, L., & Doi, R. Declines in Sex Ratio at Birth and Fetal Deaths in Japan and U.S. Whites but Not African Americans. *Environmental Health Perspectives* 2007 ; *115* (6) : 941-946.
[37] Cai, Y., & Feng, W. Social Disruption, and Involuntary Fetal Loss: Evidence from Chinese Survey Data. *Demography* 2005 ; 42(2) : 301-322.
[38] National Committee on Vital and Health Statistics. *Recommendation for the Improvement of Fetal Death Statistics* 1995; 70(11) : 1049-1056.
[39] French, F. E., & Bierman, J. M. Probabilities of Fetal Mortality. *Public Health Report* 1962 ; 77 (101) : 835-847.
[40] Oakeshott, P., Hay, P., Hay, S., Steinke, F., Kerry, S., & Rink, E. Association Between Vaginosis or Chalamydial Infaction and Miscarriage Before 16 Weeks' Gestation: Prospective Community Based Cohort Study. *British Medical Journal* 2002 ; 325 (7376) : 1334-1336.
[41] Nagi, M. H., & Stockwell, E. G. Socioeconomic Differentials in Mortality by Cause of Death. *Health Services Report* 1973 ; 88 (5) : 449-456.
[42] Eberstein, I. W., Nam, C. B., & Hummer, R. A. Infant Mortality by Cause of Death: Main and Interaction Effects. *Demography* 1990 ; 3 : 413-430.
[43] Rogers, R. G. Ethnic and Birth Weight Differences in Cause-Specific Infant Mortality. *Demography* 1989 ; 26 (2 *)* : 335-343.
[44] Himes, C. L. Age Patterns of Mortality and Cause of Death Structures in Sweden, Japan, and the United States. *Demography* 1994 ; 31(4) : 633-650.
[45] Li, D.K., Odouli, R., Wi, S., Janevic, T., Golditch, I., Bracken, T., et al. A Population Based Prospective Cohort Study of Personal Exposure to Magnetic Fields During Pregnancy and the Risk of Miscarriage. *Health* 2002 ; 13 (1) : 9-20.
[46] Cross, P. K. Changes in Rates of Spontaneous Fetal Deaths Reported in Upstate New York Vital Records by Gestational Age,1968-78. *Public Health Report* 1984 *;* 99 (2) : 221-215.
[47] Nam, C. B., Eberstein, I. W., Deeb, L. C., & Terrie, E. W. Infant Mortality by Cause: A Comparison of Underlying and Multiple Cause Desingnations. *European Journal of Papulation* 1989 *;* 5 (1) : 45-70.
[48] Laurence, K., & Roberts, C. Spina Bifida and Anencephaly: A Possible Cause?. *British Medical Journal* 1977 ; 2 (6083) : 361-362.
[49] Shelley, J. Miscarriage and Time to Next Pregnancy: Women Who Conceive Earlier May Have Better Outcomes and Fewer Complications. *British Medical Journal* 2010 ; 341 (7770) : 410-411.
[50] Thangaratinam, S., Tan, A., Knox, E., Kilby, M. D., Franklyn, J., & Coomarasamy, A. Association Between Thyroid Autoantibodies and Miscarriage and Preterm Birth: Meta-Analysis of Evidence. *British Medical Journal* 2011 ; 342 (7806) : 1065.
[51] Akar, M. E., Yapar Eyi, E., & Yilmaz, E. S. Maternal Deaths and Their Causes in Ankara, Turkey 1982-2001. *Journal of Health, Population and Nutrition* 2004 ; 22 (4) : 420-428.
[52] Kothari, C. *Research Methodology:Methods and Techniques.* New Delhi: New Age International (P) Limited. 2009 .
[53] Xaxa, V., Ramanathan, U., Bara, J., Mishra, K. K., Bang, A., Basant, S., et al. *Report of the High Level Committee on Socio-Economic, Health and Educational Status of Tribal Communities of India.* New Delhi: Ministry of Tribal Affairs, Government of India. 2014.
[54] Premi, J.K., & Mitra, M. Need based interventions for improvement of reproductive health and male involvement of the Baiga tribe of Chhattisgarh (India). *International Journal of Advances in Social Sciences* 2013; 01: 51- 57

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