Maternal and Fetal Complications of the Tribal Population in Visakhapatnam District: The Empirical Evidence

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***Abstract*— The present study is an empirical evidence of the maternal and fetal complications among the tribal population of Visakhapatnam district, Andhra Pradesh and to study the knowledge, attitude and perception of the tribal women towards maternal health care services. In research, the question emphasizes how maternal and child health care services are provided to tribal women? During the period of December 2019 to November 2020, data were collected through in-depth interviews, focus group discussions, case studies from 193 ever married tribal females including 72 pregnant and 121 lactating mothers (P&LMs) of the reproductive aged 15–49 years of the eight villages in two mandals i.e. Araku Valley and Chintapalli were selected purposively by a simple random sampling. Further, data cross checked, entered and coded. The statistical analysis was done by using IBM for windows, version 18.0. Chicago: SPSS Inc.**

***Index Terms*— Childbirth, ITDA-Paderu, Maternal and Fetal Complications, Pregnancy, Safe Motherhood Initiative, Vulnerable Tribals.**

I. INTRODUCTION

Maternal and child health (MCH) is a crucial of any country's development in terms of increasing equity and reducing poverty. In the 21st century, the Global agencies like UNO, WHO, UNICEF and World Bank concentrated an action to increase access to maternal and child healthcare. The survival and well-being of the mothers is not only important in their own right, but also in addressing to solve the real challenges of social, economic and development. Since the mid-1990s, Anthropology's interest is to understand the meanings of infertility, miscarriage, and other types of reproductive disability has grown with much of anthropology, a bio-cultural discipline involving the maternal and child health aspects such as high risk pregnancy, antenatal and postnatal care, types and place of delivery, institutional deliveries, vaccination etc (Davis-Floyd and Sergeant, 1997; Graham, 2002; Inhorn, 2007). Anthropologists are often found that the Safe Motherhood Research and Bar Association have a response to understanding this reality with practical and political (Graham and Campbell, 1992). Globally, the International Conference on Population and Development (ICPD) in 1987, it has a theme the importance of women's health. The United Nations member states have been focusing on initiatives to improve safe motherhood. Further, this commitment strengthened. After, a global strategy for women and child health in 2010, it aims to accelerate the success of MDG-5 by 2015. In recent decades, despite the efforts achieve universal health coverage is providing all the people with affordable and equitable. Access to good-quality healthcare with an adequate financial risk protection is a global quest in which India plays an important role. At National, India was committed to achieving universal health by inculcating and/or reducing maternal and infant mortality by launching various programs or schemes. Though, the country has made significant progress in reducing the rates of maternal and infant mortality.

Table-1: Showing Different Targets of MCH Indicators in India

Indicator	At Present	NHP Target	SDG Target
Maternal Mortality Rate	113	100 by 2020	<70
Neonatal Mortality Rate	23	16 by 2025	<12
Infant Mortality Rate	32	28 by 2019	-
Under 5 Mortality Rate	36	23 by 2025	<25
Total Fertility Rate	2.2	Replacement level	-

Table-1 shows that different targets of MCH in India, an achieving the SDG target of 70/100,000 live births by 2030 and the National Health Policy (NHP) target of 100/100,000 live births by 2020. The NHP targets far ambitious than those of the SDGs, recognizing the importance of addressing the inequalities that many

communities, especially women, children and tribals, they are left behind, which sees the problem as more rooted in their isolation by geography than social and cultural exclusion. Every year, approximately 44,000 women still die due to pregnancy-related causes and nearly 6.6 lakh infants die in the first 28 days of life. As per the Special Bulletin (SRS, 2016-18), India has declined by 9 points in one year from 167 in 2011-2013, 130 in 2014-2016, 122 in 2015-17, and to 113 in 2016-18 (7.4 %) per 100,000 live births. With this continuous decline, the Indian states achieving SDG target has now increased from 3 to 5 viz. Kerala (43), Maharashtra (46) Tamil Nadu (60), Telangana (63) and Andhra Pradesh (65). As per the target of MMR set by NHP, there are 11 states that have achieved which includes above 5 and the states of Jharkhand (71), Gujarat (75), Haryana (91), Karnataka (92), West Bengal (98) and Uttarakhand (99), whereas three states are Punjab (129), Bihar (149) and Odisha (150) in between 100-150, while for the 5 states in between 151 and above such as Chhattisgarh (159), Rajasthan (164), Madhya Pradesh (173), Uttar Pradesh (197) and Assam (215). From the available literature, it is clear that in spite of various national programs for the target population, the unreached still have not come in the loop of development to achieve the reality. As per the Global Burden of diseases World over there is a fall of Maternal Death by 30% between 1990-2015 while in India it has gone down to 52% (Lancet, 2016). About one third of woman aged 20-24 were child brides (UNICEF, 2015). It is observed from findings, one in four maternity related deaths occurs due to immature pregnancy during delivery, and this is seen mainly in the developing countries (Koblinsky et al., 2000). The risk increases as maternal age decreases, below 16 facing four times risk of maternal death as women over 20 years (WHO, 2008). In India, many studies have been conducted and identified the prevalence of early pregnancy likely aggravating problem, outcome or consequences of pregnancy, obstetric and neonatal period (Talwar and Venkatesh, 2013). As per this study, the pregnancies with high risky like anemia, hypertension, eclampsia, LBW, fetal loss and preterm birth are on the rise, and these mothers may not yet have a sudden normal vaginal birth. In addition to these health outcomes, a LBW exhibit increased risk of post-natal mortality. As an early age of pregnancy, these mothers suffering from severe complications (Gogoi, 2014). The following studies conducted by scholars in and around India, there are focused on health and disease issues with reference to population perspectives (Chattopadhyay et al., 2014; Ibrahim et al., 2011; Shahid et al., 2010; Bhatia, JC and Cleland, 1996; Bhatia JC, 1993; Swain et al., 1993; Datta et al., 1980). However, recently IIPS and ICF jointly documented in the year 2019, about 51% of mothers receive four antenatal checkups, 79% of births occur in health centers, 81% of deliveries are assisted by health professionals, and 65% of women receive PNC. In the background of dearth across the country and the state of Andhra Pradesh, in-depth studies to understand the various factors that play a major role in specific health behavior and access to healthcare. The results have a definite but unequally mounting proportion of institutional deliveries across different social groups. While tribals are pluralistic, pragmatic due to their exposure to modern medicine in seeking healthcare and changing socio-economic condition. Very few studies reveal that the maternal mortality and morbidity with huge disparities across the state. A study evidences the highest percentage of tribal women falls under a category of marginal, poor income and low literacy in the interior villages. There have been more cases of 'institutional deliveries' indicating better use of medical services. Delaying to reach the out-born admissions in time it could lead morbidity of infants, which will increase mortality of the newborn in the unit. It is also known that tribals rely only on public health services, mainly owing to absence of private healthcare (Appala Naidu Pappala, 2020). According to review, it suggested the maternal health related challenges by a different approach is needed to be reducing health inequalities. Hence, the present study is intended to conduct with the specific objectives are to understanding the prevalence of maternal and fetal complications in the tribal women residing Araku Valley and Chintapalli mandals of ITDA Paderu, Visakhapatnam district, and also to identify the impact of different maternal incentives.

II. STATEMENT OF THE PROBLEM

The Ministry of Tribal Affairs, Government of India association with the NGOs and the States including Andhra Pradesh are implementing many programmes and schemes for the welfare of tribal communities, through the financial assistance, and to fill critical gaps. A multi-pronged strategy has been adopted for development of tribals, which includes its support for

improve health, education, water, sanitation, hygiene, livelihood, cultural heritage preservation, as national agenda. It is put a way forward that a despite some positive trends in the access to health care nationally, it is not uniform in different sections of the society and but exists inequity. For overall access, thus, it is clear that very low in rural population particularly the scheduled tribes, a contributing factor to develop the various health related interventions. In this reason, it is an important to be design and carryout studies of the different tribal groups. Across the state or district, to understand and identify specific factors and to be develop targeted interventions for improve the health and wellbeing. Government of Andhra Pradesh state making special efforts to reduce maternal and infant deaths and bring them to standards. Of all initiatives, '*Talli-Bidda*' express service started where vehicles are procured to bring and drop back pregnant women and newborns from hospital to home. During post pregnancy, the mother and child care kits distributed to mitigate infections. Nutritional programmes also known as "ration schemes" like '*Giri Gorumuddalu'*, '*Anna Amrutha Hastham*' to strengthen mother and child for the fight against malnutrition and anaemia. But still, one third of the deaths of children below the age of five years are due to lack of nutritious food. '*Matha-Shishu*', a tracking system has also been developed to extend more improve medical aid to the pregnant and babies. In order, access to enhance the healthcare, the state government of Andhra Pradesh has started activated mobile medical units to provide emergency health services under '*104*' at village level. Under a flagship scheme to reducing the out of pocket expenditure on modern healthcare, provides '*YSR Aarogyasri*' diagnostic lab tests at all public health facilities free of cost to all the BPL families including health insurance for secondary and tertiary care with annual coverage of Rs 2.5 lakhs without paid any premium. For APL families, insurance cover of Rs 2 lakhs is provided under '*Aarogya Raksha*' by charging a small premium. The state is inching closer to achieving universal health coverage in the coming years. A newly carved Andhra Pradesh state has been made significant strides in reducing the maternal morbidity and mortality. In the state, medical issues and poor sanitation found to be leading to maternal deaths. As per the facts submitted by the Ministry of Health and Family Welfare' conference, it reported that the maternal mortality rate (MMR) declined from 102 in 2017 to 69 in 2018. Whereas, 253 maternal deaths against 3,64,629 live births registered in 2018. Out of total maternal deaths, 22% of deaths registered due to gestational hypertension also referred to as Pregnancy-Induced Hypertension (PIH Eclampsia), which is a condition by high blood pressure can lead to serious condition called Preeclampsia, 19% deaths due to postpartum haemorrhage (PPH), while 7% are due to sepsis and 6 % blamed on severe anaemia. As well as, the north-coastal Andhra Pradesh (NCAP) is no exception to this miserable condition. The NCAP area comprises the three districts namely Srikakulam, Vizianagaram and Visakhapatnam. Livelihood status in NCAP, the people are not yet all right, particularly, the tribals unevenly distributed mainly the forest and hills. They rely on food-gathering, hunting, fishing, collection of NTFP, unskilled wage labour and pre-agriculture like podu or shifting. Though, the present study covered the district of Visakhapatnam. For the research, the district selected as it is the most tribal populated in Andhra Pradesh state. With regard to the maternal mortality in Visakhapatnam district, as per DM&HO statistics, the MMR declined from 114 in 2017 to 110 in 2018, which reported that the health outcomes are worse than facts of the bifurcated state. In general, tribal women suffer from severe illness due to poverty, low literacy, ignorance on the causes of diseases, poor sanitation and personal hygiene, lack of safe drinking water and blind beliefs. Still, the socio-economic inequalities among tribal are being persist.

III. SIGNIFICANCE OF THE STUDY

The study is expected to shed light on maternal and child health services in the vulnerable tribal group of pregnant and lactating mothers (P&LMs). It is also primarily intended to examining the prevalence of maternal and fetal complications to various aspects. Identifying the gaps and taking appropriate action can be reduce maternal and infant morbidity and mortality.

IV. MATERIALS AND METHODS

This study is socially relevant with a qualitative and quantitative nature. For the data collection, a total of 193 married tribal females of reproductive age group 15-49 years both 72 pregnant who found to at this time registered and 121 lactating mothers who found to have at least one child aged less than 2 years were

selected as the respondents by a purposive random sampling method from eight tribal villages namely Baski, Chinalabudu, Gannela, Lotheru, Madagada, Sarabhaguda comes under Araku valley mandal and Lambasingi, Tajangi are covering the Chintapalli mandal are showing in the Map-1. From Table-2, it was observed about 18.65% of the respondents were from Lotheru, 18.13% from Baski, 12.95% from Madagada and 12.44% from Chinalabudu covered.

Map-1: The Study Area Highlighted with Star Mark in Visakhapatnam District

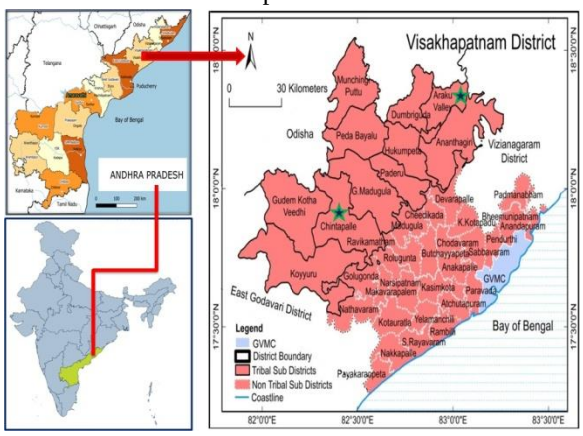

Table-2: Distribution of Pregnant Women and Lactating Mothers by Village-wise

Village	Pregnant women		Lactating Mothers		Total	
	N	%	N	%	N	%
Baski	11	15.28	25	20.66	36	18.65
Chinalabudu	9	12.50	15	12.40	24	12.44
Gannela	7	9.72	9	7.44	16	8.29
Lotheru	12	16.67	23	19.01	35	18.13
Madagada	10	13.89	15	12.40	25	12.95
Sarabhaguda	9	12.50	11	9.09	20	10.36
Lambasingi	7	9.72	8	6.61	15	7.77
Tajangi	7	9.72	15	12.40	22	11.40
Pooled	72	37.31	121	62.69	193	100

On the field trip, the PDF scholar interviewed all selected tribal women. For this study, 8 FGDs and 10 case studies were also documented. Qualitative and quantitative data obtained on the various aspects and complications of maternal and child health by using a semi-structured schedule and through describing the retrospective and recall method of tribal women. Further, the data were cross checked and entered in the MS Excel sheet of DELL, Vostro-Intel computer with coded. Finally, all statistical analyses were done by using IBM for windows, version 18.0. Chicago: SPSS Inc.

V. RESULTS OF THE STUDY

The results of study seek to understand the empirical evidence of several complications in the pregnancy, the child birth and the postpartum period of the tribal population in Visakhapatnam district based on source of information both primary and secondary, it finds that relationship in the tribal areas to early marriage, early pregnancy, paternity, gender, decision-making, health services, pregnancy wastage and health related beliefs. In this connection, the PDF scholar reported the various socio-demographic, culture and economic factors influence the risk of maternal and fetal health.As per region where is located of newly carved state, Visakhapatnam district is one of the north coastal districts and bounded in North by Odisha, East by Vizianagaram, South-west by East Godavari and South by the Bay of Bengal. Geographically, the district stands 14th position with 11,161 Sq. Kms. With population of 42,90,589, the district ranks 5th, while it stands 15th position in terms of rural population with 22,54,667 persons. The district is a home with 19 in 34 tribal groups, they are Bagatha, Didayi, Gadaba, Goudu, Kammara, Konda Dora, Kondh, Kotiya, Mali, Muka Dora, Manne Dora, Nooka Dora, Porja, Rona, Valmiki. Based on social ranking, tribals placed unequally. According to Prof. P.D Satyapal (2016), the Bagatha tribe considered being superior and the Valmiki tribe regarded as inferior. However, both of these tribal groups were considered to be more cultured due to the political and economic dominance. In district, the sex ratio of tribes is 972 females per 1000 males as against 1001 for general. The literacy rate of general population is 59.96 and if goes down to 37% of the tribes. When compared to 50.12% of general, female literacy rate is 26.1% among tribes. The tribes are an endogamous and heterogeneous. While polygyny was permitted, monogamy is very common practice. With regarding the ways of acquiring mates, marriage by negotiation, elopement and capture are common. Cross cousin marriages are more frequent. Practice of levirate is existed. Inter-tribal relations are very harmonious, but inter- tribal marriages are prohibited.

According to Appala Naidu Pappala findings in 2019, the tribal economy is primarily Agro-forest based. Most of tribals are semi-agriculturists. They cultivate both the flat lands (*garuvu*) and the podu fields, and

also gathering commercial non-timber forest produce like roots, tubers. As a result of deforestation, hunting practice is a very much minimized due to intensive cultivation i.e. *podu*. Fishing is also prevalent but on the whole the general standard of living of the tribals is very loco. The agricultural produce is not sufficient even for a few months. The output of cereal crops is 10 puttis per acre (*putti* means 20 *kuncham* weight of cereal/paddy) and this is very low when compared to non tribal formers production of per acre is 30-40 puttis. For the tribals, pre-agriculture is main source of livelihood. The crops are divided into dry and wet. Owing to the shortage of water supply, the cultivation of dry land naturally is wet lands. Thus, number of crops grown and the quantity of grain produced are found to be more on the dry lands.

Table-3: Age-wise Distribution of Pregnant Women and Lactating Mothers covered

Age Group in years	Pregnant women		Lactating Mothers		Total	
	N	%	N	%	N	%
15-19	14	19.44	22	18.18	36	18.65
20-24	27	37.50	39	32.23	66	34.20
25-29	19	26.39	44	36.36	63	32.64
30-34	12	16.67	14	11.57	26	13.47
35-39	0	0.00	2	1.65	2	1.04
40-44	0	0.00	0	0.00	0	0.00
45-49	0	0.00	0	0.00	0	0.00
Pooled	72	37.31	121	62.69	193	100

Table-3 shows that age-wise distribution of pregnant women and lactating mothers in age group of 15-49 years covered. It is observed, about nearly sixty-three percent of the tribal women were lactating mothers followed by 37.31% of pregnant women interviewed. Most of the tribal mothers (66.84%) were registered in the age group of 20-30 years. As per statistics from the Table-4, the nuclear families dominated (74.71%) than 25.39% of joint families. It reveals the overall literacy rate of these women are not very impressive, here 60.1% are literates by cleared less than 10 years of schooling while more than 10 years of schooling completed (39.9%), it reflects that a lower status of literacy among the tribal females. With regards to annual income, about 61.66% of the tribal women and their family earn that below 30000 rupees and 2.59% of the women have annual income is rupees 60000 and above. Of all the marriage types, 66.84% are affinal though 33.16% are consanguine. However, 42.51% of tribal mothers reported that as primigravid while 57.49% are multigravid by the parity.

Table-4: Distribution of Socio-Economic and Demographic Indicators among Tribal Women

S.No	Indicator	N	%
1.	Type of Family		
	Nuclear	144	74.71
	Joint	49	25.39
2.	Annual Income		
	< Rs.30,000	119	61.66
	Rs.30,000- 60,000	69	35.75
	> Rs.60,000	5	2.59
3.	Level of Education		
	<10 years of schooling	116	60.10
	> 10 years of schooling	77	39.90
4.	Type of Marriage		
	Affinal	129	66.84
	Uncle niece	18	9.33
	FSD	15	7.77
	MBD	31	16.06
5.	Number of Parity		
	Primigravid	82	42.51
	Multigravid	111	57.49

I would like to inform the current study covers 72 pregnant and 121 lactating mothers, they presenting in Table-5, as distribution of all the women by age at first pregnancy. Majority of the tribal women married between 15-19 years (49.74%) with a mean age at marriage 15.21 years, which shows the trend of early marriage and immediate conception, they were of 2nd order pregnancy before attaining age of 20 years is still continuing in tribal community.

Table-5: Distribution of Tribal Women by Age at 1st Pregnancy in Visakhapatnam District

Age Group in years	N	%
< 15	14	7.25
16-18	62	32.12
19-21	96	49.74
> 22	21	10.89
Pooled	193	100
Mean age at the first pregnancy ± S.D.		18.2 ± 1.8

Among all tribal women, it observed from Table-6, confirmation of the pregnancy through different types of test in the health capability. About 37.3% of tribal women were examined physically, while 31.6% are

testing through blood sample. Very few tribal women were (18.13%) tested by Rapid Urine Kit.

Table-6: Distribution of Tribal Women by Test of Pregnancy's Confirm in Visakhapatnam District

Type of Test	N	%
Physical Examination	72	37.31
Blood test	61	31.61
Rapid Urine test Kit	35	18.13
Ultrasound	9	4.66
None of above	16	8.29
Pooled	193	100

A. USE OF MCH SERVICES

For reduction of maternal morbidity and mortality, antenatal care, natal care and postnatal care are very crucial Antenatal care is well-known as ANC, which means healthcare during the pregnancy for timely identification and treatment of complications, it is necessary to have a complete monitoring for the four minimum visits are necessary. Though, the 1st visit is to be in the first trimester of the pregnancy. Table-7, it illustrates that the tribal women who received the maternal health services in Visakhapatnam district. Majority of the tribal women (61.14%) were received the full antenatal care at 1st trimester of pregnancy for the 4 visits, while 22.28% preferred very less. Thus, an overwhelming majority the tribal pregnant women (97.41%) in third or fourth month of the pregnancy registered at health facility. Outcomes of this study, 38.34% of the tribal pregnant currently registered at a sub-centre or primary health centre. The public health facility such as District or Sub-District Hospital (19.17%), and Community Health Center (16.06%), whereas also Private Clinics (23.83%) preferred by majority of tribal pregnant in specified tribal areas.

Table-7: Details of MCH indicators among Tribal Women in Visakhapatnam district

S.No	MCH indicator	N	%
1.	Registration of Pregnancy	188	97.41
2.	Place of Pregnancy Registration		
	Sub centre	41	21.24
	PHC	33	17.10
	CHC	31	16.06
	Sub-District Hospital (SDH)	9	4.66
	District Hospitals (DH)	28	14.51
	Private clinics/hospitals	46	23.83
3.	ANC Visits		
	Full Ante Natal Care	118	61.14
	<4	43	22.28
	4-7	78	40.41
	8-11	28	14.51
	>11	12	6.22
4.	IFA Intake Adequacy	146	75.65
	Adequate (>= 3 months)	74	38.34
	Inadequate (< 3 months)	72	37.31
	No Intake	47	24.35
5.	Protected from Neonatal Tetanus	176	91.19
6.	Affected from Severe Anaemia	87	45.08

As per receiving the Iron-Folic Acid (IFA) tablets of tribal women, 75.65% received that and therefore, up to a maximum 100 adequately at 38.34% during the 1st trimester of the pregnancy. Majority of the tribal pregnant (91.2%) reportedly, those received the two doses of Tetanus Toxoid (TT) injections protected against Neonatal Tetanus. Of all tribal women, 61.7% had reported by severe acute maternal morbidity of anemia (45.1%) respectively.

Table-8 shows that distribution of tribal women by perception towards attendance of health personnel. From results of the current study, about 65% of the tribal women were aware and received the antenatal care. With regards to regular visits of ANM or ASHA worker at the home of tribal mothers, about 73% reportedly is good opinion. First visit of ANM mainly reportedly on or before 5th month of pregnancy. It is also give details that the tribal pregnant are probed weather examined and received suggestions by the health care providers. According to the results, about 82.25% of tribal pregnant received the suggestions towards pregnancy complications by ANM/CHW. As mentioned earlier reports of the DM&HO, none of the tribal woman has experienced a visit or physical check up at PHC by Doctor, but at present, it reveals about 27.5% of tribal women received suggestions by Doctor in the pregnancy. Even checkups in the tribal area provided, it indicates that poor accessibility of health facility. When they went to the health facility, it was reported that about 29.7% of tribal pregnant there underwent for blood pressure (BP) and physical examination of abdominal check. Majority of tribal women (92.47%) reported that physically examined by only ANM/CHW. In all the cases, physical check up received at anganwadi centre and very meager of tribal pregnant have gone to either PHC or Private hospital for check up.

Table-8: Distribution of Tribal Women by Perception towards Attendance of Health Personnel (SBA)

Attendance of Health Personnel	N	%
Aware of antenatal care's importance	125	64.51
First visit at 1st trimester by ANM/CHW	142	73.43
2 or more visits by ANM/CHW	154	79.57
Suggestions received by ANM/CHW	159	82.25
Suggestions received by Doctor	53	27.53
Physical examination by ANM/CHW	178	92.47
Physical examination by Doctor	57	29.68
1st visit of ANM up to 6 weeks of delivery	151	78.21
2 or more visits up to 6 weeks of delivery	34	17.79

At the time of delivery, natal care refers to care given to the mother and the baby. A provision for all of safe motherhood services in a health facility is one of the MCH's components. More than one in four of home deliveries (25.3%) are considerable as the category of normal. During delivery at home, use of a blade or scissor for cutting the umbilical cord is very common except few cases used a sickle or knife are noticed. The institutional deliveries and safe deliveries are two important indicators, which found to be varied substantially. Increasing confidence in the child birth at health institution is part of maternity characteristics and benefits, the present study noticed that 74.7% of child births were conducted at health institution, it is observed that in the preference of public and private much variation in and around the area. The frontline health workers such as ANM, CHW, ASHA and Anganwadi Worker, who advice the pregnant on the maternity benefits by using health facilities, who received on the importance of institutional delivery and its benefits in Visakhapatnam district, but the tribal area has not yet been fully covered.

B. REPRODUCTIVE OUTCOMES

Reproductive outcomes are divided into two types: maternal and fetal, the final results of the fertilization task, also called outcomes of pregnancy, delivery and obstetrics. The reproductive outcomes are conception and ensuing pregnancy as sex ratio, birth weight include live birth in full term or preterm, stillbirth, abortion, congenital malformation, cesarean and mortality. The present study is focusing on account of reproductive outcomes among the tribal women both pregnant and lactating mothers of reproductive aged 15-49 years. Universally, all the pregnant worry the forthcoming childbirth without knowing when the exact time will come. The results of present study observed that there were significant differences with respect to their reproductive outcomes.

Table-9: Age-Specific Distribution of Tribal Women by Reproductive Outcomes

Age Group	Ever married women	Conceptions per woman		Live births per woman	
		Total	Mean	Total	Mean
15-19	36	57	1.58	55	1.53
20-24	66	132	2.00	128	1.94
25-29	63	146	2.32	142	2.25
30-34	26	78	3.00	73	2.81
above 35	2	11	5.50	4	2.00
Pooled	193	423	2.19	402	2.08

The table-9 shows that the age-specific distribution of tribal pregnant by the fact that each woman has mean number conceptions and live births. The differences were seen in cases of conception and live birth. For 423 conceptions, there are 402 live births reported. The current study reveals the mean number of live births per woman is 2.08. Of the live births, 270 were reported by tribal women aged between 20-30 years, 55 were reported age of below 19 years, and 4 were procreate age of plus 35, for which the mean number of conceptions per woman is 2.19. Despite the efforts for the maternal benefits through different schemes launched by Government of India and the states/UTs to reduce the morbidities and to ensure the maternal health, younger tribal pregnant better than older tribal women in terms of utilization and access to modern healthcare, mean conceptions and mean live births.

C. MATERNAL COMPLICATIONS

Maternal outcomes are divided into three types: full term, prematurity or uncomplicated pregnancies and maternal complications. During the pregnancy, child birth and the postpartum period of before up to the 6 weeks of delivery, the maternal complications are acute morbidities suffered. These complications are again classifying essentially of two types- the first set of complications include obstetric related which are Postpartum Hemorrhage (PPH), Diabetes, Anaemia, Preeclampsia/Eclampsia (PE/E), Prolonged Labor, required that an intensive obstetric care by skilled health providers and the second set of complications include the failure of multi-organ involvement which necessitates care provision by Super-Specialists or Experts such as those Nephrologists, Neurologists, Cardiologists, Pulmonologists etc. The present study

attempted to assessment of the experiences related to maternal morbidities from all the 193 tribal women. With regards to maternal complications, the maternal morbidity rate of tribal population in Visakhapatnam district is high, it was noticed that to have actually suffered from one or some complications particularly body related like swelling of the hands and the feet (*oedema*), tiredness/ weakness and paleness etc. Out of total, majority of tribal pregnant were experienced to have oedema and dizziness respectively.

Table-10: Distribution of Tribal Women by Maternal Complications in Visakhapatnam district

S.No	Maternal Complication	N	%
1	High risk pregnancy	32	16.58
2	Pre-delivery complications	48	24.87
3	Post-delivery complications	52	26.94
4	Maternal Morbidity Rate	132	68.39

Table-10, it shows the results of which prove one in four tribal mothers experienced (24.87%) that to have they suffering from pre-delivery complications, while 26.94% of tribal lactating mothers are reported that to have the post-delivery complications and 16.58% the tribal pregnant are suffering from high risk pregnancy by means of danger signs. Therefore, it was reported that severe acute maternal morbidity (SAMM) in the tribal population of Visakhapatnam district is 166 per 1000 females.

Table-11: Distribution of Tribal Women by Type of Maternal Complication in Visakhapatnam district

S.No	Type of Maternal Complication	N	%
1	High fever	89	46.11
2	Fear of Caesarian	81	41.97
3	Oedema and Dizziness	101	52.33
4	Severe Headache	72	37.31
5	Preeclampsia and Eclampsia	37	19.17
6	Prolonged Labour	24	12.44
7	Excessive Bleeding	19	9.84
8	Diabetes	5	2.59
9	HIV, TB and Other Ailments	32	16.58

Table-11 shows that distribution of tribal women by type of maternal complication through the multiple responses, about 12.44% were reported that to have prolonged labour, while 19.17% of the cases were reported that to have gestational hypertension also referred to as pregnancy-induced hypertension (PIH), leads to preeclampsia. Although, high frequency of tribal pregnant (46.11%) experiencing fever followed by oedema and dizziness (52.33%), severe headache (37.31%), whereas 9.84% of tribal women suffering from an excessive bleeding during the 1st week of delivery, although 2.59% were gestational diabetics, followed by nearly 17% tribal women were reported that to suffering from HIV, TB and Other ailments. The study is also illustrated that place of deliveries and the role of birth attendants. Among all the total deliveries, about 25% of deliveries were conducted at home. Majority (81.38%) were reported to have been conducted by unskilled birth attendants (USBAs) like *dai* or relatives, family members, friends. Frequency of safe deliveries at home conducted by ANM/CHW is observed to be very low (8.62%), respectively.

D. FETAL COMPLICATIONS

Fetal outcomes are divided into three types: full-term, prematurity healthy babies and fetal complications. With regards to fetal complications, are birth defects, the risk of having Abortion (Ab), Miscarriage (Mc), Intrauterine Growth Retardation (IUGR), and Low Birth Weight (LBW), Prematurity (Primi) and Still Birth (Sb). Of all these, the preterm is the emerging problem at present in the study area. Table-12 shows the prevalence of fetal complications among the tribal population in Visakhapatnam district. There 26.2% deliveries are prematurely, whereas 10.9% pregnancy loss from 2.59% abortions include spontaneous and induced followed by 3.63% are miscarriages. With reference to severe features, approximately 9.84% were admitted in to SNCU with IUGR, while LBW (8.29%). There are 9 stillbirths and 6 neonatal deaths reported due to prematurity but not detect. This study also reveals the rate of acute fetal morbidity in the tribal population in the district is 58.3%, which is a significant problem, but very often the mother and baby need to be protected, however, more steps need to be taken to reduce the negative fetal outcomes.

Table-12: Distribution of Tribal Women by Type of Fetal Complication in Visakhapatnam district

S.No	Type of Fetal Complication	N	%
1	Premature	51	26.22
2	Pregnancy Loss	21	10.88
	a) Abortion	5	2.59
	b) Miscarriage	7	3.63
	c) Stillbirth	9	4.66

4	IUGR	19	9.84
5	LBW	16	8.29
6	Neonatal Death	6	3.11
7	Fetal Morbidity Rate	113	58.34

E. PRIMARY HEALTHCARE

To achieve better health for all, the primary goal of the National Health Policy, which is affiliated with the National General Minimum Program (NMP), is to increase public investment in primary health care and investment in maternal and child health promotion programs. The primary health centre (PHC) is a main source, and supplied the medicines and necessary test equipment in this area. For a decade ago, the tribal women there are no common practice of visiting the PHC. The doctors used to expect the tribal's visit and get the examination physically and necessary tests done. As such there is no information about antenatal care and delivery by trained personnel. The staff of both medical and paramedical believes that tribal population in Visakhapatnam district is not interested to taking antenatal care. Further, the tribal women felt that they cannot reach the interior villages, which are not accessible by road transportation. Among the studied villages, those who are pregnant and lactating mothers informed that to have not any PHC visits especially for the purpose of antenatal check up why because of lack of proper road and communication facility. From the findings, about 58.34% of the tribal women were reported to have a sought treatment for these complications. About 85% of the tribal women were reported that to have utilized the public and private sectors, utilization of the healthcare services of the traditional vaid reported with a high frequency by the lactating mothers, while the services of a local RMP/PMP very less reported.

Case Study-1: Smt. Sanku (pseudo name), a 28-year-old primigravid, para-1, Rh-ve blood grouped woman at 33 weeks' and 4 days in the period of gestation (8 months) admitted as an extramural to the emergency Department of Gynecology at King George Hospital, Visakhapatnam due to clear, watery discharge and lower abdominal cramping pain for 4 hours. Since the last two years, she has been treated for mental illness. As per test in the ward, initially she has a temperature of 38.9 C (102 F), blood pressure is 180/110mm Hg, and pulse is 98/min. Due to primary emergency with severe preeclampsia, operation has done by surgeon for childbirth through lower uterine segment section (LSCS). As per result, a single live preterm of full term child (FCh) delivered but low birth weight (1.8 kg) extraction with APGAR score of 6 and 8 is in some respiratory distress but, the girl child is survival. Sanku is also a beneficiary of these two schemes (PMMVY & JSY).

Case study-2: Smt. Mutthai, a 24-year-old, belongs to Peddaputtu village at Lambasingi, a hilltop hamlet with no road connectivity in Visakhapatnam district. While being carried on a handmade stretcher, she forced to deliver her baby on a treacherous dirt path from prolonged labour. As far as ensuring the safe deliveries concerned, the state government relies on two things, ASHA and ANM. While ASHA workers are picked from the same villages, the ANMs are more trained at handling such cases. However, some ANMs are in charge of at least 10 to 15 hamlets and how can be managing to visit each hamlet only once or twice a month.

VI. DISCUSSIONS

In this section, the study area focused particularly as the tribal in Visakhapatnam district, there are several hamlets, nestled in the hills, some of villages which require reaching at least 4-5 hours of walk because have no qualified and accessible road, it means that locals will have to walk the nearest motor-able road by foot. For the tribal women, deals with pregnancy turns into a nightmare, most deliveries at homes and change is still far away. It was observed from the present study, the tribal pregnant received any proper advice and physically tested or the supplements given at a specific time, they are not so better. Additionally, more than eighty percent tribal mothers reported that to have a single visit received by ANM/CHW during the post-delivery time up to 6 weeks. Data indicating maternal health status in the tribal belt is deplorable. However, the health care authorities say the staff both medical and paramedical is not being neglected and unable to do justice to the lack of communication facilities.

As part of maternal health is a top priority, Andhra Pradesh state with supported by Government of India has launched various welfare schemes. Avail benefits in 11 mandals of Visakhapatnam Agency, about 6.8

lakh tribal population living around 3,636 habitats. Though, being spent amount Rs 29 lakh to improve the health infrastructure like operation theatre in the hospitals of Paderu, Araku Valley and Chintapalli. There are the minor surgeries performing at District Hospital (Paderu), Area Hospital (Araku Valley) and CHC (Chintapalli). During anticipation of Covid-19 3rd wave, the public health centres being modernized. In Visakhapatnam agency, 40% of tribals live, rise in the prevalence of maternal deaths due to the pregnant still believe and prefer the home deliveries. Under a flagship programme, the *YSR Sampoorna Poshana Scheme,* nutritious food has to be provided for the pregnant, lactating mothers and children.

With regards to health infrastructure in the district of Visakhapatnam, most tribal women get married very quickly and expect a second or third child birth below 19 years. While, authorities insist the tribal women get admitted in advance, hospitals themselves aren't fully equipped to handle all pregnancy cases. Until recently, a local hospital in Chinthapalli had shortage of beds and staff, with two patients has to share one common bed in some cases. When compared with the jurisdiction of ITDA- Paderu and Andhra Pradesh state which stands at 74, while, India which stands at 113 in 2016-18 (SRS Bulletin, 2019), the maternal mortality rate (MMR) was recorded at 204, which is surprisingly high. According to District Medical and Health Office, Visakhapatnam district, the MMR has decreased when compared to the previous years, but deaths in ITDA Paderu continue to be high triggered by anaemia, multi-gravida and failure of pregnant to information their last menstrual period (LMP). Many interior villages in the mandals of Araku Valley and Chintapalli have poor status of road connectivity and pregnancy related complications were also reported. However, thanks to awareness campaigns conducted by ASHA and Anganwadi workers in tribal area, the pregnant women get admitted to hospitals a few days before the scheduled date of delivery. Many more in the interior villages, there are still who believe in a home delivery and shift to the hospital only after if complications arise. According to Ministry of Health and Family Welfare, Government of Andhra Pradesh, till July this year, approximately 14 maternal deaths in Visakhapatnam district were reported. In past few years, there was a decrease in the MMR, which is far short of the target. In 2015-16, 79 maternal deaths were reported, while 78 in 2016-17, 66 in 2017-18 and 69 in 2018-19 and also the eight maternal deaths in month of August.

In the tribal villages of the study area, especially in the interior, when it rains, proper road connectivity to 108 and 104 ambulance services does not reach. With regarding the maternal deaths in a tribal agency, there are 27 in 2016-17, 18 in 2017-18, and 33 in 2018-19. Every month in each PHC, at least 13 to 14 deliveries take place and there 36 PHCs. Doctors at PHCs said there is a need to raise the frequency of institutional deliveries. The PHCs have developed the calendars to mark the pregnancies at high-risk and scheduled date of deliveries. On being advised to get admitted in a hospital a few days before the date of delivery, many tribal pregnant get admitted only when they develop complications. ASHA worker said to the institutional delivery, when she counsels them, they refuse to get admitted in a hospital for two to three days before the due date and stick to the home deliveries. Meanwhile, the state government runs about 43 ambulances at the PHCs, CHCs and Sub-District or Area hospitals. In favor of the tribal villages where there is no road connectivity, total 42 feeder ambulances have been arranged for shifting the patients to nearby hospital. In study area, there is no ultra scanning equipment in all PHCs includes the CHCs. At recently, Dr. Rao, DM&HO, Visakhapatnam said that bulk of tribal pregnant failed to inform about their last menstrual period; this also complicates things. Throughout life time and during maternity, access to appropriate health and nutritional services is crucial. However, the network of primary care in the study villages is uniformly designed, the services not yielding uniform results due to several constraints associate with many beliefs, customs and practices besides such a problem like limit access to modern medicare. Tribal women and children in Visakhapatnam district need to be a special course of policy which is striking a balance between lifestyle and culture. About MCH care, has not been improving steadily. Generally, pregnant and lactating mothers (P&LMs), take neither significant antenatal and postpartum care at home, nor do they do so in PHC or Sub-Center, it reveals the average of ANC and PNC is poor in close proximity.

Table-13: Comparison of Tribal Women by Different MCH Indicators in Visakhapatnam district

MCH Indicator	NHM & SPMU (2017)	Present Study
ANC Registration at 1st Trimester	74.0	61.1
High Risk Cases identified	13.9	16.6
Women with severe Anemia	21.5	45.1
Women received 2 doses of TT	97.8	91.2
Women received IFA tablets	100	75.6

Table-13 shows the comparative facts of the tribal women by different MCH indicators between the current study and the NHM & SPMU, Government of Andhra Pradesh. During 2016-17, out of total 17802, 74% of ANCs (13174) registered in the 1st trimester. Similarly, during 2nd trimester, the number of ANCs registered is 17674 of which are 13079. At same 3rd quarter of 2016-17, the number of ANC registered is 17754 which are 13138. Nearly fourteen percent of cases in the 1st trimester were reported as high risk. Of these, 21.5% were identified as severely anemic. Majority of the pregnant received the 2 doses of TT injections (97.8%), though, as per norms the full IFA tablets received. When compare with the facts of the NHM and SPMU, the present study reported that low access to ANCs (61.1%), IFA tablets (75.6%) and TT injections (91.2%). About 16.6% of tribal women are considered as high risk pregnancy, it is a severe sign than the values of NHM and SPMU. According to the current study, 45.1% of the tribal women have severe degree of anaemia, whom did not meet the criteria of the normal grade of >11gm/dl by WHO standards.

Table-14: Comparison of Tribal Women by Types and Place of Delivery in Visakhapatnam district

S.No	Facility	NHM & SPMU (2017)	Present Study
1	Place of Delivery		
	a) Home	5.93	24.13
	b) Private Facility	28.37	11.44
	c) Public Facility	65.70	64.43
2	Institutional Deliveries		
	1) PHC	18.71	10.70
	2) CHC	12.10	9.20
	3) SDH	9.12	10.45
	4) DH	7.42	3.23
	5) Other Facility	52.65	30.85

With regards to the total deliveries in Visakhapatnam district, the data compares between the present study and the NHM & SPMU, Andhra Pradesh. According to the NHM & SPMU's report, it reveals that the total deliveries during 1st quarter of 2016-17 are presenting in Table-14, about 52584 of home deliveries which 5.93%, while 28.37% were at private health institute, remaining deliveries 65.7% reported at public health institute. Of these deliveries conducted at public health institute, average of 16.54% deliveries being conducted in DH (7.42%) and SDH (9.12%), while PHCs accounted that 18.71% of deliveries and CHCs reported 12.1 percent deliveries. When compare with the facts of NHM and SPMU, the present study, it reveals that the vast majority of deliveries (64.43%) to be handled in the public health institutes are from 3.23% are DH and SDH (10.45%) followed by 9.2% are CHCs and 10.7% are PHCs. It observed from the above facts, it reflects the near to the ground use and access to MCH services. As a strategy for ensuring neonatal survival for the recognition and treatment of complications timely during postpartum and post delivery, the ANMs are expected to make one visit within 48 hours of the delivery and total four visits during six weeks of post delivery period. The regular visits of the health care providers like ANM or CHW during pre and postnatal period's data which 78.21% of tribal women reported that have visited at least twice, whereas 21.59% of the tribal women reported a single visit.

VII. SUMMARY AND CONCLUSSIONS

From two tribal mandals of ITDA Paderu Revenue Division in Visakhapatnam District, purposively, 193 of tribal women both 72 pregnant and 121 lactating mothers selected for the collection of both qualitative and quantitative data. All women deliberately agree to participate in complete confidential and in-depth interviews. This study, it is summarized the results reveal that a higher prevalence of maternal and fetal complications compared with the state and national average facts. A greater proportion of tribal women living in low utilize and access to MCH services from public institute (64.4%), approximately 15.4% of the tribal pregnant seek services from the private facility. With regards to utilization of public health services, health workers' visits match. Of these, 16.6% were as the high risk complications during pregnancy, child birth such as PPH, preeclampsia, unsafe abortion, anemia, and emergency cesarean. Out of all the 423 conceptions, there are 402 live births, 9 stillbirths and the 6 neonates died due to preterm birth reported.

Median age of the study is 22.5 years, although the median parity is 0-9 births of 2 children.

Staff of medical and paramedical believes the tribals are not interested to receive full antenatal care. From interior villages, the targets cannot reach due to the inaccessible roads. About 82.25% of tribal pregnant received that have suggestions from ANM followed by check up and in 73.43% of cases, ANM visited during 1st trimester of pregnancy. Though, ANM has visited in many cases (79.6%), it is mandatory to visit and IFA tablets supply during 3rd and 4th month of pregnancy. Only 38.34% tribal women provided the required 100 IFA tablets adequately. 91.2% of the pregnant women were provided tetanus toxoid for protected against neonatal tetanus. About 24.35% pregnant have not consumed IFA tablets because of odd smell, bitter taste and black motion etc. Even though modern medicine supplied, but tribal pregnant approached the traditional medicineman (*disari*) and received ethno-medicine for the minor ailments. It is interesting to note that majority of tribal women have suffered from severe maternal complications as well as related to fetal complications. However, 46.1% of women reported having fever, followed by oedema and dizziness (52.3%), severe headache (37.3%), 9.84% experienced excessive bleeding in the 1st week after delivery, while 2.59% diabetics reported. With regards to fetal morbidity, these study notices 26.2% of tribal pregnant were delivered prematurely. While, 10.9% pregnancy loss (21) from 2.59% of abortion (5) include spontaneous and induced followed by 3.63% were miscarriages (7). Postnatal care is also not satisfied.

The current study suggests providing quality MCH services to tribal mothers and children, with limited health care available to those with limited incomes or priority population; to reduce mortality and morbidity during the pregnancy and child birth; to reduce the need for inpatient and long-term care; to increase the number of women and children immunized, priority population include pregnant and lactating mother; to increase number of tribal women receiving health assessment and follow-up diagnostic and treatment services; to promote the health of mothers, neonates and infants providing by care, priority population include low-income, at-risk pregnant; to promote the health status of tribal women and children by provide preventive and primary care, priority population include low-income tribal mothers and; to be provide gap-filling rehabilitative services for individuals who having disabilities, not covered by Medic-aid; and to provide and to promote family-centered, community-based, coordinated the care for pregnant and lactating mothers along with children with special health care needs and also their families.

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