

**INNOVATION IN HEALTH CARE SERVICES IN TRIBAL AREAS: ASSESSMENT OF
MOTHER-CHILD TRACKING SYSTEM AND TELEMEDICINE**

A Dissertation submitted to the University of Hyderabad in partial fulfilment of the degree of

MASTER OF PHILOSOPHY

In

ANTHROPOLOGY

by

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CERTIFICATE

This is to certify that the dissertation entitled **Innovation in Health Care Services in Tribal Areas: Assessment of Mother-Child Tracking System and Telemedicine** submitted by **NEEMKAR ANOOSHA** bearing Reg. No **19SAHL06**, in partial fulfilment of the requirements for the award of Master of Philosophy in **Anthropology**, is a bonafide work carried out by him/her under my/our supervision and guidance.

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I, NEEMKAR ANOOSHA, hereby Declare that this Dissertation entitled **Innovation in Health Care Services in Tribal Areas: Assessment of Mother-Child Tracking System and Telemedicine** Submitted by me under the guidance and supervision of professor B.V. Sharma_ Is a bonafide research work. I also declare that it has not been submitted previously in part or in full to this University or any other University or Institution for the award of any degree or diploma.

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ABBREVIATIONS

ANC	Antenatal Care
ANM	Auxiliary Nurse and Midwife
ASHA	Accredited Social Health Activist
AWW	Anganwadi Worker
CHC	Community Health Centre
CHW	Community Health Worker
DMHO	District Medical & Health Officer
EFM	Electronic Fetal Monitoring
ICU	Intensive Care Unit
IF	Iron Folic
ITDA	Integrated Tribal Development Agency
MCTS	Mother and Child Tracking System
PHC	Primary Health Centre
PO	Project Officer
PVTG	Particularly Vulnerable Tribal Group
RCH	Reproductive Child health
RMP	Registered Medical Practitioner
ST	Scheduled Tribe
TBA	Traditional Birth Attendance
TMP	Traditional Medical practitioner
TT	Tetanus Toxoid
WHO	World Health Organization

CHAPTER-1

Introduction

The tribal societies in India have witnessed measurable social and economic development during the last 75 years. It is claimed that poverty among tribal groups declined by more than a third between 1983 and 2005 (Kumar et al., 2020). Further, it is also reported that the overall incidence of poverty among tribals declined from 63.7 per cent in 1993-94 to 60 per cent in 2004-05 to 43 per cent in 2011-12 (Pal, 2002). The health indicators of many tribal communities in India are satisfactory if one compares them to the status about a decade or two decades ago (Government of India, 2013). But it must be noted that the gap between tribals and non-tribals is not narrowing as much as expected ([Rath](#), 2006; Haddad, 2012; Government of India, 2013; Kumar et al., 2020). According to the National Family Health Survey four (NFHS-4), the under-5 mortality among the tribal population was 57.2 per 1000 live births compared to 38.5 among others. The infant mortality rate (IMR) among tribes was 44.4 per 1000 live births, while it was 32.1 among the non-tribal populations. It is estimated that a child born to a ST family in India has a 19 per cent higher risk of dying in the neonatal period and a 45 per cent greater risk of dying in the post-neonatal period compared with other social classes (Narain, J. 2019:313).

The other concern regarding the health of tribals is that the gap between certain Particularly Vulnerable Tribal Groups (PVTGs) and other tribes is wide (Nandi et al., 2018; Sharma, 2019). A study by Jain et al. (2015) among the tribes of Central India observed that within the tribals, the health condition of PVTGs was much worse. The burden of infectious diseases in those backward tribal communities is still alarming. More recent studies which focused on tuberculosis among tribal communities estimated prevalence anywhere between 261 to 703 per lakh population (Purty et al., 2019; Thomas, Adinarayanan, Manogaran, & Swaminathan, 2015). Diseases due to malnutrition, poor personal hygiene standards and addiction to alcohol and smoking are also a concern. Recent studies indicate that tribal communities now suffer from communicable and non-communicable diseases (Sajeev Priyanka and Biju Soman, 2018; [Tushi](#) Aonungdok et al., 2018; Arun Kumar et al., 2016). The high prevalence of malnutrition and addictions complicate their health considerably (Mohankumar et al., 2020).

While the prevention and diseases of many infectious diseases among the tribals require attention, improving the health status of women and children is the utmost priority. There is an

urgent need to implement reproductive effectively and child health services in all tribal communities and pay special attention to the health of many specific tribal communities.

1.1 Innovations in healthcare:

Any attempt to change any facet of life requires the diffusion of innovations. The word innovation includes concepts of novelty and change. 'Innovation' in medicine can range from improving an existing intervention to introducing an innovation in one's clinical practice for the first time to using an existing intervention in a novel way or transforming knowledge from one clinical context into another. The quality of every innovation has new thought or behaviour comparing the previous arrangement. An innovation will have idea or cluster of ideas. While some innovations remain as a mental organisation, others may be given a tangible expression.

Health administrators attempt to improve healthcare quality and further enhance the well-being of every human with the development of innovative practices. Medical innovation refers to new, better, more effective ways of solving health problems. Currently, the primary goal of medical care is to develop and discover therapies that save human lives. The tools of biotechnology provided knowledge to advance new devices and diagnostics of medicine.

These devices have greatly resulted in the improvement of healthcare delivery in marginal and rural backgrounds. Medical health care in India has taken a step forward in making people aware and accessing services and products. Our services and products have created a considerable market space around the world today; it is where all major treatments are available cheaper in India. For example, medical equipment like stents used in the heart are comparatively more affordable in India. Medical and engineering biotechnology has created demand in India, specifically in medical equipment.

In the field of clinical practices and medical care, innovations have been made through technology in recent years. Health information technology is used to monitor the disease of a person constantly. Computers are being used to preserve all the data related to health and communicate to the person, and make medical decisions for them. One of the crucial developments in medical technologies is the 'Internet of medical things'. The 'internet of medical things' or 'healthcare internet of things' is a process that collects information from medical devices and their utilization which links to healthcare IT systems by a network of online computers. The core of the "internet of medical things" (IoMT) is to communicate health information to medical devices connected to Wi-Fi and device-to-device communication. This

communication helps the patient even in the absence of doctors. These devices have pre-registered medical information to calculate health data, which is stored and analyzed continuously. Further, 'Remote Patient Monitoring' (RPM) helps patients suffering from long-term diseases or emergency treatments avoid frequent visits to the doctor. Indeed, the revolution in health information technology helped to improve patient care and life expectancy.

The advantages of IT for strategic planning, reducing costs and maximizing of use of resources are noted. In general, with the help of technology, primary health care should offer three things such as accessibility, affordability, and quality of medical care. There is a transformation of medical care from hospitals to home-based care with the aid of technological development. One of the recent digital initiatives in India is eHealth Center (eHC), which contain a has housed in a standard shipping container. It can speedily be carried from one place to another especially interior places to provide treatment. It is an integrated cloud-enabled healthcare solution set up to provide primary healthcare in remote areas.

1.2 Review of literature:

The health status of the tribal communities is in need of special focus in the twenty first century. The tribals experience utmost levels of poverty in healthcare. They lag behind the national average on some essential public health indicators. At this time, the women and children are utmost vulnerable.

Major health inequities exist between scheduled tribes (STs) and non-tribal communities. Tribal communities are highly exploited, neglected, and most of them succumb to diseases with high degrees of malnutrition, morbidity and mortality. The major distress caused due to factors such as poverty, lack of education, hostile environment, poor sanitation, lack of safe drinking water, and health and illness beliefs.

Technology assessment has a crucial role in the elements of medical practice and healthcare policy. The technology assessments are not comprised of socio- cultural, ethical and political issues of healthcare. It should reflect social and political factors for assessment. The study mentions about cochlear implants among children reveal that diffusion of such technologies varies based on social and political factors. It has suggested that technology should be a combination of community notions and the service renders who are in power. (Lehoux, P., & Blume, S. ,2000)

The primary health facilities in rural Tamil Nadu have capacity to provide quality healthcare. Besides, it also facilitates opportunity to cover marginal backgrounds in the absence of health providers. The study highlights that medical fraternity perception towards recent medical technologies need to overcome. (Peters, D. H., Kohli, M., Mascarenhas, M., & Rao, K, 2006)

IT- enabled health services have provided the expected outcomes. In India, significant number of population hail from poor and marginal circumstances, who expect affordable healthcare. Health indices such as morbidity and mortality are numerically high. The poor infrastructure has restricted the satisfactory health standards, in spite of India's expertise in healthcare delivery. (Baishakhi Deya, Anindya Mitrab, Katakam Prakashc, Amrita Basud, Supriya Raye, Analva Mitra, 2011)

In contemporary India, entrepreneurs and start- ups which were led by young generation had developed accessible and inexpensive technologies. These technologies can be extended to interior and rural areas. Even now, medical service in India is entirely relative to the cultures and beliefs, as rural people attach traditions and customs that resemble their significance and strong faith. The diffusion of the innovation process needs communication, knowledge and collaboration between the specialists and people involved in the system. The adoption and implementation of new practices in medical care involve multiple individuals and factors particular to the social, cultural, political, policy, institutional and economic context of a specific system.

In India, most people are from poor, marginalized rural backgrounds who expect medical treatment at a low cost. Thus, there is an emergency to move forward from established medical care to innovative medical care. For instance, telemedicine could benefit people with audio and video calls. While the contribution of IT to the curative aspects of diseases is well acknowledged, the scope for information technology in the public health arena is also felt to be no less. There is a constant search for ideas regarding using IT to improve primary health care. As a part of achieving better healthcare for newborn and mother, India has put several efforts to strengthen the healthcare system. It is, however, recognized that the IT-enabled services can further boost the delivery of quality healthcare and enhance the reproductive health of all.

Given the potential impact of telemedicine services and IT-enabled reproductive health care services mainly to the tribals living in remote areas devoid of good communication facilities,

it is crucial to know the efforts made in this direction and the impact of such efforts in some detail. The current research is aimed at this.

In India, two recent health innovations for improving the medical and health services in the tribal areas are a) Mother-Child tracking system and b) Telemedicine facilities.

1.2.1 Studies on Telemedicine:

Technology-driven health care is evolving as the preferred choice of health care model in recent years worldwide, particularly in resource-crunch countries. There is a greater effort to replace direct human-human interactions with indirect human-human interactions that are mediated through the machine. Such an effort is to make the operations cost-effective and ensure minimal time delays and greater accuracy. Telemedicine is one technology-based health care that has been adopted rapidly in recent years. (Bediang G et al 2014) The practice of telemedicine provides notable healthcare to poor countries with the help of telecommunications in treatment and diagnosis.

Telemedicine system infrastructure include a computer or tab, software with internet connection. It allows live video consultations for patients with the support of specialized doctors. In the absence of healthcare provider, the information on disease is storable to look from another place. The burden of travelling to distant cities for better healthcare facilities has been reduced by telemedicine. (Madhuri Panth and Anita Shankar Acharya, 2015)

Telemedicine has advanced in terms of providing essential healthcare. It monitors the patients closely with easy access with the support of specialized healthcare providers. The studied opined that telemedicine supply healthcare and screening to all humans. These services can be live consultations or stored and forwarded. The overall burden on healthcare system can be lessened with the help of telemedicine. (Vinoth G. Chellaiyan, A. Y. Nirupama, and Neha Taneja, 2019)

Telemedicine helps patients to consult a doctor directly through a mobile phone. Many medical apps are developed which allow us to talk to doctors about the medical changes in the body and get instant medical suggestions and diagnoses. Precision medicine is so popular, as it is specifically designed for a single patient based on their genes. Earlier, this has less significance, but many people depend on it these days for medical help in rural and urban areas. In this, they observe the patient's condition from home. This communication process helps the patient

clarify his medical changes and queries by staying at home and avoiding travelling, saving time and money. Certain health acts provide security to the medical information of a patient. This telemedicine is used during pregnancy time to protect both mother and child.

Recognising the benefits of e/m- health and telemedicine, international organisations, industries, and national governments have enthusiastically responded to encourage these technologies. World Health Organization adopted a resolution to promote e-health in the year 2015.

According to World Health Organization, “The resolution also states on building public-private partnerships in ICT development and deployment for health, support capacity building for the application of e-health in WHO member states, and develop and adopt standards”. The two countries India and Africa form associations in order to provide telemedicine facility to 53 nations of Africa through better education of technology. (African Union Commission, 2004; Duclos, 2012, 2014).

The prominence of telemedicine is observed in the case of covid- 19 pandemic of China. It has largely contributed to fight against an epidemic disease. (Dodoo, AI-Samarraie et al. (2022). Countries worldwide have used telemedicine for contact tracing and symptom triage, testing, and remote monitoring of patients with mild COVID-19 symptoms (Behar, et al. (2020). The Covid-19 pandemic revealed the increased significance of telemedicine. The new situation that called for more and more online care altered our understanding of what it means to be a patient. Ahmed et al. (2020) opined that telemedicine reach way beyond during covid- 19 in terms of utilization. The health crisis have minimalized with the use of technology of 4G and 5G.

Experts recommend telemedicine facilities for addressing tribal health problems, and the governments are also keen on expanding these facilities. In Sub-Saharan Africa, Telemedicine programs are extended greatly to strengthen healthcare, patient and professional health-related education, surveillance and prevention of diseases (Dodoo, AI-Samarraie et al.,2022); Elliot Mbunge, Benhildah Muchemwa et al., 2022).

The benefits of such an approach are now documented in the case of some resource-poor countries (Bagayoko CO et al. 2011;). The utilization of Information and Communication Technology (ICT) is a thought of two decades ago. The technology will help people from rural and sub- urban backgrounds. (Ganapathy et al. 2009; Agarwal D et al. 2020).

The initiatives of Telemedicine in India and the potential of its role in health care have been recently summarised by Chellaiyan, Nirupama et al. (2019). Agarwal, Jain et al. (2020) noted the slow and steady improvement of practices of telemedicine include support of different

governmental organisations such as Indian Space Research Organisation (ISRO), Department of Information Technology (DIT), Ministry of External Affairs of India, Ministry of Health and Family Welfare of India, and the concerned state governments.

The challenges continue in the implementation of electronic and mobile health even after the efforts of ICT. (Tomlinson et al., 2013). The electronic and mobile health services were utilized and accepted by users. (López and Domènech, 2008). The limitations between technology designers and the users or community members has resulted in failure of ICT in healthcare.

The effective use of medical innovation in IT-enabled health services is dependent on staff efficiency in working with new medical devices and practical schedules to staff in rural hospitals. The social relationship between patients and doctors and doctors and their staff should be better to utilise new advantages in the medical field. The gaps in the health infrastructure like significant absenteeism of care providers, the improper supply of medical drugs and devices, low cooperation between medical staff and insensitivity towards cultural beliefs and values of people, could impact the process of using innovations. The medical innovation's structure and dynamics are regularly assumed instead of being analysed. To overcome this, there should be proper analysis by entering into their social field to know people better.

Agarwal, Jain et al. (2020) listed the following issues in the use of telemedicine

- 1) “Telemedicine is plagued by a question of liability when the information provided through telemedicine is misinterpreted”.
- 2) “Maintaining the privacy and confidentiality of telemedicine services is crucial to acceptance by consumers and healthcare professionals; these providers must adhere to all data privacy and confidentiality guidelines”.
- 3) “The protection of information and computer systems is of top priority. Training to the technical support staff during the client information exchange is an important component in fostering proper system use”.

- 4) “There is a need to develop a reimbursement system of the services provided through telemedicine by the healthcare system”.
- 5) “For a successful telemedicine program, the technical requirements such as secure, high-speed internet connection, a clinical telemedicine cart to serve as the hub for the interaction, patient access software, and access to IT professionals to set up the program and to be available when the system malfunctions”.
- 6) “For a successful telemedicine program, Specific competencies that must be addressed are training period to develop the technical support to set up and use the equipment, professional knowledge, interpersonal skills, documentation, management of the resources, tackling administrative issues etc”.
- 7) “Telemedicine visits require extra time for equipment management and the transmittal of prescriptions”.

Sinha (2000) also highlighted that the anthropological discussion of telemedicine and telehealth is just in budding phase and that telemedicine needs to be filled with anthropological sensibilities. More specifically, it is pointed out that the question of 'how "telepresence," impact the therapeutic encounter needs to be responded. The assessment of the relationship between healthcare provider and patient, acceptance and rejection of the service is crucial.

1.2.2 Reproductive Health Care and Mother-Child Tracking System:

As stated on the website of the World Health Organization, “a reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and its functions and processes” (WHO, n.d). Reproductive health implies that people can have a safe, sex life and they can reproduce and has freedom to decide if, when and how often to do so. Reproductive Health Service constitutes the provision of access to information and services on prevention, diagnosis, counselling, treatment and care of sexual health and thus contributes to the enjoyment of good reproductive health. (Demelew et al, 2018).

Studies have shown that reproductive health services are not effective in the tribal areas of our country and that the indicators of reproductive health status continue to be very unsatisfactory.

The Indian Institute of Population Studies (2017) data revealed that indigenous people with special reference to women have less acceptance in terms of receiving antenatal care from a medical fraternity (73% as compared to 86% from other castes), less preference for delivering in a health facility such as in a PHC, CHC or Area hospital (68% as compared to 83% from different castes) and also in matters of obtaining post-natal check-up to first two days of giving birth (59% as against 69% from other castes)

A Guttmacher Institute report of March 2021 highlighted the following regarding the unsatisfactory reproductive health indicators of Indian adolescent women: As high as 48% of adolescent women do not get necessary treatment for their major medical complications related to pregnancy or delivery; Overall, only 52% of women receive the prescribed minimum of four antenatal care visits during their pregnancy. The percentage of such women in rural areas is even less (48%); only 60% of women receive a postnatal check-up within one day of delivery. This percentage is lower among rural women who constituted for 44%.

Nongdhar, Vyas et al. (2018), in a study in Meghalaya, found that mothers attending four or more antenatal check-ups constituted a mere 10.6%. As high as 53.5% of the registrations happened during fourth to sixth month for availing antenatal check-up. Around 60% women were interested in home delivery. The significant percent of mothers did not avail family planning methods. Thus, the authors concluded that the utilisation of health services is poor for various reasons despite the monetary incentives provided in this regard.

Panda and Subudhi (2020) observed that maternal and child health indicators among tribals and tribal-dominated areas in Odisha lag behind national indicators. Women's education and marriage below legal age were found to be significantly affecting the institutional delivery rate. It was established that the mother's education significantly contributes to children's immunisation.

A Cross-sectional study by Bhan, Dougal et al. (2020) suggests that 256 districts in 18 States from India's District Level Household and Facility Survey (2012-13) and the National Family Health Survey (2015-16) stated the high rates of utilisation of reproductive and maternal health care in PHC's if provided with a women physician (her role consists of encouraging the people to use modern contraceptives, access to antenatal care, skilled birth attendance and postnatal care to mother and child).

Contractor Das et al. (2018) based on a study that used qualitative research methods, argued strongly for *culturally competent* health services for improving the reproductive and child health status in tribal areas.

India has shown its commitment to prioritise the sexual and reproductive health of its population. From the narrow concerns of family planning and maternal health, the policy shifted to ensuring sexual and reproductive health and rights within Universal Health Coverage (UHC) (Bhashin et al 2020). The shift to the technology-driven health care services is expected to overcome some of the problems, especially in the context of tribals, and improve the situation. Health Information Systems (HISs) provide accurate data that helps enable routine service delivery activities by Family Health Workers while taming decision-making by supervisory and managerial health officials. With the stupendous role of health systems, the World Health Assembly in 2005 highlighted the importance and inclusiveness of e-health, of which HISs are core networks in strengthening the healthcare systems in India and the world.

1.2.3 India's Mother and Child Tracking System (MCTS):

MCTS is an information system tracking maternal and child health beneficiaries in India's public health system and improving service delivery planning and outcomes. Mother and Child Tracking System (MCTS) is a web-enabled name-based system to monitor and ensure the delivery of a full spectrum of services to all pregnant women and children. The system was introduced about three years back. It is currently being implemented throughout the country with the active involvement of States. A mother's health is very crucial when she is pregnant. With the help of small medical innovations, the health of both mother and child can be protected.

Proper access to medical care forbids the health risks and occurrence of maternal death. It is an innovative, web-based application to facilitate and monitor service delivery and establish two-way communication between the service providers and beneficiaries (mothers). Generation of work plans of ANMs include sending regular alerts to the service providers for monitoring safe birthing practice and to provide immunization. The maternal and infant mortality can be reduced with proper planning. The ANM's ASHA workers regularly check maternal and childcare messages. The daily messages are passed to senior health officials of the government of India and State Governments, Regional Directors, State Coordinators, District Collectors,

Chief Medical Officers, District Programme Managers etc., regarding mother and child registration and delivery status.

Though M-C tracking has been in place for quite some time now, there is meagre information on the operational aspects of this initiative. The project began in 2009 to cover entire population in India. The study by the Public Health Foundation of India (PHFI) assessed the utilization of MCTS and provided the outcomes such as difficulty in administration in Rajasthan and Uttar Pradesh (UP) (Rajeev Gera, Nithiyananthan Muthusamy, Amruta Bahulekar, Amit Sharma, Prem Singh, Amrita Sekhar and Vivek Singh, 2012).

The administrative issues in terms of supervision and providing guidelines have impacted the implementation. The forefront healthcare workers were strained with bulk data analysis and documentation. The UP state encountered the issues of network, power and shortage of medical staff. (Rajeev Gera, Nithiyananthan Muthusamy et al. 2012).

The MCTS service in Haryana through the Performance of Routine Information System Management (PRISM) framework shown that problems of internet connections and inefficacy of staff due to lack of guidance. The study also highlighted the issues on data entry burden, registration and tracking messages. (Nagarajan, Tripathy et al. 2016).

Some of these problems relating to the MCTS in India seem to have been fixed in recent years. Till 2018, the registrations of twelve crore pregnant women and eleven crore children are reported as a part of MCTS scheme.

Choudhury A and Asan O, Choudhury (2021), from a recent study in the tribal regions on the use of mobile health (mHealth) applications using a quasi-controlled intervention reported that "postintervention, awareness about tetanus injections and consumption of iron tablets was significantly ($P < .001$) improved in the intervention group by 55% and 58%, respectively. Awareness about hygiene significantly ($P < .001$) increased by 57.1%. In addition, mothers in the intervention group who recognised vaginal bleeding, severe abdominal pain, severe blurring of vision, or convulsions as danger signs during pregnancy significantly ($P < .001$) increased by 18.30%, 23.2%, 20.0%, and 4.90%, respectively. Our study indicates that despite the low literacy of users, mHealth intervention can improve maternal health awareness among tribal communities".

Sadhana (2022) reported the impacts of using a slightly revised Mother Child Tracking System tool in the state of Karnataka. It is reported that in 2015, the antenatal case registration improved from 35% to 95% in 3 months in Maddur Taluk and increased from 49% to 66% in the Chitradurga district in 2015-16.

1.2.4 Anthropological research on health innovations and changing health cultures:

Innovations in health and hygiene cultures are common in any community. While some innovative ideas stem from within the culture, many are deliberately introduced by outside agencies to bring out changes in knowledge, attitudes and practices to achieve better health status for the people. From the standpoint of social consequences, the fate of innovation is as important as its conception. While the problem of innovation and acceptance join at many points, the two phenomena are distinct and have different determinants. (Barnett 1963).

While the need for many innovative medical strategies and IT-enabled services is important to recognise, it must also be noted that medical service in India has to be tuned to the cultures and beliefs, as rural people are deeply attached to traditions and customs. Technological innovation is going to keep transforming healthcare. Yet, while technologies (new drugs and treatments, new devices, new social media support for healthcare, etc.) will drive innovation, human factors will remain one of the stable limitations of breakthroughs. Thus, the need for anthropological research for the analysis of these human factors is always there.

Barnett had dealt with many dimensions of innovations, including the process of innovation, the value of advocates for innovations, and the novelty characteristics that influence the acceptance of innovations. Most importantly, he addressed the important question of why a novelty appeals more to one person than another. In this regard he had explained that a novelty has less appeal for those enjoying benefits of its functional alternatives than those who are not. Similarly, it was also explained that people develop tastes and preferences under the influence of particular socialising experiences. These orientations are significant for accepting or rejecting new ideas.

Many scholars have worked on the factors that influence the acceptance and rejection of health innovations. The acceptance of biomedicine for the treatment of many diseases and also the acceptance of vaccination for the prevention of diseases were mainly addressed to in these studies. The socio-cultural and other factors that play an important role in acceptance and rejection were pointed out. The concept of the health belief model (Ref) and other cognitive

theories like 'reasoned action' (Ref), 'Locus of control' (Ref) 'Behavior intention theory' (Ref) are some of the important outcomes of such studies. The conceptual model suggested by Suchman (Ref) explains the contribution of factors relating to the Agent (inherent attributes of action itself), Host factors (internal tendencies of individuals), and Environment (external influences of the environment) based on his study on sugar cane cultivators in the Philippines is also an essential contribution to this area of research.

Foster (1976) identified several factors to accept new changes in medicine, such as If they perceive personal economic, social, psychological, health, or other advantages in so doing; If they perceive change as a realistic possibility for them; If the economic costs are within their capabilities; If the social costs do not outweigh the perceived advantage. Thus, people consider social-cultural, economic, psychological and health factors in accepting or rejecting any medical innovation.

The organizations and providers who introduce medical innovation must have the ability to present medical care which will meet the social, cultural, and linguistic aspects of a community. This 'cultural competency' in medical care among the health functionaries will give them the required edge for designing programmes in tune with people's feelings, values and beliefs. At the community level, medical equipment should be used which are acceptable to them based on knowledge and resources. The adoption of medical innovation should fulfil the need of the community. This leads to the empowerment of people and engages them in community medical issues.

The 'social system' of health is composed of its institutions, organisation of the health specialist's roles, rules of interaction, and inherent power relationships. Similarly, the social dimension of the health care system also includes specialists not identified by biomedicine, such as folk healers or religious and faith healers. Any attempt to introduce new practices requires an understanding of these dimensions. The IT-enabled services may give rise to new relationships among the health functionaries resulting in greater coordination of services. Thus, it is important to examine these issues by social researchers. Heather (2020) noted that the anthropological investigation of telemedicine helps our knowledge of people- technology interface, particularly in seeking treatments. It is pointed out that given the growing significance of telemedicine, it is important to probe ways it can shape an individual's interaction with a technology and with the community at large.

1.2.5 Anthropological research on medical technology:

Examining technology-aided medical care through an anthropological lens is neither scarce nor unidirectional. Clark (1993) was perhaps one of those early scholars who pointed out the many implications of medical technology while writing on different aspects, including how the technologies have created ambiguities in the definition of a person and the impact of plastic surgery for body alterations and body sculpturing. Janzen (2002) pointed out that the new technology which emerged during the last 3-4 decades altered people's conceptions about many issues. "Designer medicine" set the trend for sex selection, cosmetic surgery and increased medicalization.

The potential of anthropological research on the implications of electronic and mobile health and telemedicine (Ahlin & Nichter, 2015) was stated in Critical Anthropology for Global Health (CAGH). It is important to note that the anthropological understanding and its seminal research on both receptivity's to various forms of technology for specific purposes by stakeholders involved and the end user opinions to programs initiated as well as innovations using similar medical technology in fields outside health, are enormous. Interestingly, it is highlighted that 'innovations such as electronic and mobile health and telemedicine entail in means of new relationships, expectations, and responsibilities' (Pols, 2012, cf. Duclos, 2015).

Scholars writing on telemedicine point out that while some technological features simplify patient care in hospitals or enable doctors and patients to connect, 'it neglects some human senses and thus fosters separation and disconnection between doctors and patients, making human relationships and interactions more difficult. It also shapes the way in which human bodies are enacted and treated, highlighting concepts of fragmentation into individual parts. (Anne 2020)

Heather (2020) conducted a year-long study in healthcare institutions in Ghana, where telemedicine projects had been occurring for nearly a decade. The overall aims of the research included the determination of how telemedicine is being used for obstetric care provision in Ghana. It attempted to examine conceptions and definitions of risk and how technologies are adopted and adapted. Further, the research discussed the conditions for successfully integrating a technological system such as telemedicine into an extensive health system. It is argued that telemedicine is being integrated into a complex system with set hierarchies and it reinforces authoritative knowledge and power structure. For a telemedicine intervention to be successful,

it must be integrated so that it does not change the normal flow of information, communication, and work that currently exists within the health system".

Heather (2020), drawing from the works of others on the concept of '*Authoritative knowledge*' (Jordan, 1990; Davis-Floyd & Sargent, 1997; Ivry, 2010) viewed that in the context of reproductive health care, access of midwives to physicians through telemedicine may alter their hierarchy regarding authoritative knowledge and thus influence healthcare seeking patterns.

Critical medical anthropologists raised concerns about telemedicine, which is broader and unrelated to treatment and cure. For instance, the questions raised related to telemedicine's effect on the public's economic standards, changes related to patient healthcare parameters, and its impact on the contemporary socio-political profile of healthcare (Sinha, 2000).

1.3 Objectives of the study:

Keeping in view the above-stated significance of the research on response to the technology-driven health care in the tribal areas and particularly among the Savara, a Particularly Vulnerable Tribal Group (PVTG) that is known for its distinct socio-cultural and economic characteristics, the study is proposed with the following specific objectives:

- 1) To understand health care resources and their utilisation by members of the Savara tribe with special reference to biomedical care in public institutions.
 - a) To map the healthcare resources
 - b) Understand problems of access to public health institutions by different sections of Savaras.
 - c) Examine the health care choices and identify factors that inhibit the utilisation of public facilities.
- 2) To provide an account of the initiatives of IT-enabled health care services for the Savara
 - a) IT enabled reproductive health care services with special reference to Mother-Child Tracking System.
 - b) Services of Telemedicine.
 - c) IT-enabled services: Introduction, expansion, population coverage, organisational issues, expected benefits, etc.
- 3) To examine the extent of utilisation of IT-enabled health services.
 - a) Factors encouraging and discouraging the use of telemedicine services.

b) Use of M-C tracking and its impact.

1.4 Theoretical framework:

The study has the following theories and approaches to understand the health care resources, assessment of Mother Child Tracking System and Telemedicine and acceptance and rejection of innovations in health care.

In the Structure and Agency Theory, the structure is considered a government or telemedicine centre, and the agency is the people of that particular community. The relationship between structure and agency will be understood in this study.

Socio-Technical System Theory says that the design of any medical innovations will be successful if social (cultural, political, economic, and belief systems) and technical aspects are considered.

The critical Medical Anthropological Approach is followed in examining the data used to understand how socioeconomic and political factors affect people's health. The focus is made on the interrelations between the patients and doctors, a holistic understanding of the health perspective of the respondents.

A participatory approach is used to understand and engage the community's perspective towards health development after the new health innovations.

1.5 Significance of the study:

It is expected that the study will be a significant contribution to the applied medical anthropology discipline. The study has the potential to further knowledge in the diffusion of health innovations, particularly on understanding the role of socio-cultural factors in the acceptance of innovations. The study is expected to inform on the culturally sensitive health care delivery and with special reference to training needs for health staff serving the Savara community. It should help in the framing of a broader policy on the expansion of IT-enabled healthcare services in tribal areas and also evolve specific programmes to suit the felt needs of certain local communities.

1.6 Chapterization:

The first chapter, titled "**Introduction**", discusses the study's context on innovation in health care and the assessment of IT-enabled health services. The work done by different scholars and anthropologists in the relevant area has been reviewed. The study has been presented, followed by study objectives. The overall idea regarding the health care resources, in particular IT-enabled health services are discussed in this chapter.

The second chapter, titled "**Methodology and the socio-cultural profile of the study community**", deals with the broader picture regarding the hamlets from different aspects. It focuses on the demographic composition of the Savara in the study hamlets and the socio-cultural characteristics of the Savara community. The field setting where fieldwork was carried out was briefed. The methodology followed for the study is explained, and the fieldwork in particular, is discussed in this chapter.

The third chapter, titled "**Health Profile of the Savara community**", is devoted to the Savara conception of health, health care resources, health infrastructure, health behaviour and status and government efforts in introducing IT-enabled health care. It also focused on the roles of health care practitioners under Seethampeta Mandal.

The fourth chapter, titled "**Assessment of Mother Child Tracking System**", deals with the reproductive health care, implementation and utilisation of the Mother Child Tracking System, registration, awareness of the scheme, intended benefits and reproductive morbidity of the pregnant women. The chapter's primary focus is on the tracking system, institutional deliveries and overall assessment of the scheme.

The fifth chapter, titled "**Assessment of Telemedicine**", deals with types of illness, and it is a critical examination of telemedicine facilities focused on the utilisation of its services, institutional arrangements, perceptions of telemedicine services and factors encouraging and discouraging the use of telemedicine services.

Sixth chapter titled "**Summary and conclusion**", deals with the conclusion and summary of the study.

CHAPTER 2

Methodology and the Socio-Cultural Profile of the Study Community

Savaras are classified as Particularly Vulnerable Tribal Groups (PVTGs) and are demographically distributed across several states, including Madhya Pradesh, Orissa, Andhra Pradesh, West Bengal, Bihar, Assam and Tripura. Within the state of Andhra Pradesh, 90% of them are found in Vizianagaram and Srikakulam districts (Konduru, 2016). The present study was conducted among the Savaras of Seethampeta Mandal in the Srikakulam district of Andhra Pradesh. The study area was chosen as the Savara are numerically predominant in this area and the focus of the study was the Savara community. Further, it was felt that this area best suits to meet the study's objectives as it was found that the ITDA of Seethampeta, which is the 4th largest among the eight ITDAs in the state of Andhra Pradesh, has initiated IT-enabled healthcare services in the recent past.

2.1 About the ITDA Seethampeta:

The ITDA Seethampeta was established in 1979 and has its headquarters at Seethampeta in Srikakulam district of Andhra Pradesh. The ITDA's operational area covers the agency area, Sub-Plan, and MADA areas in the district consisting of 20 Mandals. Out of the total 819 sq. km of the ITDA, the scheduled area with 16 Panchayats in Seethampeta Mandal includes 218.89 sq. km. With about 73246 families, the total population of the ITDA is 27,03,114 (2011 census). The 108 Revenue villages in the Scheduled Area comprise a population of 138176. The PVTG hamlets are 458, and their population totals to 36400. Jathapu, Konda Savara, Kapu Savara, Maliya Savara, Yerukala and Gadaba comprise the main tribes in the district. Konda Savaras and Gadaba are considered Particularly Vulnerable Tribal Groups (PVTGs). The main occupation of the tribal people in the scheduled area is agriculture, horticulture and collection of minor forest produce. Shifting cultivation is reduced drastically and is replaced by the plantation of cashew, mango, pineapple and turmeric. In places where shifting cultivation is still practised, mixed crop cultivation of jowar, bajra, korra, sama and red gram is usually preferred.

2.2 Location of the Study area:

The Seethampeta Mandal within the jurisdiction of ITDA Seethampeta was selected for the fieldwork. Seethampeta town is the headquarters of the Mandal and is well connected with the neighboring towns by road. The Mandal Headquarters is located at a distance of 53 km. from the district headquarters, Srikakulam. Palakonda town, about 13 km from Seethampeta, is the nearest and relatively more extensive urban centre to which many of the natives of the Mandal frequent for markets and other needs. The most immediate rail connectivity is available at a distance of 40 km. from Srikakulam Road. Seethampeta Mandal is at a short distance from the district headquarters town of Parlakhemundi in the neighbouring Odisha state. For many of the villages in the panchayats like Haddubangi and Marripadu, the distance to Parlakhemundi being less than 30 km., the villagers prefer to avail the services available in this town rather than the other towns in Andhra Pradesh.

2.3 Distribution of Savara hamlets by population in Seethampeta ITDA

The Savara account for 60% of the tribal population under the Seethampeta ITDA. The distribution of the Savara hamlets by people in the ITDA is presented in the following table.

Table 2.1: Distribution of Savara population of Seethampeta by habitations

Name of the Mandal	Number of Savara habitations	Total Population
Seethampeta	435	56428

The field work was primarily focused in the three PHC areas of the Seethampeta mandal of the ITDA. The Savara hamlets falling under these PHCs, the number of households and population of these hamlets is summarized in the following table.

Table 2.2: Distribution of Savara hamlets by households and population

S.No	Village/Halmet name	Panchayat	PHC	Number of Households	Population
1	Lakaiguda	Devanapuram	Donubai	20	100
2	Chaparaiguda	Devanapuram	Donubai	35	220
3	Banbaduguda	Devanapuram	Donubai	30	200
4	JP Burjaguda	Devanapuram	Donubai	16	100

5	J Deesaraguda	Devanapuram	Donubai	25	180
6	J Somburunaiduguda	Devanapuram	Donubai	26	150
7	P Janthiguda	Devanapuram	Donubai	6	40
8	Mogadaraguda	Devanapuram	Donubai	48	300
9	Rukminiguda	Devanapuram	Donubai	27	190
10	Kopivalasa	Peddarama	Donubai	30	150
11	Ethmanguda	Peddarama	Donubai	12	50
12	Kosmanguda	Peddarama	Donubai	18	65
13	Chintamanguda	Devanapuram	Donubai	16	55
14	Nougada	Devanapuram	Donubai	32	180
15	Akkanaguda	Somagandi	Marripadu	50	370
16	Rajannaguda	Somagandi	Marripadu	25	135
17	Buddaduguda	Somagandi	Marripadu	12	33
18	Chinthalaguda	Somagandi	Marripadu	6	35
19	Sunnamguda	Haddubangi	Marripadu	14	67
20	Krinduvada	Haddubangi	Marripadu	12	59
21	Peddaguda Krinduvada	Haddubangi	Marripadu	12	65
22	Chintada	Haddubangi	Marripadu	45	278
23	Geddaguda	Haddubangi	Marripadu	18	80
24	Mettuguda	Haddubangi	Marripadu	60	350
25	Kirapa Peddaguda	Somagandi	Marripadu	46	170
26	Jannaduguda	Somagandi	Marripadu	12	94
27	Sannanaiduguda	Somagandi	Marripadu	13	94
28	Kothaguda	Somagandi	Marripadu	36	188
29	Ayyappaguda	Somagandi	Marripadu	30	160
30	Joginaiduguda	Haddubangi	Marripadu	25	110

31	Goyyiguda	Haddubangi	Marripadu	42	180
32	Yerrakuvaraguda	Haddubangi	Marripadu	22	139
33	Jaggaduguda	Haddubangi	Marripadu	18	90
34	Regumanuguda	Haddubangi	Marripadu	35	180
35	Gonjaiguda	Haddubangi	Marripadu	10	50
Total				884	4907

(Source: Field work data)

2.4 Fieldwork and Methodology:

2.4.1 The fieldwork:

The fieldwork was conducted for a period of 4-5 months, from December 2019 to April 2020. After a pilot study in December 2019, an extensive fieldwork was conducted in the selected hamlets. The pilot study was conducted to ensure that sufficient sample households would be available in the selected hamlets and to secure their cooperation for extensive fieldwork. It also helped to allocate the available time for the fieldwork more realistically, considering the possible limitations in data collection.

The extended stay among the Savaras, covering all the hamlets under two telemedicine centres, helped the researcher to meet and interact with many members of the Savara tribes, the health officials and health workers that facilitated cross-verification of data. The mother tongue of the researcher was Marathi and Telugu. The majority of the Savaras speak Telugu and Savara languages. The extended fieldwork among the Savaras aided the researcher to learn the Savara language to some extent and to understand conversations with them with little help from local youth who could speak Telegu fluently.

2.4.2 Initial preparation:

As any anthropological research demands in-depth fieldwork for reliable data collection, the same was planned at the very beginning of the study. Realising that a study of this nature requires the cooperation of both officials and the local community members, the effort was made to contact them first. Further, preliminary information was gathered from the officials and the researchers who had conducted field fieldwork for their Doctoral research or other

research for necessary preparations and appropriate planning for such in-depth fieldwork. Through the researchers who had earlier worked in this area, the villages' elders tentatively identified for stay for data collection in and around those Savara hamlets. These elders were later contacted by the researcher and requests were made for their cooperation during the fieldwork. The researcher's familiarity with certain villagers in this ITDA, on account of her research for the Master's degree earlier, was also beneficial.

2.4.3 Techniques of data collection:

While making these preparations for fieldwork and collection of primary data, the researcher simultaneously worked on the choice of techniques for data collection and the preparation of instruments. The major stakeholders in the Mother-Child Tracking System include the people using these services, ASHA workers, ANMs and PHC health staff. So, the study necessarily focused on these groups to collect primary data. For the analysis of aspects relating to telemedicine, the people who were delivering these services and those utilising the services were focused on.

2.4.4 Interviews:

It was thought necessary that data has to be elicited through interviews of the Savara men and women who had suffered from some morbidity in a specific reference period of three months before the time of fieldwork on their health-seeking behaviour. Similarly, the interviews of health personnel managing the functioning of the telemedicine facilities for information on the delivery of services were thought to be significant. Interviews through the administration of semi-structured interview schedules were supposed to be the best instruments for collecting data from Savara respondents. Hence these schedules were prepared and submitted to experts for suggestions. Based on their advice; they were fine-tuned. The major areas on which the information was elicited through schedules are: socio-demographic particulars of the users of the women receiving antenatal and post-natal care and those who utilized services of telemedicine services, morbidity suffered, choice of care, type of care received, details of care givers, constraints faced in availing services etc. (Copies of these schedules used during the fieldwork are enclosed as annexures to this thesis.) Apart from the interviews, other data collection techniques like case studies and interviews with key informants were also beneficial for this study.

2.4.5 Key informant interviews:

The key informant interviews were conducted primarily to cover aspects like decision-making of health, criteria for the choice of healthcare resources, and the impact of healthcare services like telemedicine and IT-enabled reproductive health service (Mother-Child Tracking System). Eight key informative interviews were collected to understand the overall healthcare structure of Savaras.

Detailed checklists were prepared for interviews with the following categories of key informants: a) Community health functionaries: TBAs, and the TMPs; b) Community health workers rendering biomedical health services like ASHA, AWW, and CHWs; c) Public health functionaries like Medical Officers, The staffs of PHC and Sub-Centres; d) The health administrators like ADDL, DMHO, and P.O, ITDA; e) The Savara community leaders like members of the Statutory Panchayat presidents, members of Mandal Praza Parishad and Zilla Parishad.

2.4.6 Case studies:

Case studies were proposed for information on health choices and decisions made for some significant morbidity, with a specific focus on identifying factors that contributed to such decisions. Similarly, case studies of the high-risk cases, preterm delivery and post-term delivery cases were thought to through light on mother-child tracking services. In the case of telemedicine, the emergency cases in which telemedicine was used were planned to be studied with the help of case studies. Necessary groundwork, including preparation of checklists, worksheets, identification of criteria for selection of cases, strategies for rapport building with respondents etc., was carried out before fieldwork for conducting the key informant interviews and case studies.

While the key informant interviews and the case studies were anticipated to provide qualitative data, the interviews with Savara respondents using the interview schedule were expected to offer quantitative data to a large extent. Thus, the study was approached with a mixed-method strategy.

2.4.7 Identification of critical informants and Interviews with key informants:

The key informants were identified with the help of health officials from CHC, PHC and ITDA, Seethampeta. The key informants were very helpful in giving essential information on health care services among the Savaras. One of the essential techniques of ethnography is gaining the support of critical consultants. The key informant interviews were conducted with the Deputy DMHO of CHC, the Deputy DMHO of ITDA, Doctors from two PHCs, Telemedicine doctors from two telemedicine centres and health administrators in the study area.

2.4.8 Clinic-based interviews at Telemedicine centres:

The telemedicine centre is located in Devanapuram (Donubai PHC) and Somagandi (Marripadu PHC) villages. The patients who avail of the service at the telemedicine centre are interviewed about their experience of video call service with the doctor. A total of 48 users of telemedicine centres were interviewed at telemedicine centres during the fieldwork.

2.4.9 Community-based interviews with Savara respondents:

For the community-based interviews, 100 Savara respondents who availed services of Mother-Child Tracking System with the help of an interview schedule. A total of 52 respondents who had not yet availed services of telemedicine services were also interviewed during the fieldwork.

2.4.10 Duration and schedule of fieldwork:

The fieldwork was carried out for about five months, from December 2019 to April 2020. Apart from this data collection phase through physical presence in the field, any missing data could be gathered through telephonic contacts and video calls. The access to smartphones for many respondents, particularly for the health staff, enabled such a post-field work interaction.

The timely completion of fieldwork was felt necessary from the beginning. Given the time constraints, the researcher tried to adhere to a prefixed schedule for field work strictly.

2.4.11 The Sample:

The sample was fixed for the interviews with Savara respondents on health-seeking and illness behaviour. The sample for these interviews relating to use of telemedicine facilities comprised both a community-based sample and a clinic/facility-based sample. The sample depended on

the available members at the centres and the cases of morbidity requiring telemedicine facilities. Regarding the interviews relating to aspects of the Mother Child tracking system, all the women currently (at the time of fieldwork) registered for Mother Child tracking services and who were in the villages/hamlets under the two telemedicine centres were considered.

For interviews relating to the use of telemedicine centres, two telemedicine centres in the PHC areas of Donubai and Marripadu were selected at the suggestion of the health staff and also due to the availability of facilities for the stay of the researcher in the village itself. These telemedicine centres are in villages in Devanapuram (Donubai PHC) and Somagandi (Marripadu PHC). A total of 48 users of telemedicine centres were interviewed during the fieldwork. The distribution of these respondents by age and sex is as follows:

The women interviewed for the mother-child tracking system assessment were selected from several villages that fell under four Panchayats, namely Peddarama, Devanapuram Somagandi and Haddubangi. As stated earlier, all these villages were selected based on the criteria that they are within eight km. Distance from Devanapuram and Somagandi villages – the villages where the telemedicine centres are located. The distribution of the respondents by Panchayat and PHC is as given below:

Table 2.3: Distribution of respondents by Panchayat and PHC

S.No	PHC	Panchayat				
		Peddarama	Devanapuram	Somagandi	Haddubangi	Total
1	Donubai	23	15	0	0	38
2	Marripadu	0	0	23	39	62
	Total	23	15	23	39	100

2.4.12 Rapport building:

Acceptance into the Savara community was not so difficult due to the researcher's familiarity with certain villagers in this ITDA on account of her research for Master's fieldwork earlier. The support of health officials in PHCs, CHCs, ITDA, Telemedicine centres and ASHA workers has given me an opportunity to understand the primary healthcare structure of the community. Hence, the initial phase of fieldwork, covering about a week, was almost dedicated

to building rapport and understanding of the community. The Savaras live in the hilly areas, and travel on every day to new hamlets and building rapport was part of the fieldwork. Subsequently, the researcher established a cordial atmosphere for conducting the fieldwork.

In the early stages of fieldwork, the researcher understood that the pregnant women or respondents were close with ASHA workers of that hamlet. The researcher hence cultivated friendship with ASHA for visiting the hamlets and translating the information. A few of the local people and ASHA workers were highly resourceful in giving information and guiding me to places where I could obtain valuable data. Though it was burdensome, they accompanied me on most of my visits to the respondents' houses.

2.4.13 Place of interview and seeking of consent:

The interviews were conducted at the clinic or hospital and/or at the residence of the respondents. The clinic-based interviews for telemedicine services were conducted at the Telemedicine centre, and patients who did not avail of these services were interviewed at their residence. Similarly, the 100 community-based interviews of pregnant women and mothers, were carried out at the residences of the respondents.

The researcher informed the community members of the selected hamlets, PHC staff, doctors, ANM workers and ASHA workers that the data collected from the field study would be used only for the study purpose and assured them that the confidentiality of personal identity and privacy would be maintained. Thus, ethical consideration and informant consent is taken into account.

2.4.14 Use of audio-visual equipment and verification of data:

Audio-visual equipment plays a significant role in documenting information from the field. The time and situations sometimes supported only note taking. Some other times when the information was gathered at the work place with no prior appointments with the respondents the researcher had to depend on the recordings of the interviews.

2.4.14.1 Voice recorders: The researcher used voice recordings to document personal interviews and group discussions. These recordings sometimes were supplemented with note taking. In any case recording with voice recorder helped me to recollect the conversation and document the data better.

2.4.14.2 Photography: The researcher used photographs for visual documentation of the study. Cameras were used to capture the lifestyle of Savaras, settings of data collection, health facilities, some health records etc.

Data collected from the respondents were verified with the attendees of respondents and from the medical records whenever possible regarding the authenticity of the information provided.

2.4.15 Constraints faced during fieldwork:

Some of the respondents in the study area needed proper information initially for various reasons. These sessions have taken much of the time during the field work. Tracing the telemedicine users who have utilised the services too consumed lot of time as all interviews could not be completed at the facility. The researcher tried to overcome the constraints with the support and guidance of a Telemedicine doctor. Collecting information from pregnant women and mothers was challenging as only 1-2 respondents were available on a any given day. The support of the ASHA workers was inevitable. But, because of their personal and official work obligations it was difficult for them to allocate time according to my convenience. The study required visits to 35 hamlets in a short time and with meager transport facilities. Thus, the researcher had to make her best efforts for collected data with all the constraints of time and funding.

2.5 Data analysis:

Data analysis of quantitative data is made using Microsoft Excel by coding and grouping the available information into tables with the help of pivot tables. Data analysis of qualitative data collected through case studies and key informant interviews is made manually by coding and grouping.

2.6 Socio-cultural profile of the Savara:

Savara is referred to under various names, Soara, Sourah etc. The Savara used to live in exclusive settlements called *guda*. These settlements are usually located on hill slopes, which facilitates *podu* (shifting) cultivation. Those living on the hilltops are called Konda Savara and are distinguished from those living in low lands, referred to as Kapu Savara.

The most important cultural characteristics of the Savara are their language, a dialect of the Austro-Asiatic language and the absence of any named lineages or clans. Biranda, the extended

household, used to be the most basic unit of the social organisation. They followed village exogamy and marriages with father's sister's daughter or mother's brother's daughter were preferred. Marriage by capture was prevalent, and payment of *oli* (bride price) or *moganalu* (payment made in the event of marriage by elopement with a married woman) importunately guided the marriage regulations. Both levirate and sororate are common, following the rules of prescription.

The values of generosity and cooperation guide their interpersonal and interfamilial relationships and lie basic to their socio-economic and religious life. As Sharma (2019) observed, "cooperation and help are also extended beyond the household, an important feature of traditional Savara social organisation. Help to all members of a Savara habitation (*guda*) is extended regardless of genealogical relationships. The married children of the same parents, whether living in the same household or not, may exhibit greater cooperation as long as their parents are alive. When activities call for group action or involvement, groups are formed ad hoc, for collective tasks are never based on kinship alone."

Traditionally, shifting cultivation (*podu*) was the primary means of meeting most of the food needs for the Savara of Seethampeta Block, and the produce from podu fields was supplemented by food gathering. Additionally, they collected minor forest produce (MFP) to procure essentials as well as extra income to buy food items such as salt, dry fish, beef, chilli powder, in addition to matchboxes and tobacco which were used to make cigars for their own consumption. The production and gathering of food were done using simple tools, and principles of reciprocity and cooperation were vital to organising these activities efficiently.

However, over the last two to three decades, many changes have been noticed regarding the transformation of the Savara economy. The conversion to a cash economy owing to the shift from shifting cultivation of some millets to horticulture and cultivation of cash crops like ginger, turmeric and even cotton is noteworthy.

2.6.1 Climate:

The climate in the habitations of Savara's is considerably dry without much fluctuation in temperature. They live in hilly terrain, less humid, thin to the medium forest, and temperate to warm climates. Generally, this area gets rain from the southwest monsoons. Climatically their calendar year is divided into three seasons: a) summer: March-June; b) rainy season: July-October; c) winter: November-February. May is the hottest month. July and August will have

the heaviest rainfall of the year. During the months of December and January, the climate is extremely cold. The climate of Savara has a significant influence on the lives of Savara including diet, dressing, housing pattern and agriculture. Whenever there are fluctuations in climate, inadequate or surplus rainfall can directly harm the Savara economy as most of the Savara depend upon rainfall for irrigation.

2.6.2 Language:

The Savara language, the mother tongue of the Savaras, is part of the Kol-Munda group of the Austro-Asiatic language family. They are generally bilingual. The Savara of the area speak Savara and Telugu language. Some Savara living in the plains has lost the Savara language and speak only Telugu. In some areas, the younger generations no longer speak Savara. The Savara children are open to formal education through the state curriculum. The students in the Ashram School have to speak the English language only every Friday. This compulsory rule appeals to children learning the global language rather than their own language. However, the chance of the long-term survival of the Savara language is promising due to official support. Savara names are related to their week day's names. The week days and their names are shown in the table below.

2.6.3 Savara weekdays and their names:

Table 2.4: Distribution of weekdays in Savara language and terms of Savara

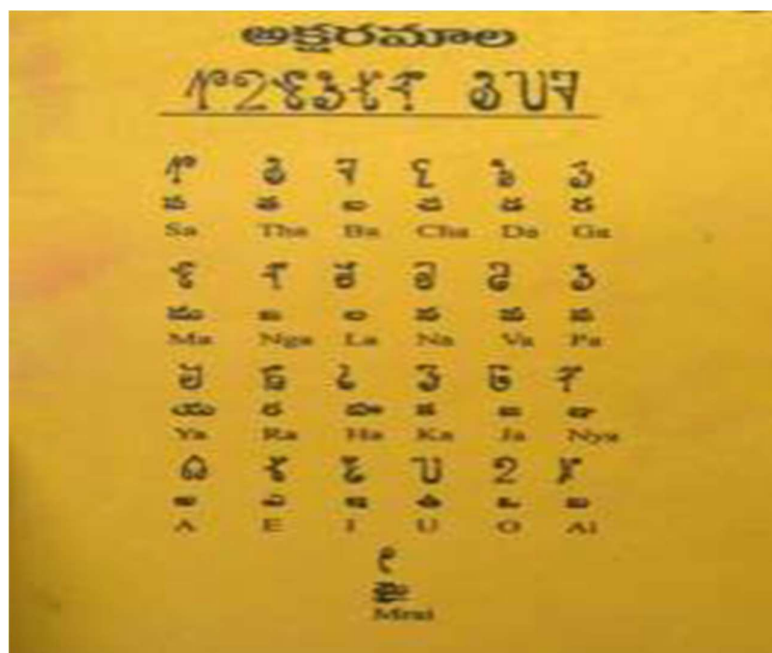
S.No	Weekday	Weekday in Savara language	Names of Savara
1	Sunday	Addara	Savara Addai
2	Monday	Sombara	Savara Sammayya
3	Tuesday	Mangalara	Savara Mangayya
4	Wednesday	Buddara	Savara Buddai
5	Thursday	Lakkimbara	Savara Lakkayyi
6	Friday	Sukrara	Savara Sukkayyi

7	Saturday	Saniyara	Savara Seeni
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2.6.4 Education:

Formal education is relatively a more recent phenomena for Savara. Improvement in educational attainments seems to have started only during the last 10-15 years. Thus, many children in the school going age of 6-15 years are now attending the school. Savara tribe claims of having its script now, which Savara Mangayya had designed. Savara's alphabet is depicted in the picture of Akshara Brahama, which is in the shape of a horse head. But now, with the help of a few scholars of their community, they started writing books in their language for the children studying in Anganwadi schools.

Plate 2.1: Savara Alphabets



2.6.5 Settlement and housing pattern:

Most settlements where the Savara live are located at the hilltops. These villages are comparatively small, comprising of four to thirty families. Savara settlements always consist of exclusively their own people, which is called a *guda*. Therefore, gudas are homogenous, exclusively occupied by the Savara. But the shift from the top of the hills to the plains due to multiple reasons, such as horticultural work in plain lands, scarcity of water resources and for

better transport facilities has made the villages heterogeneous. Based on location, the Savara settlements can be divided into two zones—hill settlements and foothill settlements.

Plate 2.2: Savara housing pattern



The housing pattern of the Savara is of linear type. Houses in the villages vary based on their style of construction such as Kutcha houses (those which have a roof made by using some tree leaves or grass, and the wall are mud walls plastered with cow dung) and Pucca houses (those which have cemented walls and concrete roofs). The semi-pucca houses will have mud walls but not plastered with dung. The top of a semi-pucca house covered with cement sheets would look somewhat similar to that of a kutcha house in physical structure. Most of the houses in these villages are semi-pucca houses. In contrast, the villagers constructed Pucca houses with the help of Government schemes such as INDIRAMMA and NTR Gruha Nirmana Padhakam. It is interesting to note that some of the youth in the village have received training in masonry skills as part of the ITDA initiative to promote diversity in livelihoods some time back. The villagers take the services of such persons for the construction of houses.

2.6.6 Kinship:

Although the Savara kinship terminology is primarily classificatory, some of their kinship terms can be termed descriptive. Interestingly, the kinship terms applicable to both

consanguineous and affinal relatives are the same. For instance, both the paternal and maternal grandfathers of the speaker are classified by a single term— ‘*Jojong*’.

Table 2.5: Distribution of Kinship English and Savara term

English Term	Savara Term
Father	Babung/Nanog
Mother	Merg
Daughter	Ammi/Ammiyan
Son	Onyan
Granddaughter/Grandson	Ulangvan
Daughter-in-law	Koyangyan
Son-in-law	Dayanyan
Brother-in-law	Bhoun
Sister-in-law	Kakenyan
Niece	Monshalnyan
Nephew	Mosritnyan
Wife	Dokrinyan
Husband	Dhanongbanam
Grandfather	Jajong
Grandmother	Yoyong
Maternal/Paternal uncle	Mamong
Maternal/Paternal aunt	Aavang

2.6.7 Marriage:

Savara practice endogamy marriage at both village and community level. Exogamy marriage is confined only to community level. The Savara practice serial monogamy, taking only spouse at a time. In the event of divorce or death, a Savara man can remarry. Two variations of polygyny exist—sororal polygyny and non-sororal polygyny.

Marriage by negotiation and mutual agreement (*Penkui*) is the preferred method of alliance among the Savara, which involves a long deliberation by both parties. Marriage by elopement (*Dingdengboi* or *Dandaboi*), marriage by service (*Kinarsung* or *Illarikam*) and marriage by exchange (*Ulaiboi*) are the other methods of marriage. With the exception of marriage by negotiation, other methods have no ceremonial attachment.

Savara considers arranged marriage through negotiation as ideal and prestigious. They prefer cross-cousin marriage, like marrying one's maternal aunt or paternal aunt's daughter. After obtaining consent from the bride's side, the bride price, usually known as 'oli', is paid to the bride's parents by the bridegroom family. If by any chance a woman leaves her husband to join herself to another, the other pay the husband some price known as 'moganalu'.

2.6.8 Family:

The Savara follows the rules of patrilocal residence. Father takes a vital role in the family. However, in the case of marriage by service, the husband may stay at his wife's residence permanently or for a fixed period. This practice is usually limited to families with no sons.

Traditionally, extended families were predominant among the Savara, but nuclear families have become more common now. There are many nuclear-extended families, as often unmarried sisters or brothers or aunts or other relatives join the nuclear families comprising a couple and their children. The neolocal residence is common after marriage.

Plate 2.3: Asharabrahma temple at Nougada and Savara Church at Rukminiguda



2.6.9 Religion:

Savaras link every health phenomenon with supernatural cause. The community members restrictly follow the norms and laws in order to lessen the harm from any means of the supernatural causes such as deities or spirits. Nevertheless, the adoption of Christianity has impacted the belief system of health. The conversions and dependency on Christianity influenced the economy and polity.

2.6.10 Political organization:

The traditional political organization has transformed due to their interaction with mainstream society. The introduction of Christianity has also altered the traditional practice of religion and politics. A statutory village panchayat is developed for hamlets for the elections. The selected members and president who take up administrative roles are part of panchayat. The pending works of hamlets were taken care by the elected members. The reservation for various president positions at village, mandal and district development council exists.

2.6.11 Economic organization:

The main economic activity of Savaras is shifting cultivation (*podu*) as they live on hilly areas. They produce pineapple, cashew, turmeric, ginger, dabbakayaulu and custard apples. Joint families involve in cultivation and divided the work between men and women. The men and women equally contribute to family income. Though, the decisions of men are given high priority. The rituals are celebrated with the income generated through the horticultural crops. The weekly market (*shandy*) fulfils their necessities of festivals. The market brings people from different tribal and non-tribals groups. The disputes are settled in weekly market. Due to the rapid increase of Savara with the plain areas and mainstream areas of Seethampeta Mandal, the economic organization of Savara has undergone several changes.

2.6.12 Attire:

Women mostly wear sarees, but some old ladies wear two parts. It is like a long skirt; one is tied around the lower body, and another is *pallu*. Adolescent girls wear chudidars and occasionally wear langawoni (half saree). Older men wear a dhoti and shirt, casual wear- shirt and lungi. For agricultural work, women wear shirts upon saree. While they are working, a saree pallu is tied to their head to cover them from dust. Men- wear a shirt or t-shirt and pants while working. During ceremonies and rituals, men wear a white shirts and white Pancha. Akshara Brahma women wear yellow or white colour sarees; other women generally wear pattu sarees. The Savara women wear simple ornaments. Most of the ornaments are made up of silver and gold. The various ornaments used by Savara are tabulated in the below table.

2.6.13 Material Culture:

With time, the traditional material items of the Savara have also undergone changes. Some items have disappeared, while others have been replaced by modern implements. These material items differ from occupation to occupation and place to place in hunting, gathering practices, fishing, as well as religion and cultural aspects. Their traditional hut *gudiselu* (soong) are still found in the village and made up of local forest produce, other traditional items like agricultural items like *Nagali* (erthubub), para, gunapam etc., hunting implements like bow and arrow, fishing nets, musical instruments like dolu etc. and so on. Many of the tools are been taken over by modern tools. But the uniqueness lies in some specific items like hunting equipment and traditional musical instruments. Though changes occur in their material cultures, some are still resistant to changes that hold the culture.

2.6.14 Food habits:

Savara's a production-oriented community and active consumers. Savara's are fond of non-vegetarian food; they consume chicken, pork, beef, goat, fish (dry fish), forest animals, poultry and beef. Their diet also includes tubers like *savadi dhumpa*, *donda dhumpa*, *adavi dhumpa* etc. Rice, jowar and millet are part of their staple. Varieties of pulses, leaves, vegetables, and wild fruits are also part of their diet. Over the last fifteen years, the dietary habit of the Savara has shifted substantially, and rice and rice products are preferred over millets now and the Savara rarely dig for wild tubers. They consume only marginal number of dairy products. They don't milch their domesticated animals as they consider the mother's milk belongs to her offspring alone. Now they are buying tetra pack milk and milk powder from outside. They drink country liquor, an inseparable part of Savara life, and bottled alcohol. There are two types of liquor, one made from mahua flowers known as "*Mogga Saara*" and the other extracted from *Jeeluga* tree known as "*Jeeluga kallu*". The Savara are fond of toddy (*Kallu*) made from *Jeeluga Chettu*. It has both ritual and cultural significance. Unmarried females do not consume liquor.

Plate 2.4: Savara child consuming rice and vegetable curry



Savara Art:

Savara tribes are noted for their paintings. The Savaras are known to decorate the walls of their houses with paintings of birds and animals, hunting parties of men, parts of daily lives etc. Geometrical shapes drawn in fine lines that form bold borders around the centrepiece are one of the unique elements of Savara paintings. 'Edising', the religious wall paintings of the Savara were painted by religious practitioners at the time of ancestral worship. These paintings illustrate the Savara's association with their landscape—the wildlife, podu cultivation and hills. Historically, there are no known reasons for the Savara occupying the hills for cultivation. Nevertheless, their extended association with such a natural environment has led them to believe that "Savara are those who are born on rocks, make a living from rocks and die on rocks" (Sharma, 1992). Savara folklore also upholds this belief, and their supreme deity is said to have told them that the Savara can never make a living in ordinary fields.

Plate 2.5: Savara art- *Edising*



Plate 2.6: Ritual for healing of 4 months old baby with animal sacrifice



Plate 2.7: Anganwadi centre at Kopivalasa, Seethampeta Mandal



Plate 2.8: Researcher while conducting data from pregnant women



Plate 2.9: Economic activity of Savara



Plate 2.10: Savara woman showing her ornaments

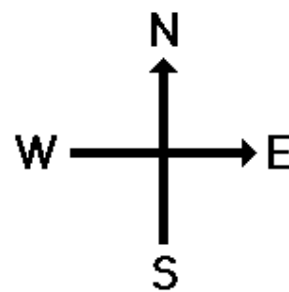
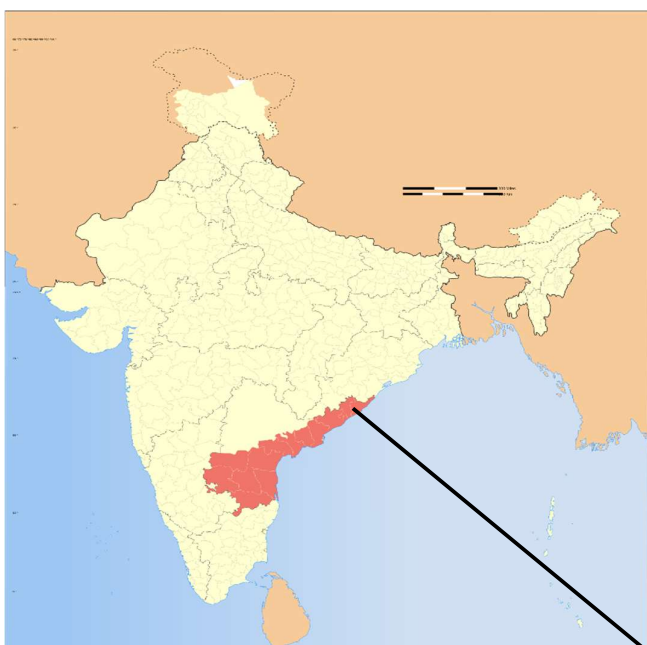
Plate 2.11: Savara women with grandchildren at Nougada village



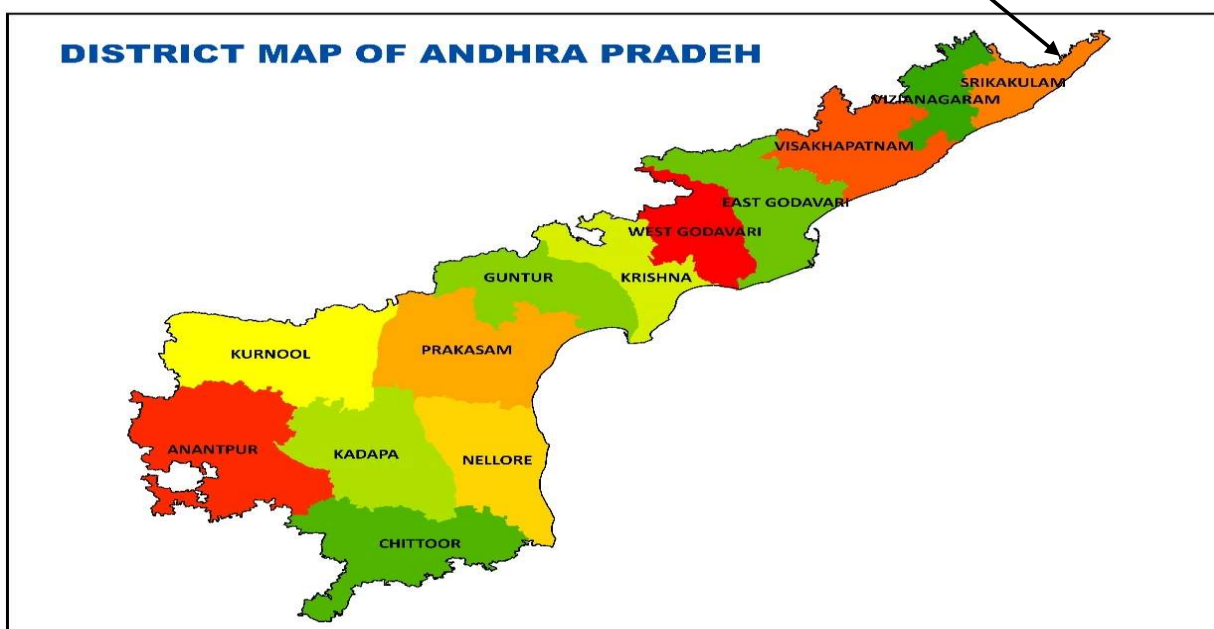
Plate 2.12: Savara women who migrated from Orrisa to Srikakulam after marriage



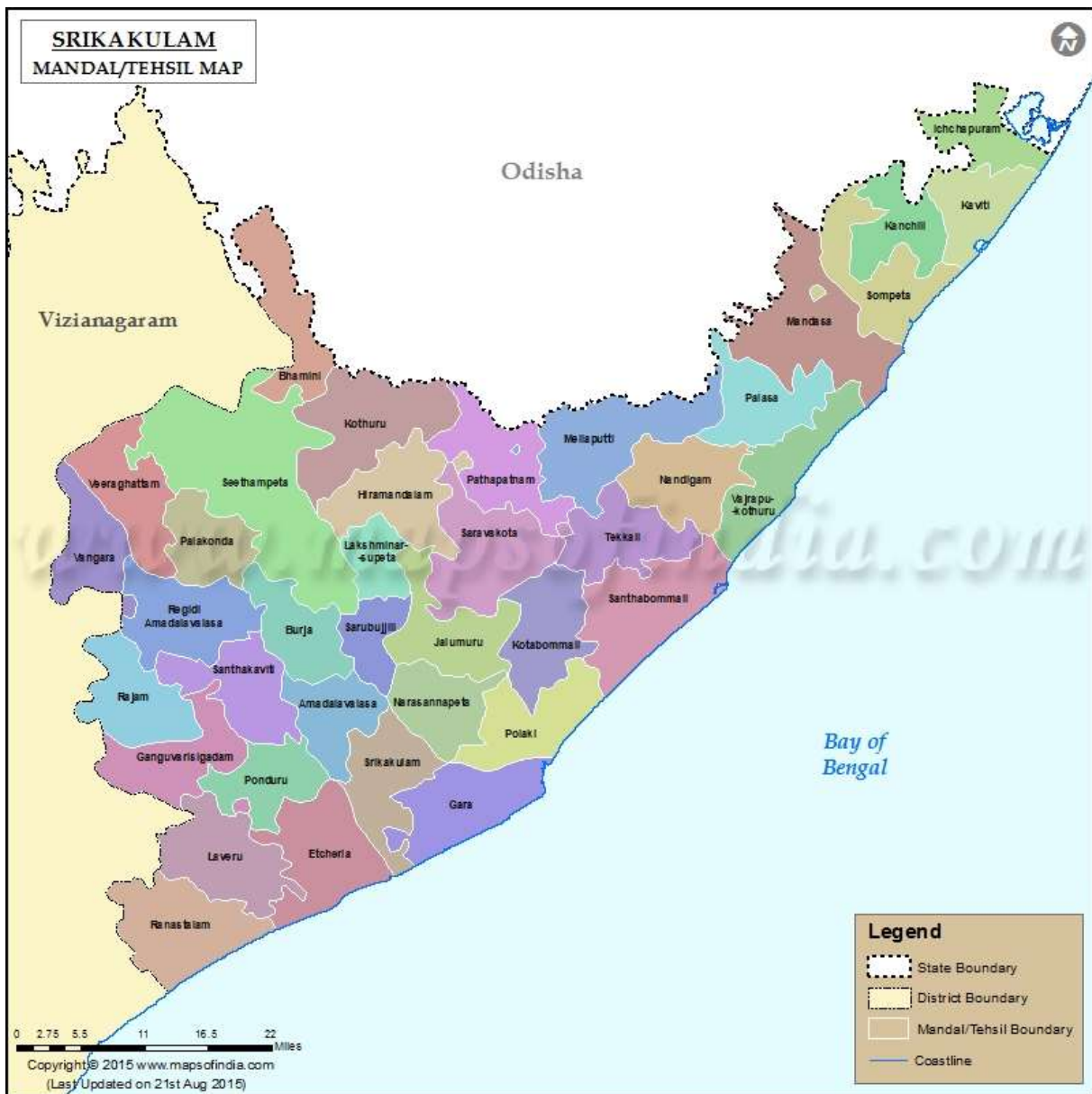
Plate 2.13: Savaras using sound boxes during a family occasion



Map 2.1: Map of India



Map 2.2: Map of Andhra Pradesh



Map 2.3: Srikakulam District map showing the ITDA area

CHAPTER-3

Health profile of Savara Community

The present chapter mainly attempts to understand the health infrastructure in the study area and health profile of the members of the Savara community in Seethampeta Mandal in order to provide the necessary context to understand the main findings related to the objectives listed earlier. It focuses on understanding the available healthcare resources in private and public sectors and also the strength of the indigenous health care system. Additionally, an attempt has been made to understand the expansion of health services by the government in recent years.

Health is an essential part of the individual life for overall development. WHO defines Health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity". Special attention is required on the health status of tribal communities in India, particularly PVTGs (Particularly Vulnerable Tribal Groups), whose economic and health standards are under deprivation. As per public health indicators, women and children are the most vulnerable among the tribal communities compared to the national average. Studies related to maternal health highlighted the poor nutritional status among the tribals, along with high morbidity and mortality due to low-level usage of health services such as antenatal and post-natal care.

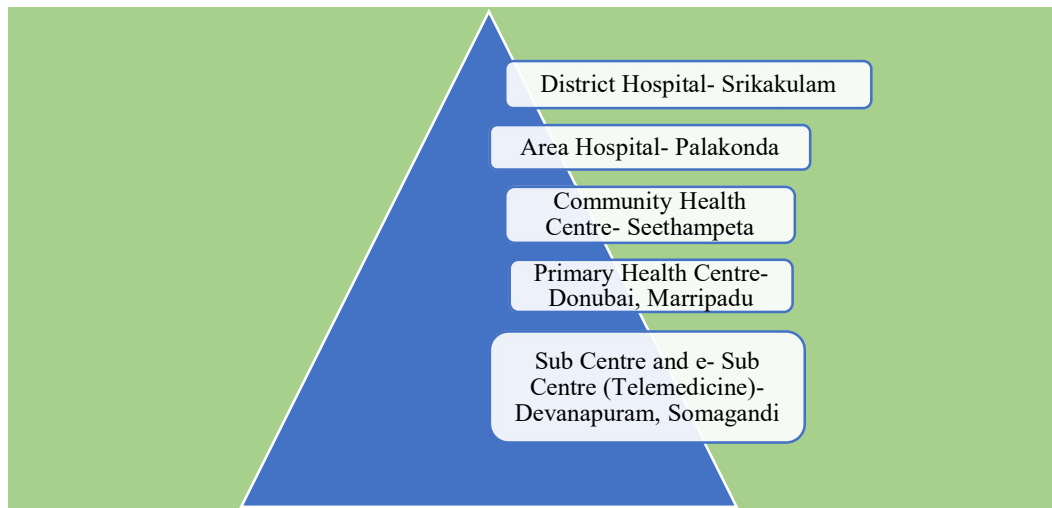
The disease profile of the tribals in the Seethampeta, ITDA, shows that the rates of infectious diseases like tuberculosis and leprosy are high. While malaria is rampant, typhoid, and chikungunya too occurs very frequently. Also, cases of hypertension and diabetes are beginning to increase in the study area. Similarly, the diarrhoea, jaundice, anaemia and night blindness are observed to be significant health issues. Malnutrition, addiction to tobacco and alcohol, and practices of open-air defecation may be having severe implications for their health.

3.1 Health care resources:

The health care resources available to Savaras of Seethampeta Mandal are: Government hospitals, Traditional Medical Practitioners (TMP), Private hospitals and Registered Medical Practitioners (RMP). The levels of health care under the public sector is as depicted in the following chart.

3.2 Levels of health care:

Plate 3.1: Levels of health care



In the above chart, the levels of health care structure available in the Srikakulam district is provided. The district hospital is situated in Srikakulam, 56.4 km from the study area, and the Area hospital is located in Palakonda, about 14 km away from Seethampeta. Patients use the district hospital in Srikakulam for only severe and emergency cases. The diseases such as leprosy and tuberculosis are treated at specialized government hospitals. The majority of the patients visit Area hospital in Palakonda for any referrals from PHC doctors. There are two Community Health Centers (CHC), at Seethampeta and Kothuru, which fall under the jurisdiction of the ITDA, Seethampeta. These two towns are at a distance of 2-20 kms for different hamlets under the jurisdiction of the selected PHC areas.

In recent years the public health facility has been strengthened in the ITDA for better health care to the tribals. In addition to the area hospital and two Community Health Centre's in the ITDA area, 27 PHCs and 151 Sub-Centre's are functioning. In addition to this, there are four sick newborn care units. Owing to the poor public transport facilities and communication facilities, ambulance services are improved in the ITDA. As per the records of the ITDA, there are 12 ambulances and 15 feeder ambulances functioning. Each of the Community Health Centres (CHC) serves about 80,000 population and one Primary Health Centres (PHCs) is set up for every 20,000 population. The sub-centres under the PHCs are sent up for every 3,000 population in these tribal areas.

3.3 Community Health Centre:

The community health centre is primarily established to deliver the secondary level of health care. It is designed to provide referral and specialist health care to the tribal population in the agency area. The Seethampeta community health centre is also accessible to the residents of Donubai and Marripadu. The Government of Andhra Pradesh maintains these centres under the Minimum Needs Programme (MNP)/ Basic Minimum Services (BMS). Medical specialists in CHC are surgeons, physicians, gynaecologists and paediatricians who are supported by twenty-one health assistants and other medical staff. The facilities include 30 beds, an operation theatre, an X-ray, a labour room and a laboratory and act as a referral centre for all the primary health centres.

3.4 Primary Health Centre:

The primary health centre is the focal point in the village to avail health services. It facilitates contact between the village community and the medical officer. The PHCs provide integrated curative and preventive health care services to the tribal hamlets under Seethampeta. The PHC has one medical officer supported by 14 health assistants and other medical staff. It is the referral unit for 6 Sub Centres and facilitated with four to six beds for patients. The two PHC's in the study area are located at Donubai and Marripadu villages. This primary health care centre is open on all days of the week except Sundays and national holidays, and the services are available from 08:00 Hrs to 16:00 Hrs. In an emergency, the pharmacist who lives in the PHC attends to the cases.

3.5 Sub- Centre:

Among the above public health care units, Sub- Centre is the nearest contact point between the primary health care system and Savara Community, with manpower of one female health worker (ANM) and one male health worker. Primarily, sub centres aim for interpersonal communication through which behavioural change and services are linked to maternal and child health, family welfare, nutrition, immunization, and control of communicable and non-communicable diseases. A female health visitor based at the PHC supervises the six sub-centres allotted under her respective area.

3.6 e- sub-Centre (Health and wellness centre):

The e- sub centres or Ayushman Bharat- Health and Wellness Centres (HWCs) are formed after alerting the Sub- Centres (SCs) and Primary Health Centres (PHCs) to deliver comprehensive primary health care that includes preventive, promotive, curative, palliative and rehabilitative services for free and closer to the community. The doctors of sub- centre is accountable for all the health issues that fall under her area.

3.7 Healthcare infrastructure:

Table 3.1: Basic health details of Seethampeta

S.No	Government health institutions	Total
1	Number of Sub Centres	102
2	Number of e- Sub Centres	53
3	Number of PHCs	19
4	Number of CHCs	2
5	Number of Area hospitals	1
6	Number of District hospitals	1

3.8 Ambulance service:

3.8.1 Dial number- 102 (Dedicated call centre for pregnant women) This toll-free number provides complete details about healthcare policies and, in emergency cases, provides the nearby PHC details.

3.8.2 Dial number- 108 (Ambulance number) It gives free transport facility from the emergency place to the hospital, carries pregnant women to the hospital at delivery time and provides transport facility from one hospital to another hospital for better treatment.

3.9 Accessibility:

The health accessibility to public health hospitals has both transportation and financial issues as they are geographically located in hilly areas. This significantly impacts selecting the health

care provider near their hamlets. People prefer traditional healers to contemporary medicine men because they come to them and serve them in their homes, and their remuneration is more than in cash. The distance and exorbitant amount the Savara have to spend on the private practitioner keeps them away from qualified biomedical providers in nearby towns. However, the government medical systems, which are both geographically and monetarily accessible, are not chosen since their prescriptions are ineffective, according to the Savara. The fact that the Savara are afraid of unfamiliar areas and people was discovered through observation. This discourages them from seeking treatment in far-flung locations with adequate medical facilities. As a result, geographic and financial accessibility play critical role in defining the path to health care.

3.10 Role of health care providers:

3.10.1 Role of Medical Officer:

The Medical Officer of PHC has a crucial role in the clinical detection and follow-up of health illnesses and administrative and public health functions. One of the key duties they perform is to coordinate the dispensary and allot duties to the auxiliary staff. This aids in ensuring smooth running of the outpatient department. Further, they provide required services in the treatment of emergency cases which come outside the regular outpatient department hours. Also, they organize laboratory services. They make a provision to render health services for treating minor morbidity at the community level through health assistants and ASHA workers. They attend to the cases referred by health assistants and ASHA workers. They will cooperate with other institutions to provide better healthcare services. Once in two weeks they visit each Sub-Centre on a fixed day to examine the work of the health staff and provide curative services to the community members. In addition, they organize and participate in the "Health Day" at Anganwadi Centre once a month.

They counsel the patients about side effects and risks associated with treatment and assist patients in utilizing social security benefits. They organize training programs through health education to the staff of PHC and ASHA workers on Reproductive and Child Health, the Universal Immunization Programme (UIP), and control of communicable and non-communicable diseases.

3.10.2 Role of ANM (Auxiliary nurse midwife):

Under the Multi-Purpose Health worker's scheme, for a population of around 1500, one female health assistant is appointed at each sub-centre. ANM carried the following functions for the benefit of maternal and child health. She works under the guidance of PHC medical officer and female health supervisor. She is available for Savara community to see round-the-clock maternity care services at her official headquarters. The other tasks of ANM include preparing the map, enumerating the population, collecting all parameters' health data, and updating family Health records and village health profiles in her area.

3.10.3 Role of MPHA (Multi-Purpose Health Assistant):

Facilitate the registration process of pregnant women, confirmation and estimated delivery date to pregnancy and health care throughout pregnancy. Encouraging women to undergo urine tests to know haemoglobin and blood pressure levels along with HBsAg, HIV & VDRL tests. Provides health education in maternal, ante-natal and post-natal care. Frequent visits and follow-ups to the homes of the pregnant mother. Distribution of medications to the women, such as iron and folic acid tablets, besides immunisation (Tetanus-Diphtheria). Ante-natal care services include tracking all pregnancies, referring abnormal and high-risk cases of pregnancy to a medical officer at PHC and for further treatment to area and district hospitals. For safe deliveries, MPHAs are advised to encourage institutional deliveries. Directed MPHAs to refer difficult labour and new born abnormalities cases to area and district hospitals for safe and institutional care and to provide health education on mother and child care. It will facilitate the doctors to evaluate the infant's growth and development and make decisions related to any defects. MPHAs should educate pregnant women on breastfeeding, family health, family planning, nutrition, immunisation, personal hygiene and environmental hygiene. Required to track dropouts and left outs for immunisation and vaccine of a mother.

3.10.4 Maintaining Reports and Records of MCTS by MPHA:

Record the birth and death cases in their specified area, provided under Reproductive and Child Health. Receiving advice and directions related to the nature of duties and action plans prescribed to them by the medical officer by attending the monthly staff meeting at the Primary Health Care Centre, which ultimately aim to promote family welfare and Mother- Child Health services. Active participation in immunisation programmes such as pulse and polio vaccinations and other health programmes intended to benefit the mother and newborn.

3.10.5 Role of ASHA workers:

The ASHA workers are expected to promote community-level health interventions. They should improve health literacy to help in a broader understanding of health. They are responsible for screening and identifying cases in the community and further initiating an appropriate referral to PHCs. They should carry out home-based follow-ups for disease cases. Most ASHA workers are involved in the MTCS programme for increasing institutional deliveries to help the Savara women.

3.11 Diseases:

3.11.1 Communicable diseases:

- Inform nearest health provider in case of any health abnormality. Thus, it lowers the burden on hospitals about infectious diseases and help them in identifying the patients.
- The community need to educated on health and disease information in case of prevalent fever cases. Hospitals should distribute the mosquito nets to save the people from dangerous diseases.
- The first aid kit is essential to treat minor illnesses. This helps the people in emergency situations for referral to PHC, CHC, Area and District hospital for further treatment.
- Identify the cases of leprosy by screening the skin for patches.

The diseases that occur from mosquitos are Malaria, Dengue, infectious diarrhoea, fever and Chicken Guinea. The water-related diseases are diarrhoea, cholera and jaundice.

3.11.2 Non-communicable diseases:

- The healthcare providers (ANMs) have the responsibility to conduct cancer screening for women- breast, cervix and oral and men- prostate, lung and oral.
- The health check- ups for blood pressure and diabetes should be conducted by ANMs
- The mental health and symptoms of it will be identified and referred to PHC or CHC for betterment of patient.
- The dental or oral health issues, eye issues are monitored often by healthcare providers.
- The old age health issues were screened and provided necessary medication.

3.12 Health Education Awareness:

- At the level of community, healthcare providers are supposed to be participate in the *Mahila Mandal* meetings in their area. To educate women about marital age, birth control and spacing between child etc.
- Collaborate with other health staff (ASHA worker) and *gram sevak* to create awareness related to MCTS and Telemedicine services etc. Also, to encourage community participation in availing the services offered by the programme.
- Create awareness among mothers regarding home management of diarrhoea with drinks such as Oral Rehydration Solutions (ORS) by educating them about preparation and usage of ORS.
- Promote awareness among mothers on early identification of symptoms of child related diseases. Further, to provide understanding about the programmes and services offered by the government with respect to child health.

3.13 Efforts of government in the introduction of IT-enabled service:

The government has expanded its health services to interior tribal areas in IT-enabled health care. The two IT-enabled healthcare services part of the study are Mother- Child Tracking System and Telemedicine. The government in Andhra Pradesh is working effectively to provide better health care by tracking the available blood group.

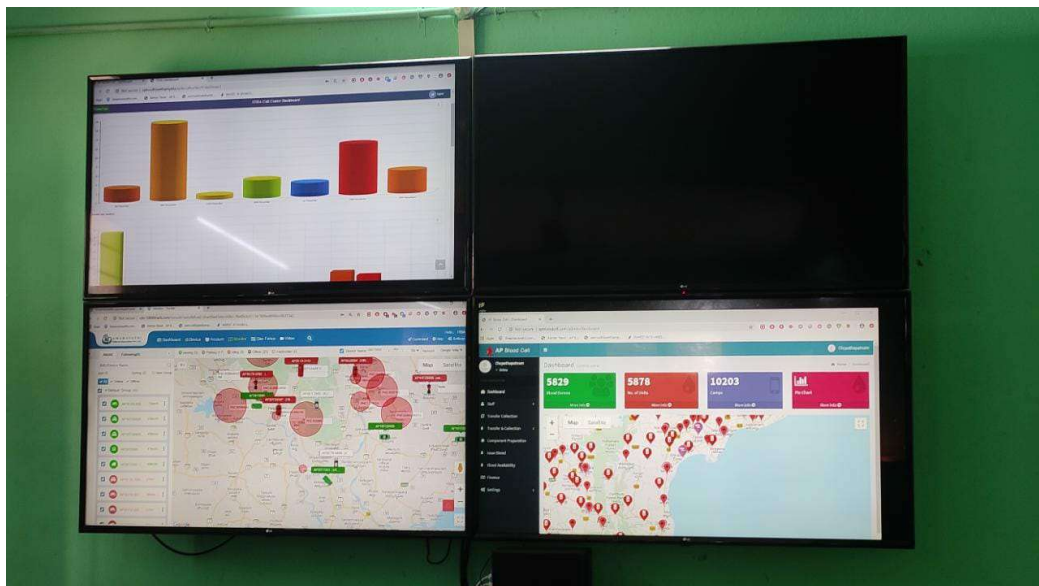


Plate 3.2: Tracking of blood groups in CHC

3.14 Acceptability of innovative health services:

Although an increase in the acceptance of modern medicine has been observed in the recent years, the access to good care remained to be the central issue. The levels of illiteracy concerning understanding health policies and schemes are relatively low. The better-educated hamlets or hamlets near to mainstream are aware of their healthcare needs (and rights) and better care-seeking practices.

3.15 Traditional Medical Practitioner (TMP):

The Savara tribe is rich in terms of religious institutions, practices and diversity. The impact of religion on the health and illness is considerable. The strong presence of medico-religious traditional healers makes the indigenous health care system vibrant. The Savaras are served by two types of traditional healers: Yejjodu (magico religious healer) and Desarodu. The Yejjodu is a medico-religious personality who induces deities to tell the cause of disease and its cures. The healing by them usually involves the sacrifice of animals. The second type of medical practitioner is the one who fixes auspicious times for all ritual activities including the commencement of illness or hospitalization. Some of them are also consulted for treatment with herbal medicines. Traditional healers are divided into two categories:

Yejjodu (Magico-religious) practice traditional healing, in which spirits are summoned to determine the cause of illness and prescribe a cure, which may include animal sacrifice ranging from pigeon to buffalo, depending on the severity of the disease. The Savara believes each individual has two life-giving phenomena or Souls: (1) Rup-Rup- Purdan; (2) Sudopurdan.

The heart is associated with the Rup-Rup purdan, as the word Rup-Rup is equivalent to a heartbeat. It is inextricably linked to the human body, as the Savara believe that when Rup-Rup purdan ceases, a person dies. Sudopurdan, on the other hand, is all-pervasive and can leave and return at will. Sudopurdan is credited with the dreams of the Savara. The Savara religion emphasizes ancestor worship and the belief in life-giving events.

Non-magico-religious healers who administer herbal medicines for healing are generally referred to as vaidyudu. Treatment with herbal medicine has been part of the Savaras for many

generations. They feel proud of this knowledge of them and often think that these medicine men cure untreatable diseases by biomedical practitioners.

The previous experience with any particular medical system leads Savara to either accept or reject that specific medical system. In this sense, traditional medical systems were systems that had survived over a long period of time and had been handed over from time immemorial through their ancestors and are considered to be 'time tested'. Successful treatment of their kin with traditional medicines is assumed many times and experienced in some others and that paves the way for opting treatment with traditional medical systems.

Thus, many a times the failure of traditional medicine make them seek a cure from modern medicine. Searching for cures from different systems of medicine because of dissatisfaction with a particular system is also evident. Among the Savara, advice concerning treatment is usually obtained from relatives, friends and neighbours. Their advice is crucial as far as the selection of treatment is concerned. This aspect is closely related to previous experience because those understanding similar illnesses are more influential in this regard. Other than relatives, friends and neighbours, traditional medicine practitioners and religious functionaries play an essential role in health decision-making.

3.16 Classification of Savara diseases:

The Savara perspective of classification of diseases is minimal; every illness starts from Asu (Fever); any other disease results from fever. A list of diseases that Savaras could identify are given below.

Savara disease term	English disease term
Aggini Bhanam	Chills and rashes on the body
Aludath Asui/ Luvudan Asu	Pain in the Ear
Ammavaru	Chicken Pox
Anasulu/Morsa	Fits/Seizures
Asen padin	Cold
Asu	Fever
Asudong/Dohamanasu/Otava	Body Pains

Asumad/Sijheng	Pain in the Eye
Asumandadi	Pain in the Knees
Asumayon	Pain in the heart
Asumoo	Pain in the Nose
Asupagnu	Gastric pain
Asu poon/Kanpo Asu/Pun Pun Asu	Pain in the Stomach
Asu ranga	Malaria
Asuji	Tooth ache
Bamba	Malnourished
Berri/ Birri	Weakness and fits
Bhai Bhai/Kideh	Vomiting
DiyaAsu	Back pain
Dungnapong	Motions
Gabbasam	Pregnant women disease
Jagan/mayam Asu	Pain in the Chest
Jomma	Skin rashes
Kadumad	Blurry Vision
Kamadam	Jaundice
Kela/kel asu/Khanni	Mentally instable
Koko padisan	Cold, cough
Kukuda	Body chills
Lome/Longhe	Feeling tired and weak
Osong/Siyorman	Dizziness
Parn Asu	Fever because of wounds
Rona Asu/ Roonaasu	Fever and body pains
Thoodan Asu	Mouth blisters

3.17 Diagnosis and Treatment practices of Savaras:

When considering the Savara illness diagnosis, it's vital to remember that they divide the human body into three sections and allocate each portion to a different deity. They believe that any affliction in the affected area is caused by displeasure with those deities. The following is the Savara conception of the human body and the presiding deity concerning each part, such as the head region as Jamaraju, Chest and abdomen region as Dhanar Bootalu and the below abdomen as Lodla Devata.

3.18 Perception of illness and health of Savara:

Savaras have named many diseases they experienced or heard about, such as tuberculosis, dry and wet cough, cold, fever, malaria, jaundice, BP, diabetes and diarrhoea. There are no cases or complaints of heart attack, AIDS, mentally retarded and diabetes in this community.

Case study:

The respondent Savara Raju has given his perception of illness and health. He said that if a person gets ill, the first thing they do is to consult the nearby PHC in Marripadu or Donubai, which is 4 km away from their hamlets. When not satisfied with the treatment provided by PHC doctors, the patient's family then consult an ethnomedical practitioner in belief that the illness is due to supernatural powers caused by the evil eye (chillangi) and spirit possession (gaali sokadam). They follow ethnomedical practitioner suggestions such as giving sacrifices of goat, hen, and piglet depending on the severity of illness which is part of Savara health. The Savara community possess three religious beliefs: belief in tribal gods (Animism), Akshara Brahma and Christianity. The people who believe in animism give animal sacrifices to cure their illnesses. Akshara Brahma people consult ethnomedical practitioners but do not offer a living being like an animal; instead, they offer flowers and fruits. In these belief categories, Christians generally do not consult ethnomedical practitioners, as they believe in modernity and approach doctors in government and private hospitals.

According to the respondent, pregnant women are keenly monitored by ASHA workers. ASHA workers assist them during their delivery time. There are rare cases of miscarriages due to reluctance shown by the women to go to PHC for delivery. In these cases, midwives in the community help them deliver the baby. A delivered woman is not allowed into home (generally lives in the front room) unless she stops bleeding, typically lasting 3- 4 days. They are not

allowed to eat curry for up to 1 week; instead, take starch. Non-vegetarian food is not taken up to 6 months. Women on periods face social stigma and are considered impure in the community.

3.19 Private hospital:

Healthcare delivery in the private sector has not made any deep inroads into the Savara area. Further, Savaras have their cultural characteristics and language, which results in issues of cultural compatibility regarding the delivery of health care. They frequently visit a Missionary hospital (Canossa hospital) and some private medical practitioners of Allopathy for treatment. There are around 20 private qualified medical practitioners in the nearby towns of Veerghattam, Palakonda and Kotturu who are approached by the Savaras of Seethampets. In medical emergencies and when they suffer from major illnesses, the consultancy with private qualified providers based in Srikakulam - the district headquarters, is also considered. Very rarely, the members prefer to avail treatment at the teaching hospital at Vishakhapatnam on the referral of some other private providers whom they approach. In any case, if they prefer to visit the teaching hospital, the ITDA makes arrangements for meeting some expenditure under some group insurance schemes and special funds.

3.20 Registered Medical Practitioner (RMP):

They are legally not allowed to practice medicine, but in the study area, most RMPs are unqualified private practitioners. These RMPs are always available at the doorstep of Savaras. They offer medication for patients with minor illnesses and injuries. It was found that RMPs also provide intravenous fluids. They reach the Savara hamlets on their bikes and walk to each household. They have established good relationships with the locals through frequent visits to these hamlets. The Savaras depend upon these other healthcare providers when the transportation facility is unavailable to reach government hospitals.

They believe private hospitals and RMPs provide better care and treatment than government hospitals. They would rather spend their limited resources and time on healthcare at private hospitals than government hospitals for free services. They are disappointed with the public health care system because it lacks a culturally sensitive approach while treating patients. Medical staff's inappropriate behaviour and unavailability in times of need discourage them from using their services. Language has also been a barrier constraining the smooth communication between the Savaras and the medical staff. These language issues made the

Savaras depend on the healthcare providers from their community than public healthcare. The government's awareness programmes and health education efforts have encouraged the community to avail services under the public health care system. The Mother-Child Tracking System service is taken seriously by Savara women as ASHA's continuously monitor the women who are most likely to conceive and guide them accordingly for reproductive health tracking. In general, some of the Savaras are not availing of the services provided by the public health care system due to their previous unpleasant experiences. These factors have widened the gap between the public health providers and the Savaras, which is exploited by the private health providers like RMPs who are often seen visiting the houses of the Savaras, maintaining good rapport, offering services at their door steps and charging high fees for the treatment that they provide.

3.21 Choice of treatment:

The social, cultural, economic, political and psychological factors play an important role in the choice of health care for Savaras, and it influences their decision-making process and treatment behaviour. The other vital aspects that determine the treatment path among them are the patient-practitioner relationship, geographical and financial accessibility and standards of existing healthcare resources.

3.22 Patient-practitioner relationship:

Savaras have their cultural characteristics and language barriers when seeking care from non-Savaras. They are not familiar with terms and phrases for expressing the symptoms in the regional language. Especially women and children face communication problems. They are short of bodily expressions to describe their symptoms. Given the situation, healthcare delivery by healthcare professionals who lack cultural sensitivity is not effective to them. For Savaras, a practitioner who communicates at least in some broken Savara language and provides medical care at their doorsteps is more accepted rather than an unknown person. Hence, apart from the traditional medical system practitioners, few private practitioners and RMPs who interact with them at their place and identify with them are preferred. So, the patient-practitioner relationship is a significant part of the health.

3.23 Standards of the existing health care:

The standards of the existing healthcare facilities are a determinant in determining the utilization of modern medical systems. The Savara feels that while the traditional medicine administered by their TMPs is of the 'same standard', the standards of medical practices in the Government institutions and the private practitioners vary greatly. Often, they feel that the medication given by private practitioners and, for that matter, the RMPs are more effective. With the benefit of incentives and financial support, government health care will encourage them to move towards CHCs and PHCs.

3.24 Reasons for poor health:

The study has identified the indifference attitude of the the public health staff, high costs of private health care, poor health education and difficulty in access to healthcare facilities as the main factors that contributed to the poor health of Savaras. Some of the Savara hamlets have been displaced from their hilly forest regions to plain lands and lost natural food sources through hunting. Now, the dependency on the government for the public distribution system is increased, resulting in poor nutritional status. Quality healthcare is hindered by the, unavailability of certain essential drugs and the necessary medical infrastructure, rugged terrain in the hills and factors of distance and time, and poor transport and communication facilities. The health status of Savara tribe cannot be improved only with the increase in health infrastructure in terms of PHCs and sub-centres. The health standard can be achieved by proper training of manpower and additional innovative health services among Savaras.

Though there are ambulances and mobile health units, the efforts of the government to bring health care to the Savaras have not had the desired impact. Health care delivery in interior tribal areas seems to be deprived due to reasons such as vacant positions, inadequate drug availability and poor maintenance of vehicles. Further, insufficient medical drugs and medical supplies, shortage of trained and skilled medical staff are noted to affect the health facilities at PHC Donubai and Martipadu. The health facilities at PHC Donubai and Marripadu are equipped with insufficient drugs and medical supplies, a shortage of trained doctors, nurses and medical staff.

The reluctance to access health care information can be considered a barrier among Savaras. The lack of understanding about health care is limited due to their socio-cultural beliefs, norms

and tradition. Correspondingly, the Savaras choose to contact TMP even in emergencies such as a snakebite. In these cases, health care is delayed, leading to preventable deaths.

Plate 3.3: Health education program on leprosy in Donubai



CHAPTER 4

Assessment of Mother-Child Tracking System

The maternal health care service is a comprehensive package of Ante-natal Care (ANC), delivery care (Intra- natal care), and post-natal care services. Tribal women are at greater risk of maternal mortality than non-tribal women. Healthcare seeking for maternal health is still low in the tribal regions due to many factors including lack of education, transportation, and access to healthcare centres. This chapter discusses reproductive and health services for the Savaras of Seethampeta Mandal and their utilisation with special reference to the Mother-Child tracking system.

4.1 Reproductive health care:

According to World Health Organization, "reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and its functions and processes. Reproductive health implies that people can have a satisfying and safe sex life and reproduce and have the freedom to decide if, when, and how often to do so".

India has made substantial progress in strengthening its health system to achieve better healthcare for new-borns, children, and mothers and immeasurable efforts to reduce maternal mortality and increase access to reproductive health care. However, many women still lack access to reproductive health care as the progress has been uneven and inequitable. The components such as social status, economic status, and gender are all closely interrelated in determining the use of and access to maternal and reproductive health care. universally to improve maternal and reproductive health.

The government of India has taken several policy initiatives in recent years. The study is focused on one such initiative of the Ministry of Health & Family Welfare to leverage information technology to ensure the delivery of the full spectrum of healthcare and immunisation services to pregnant women and children up to 5 years of age. The mother-child tracking system, one of the very ambitious projects, was launched in 2009 and currently covers all states in India. The project is to ensure that all pregnant women receive adequate nutritional intake during ante-natal, intra- natal, and post-natal care, and also to encourage institutional deliveries. Further since various diseases can be identified before the scanning and so that the

health of the mother and child after the delivery can also be ensured with preventive actions, the mother child tracking system project also envisages tackling high-risk diseases.

4.2 Identifying eligibility couple:

ASHA workers through their regular contacts with the eligible couples (EC) in the village know whether the women are conceived or not. If a woman is conceived, they will take her to a nearby PHC for the required check-up. After the confirmation of pregnancy by the PHC doctor, the woman is registered in the PHC and provided with a mother tracking ID number. This ID is valid and used all over India for tracking and medical check-ups. The woman, along with the ASHA worker, is subsequently sent to CHC located at the Mandal headquarters, Seethampeta, for scanning in the first trimester of pregnancy. For this, the women and ASHA are paid Rs.300 and Rs. 200, respectively as an incentive.

Under the scheme, Pradhana Manthri Surakshit Matritva (PMSMA), Every month on the 9th day of the second and third trimesters, free health check-ups are conducted by doctors for pregnant women in government hospitals (PHC, CHC). The high-risk cases are identified through these tests.

After childbirth, the child is also given a tracking ID for medical check-ups, valid for five years. Under a separate scheme of 'NTR baby kit' the mother is given a towel, liquid soap, and mosquito net. The other schemes of the Central and State governments that ensure affective utilization of the reproductive health care are as under.

4.3 JSSK (Janani Shishu Samkarshana Karyakramam):

Under this program, pregnant women are provided free delivery in the hospital. The required tablets and vaccines are specified for new born babies. The early-term babies are taken care of by the hospital for a month. Normal delivery and caesarean section mothers will be given free food facilities for three and seven days, respectively.

4.4 JSY (Janani Suraksha Yojana):

The women utilising the Mother-Child tracking system service are provided with an incentive of Rs.5000 in three instalments. On women's registration in a trimester first an amount of Rs.1000 is given; during the check-ups (Antenatal care) in the next three months, Rs. 2000 is

given; and after childbirth Rs. 2000 is given as an incentive for vaccines and birth registration of the child. Additional 1000 rupees are given for delivery in the government hospital.

Dedicated call centre for pregnant women: **Dial number 102** is toll-free number that provides complete details about healthcare policies, assistance in emergency cases, and details of the nearby PHCs.

Dial number 108 for Ambulance: It gives free transport facility from an emergency place to a hospital, carries pregnant women to a hospital at the time of delivery, and provides transport facility from one hospital to another for better treatment.

Thalli-Bidda express: This free transport service is rendered to the mother, baby, and one helper to their home from the place of delivery.

4.5 Institutional deliveries:

The childbirth or the delivery of a pregnant women should be under public health institution. It is supervised by trained and experienced healthcare providers in hospitals. The healthcare infrastructure required for baby and mother is provided before and after the delivery.

4.6 Utilization of reproductive health care services in the study area:

To assess the utilization of the services of the reproductive health care services in the study area, four Panchayats are selected in two PHC areas. The details of respondents in these Panchayats are as follows.

Table 4.1: Distribution of Panchayats

S.No	PHC	Panchayat				
		Peddarama	Devanapuram	Somagandi	Haddubangi	Total
1	Donubai	23	15	0	0	38
2	Marripadu	0	0	23	39	62
	Total	23	15	23	39	100

The women interviewed for the mother-child tracking service assessment were selected from 35 villages/hamlets that fell under four Panchayats, namely Pedarama, Devanapuram, Somagandi, and Haddubangi. All these Savara villages were selected based on the criteria that they come under Devanapuram and Somagandi Panchayats where the telemedicine centres were also located.

4.6.1 Age and marital status of the mothers:

Table 4.2: Distribution of age and marital status of mothers

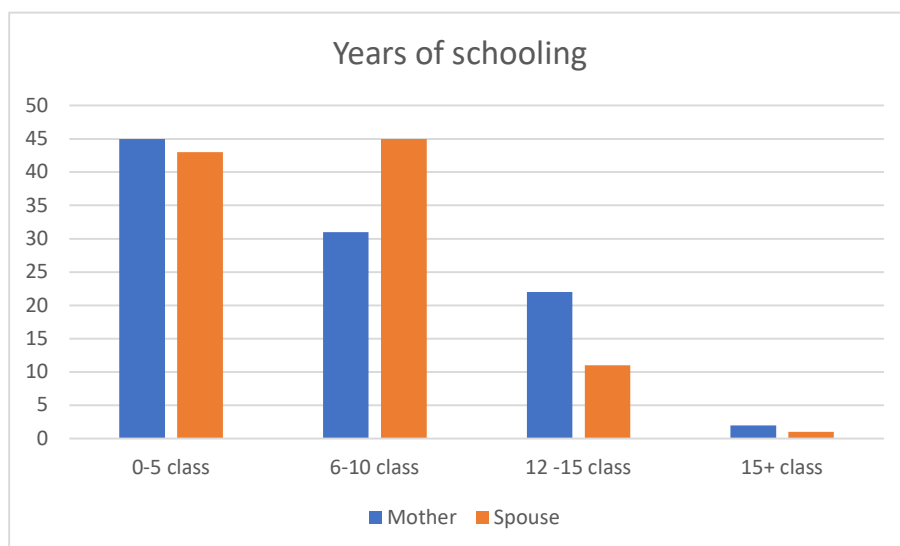
S.No	Age	Marital status			
		Married	Unmarried	Widow	Grand Total
1	Below 20	12	0	0	12
2	21-25 years	50	1	0	51
3	26-30 years	31	0	2	33
4	More than 30 years	4	0	0	4
	Grand Total	97	1	2	100

The distribution of respondents by age and marital status shows that married women availing of the services constituted 97%. Only 2% of women are widows, and only 1% are unmarried. In general, unmarried women are not eligible to avail of the Mother-child tracking system services. However, PHC has considered to provide free services to one unmarried woman too because of her poor economic and educational background. The women in the age group of 21-25 years and 26-30 years represent 51% and 33% of pregnant women, respectively. 12% of the women fall under the age group below 20 years. Only 4% of the women are in the age group of 30 years and above.

4.6.2 Schooling of mother and spouse:

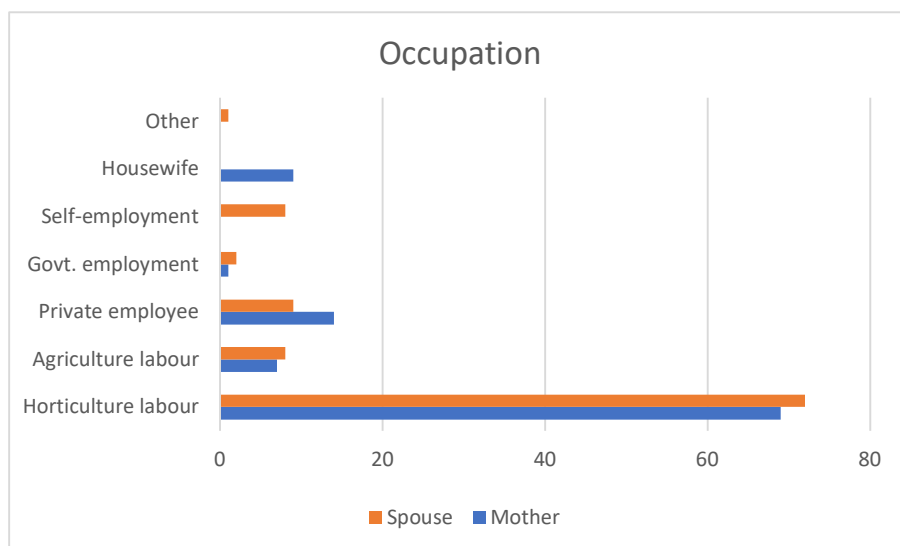
The educational attainments of the respondents and their spouses are relatively high in the case of 28 respondents. These women had 12 years or more of schooling. However, the educational attainments of the spouses of many of these women is not that high. However, a little less than half of the respondents and their husbands had only primary level schooling.

Chart 4.1: Distribution of years of schooling of mother and spouse



4.6.3 Occupation of mother and spouse:

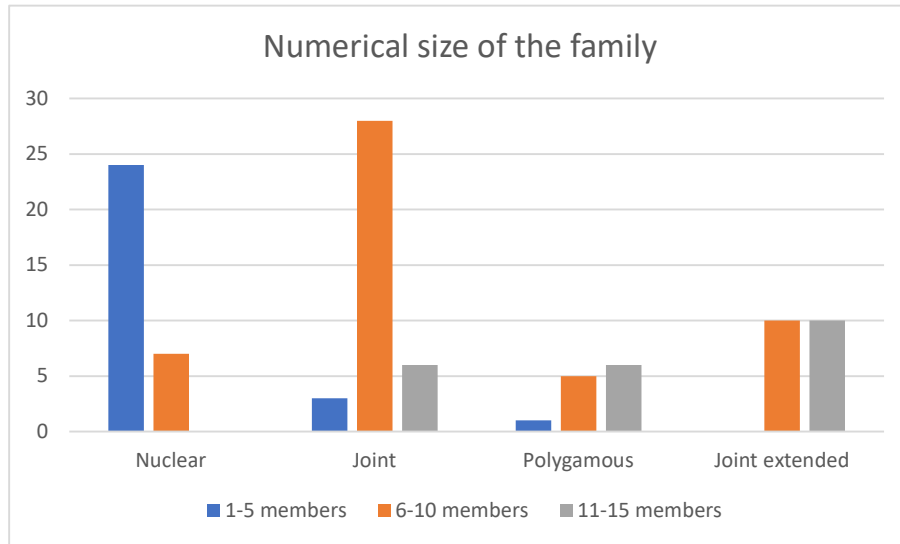
Chart 4.2: Distribution of occupation of mother and spouse



As high as 67% of the women and 72% of the husbands of the women respondents informed to be engaged as horticulture labour. While those worked in private firms accounted for 12.5%, the ones engaged as agriculture labours constituted 7.5%. The government employees accounted for only 1.5%. However, 8% of the respondents informed that their spouses are self-employed.

4.6.4 Numerical size and type of the family:

Chart 4.3: Distribution of numerical size and type of family



The Savaras have a significant numerical size in the joint families, which accounted for 37%. Overall, 31% of the respondents belonged to nuclear families. The nuclear here constitutes the father, mother, and children. The joint extended families accounted for 20% of the respondents. Only 12% of respondents are living in polygamous families.

4.6.5 Primary occupation and Annual income:

Table 4.3: Distribution of Primary occupation and Annual income

S. No	Primary occupation	Annual income			
		50000- 1 lakh	1- 2 lakhs	Above 2 lakhs	Total
1	Horticulture labour	6	57	9	72
2	Agriculture labour	1	2	0	3
3	Private employ	1	7	4	12
4	Govt. employ	0	1	4	5
5	Self-employment	1	6	1	8
	Total	9	73	18	100

Most respondents have earned income ranging from one to two lakhs per year, accounting for 57% through horticulture labour. This data shows that most respondents made a better income through the primary occupation as horticulture labour than private employment, government employment and self-employment.

4.7 Brief reproductive history of the respondent:

Table 4.4: Distribution of Birth order and Age of the Child

S. No	Birth Order	Age of the child							Grand Total
		Below 3 months	3-6 months	19-12 months	12-18 months	Above 18 Months	NA/Died	Pregnant	
1	First	12	4	0	0	1	1	0	18
2	Second	7	8	2	0	0	12	0	29
3	Third	8	1	1	0	0	6	0	16
4	Fourth	3	0	0	0	0	3	0	6
5	Fifth	6	12	0	3	0	5	0	26
6	Pregnant	0	0	0	0	0	0	5	5
	Grand Total	36	25	3	3	1	27	5	100

4.7.1 Birth order and age of the child:

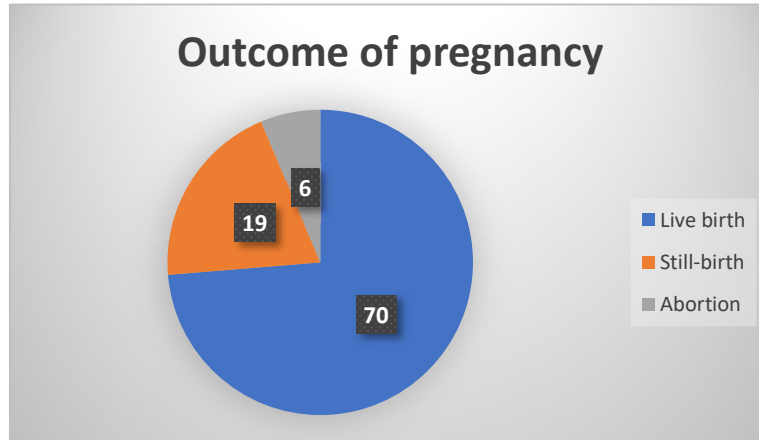
The child's birth order from first to fifth is listed above, along with the child's age. The data in the table shows that the majority of the child comes under the age group of below three months and six months for about 36% and 25%, respectively. Five pregnant women were utilising the service under MCTS.

4.7.2 The outcome of the pregnancies of the respondent women:

The outcomes of the pregnancies of the respondent women revealed that 74% of the pregnancies resulted in live births. The abortions constituted 6% and the stillbirth accounted

for 20%. In the live births, 41% of them had a full-term pregnancy, and the remaining women had delivered before attaining 36 weeks, accounting for 20%.

Chart 4.4: Outcome of Pregnancy:



4.7.3 Birth Weight:

Table 4.4: Distribution of Birthweights

S.No	Birth Weight	Number
1	Below 1kg	8
2	1-2 kgs	14
3	2-3 kgs	46
4	NA	27
	Grand Total	95

The birth weight of the new born varied between 2.5 kgs to 4.5 kgs for a majority of the respondents. The new- born whose weight is below 1 kg accounted for only 8%, and essential care was given to these new- born in the hospital under MCTS service.

4.7.4 Place of Delivery:

The majority of the institutional deliveries took place in the CHC (30%) the district hospital (16%), and Area hospital. (13%). The deliveries in the PHCs being 10%, it can be inferred that the services of the PHCs are underutilized. Further, it is important to note that in spite of all the incentives for institutional deliveries in government institutions, a significant number of

deliveries are conducted in private hospitals and at home. Even though the deliveries were conducted in institutions, assistance was provided by family members, ASHA and AWW in many cases. Even though the deliveries were conducted in institutions, assistance was provided by family members, ASHA and AWW in many cases.

Table 4.5: Distribution of Place of Delivery

S. No	Place of Delivery	Number
1	PHC	10
2	CHC	28
3	Area hospital	12
4	District hospital	11
5	Home	2
6	Private hospital	4
7	Other	1
8	NA home/pregnant	27
	Grand Total	95

4.7.5 Sex of the Child:

Table 4.6: Distribution of Sex of the Child

S. No	Sex of the Child	Number
1	Girl	60
2	Boy	35
	Grand Total	95

The sex of the girl child accounted for 63%, whereas for the boy child, it was 37%. This significant difference is interesting given the poor sex ration among the non-tribals. Further, it is also clear that irrespective of the sex of the child the institutional deliveries are being preferred for all.

4.7.6 If stillbirth, the Term of pregnancy:

As noted earlier, the preterm deliveries are significant among the study population. Out of the 18 such preterm deliveries, as many as 15 were stated to be in the 6th month of the pregnancy. Out of these 18 still births, 17% were in the Area hospital and 4% in CHC. The reasons for this high incidence of still births needs a deeper probe.

Table 4.7: Distribution of Still birth's

S. No	If stillbirth, the Term of pregnancy:	Number
1	6th Month	15
2	7 th Month	3
3	NA	77
	Grand Total	95

4.7.7 If Abortion, Month:

The termination of pregnancy through medical advice is called as abortion. The women will be referred to PHC or CHC for proper abortion care. Abortion is reported by 8 respondents. Most frequently, abortions took place in the 5th month of pregnancy.

Table 4.8: Distribution of abortion cases

S. No	Month of abortion	Number
1	5th Month	7
2	6 th Month	1
3	NA	87
	Grand Total	95

4.7.8 Antenatal care:

The ANC care was availed entirely by 70% of the women with the assistance of ASHA workers, ANM and doctors in PHC and CHC. A minimum of four antenatal visits are required for pregnant women under the MCTS service. 32% of the women have visited at least four times per the doctor's guidance. The women who visited less than four times accounted for

23%, and their reasons include ASHA unavailability, health and personal reasons. 19% of the women visited more than four times due to health complications such as high-risk and very high-risk cases.

Table 4.9: Distribution of ANC visits

S. No	ANC Visits	Number
1	Less than 4	22
2	4 Visits	30
3	More than 4 Visits	18
4	NA	25
	Grand Total	95

4.7.9 Iron- folic tablets consumption:

Table 4.10: Distribution of iron- folic tablets consumption

S. No	I&F tablets consumption	Number
1	Yes	44
2	No	32
3	NA	19
	Grand Total	95

Iron folic tablets were consumed by 46% of women to avoid risks during pregnancy. The remaining women forgot to consume the tablet due to occupational duties and avoided injections in the fifth month. The preference to take injections is common among the Savara women as they believe injection is the instant and best solution for biomedical care.

4.8 Awareness of MCTS service:

Out of 96 respondents, 76% are aware of the mother-child tracking system, and 20% are unaware of the services. Further, when probed on whom is the MCTS services are meant for revealed that 75% of the respondents are aware of whom the scheme is meant for, and 20% of the respondents did not respond to this question or were unaware of it. Of pregnant women,

41%, upon asking questions about the knowledge on the requirement to avail of the services, responded that these services could be availed only in the first trimester. 34% of the pregnant women opined that these services could be availed in the first and second trimesters.

Table 4.11: Requirements to avail MCTS service

S. No	The requirement to avail of the service	Number
1	Pregnant women in 1 st trimester	41
2	NA	20
3	Pregnant women in 1 st and 2 nd trimesters	34
	Grand Total	95

4.8.1 Awareness of benefits:

The knowledge of all the financial incentives and the conditions for the same under the scheme is appropriately known to 16% of total respondents. 48% of the respondents opined that these services are free and a 5000 rupees cheque is provided on successful institution delivery. The pregnant women who considered these services free and 5000 rupees cheque is provided along with other health care services accounted for 12%.

4.8.2 Key health functionaries involved in MCTS:

Table 4.12: Key health functionaries involved in MCTS

S. No	Key health functionaries	Number
1	ASHA	54
2	ASHA, ANM	5
3	ASHA, ANM, and Other	14
4	ASHA, Doctor	2
5	ASHA, Others	1
6	NA	20
	Grand Total	96

Only about 14% of pregnant women know the key health functionaries involved in the mother-child tracking system. Most respondents, who accounted for 54% of the total, felt that ASHA worker is the key health functionary.

4.8.3 Knowledge about the MCTS service:

Table 4.13: Knowledge about the MCTS service

S. No	Knowledge about the MCTS service	Number
1	ASHA	71
2	NA	20
3	ASHA, Family	4
4	ASHA, Pregnant women	1
	Grand Total	96

The respondents, who accounted for 71%, gained awareness and knowledge about the mother-child tracking system through ASHA workers. 5% of respondents obtained this knowledge from ASHA workers, family members and pregnant women.

4.9 Registration under MCTS:

Of the 96 women who have registered under MCTS, in the years 2018 and 2019, a majority of 92% had registered in the year 2019. Among them, 88.5% of the pregnant women were registered in the first trimester, and 11.5% were registered in the second trimester. Although, MCTS services are considered completely availed only if a pregnant woman is registered in PHC or CHC in the first trimester, there are considerable number of women who had registered in the 2nd trimester. The delayed registration in case of many women and registration in the second trimester is said to be due to unavailability of ASHA to accompany to the hospital; pregnant women not approaching ASHA workers earlier, and health and personal issues for the pregnant women. Some were unaware of the health services and incentives of MCTS.

All pregnant women are asked for consent at the time of registration and provided the MCTS ID number. ASHA workers initially confirmed it in the first month for 31 pregnant women, the second month for 30 pregnant women, the third month for 32 pregnant women and the fourth month for three pregnant women. The pregnant women first visited either PHC or CHC after

the initial confirmation by ASHA in the first, second and third weeks accounted for 90.6%, 72.9% and 2%, respectively. Thus, most women visit the hospitals in the first and the second week for health services.

Table 4.14: Registration under MCTS

S. No	Registration under MCTS	Number
1	1st trimester	85
2	2nd trimester	11
3	3rd trimester	0
	Grand Total	96

Pregnant women have a choice to use this registration number in other government hospitals for the entire period of their pregnancy and post-pregnancy. Here, 33% of women have utilised the services in government hospitals in different areas, and 67% of women have utilised it only in the registered PHCs and CHCs.

The recalling of exact date of missing menstrual period is very important for precise prediction of date of delivery. Women who could recall the last menstrual period (LMP) date constituted 71%. This shows that the educated women have some awareness in this regard. The rest 29% of women's LMP was estimated by ASHA workers and health staff and recorded in the MCTS record. Every pregnant woman's estimated delivery date (EDD) is provided in the MCTS book. The estimated delivery date was accurate for 55% of the total respondents. The time lag between the respondent's estimated delivery date and the date estimated by PHC and CHC is due to pregnant women's health condition for about one to ten days.

4.9.1 MCTS message after registration:

As high as 82% of the women have received the message from MCTS service after registration, and 17% have not received any message due to network issues and other reasons. About 57% of respondents possessed a mobile of their own, 33% depended upon the phone of their spouse, family member and a neighbour. A significant 10% of the women also reported that they had no access to any phone.

Health providers suggest the women to go through the MCTS manual to be aware of the services. The MCTS manual mentions pregnancy safety concerns, schemes, diet on nutritious food and required health check-ups. Only 30% of the women went through the complete manual to understand the available services and benefit from them. 60% of the respondents made an effort to take assistance from educated ASHA workers or neighbours to run through the manual provided by the government.

4.9.2 Family member's and community members' acceptance and earlier use of services:

When enquired about the acceptance of the services by the respondent's family members, 76% reported that their family members have accepted the service from MCTS earlier. Further, 78% have also informed that they were familiar with these services and used these services prior. Similarly, they also informed of acceptance of services by their community members and their encouragement to avail of them. A little more than one fourth of the respondents revealed that they are unaware of any community member using these services earlier.

4.9.3 Scanning during pregnancy:

The pregnant woman should undergo three to four scans depending upon the health condition of the would be mother and the baby. In the current study, it is found that 73% of pregnant women went through the scanning process thrice, 21% of the women got scanning one to two times, and 6% of women took a scan test more than thrice upon the doctor's suggestion. The additional scans were due to high and very risk pregnancy cases.

The primary purpose of scanning is for regular health check-ups and identifying health complications such as miscarriage, preeclampsia, anaemia, urinary tract infections and genetic disorders. The motivation for scans during pregnancy is primarily given by the ASHA worker, and ANM.

4.9.4 Identification of health issues after the scan:

The feedback on the general physician scan taken on the 9th of every month at the PHC showed that 76% of the respondents have taken scan and 70% of them received the scan report at the same time. Apart from the organ dysfunction (3%), growth issue, heart disease (1%), other complications were detected through scan. For 70% of the respondents scan reports were normal without any complications.

Table 4.15: Identification of health issues

S. No	Identification of health issues	Number
1	Organ dysfunction	3
2	Growth issue	1
3	Heart disease	1
4	Other	23
5	NA	68
	Grand Total	96

4.9.5 Care after identifying the health issue through scan:**Table 4.16: Care after identifying the health issue through scan**

S. No	Care about identifying the health issue	Number
1	Hospitalisation for treatment	16
2	Frequent scanning	1
3	Tablets and injections	4
4	Bed rest	4
5	NA	68
6	Hospitalisation for treatment, Frequent scanning	1
7	Hospitalisation for treatment, Bed rest	1
8	Tablets and injections, Bed rest	1
	Grand Total	96

Respondents reported different kinds of care provided after the detection of complications. Those hospitalised for treatment accounted for 16%. About 4% of the respondents were given tablets and injections and another 4% were advised best rest.

4.9.6 Family response to health complications:

The family plays an essential role in taking the final decision on health complications such as organ dysfunction. 15% of the family members suggested aborting the child, and 5% suggested availing proper treatment. The pregnant women's decision is also considered during these difficult times. As many as 80% of the respondents availed radiology scan, and the rest 20% have skipped due to personal work or due to lack of interest.

The women identified as high-risk cases were referred to Area hospital for better health services. The doctors in PHC monitored these women effectively throughout the pregnancy period.

4.9.7 Monthly health check-up:

The basic health check-up is conducted at the respective PHCs on the 20th of every month. 75% of pregnant women utilised these services with the support of ASHA workers. The remaining one-fourth of the respondents were not regular to monthly check-ups due to family, occupational and personal issues. The PHC check-up is followed by the visits of CHC health staff every 21st/22nd/23rd of the month. The women who attended the health check-ups at PHC availed this service too.

4.9.8 Ambulance service:

The ambulance service for an emergency health check-up was availed by 10.4% of the respondents. The mode of transport to reach CHC or PHC is private as the public transport facility is unavailable.

4.10 Reproductive morbidity:

Any discomfort during pregnancy, abortion and delivery can be considered as reproductive morbidity. About 96% of the women had experienced some illness or the other during the pregnancy. The illness suffered and the duration of the illness during pregnancy is as shown in the table below.

In majority of the cases, reproductive morbidity occurred during the fifth and sixth months. Those who reported morbidity in the third, fourth, seventh, and eighth months of pregnancy

accounted for 46%. The illness frequently during pregnancy is anaemia (18.75%), followed by stomach and back pain, estimated at 12.5%.

4.10.1 Illness categories during pregnancy and days/months of illness:

Table 4.17: Illness categories during pregnancy

Type of illness	Days						
	1- 7	8-14	14- 21	22-28	28 +	NA	Total
Stomach pain	0	1	2	2	1	0	6
Backache	1	0	0	1	3	0	5
Teeth pain	2	1	0	0	0	0	3
Vomiting	0	1	0	0	0	0	1
Anaemia	1	0	1	6	10	0	18
Jaundice	0	0	0	0	6	0	6
Fever	2	0	1	0	0	0	3
Typhoid	0	0	3	2	0	0	5
Dengue	0	0	0	0	5	0	5
Chicken Guinea	0	0	0	1	0	0	1
Others	0	0	0	1	0	1	2
Swelling of hands & legs	0	2	1	2	3	0	8
Convulsions	0	0	2	0	1	0	3
Malaria	0	0	0	0	1	0	1
Tuberculosis	0	0	0	0	2	0	2
BP	0	1	0	0	0	0	1
Stomach pain, back	1	0	2	9	0	0	12
Stomach	0	0	0	1	1	0	2
Paleness, Visual	2	0	0	0	0	0	2
Backache, Swelling of hands and legs	0	0	0	3	2	0	5
Backache, Weakness & Nausea	0	0	0	1	1	0	2
Anaemia, Swelling of hands and legs	0	0	0	1	0	0	1
NA	0	0	0	0	0	2	2
Grand Total	9	6	12	30	36	3	96

The majority of the illness of pregnant women are due to anaemia, stomach ache, back pain and swelling of hands and legs.

4.10.2 Consultation during pregnancy and reason for choosing a particular practitioner:

The respondents reported consultation with PHC, CHC, TMP, and private hospitals for treatment for the illness during the pregnancy. The treatment was reported to be in the form of tablets, injections and pasaru. Those pregnant women who have consulted CHC for the treatment and have taken injections and pills formed 55% of the total. Almost one fifth of them have consulted a traditional medical practitioner. Private hospitals were not so much favoured by the respondents for treatment during pregnancy. However, some women resorted to simultaneous use of different sources of health care.

Table 4.18: Consultation during pregnancy and reason for choosing a particular practitioner

S. No	Institution	Tablets	Injection	Pasaru	Tablets, Injections	Tablets, Injections, Pasaru	Tablets, Pasaru	Grand Total
1	Sub centre	0	0	4	0	0	0	4
2	PHC	9	0	0	5	0	0	14
3	CHC	23	1	0	24	5	0	53
4	TMP	1	0	17	0	1	0	19
5	Private hospital	2	0	0	0	0	1	3
6	NA	0	0	0	0	0	0	3
	Grand Total	35	1	21	29	6	1	96

4.11 Antenatal care in MCTS service:

4.11.1 The number of trimester services availed:

The services of antenatal care are given in all three trimesters. But some pregnant women could not avail in all the three trimesters due to work, health and personal issues. The women

who availed of the services only in the first trimester accounted for 3%. The women who benefited from the services till the completion of second and third trimesters accounted for 23% and 74%, respectively. Thus, it is evident that most women are availing of antenatal care provided under the MCTS service. The test for blood pressure, diabetic mellitus, HIV, urine and, if required, other tests of the heart and lungs are conducted during the ANC check-up.

Table 4.19: Number of trimesters services availed

S. No	Number of trimester services availed	Number
1	1 st trimester	3
2	2 nd trimester	22
3	3 rd trimester	71
	Grand Total	96

The pregnant women were given Iron- folic tablets as part of antenatal care for daily consumption till the fifth month. These tablets are for prevention of the congenital disabilities of the baby and for avoiding anaemia. The total number of pregnant women who consumed these tablets daily accounted for 44%. ASHA worker took the responsibility of monitoring consumption of these tablets. However, the reluctance to consume the IF tablet is seen among the Savara women. 56% of the women did not consume the IF tablets due to reasons such as negligence (18%), other health complications (10%), and belief in injections (16%). In some Savara hamlets, ASHA workers or Anganwadi workers gave a tablet to pregnant women daily after lunch. The table below summarizes the data regarding the use of tablets and reasons for not using them.

Table 4.20: Use of tablets

S. No	Use of tablets	Reason for not using a tablet					
		Forget to take it regularly	Health complications	Belief in injections	Other	NA	Grand Total
1	Yes	0	0	0	0	42	42
2	No	19	10	15	3	7	54

	Grand Total	19	10	15	3	49	96
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4.11.2 Injections during ANC:

Table 4.21: Injections during ANC

S. No	Patient's response	Injections during ANC				
		Iron injection	Other injections	NA	Iron and other injections	Grand Total
1	Yes	26	43	2	1	72
2	No	0	1	23	0	24
	Grand Total	26	44	25	1	96

After conducting the blood test, if the haemoglobin level is less than 11 grams, the pregnant woman is given an iron injection as she is considered anaemic. Savara pregnant women's belief in injections is high, and they do not depend much on tablets. Out of 96 women who utilised the services, 75% preferred injections during antenatal care, and 25% chose the injections only when the health condition demanded. The respondents who have taken iron injections accounted for 27%, and 49% of them took it for other health complications as prescribed by doctors.

4.11.3 Weight gain during pregnancy:

Average pregnant women must gain weight during pregnancy from 10 to 12 kgs. The table mentioned below has data on weight gain during pregnancy and an increase in kilograms. About 45% of women gained weight during the first to the third trimester. The women who gained 1-5 kgs weight accounted for 45% and those who gained 6-10 kgs constituted 4%.

Table 4.22: Weight gain during pregnancy

S. No	Response	Weight gain during pregnancy			
		1-5kgs	6-10kgs	NA	Grand Total

1	Yes	43	4	0	47
2	No	0	0	49	49
	Grand Total	43	4	49	96

The height and weight of the pregnant women are continuously monitored by PHC and CHC health staff. The women who actively took part in the monitoring of their height and weight accounted for 77%.

4.11.4 Hours of rest during pregnancy:

Table 4.23: Hours of rest during pregnancy

S. No	Response	Hours of rest during pregnancy				
		1 hour	2 hours	2+ hours	No rest	Grand Total
1	Yes	40	14	6	0	60
2	No	0	0	0	36	36
	Grand Total	40	14	6	36	96

Pregnant women must take at least two hours of rest during the day as advised by health providers. The women who took rest during pregnancy accounted for 62.5%, and those who did not take accounted for 37.5%. Regarding hours of rest, 40% of the women have taken an hour of rest, and only 14.5% had two hours of rest following the advice of health providers. The reasons for not taking the rest included occupational duties, family responsibilities, and caring for the elder child.

4.5 Pregnancy nutrition knowledge:

Nutrition and pregnancy refer to the nutrient intake and dietary planning undertaken before, during, and after pregnancy. A healthy and varied diet is essential, particularly during pregnancy. The maternal diet must provide sufficient energy and nutrients to meet the mother's usual requirements, as well as the needs of the growing foetus, and enable the mother to lay down stores of nutrients required for foetal development and lactation. In these cases, ASHA workers and midwives in the community help maintain nutritional standards by creating

awareness. It is found that pregnant women did not consume non-vegetarian food for up to six months of their pregnancy period.

4.6 High-Risk case:

The high-risk cases which fall under MCTS services are pregnancy above 40 years of age, first pregnancy before 15 years or after 35 years, pregnancy after ten years of infertility, fifth pregnancy or above it, height less than 145 cm, threatened abortion and other minor complications.

Table 4.24: Reasons for high- risk case

S. No	Reasons for High-risk case	Number
1	Height less than 145 cm	5
2	Fifth pregnancy or above it	2
3	Other minor complications	4
4	NA	56
	Grand Total	67

The main reasons for the high-risk cases among Savara women were due to height less than 145 cm, fifth pregnancy or above it. Minor complications accounted for 36% of the cases. The high-risk were identified through MCTS service. Among these cases, 82% were identified through PHC, 18% through CHC and the remaining 10% through Area hospital with the help of ultrasound scan and physical examination. Most women believed that the complications experienced by them are due to both natural and supernatural reasons. The PHC health staff have counselled them that the high-risk cases have particular health reasons and suggested to utilise the MCTS service wisely to avoid complications at the delivery time. The staff has provided the preventive measures with regard to the same.

4.7 Very high-risk case:

The very high-risk cases too were also identified among Savara women. If the last pregnancy resulted in premature labour, bleeding before delivery, abnormalities of baby, growth issues of baby it was treated as high risk. Similarly, twins or multiple pregnancies, hydramnios, severe anaemia, cardiac disease, Diabetes Mellitus, Gestation after 42 weeks were considered as very

high- risk cases under MCTS service. The reasons for very high-risk cases are stillbirth, neo-natal death, and the pregnant women suffering from growth issues with the baby and severe anaemia. Such pregnant women were referred to area hospital (30%), district hospital (64%) and private hospital (6%) for further treatment.

4.8 Intra- natal care in MCTS:

The pregnant women, who were admitted to the hospital for delivery a week before the estimated date on the advice of PHC and CHC doctors accounted for 34%. Another 35% of them were admitted on the estimated delivery date and 11% after the estimation date.

Though an ambulance service is provided to reach the hospital, 31% of the pregnant women have depended on private transport as there were network issues for calling ambulance service and the perceived severity. Among all the pregnant women, 58% reached the hospital on time, whereas the rest of the 42% had faced some difficulty to reach the hospital before delivery. Due to this, the pregnant women experienced complications like bleeding (7%). leakage of amniotic fluid (25%), high blood pressure (18%) and heavy labour pains (6%). These pregnant women were referred to area hospital (54%), district hospital (26%) and private hospital (20%) for delivery after they reached a designated health facility.

4.9 Neo-natal care in MCTS:

The health provider has enquired about the health condition after the delivery for all the pregnant women. The following were the post- natal illness that occurred among the women. 28% of the women had suffered from anaemia, and 15% had problems related to milk and breastfeeding, which were solved with the help of health staff.

Table 4.25: Post- natal illness

S. No	Post-natal illness	Number	Percentage
1	Vaginal discharge	2	2.99
2	Excessive bleeding	5	7.46
3	Depression, anxiety	0	0.00
4	Sleep deprivation	6	8.96
5	Milk and breast problems	10	14.93

6	Urinary problem	3	4.48
7	Stomach pain	4	5.97
8	Weakness & Nausea	4	5.97
9	Fever	5	7.46
10	Anaemia	19	28.36
11	Other	1	1.49
12	NA	2	2.99
13	Vaginal discharge, Weakness & Nausea	1	1.49
14	Sleep deprivation Weakness & Nausea	3	4.48
15	Weakness & Nausea, and Fever	2	2.99
	Total	67	100

The mothers experienced anaemia, issues related to milk and breast accounted for 28% and 15%.

4.9.1 Illness of child:

Table 4.26: Child illness

S. No	Nature of illness	Number	Percentage
1	Malnutrition	4	5.97
2	Vomiting	4	5.97
3	Diarrhoea	2	2.99
4	Low birth weight	9	13.43
5	Chest pain or breathing problem	3	4.48
6	Chickenpox	4	5.97
7	Fever	13	19.40
8	Fits	4	5.97
9	Jaundice	3	4.48
10	Measles	4	5.97

11	Other	0	0.00
12	Skin allergy	5	7.46
13	Malnutrition and Vomiting	1	1.49
14	Vomiting and Diarrhoea	10	14.93
15	Diarrhoea and fever	1	1.49
	Total	67	100

As high as 98% of new born have suffered from minor and major illnesses after birth. The majority of them suffered from fever, vomiting, diarrhoea and low birth weight. The duration of the illness was for a week for 70% of the new born, followed by four weeks for 15% of them. Only 6% of the new born had consistent suffering for more than a month.

Notably, the mothers consulted CHC for about 42% and area hospital for 34%. The consultation with PHC, TMP and the private hospital was estimated as 12%, 8% and 4%, respectively. The dominant reason to consult these health care providers is referral by family, ASHA, and accessible distance.

The treatment for new- born was tonics, and syrups in case of 64%, and tablets, injections and scanning for about 36%. Among the new-borns, 9 % were hospitalised, and 4% were given treatment in ICU due to the seriousness of the illness.

4.10 Services of immunisation for Mother and Child:

As a part of MCTS service, Universal Immunization Program (UIP) is conducted in hamlets and sub- centres. The MCTS book provides information on immunization for the understanding the importance of immunisation. For uneducated women, the ASHA workers or ANMs create awareness on it. Immunisation during pregnancy is a successful way to protect both mother and child against health issues. The pregnant have been given tetanus and diphtheria toxoids (Td) and tetanus toxoid (TT) vaccines to prevent neonatal tetanus. A significant number of women have taken immunisation services (98%) with the follow-up of ANMs, and ASHA workers in the area. The ASHA and spouse of the women have accompanied to the hospital during and post-delivery for about 73% and 22% of women respectively. The family and community members have accompanied in the absence of the spouse of the woman.

4.11 Antenatal care and food consumption:

The pregnant women were tested for body weight, blood pressure, haemoglobin, abdominal check-ups, and HIV/AIDS. Anganwadi centres provide nutritious food to all pregnant women after registering in PHC. There are no food restrictions during pregnancy; Savara women usually consume all foods. (Rice, starch, fish, chicken, milk, seasonal veggies and fruits, and eggs). Pregnant women got meals during their hospital visits on ANC check-ups each month.

4.11.1 Intra- natal care and food consumption:

The pregnant women got food for three days during Normal delivery and 7-8 days during C-section in the hospital. They ate rice java and ganji- Kuddu) without curry for breakfast and evening snacks with limited quantity.

For the initial month after delivery, they consumed only Kuddu, Dal (Rogopa), and Beef (Tangli) without onions. They add only garlic (palaanasuda) and dry chilli (asarsuyu). They were not allowed to eat curry for up to one week. Post-delivery, they don't accept food provided by the hospital due to certain beliefs in the community, such as Gabbasam- the baby's skull becomes hollow, the baby will die, and in the case of the mother, her backbone bends. They rely entirely on home food, and food offered by the hospital is given to patient attendees.

A similar nutritional diet provided during antenatal care is offered to all pregnant women for their post-natal care. They consult an ethnomedical practitioner (yejjuruolu) if they are not satisfied with public health facilities for food. The ethnomedical practitioner will decide what pregnant women should consume. Based on the mother's symptoms, the diet is changed. Food allergies are taken into consideration as they are lactating mothers. Nutrient food is given to maintain infant weight.

4.11.2 Food beliefs and restrictions:

Eating meat is avoided by the pregnant woman, as it may be hard to digest. Similarly, leafy vegetables also are not to be taken as they may cause cold. Women are asked not to consume sugar, sugar cane, and honey as they cause a labour delay. Some other food exceptions too exist, such as eggs are not consumed as they believe it leads to ear-related diseases- Sopenglu and no hair growth for the baby. Root vegetables like potatoes and fruit like papaya are not consumed, as they cause heat in the body. The finger millet is avoided because they believe a

dark baby will be born. The other fruits and vegetables such as Brinjal, Jack fruit, Apple, and Guava are believed to cause cough and cold.

4.12 Registration in Anganwadi after conceiving:

Out of 96 women, 91.6% of women have registered to avail the services of food with the help of the Anganwadi worker, ASHA worker and ANM in their area. 72% of pregnant women have consumed food from Anganwadi after registration, whereas 20% of them did not consume the food due to reasons like the Anganwadi centre is not available in the hamlet and the travel to another hamlet was difficult, and nutritious food was not provided. Overall, 49% of pregnant women confirmed that the food provided under MCTS in Anganwadi is sufficient to get the nutrients, 51% of women shared that food lacked the nutrients, and they have combined Savara staple home food as well as Anganwadi food for better results.

The Anganwadi centres have provided food to respondents in the first, second, and third trimesters. Those who availed the food in different trimesters accounted for 62.5%, 7.29% and 67.7%, respectively. 8.3% of women could not recall and did not respond about the number of months for which they availed food in Anganwadi.

4.13 Food preference during pregnancy:

19.7% of pregnant women preferred eating only at home; whereas 12.5% depended only on the Anganwadi centre for afternoon meals. The women who chose both home and Anganwadi food accounted for 15.6%, and women who preferred home and Anganwadi food along with fruits accounted for 11.4%.

During the antenatal care check-ups, the CHC provided food to pregnant women. 95% of the women consumed food, and 5% did not consume food in CHC. This is due to the suggestion of local health care providers to avoid outside food during pregnancy.

Finally, 73% of the pregnant women received food at the time of delivery as a part of the incentive for institutional delivery. 11.4% of women did not receive food because those deliveries were not part of government hospitals. 15.6% of women didn't respond to the food service at the hospital at the time of delivery.

4.14 Nutrition for infants and children:

After the delivery, through MCTS, doctors identify cases of malnutrition in infants and children and recommend for supplementary nutrition besides treating and distributing IFA (Iron- folic acid) tablets.

4.15 Belief during pregnancy:

Table 4.27: Beliefs during pregnancy

S. No	Belief when women get ill during pregnancy	Number
1	Natural health issues	39
2	Fate	2
3	Supernatural	55
	Grand Total	96

The Savaras initially believed that the illness was caused due to some supernatural powers or by the evil eye (chillangi) and spirit possession (gaali sokadam). The women who believed that the illness was due to natural reasons accounted for 41%. Those who explained the illness in terms of fate and supernatural reasons constituted 2% and 57%, respectively. Similarly, when a child got ill, the mother attributed it to natural and supernatural agencies (31%). Those women who planned to deliver on a specific day accounted for 24%.

4.16 Incentives given in MCTS and reason for continuing the services:

Table 4.28: Incentives and reasons

Reason for continuing the services	Incentives driving you to avail of the services			
	Yes	No	NA	Grand Total
Free treatment	28	0	0	28
Continuous monitoring of pregnancy	8	0	0	8
Other	1	0	0	1
Free treatment, continuous monitoring	25	0	0	25
Free treatment, continuous monitoring & other	3	0	0	3
NA	0	17	14	31

Grand Total	65	17	14	96
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Majority of the women availed the service for reasons such as free treatment and continuous monitoring constituted for 26%

4.17 Perception on MCTS:

4.17.1 Based on your experience, do you suggest other women to use MCTS service:

Table 4.29: Suggest other women to use MCTS service

Specify	Suggest other women use the MCTS service			
	Yes	No	NA	Grand Total
Family	10	0	0	10
Relatives	15	0	0	15
Community-women	5	0	0	5
NA	0	18	14	32
Family, relatives	26	0	0	26
Family, relatives & community women	4	0	0	4
Family & community women	4	0	0	4
Grand Total	64	18	14	96

The women who utilized service have suggested to family members and relatives due to the tracking benefits.

Plate 4.1: Safe Delivery Calendar in PHC



Plate 4.2: Group discussion with ASHA workers and Anganwadi workers



Plate 4.3: Mobile feeder ambulance



Plate 4.4: Ambulance at Donubai PHC



[illegible]

A group of four women are gathered in a room, likely a community health center. Three women are seated on a bench, each holding an infant. The woman on the left is wearing an orange and blue sari and is smiling. The woman in the middle is wearing a pink and green sari and is looking down at her child. The woman on the right is wearing a red and blue sari and is also looking down at her child. A fourth woman, wearing a white and blue sari, is standing on the right side of the frame, looking towards the camera. The room has posters on the wall, including one with text in Kannada and another with a diagram of a human body. There is a window with a grid pattern in the background.

Plate 4.6: Researcher with pregnant women and mothers in Akkanaguda



CHAPTER-5

Assessment of Telemedicine

World Health Organization (WHO) has defined telemedicine as, “the delivery of healthcare services, where distance is a critical factor, by all healthcare professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of healthcare providers, all in the interests of advancing the health of individuals and their communities.”

This chapter critically examines telemedicine facilities in one ITDA area in Andhra Pradesh. The study is focused on the utilization of telemedicine services, institutional arrangements, perceptions of telemedicine services and factors encouraging and discouraging the use of telemedicine services.

5.1 Introduction of Telemedicine service:

The telemedicine centres were started by Dhanush software in the Seethampeta area in May 2019. They were given training to B. Sc (Nursing) students about the telemedicine centre. These trainers were referred as telemedicine doctors. They have trained about video call consultancy and operating the vending machine.

5.2 Telemedicine facilities in Seethampeta:

The people involved in telemedicine service are Telemedicine doctor, specialized doctor (through video calls) and ASHA workers. Each e- sub-centre will have a tab which is connected to Wi-Fi. In that, there is an app called e- sub-centre. The telemedicine doctor will fill in personal particulars for registration and call doctors. The doctors or specialists in Vishakhapatnam, Vijayawada, Vizianagaram and Guntur will pick up the video call and talk to the patient about the symptoms. If they can't speak the Telugu language, the ASHA in that centre will help the patient to communicate with the doctor. Based on the patient's condition, the doctor will suggest medicine to them, which should be collected from the vending machine in the e- sub-centre.

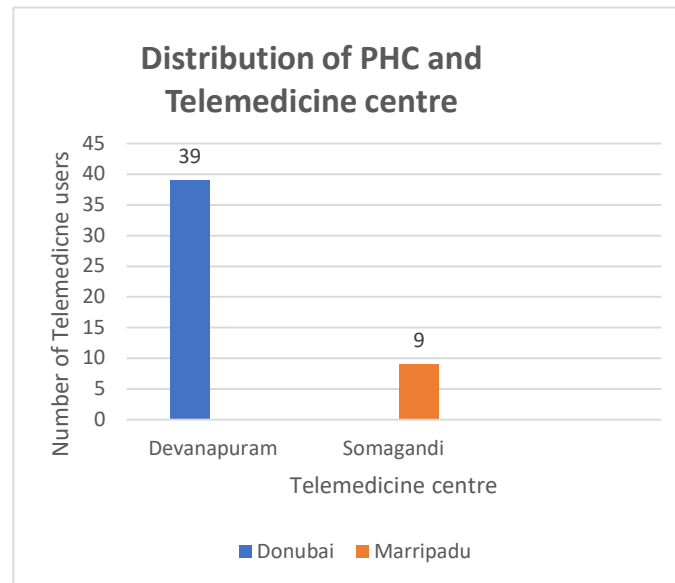
The e- Sub Centre/ Telemedicine centre of Seethampeta comes under “Real-time or synchronous telemedicine” (where the sender and receiver both are online at the same time and

a ‘live’ transfer of information occurs). It also provides healthcare to the unreached population by giving them direct access to a medical professional (Health professional to the patient). Two telemedicine/e- Sub centres, namely Devanapuram and Somagandi, which come under PHC Donubai and PHC Marripadu, respectively, were discussed in this study. Among the 100 patients in tribal hamlets around telemedicine centres who experienced an illness, 48 patients have utilized telemedicine facility.

5.3 Vending machine in e- sub-centre:

The vending machine is an automated machine that distributes tablets to patients who visit the telemedicine centre. The doctor in the video call, referred to as a specialist or specialized doctor, prescribes the medicine to the patient after the call. Patients in the same telemedicine room can collect these tablets.

Chart 5.1: Distribution of PHC and Telemedicine centre



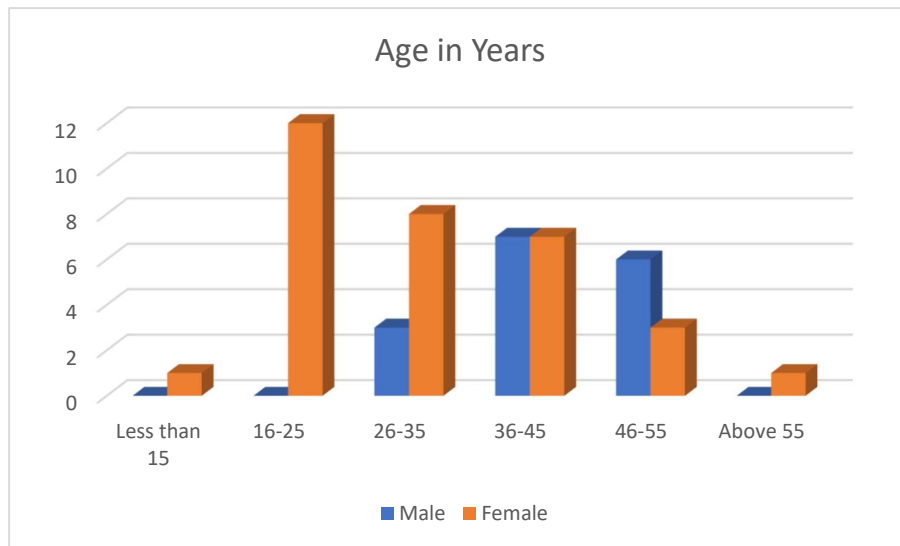
5.4 Distribution of PHC and Telemedicine centre:

The respondents who were interviewed for the assessment of the telemedicine service were selected from 35 villages/hamlets that fell under four Panchayats, namely Peddarama, Devanapuram, Somagandi, and Haddubangi. These Savara villages were selected based on the criteria that they come under Devanapuram and Somagandi, where the telemedicine centres were located. The distribution of the respondents by PHC is as given above. The telemedicine centre of Devanapuram has the majority of the users, accounting for 81.25%, and Somagandi

has 18.75% of users. The smaller number of users in the Somagandi telemedicine centre is because ANM rarely handles the service on behalf of a Telemedicine doctor on maternity leave. While in contrast, the Devanapuram telemedicine centre has a doctor available on all working days. She also travels to the hamlets with the equipment and tablets for treating the patients.

5.4.1 Distribution of Telemedicine users by Gender and Age:

Chart 5.2: Distribution of Telemedicine users by gender and age



The distribution of the respondents by age group and gender is shown above. Out of the total telemedicine users, 33% are males and 67% are females. The age group under which most of the patients fell is 36 to 45 years which accounted for 29%, followed by the age group of 16 to 25 years (25%). Children below 15 years and the aged members who are above 55 years have less frequently utilized the facility. The only members under the age of 15 years for whom telemedicine services were used is an unusual case of menstrual pain in Bambaduguda hamlet under the Devanapuram telemedicine centre.

5.4.2 Years of schooling and marital status of the respondent:

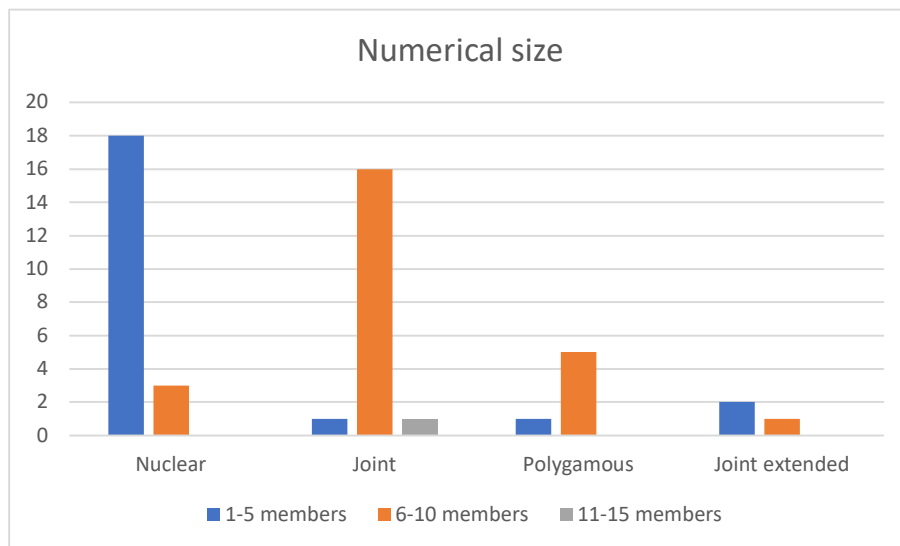
The distribution of respondents by years of schooling and marital status shows that the married members have availed the services predominantly (91.6%). The unmarried and widows accounted for only 4% each. Among the years of schooling, the respondents who studied till the fifth and tenth standards have utilized the services accounted for about 64.5% and 31.2%, respectively. The least utilization is by the patients whose educational attainment is higher.

Table 5.1: Distribution of years of schooling and marital status

Years of schooling	Married	Unmarried	Widow	Total
0-5 th class	29	0	2	31
6-10 class	14	1	0	15
10 th class	1	1	0	2
Total	44	2	2	48

5.4.3 Distribution of numerical size and type of the family:

Chart 5.3: Distribution of numerical size and type of the family



The numerical size in the nuclear families is not high among the Savara. Perhaps due to this the members of nuclear families with a size of 1-5 members accounted for 43.75% of the total users. Overall, 37.5% of the respondents belonged to joint families among telemedicine users. Members from the joint extended families accounted for 6.25% of the respondents. Only 12.5% of respondents reported to be from the polygamous families.

5.4.4 Distribution of Telemedicine users by Occupation and Income:

Table 5.2: Distribution of Telemedicine users by Occupation and Income

Occupation& Income	50000- 1 lakh	1- 2 lakhs	Above 2 lakhs	Total
Horticulture labour	1	10	24	35
Agriculture labour	0	2	5	7
Private employ	0	0	1	1
Govt. employ	0	2	0	2
Self-employment	0	1	2	3
Total	1	15	32	48

Most respondents (73%) of the telemedicine users reported annual an income of above two lakhs. Further, 73% of them also stated be depending on horticulture labour for their income. Since most respondents in the sample were dependent on horticulture labour than private employment, government employment and self-employment, the trend is as expected.

5.5 Distribution and type of illness:

Table 5.3: Distribution and type of illness

Illness	1-7 days	8-14 days	14- 21 days	22-28 days	Above 1 month	Grand Total
Abdominal Pain	0	0	1	0	0	1
Accident	1	0	0	0	0	1
ANC Check-up	0	0	0	0	3	3
Back pain	0	1	0	0	0	1
Body Pains	4	0	0	0	0	4
BP, Headache	1	0	0	0	0	1
Chest Pain	1	0	0	0	0	1
Cold, Cough	2	0	0	0	0	2

Fever	8	0	0	0	0	8
Gastric pain	2	0	0	0	0	2
General weakness	0	0	0	0	0	1
Headache	4	0	0	0	1	5
Joint Pains	3	0	0	0	0	2
Low BP	2	0	0	0	0	2
Minor leg injury	1	0	0	0	0	1
Motions	2	0	0	0	0	2
Period Pain	1	0	0	0	0	1
Skin allergy	2	0	0	0	0	2
Stomach Pain	3	0	0	0	0	3
Teeth ache	1	0	0	0	0	1
Typhoid	3	0	0	0	0	3
Grand Total	41	1	2	0	1	48

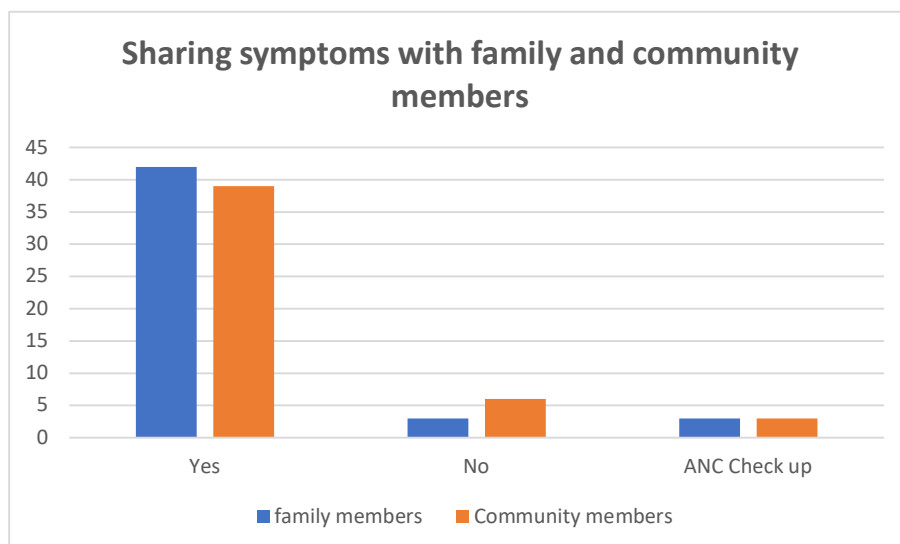
The duration of the morbidity suffered by the respondents of the telemedicine users was largely 1-7 days. That means the members have resorted to telemedicine facility only in cases of minor morbidity and when the perceived severity of illness is less. Further, morbidity suffered by the pregnant women in their third, fourth, seventh, and eighth months was reported to the doctors of telemedicine centres and treatment was sought for the same. Other than that, the main illness category for which telemedicine was used is fever, which accounts for 16.7%, followed by headache and body pains, estimated at 10.4% and 8.3%, respectively.

5.6 Sharing of symptoms with family and community members:

Among the respondent's, 87.5% members have shared the illness symptoms with family members and 81.25% with community members prior to their consultation with telemedicine doctors. Thus, their advice also mattered in the choice of telemedicine facility for treatment of their illness. The table below summarizes the data on the members with whom the symptoms were shared and particular reasons for sharing it more precisely. The respondents have shared

the symptoms with family members for seeking medical advice (25%), for accompanying to the hospital (14.5%), for both medical advice and assistance (31.25%), moral support (2%), medical and moral advice (10.4%) and for attending and moral support (4%). The sharing of symptoms was majorly with husband or son accounting for 37.5% and 18.75%.

Chart 5.4: Sharing of symptoms with family and community members



5.6.1 Sharing symptoms with family members and reasons for sharing:

Table 5.4: Distribution of sharing symptoms with family members and reasons

Family Member	Reason for sharing						Total
	To seek medical advice	For accompanying to the hospital	Medical advice & assistance	Moral support	medical advice & Moral support	For physical & Moral support	
Husband	6	1	6	0	4	1	18
Wife	1	1	2	0	0	0	4
Father	2	1	1	0	0	0	4
Mother	0	0	0	0	0	1	1
Brother	0	1	1	0	0	0	2

Son	2	2	3	1	1	0	9
Mother-in-law	0	1	2	0	0	0	3
Father-in-law	1	0	0	0	0	0	1
Grand Total	12	7	15	1	5	2	42

5.6.2 Sharing symptoms with community members and reasons

Table 5.5: Distribution of sharing symptoms with community members and reasons

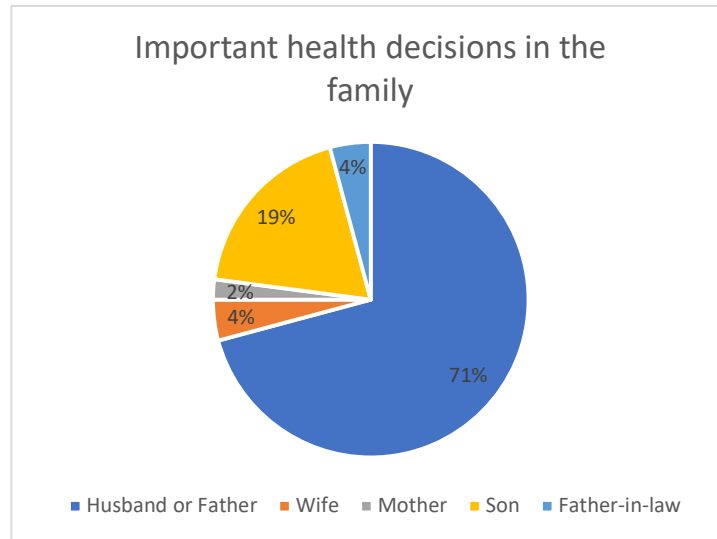
Community members	Reason for sharing					Total
	Seek medical advice	For accompanying	To seek medical advice & for physical support	Medical advice & Moral support	Physical & Moral support	
Community members	7	0	0	1	0	8
ASHA	11	8	3	1	3	26
Village head	1	0	0	1	0	2
Community members & ASHA	0	1	0	1	1	3
Grand Total	19	9	3	4	4	39

With regard to community members, the majority have shared with ASHA workers to seek medical advice, for accompanying and moral support, which accounted for 54.1% and only 4% of the symptoms were shared with village heads when the illness severity is high.

The symptoms were considered worthy of treatment by a doctor by 81.25% of respondents, whereas 12.5% of respondents felt that the symptoms had minimal impact on them. 6.25% of the respondents visited the telemedicine centre to take iron-folic tablets under antenatal care.

5.7 Important health decisions in the family:

Chart 5.4: Important health decisions in the family



Among Savaras, the head of the family is a male member, so the important health decisions with regard to treatment are taken by the husband and father in the family. Data too reflected the same as 71% of respondents reported that the important decisions in their family is taken by father. The role of the wife, mother and father-in-law in matters relating to illness related decisions is less significant.

5.7.1 Medical advice on the health care provider from Family members:

Table 5.6: Medical advice on the health care provider from family members

Health care provider advice	Family member	Community members
Telemedicine	11	17
Traditional healer	11	4
Govt hospital	18	11
Private hospital	2	2
NA	3	11
ANC check-up	3	3
Grand Total	48	48

Family and community members have a crucial role in medical advices. The medical advice by family members and community members to visit the telemedicine is reported by 30% and 35% of the total telemedicine users, respectively. The respondents who got advice to consult a TMP by family members constituted a significant percentage. On the other hand, the advice of the community members to go for telemedicine services or government hospitals.

5.8 Use of telemedicine centre facility:

The respondents who used telemedicine services for the first time, accounted for 87.5%. Only two patients have reported to have already availed of the telemedicine facility before 2 and 3 months. These 33% of these first users became aware of these services through ASHA workers.

5.8.1 Reason to choose telemedicine service:

Table 5.7: Reason to choose telemedicine service

Reason to choose telemedicine service	
Easy to access	14
Specialist treatment	1
Free treatment	8
Treated similar cases	4
Easy to access & Free treatment	12
Easy to access & treated similar cases	1
Free treatment & treated similar cases	2
NA	5
Grand Total	47

The important reason for choosing telemedicine services is the easy access (29%). Easy access and free treatment were reported by another 25% of the respondents for their use of services. The reason of treatment by specialists and experience of treatment of similar illness were cited only rarely.

5.8.2 Mode of transport and distance travelled to reach the telemedicine centre:

Table 5.8: Mode of transport and distance

Mode of transport	Distance travelled in kilometres				
	1-3 km	4-6 km	7- 9 km	More than 9 km	Total
Public Transport	1	0	1	0	2
Private Transport	8	12	20	1	41
Walk	4	1	0	0	5
Grand Total	13	13	21	1	48

The 85.4% of the respondents depended on private transport due to the lack of public transport facilities for using the telemedicine facility. 43.75% of the respondents have travelled more than 6 km to utilize the services. 54% of the respondents have travelled between one to six km.

5.9 Utilization of telemedicine:

5.9.1 Registration in Tab:

Table 5.9: Registration in tab

Number of patients	First use of telemedicine services with registration in Tab	ID number
Yes	42	42
No	2	0
NA	4	6
Grand Total	48	48

The first-time users must register in the tab by providing personal details, after which they receive a message to the registered number. The Telemedicine centre will provide the Telemedicine ID for the patient. Later, the illness details were entered by a telemedicine doctor. Two patients who have availed the telemedicine services have registered and received an ID number from the telemedicine centre, which was used to get further services or treatment. The

patients who were aware of the symptoms that were entered in the tab accounted for 46%, and the rest were unaware of the symptoms entered by the doctor.

5.9.2 Consulting the doctor through video call:

Table 5.10: Consulting the doctor through video call

Consulting the doctor	
Yes	40
No	8
Grand Total	48

Out of 48 respondents who visited the telemedicine centre 40 had spoken to the doctor through a video call facility with the help of a telemedicine doctor, and/or ASHA workers. The remaining 17% of the respondents have not utilized the service even after receiving the ID and message.

5.9.3 Time taken by the doctor to pick up the call:

Table 5.11: Time taken by the doctor to pick up the call

Time taken by the doctor to pick the call	
Less than 5 minutes	8
Less than 10 minutes	12
More than 10 minutes	20
No one picked	8
Grand Total	48

The specialized doctors have taken less than 5 minutes to pick up the call and provide medical advice in case of 17% of the respondents. The waiting time of more than 10 mts. to accept the call was informed by 41% of the respondents. The number of respondents whose call was not received by the doctor constituted 17%. This shows the inefficacy of doctors to function in the online mode or some other indifference. However, the time delay in picking up the call was

acceptable to 64% of the respondents. The remaining patients (17%) could not wait to consult the doctor for the following reasons: hamlets were located away from the telemedicine centre and pressing agricultural works. Some patients consulted other health providers in order not to delay the treatment.

5.9.4 Distribution of demographic details and gender of the doctor:

Table 5.12: Demographic and gender details of doctor

Location of the doctor	Gender		
	Male	Female	Total
Vishakhapatnam	16	6	22
Vijayawada	11	3	14
Vijayanagaram	2	1	3
Guntur	1	0	1
Grand Total	30	10	40

Half of the specialized doctors on the telemedicine call hailed from Vishakhapatnam, followed by Vijayawada doctors. Three- fourth of the doctors were males, and only one-fourth of them were females.

5.9.5 Duration of the call with the specialist doctor:

The video call duration with the specialist doctor in the telemedicine centre lasted for one to five minutes for 78% of the respondents. The call was exceeded for more than five minutes in case of only 22% of the total respondents. The patients who felt the doctor could not understand their health issue effectively comprised 30%. These patient's consulted other health care providers in PHC, CHC and TMPs even after a video call in telemedicine centre. Among the respondents, 60% felt that the right specialist spoke to them.

Table 5.13: Duration of the call with the specialist doctor

Duration of the call (in Minutes)	
1- 5 Mins	31

5-10 Mins	9
Grand Total	40

5.9.6 Referred to PHC/CHC for diagnostic tests and provided the details of the tests:

Table 5.14: Patient's response on referrals

Patient's response	Referred to PHC/CHC
Yes	6
No	34
Grand Total	40

Six of the 40 patients were referred to PHC or CHC for diagnostic tests. The details about the tests which were given to them were later given to telemedicine doctors. As many of them have consulted for minor illnesses, the referral to other hospitals was minimal. The reference to undergo the diagnostic tests at PHC and CHC accounted for one and five cases, respectively.

5.9.7 Details about the duration of the treatment:

Table 5.15: Duration of treatment

Patient's response	Duration of the treatment (in Days)				
	1- 7 days	8-14 days	14- 21 days	NA	Total
Yes	27	1	4	0	32
No	0	0	0	8	8
Grand Total	27	1	4	8	40

The specialized doctor has provided the details about the duration of treatment to patients. The treatment for the illness lasted less than a week for 27 patients (67.5%) and more than two weeks for four patients (10%).

5.10 Perceptions on telemedicine:

5.10.1 Language issues faced by patients:

Out of total respondents who have utilized the services, the ones who had no language difficulty accounted for 40%, whereas the respondents who encountered language issue accounted for 60%. The primary language of the respondents is Savara, and the specialized doctor could speak in Telugu language to the patients. The respondents shared that doctor did not particularly understand the socio-cultural impact of illness in a video call set-up. The ASHA worker and Telemedicine doctor assisted the patients with regard to the new IT-enabled service. Also, an ASHA worker helped in the translation of the language from Savara to Telugu as she is part of their community.

5.11 Problems encountered in telemedicine:

5.11.1 Patient's response on satisfaction and reasons for dissatisfaction:

More than half of the patients were not satisfied with the telemedicine services regarding the technical issues. Delays in call picking (18%), language and socio-cultural issues (10%) and lack of transport facilities (14%) were cited as the factors discouraging the use of the facilities. As these telemedicine centres were located in Jatapu tribal villages, they did not significantly benefit the Savara tribes.

5.11.2 Patient's response on the continuation of the services and suggestion to the family:

The patients who were not satisfied with telemedicine services and were not interested in further continuing the service accounted for 65%. They shared that telemedicine services can be utilized to treat minor illnesses, and its advantages are like medical advice from the qualified doctor, saving of time and relative access. 40% of the respondents shared that telemedicine services save time and travel issues to visit government or private hospitals for treatment. On the other hand, 60% of the users shared that they were dissatisfied with the telemedicine services.

5.12 Family and community acceptance on treatment through telemedicine:

Table 5.16: Family and community acceptance on treatment through telemedicine

Patient's response	Family acceptance of treatment	Community acceptance of treatment
Yes	15	19
No	25	21
Total	40	40

The family and community's acceptance of treatment through telemedicine services is shown in the table. 38% of family members and 48% of community members have accepted the treatment provided in the telemedicine centre.

5.13 Patient's response on telemedicine service saving time and travel issues:

Table 5.17: Patient's response on telemedicine service saving time and travel issues

Saving time and travel issues	
Yes	16
No	24
Grand Total	40

40% of the respondents shared that telemedicine services save time and travel issues to visit government or private hospitals for treatment. On the other hand, 60% of the users shared that they were dissatisfied with the telemedicine services.

5.13.1 Patient's response on personal issues:

As the service is in online mode, the users cannot share sensitive health information. Also, users were nervous about talking through video calls as it was their first video consultancy, and they were unaware of the technical gadgets.

5.14 Factors for poor utilization:

Patients are rejecting the telemedicine service for the following reasons:

- The video call will take up to 5-10 minutes waiting time-based on the availability of the doctor.
- The patients are uncomfortable talking to a doctor directly on a video call. Patients expressed their dissatisfaction with not meeting them personally.
- The other reasons are that doctor only prescribes tablets, and there are no injections or saline in e- sub-centre. Telemedicine centres don't provide basic medical supplies like ointments or cotton. The patients themselves ask for the medicine instead of taking suggestions from the doctor. (E.g., They ask for a yellow or red tablet)
- Language barrier: Some patients can't speak Telugu, so the ASHA worker will speak to the available doctor on their behalf. The telemedicine doctor felt that the ASHA worker's translation from Savara to Telugu language will miss major symptoms and affect the patient's health.
- The inefficacy and absence of telemedicine doctors resulted in poor performance of the services.

Plate 5.1: Devanapuram telemedicine centre with health staff



Plate 5.2: Telemedicine centre doctor travelled to hamlets to provide service



Plate 5.3: Somagandi telemedicine centre



Plate 5.4: Tab in telemedicine centre



Plate 5.5: Telemedicine patient availing the service



Plate 5.6: Vending machine at Devanapuram telemedicine centre



Plate 5.7: ASHA workers at Somagandi e- sub centre



CHAPTER-6

Summary and Conclusion

Healthcare among tribal communities is progressing in India, compared with earlier health scenarios. The wide gap between tribes and Particularly Vulnerable Tribal Groups (PVTGs) is seen in poor health indicators of malnutrition, mortality, morbidity and communicable and non-communicable diseases. The enhancement in the health status of women and children is considered crucial, as healthcare seeking is low in tribal areas due to the accessibility of healthcare centres. The tracking improves the health standard of the tribal communities priorly by monitoring the complete process. Innovation in healthcare is much needed to promote the well-being of individuals and the community. Medical devices can significantly impact healthcare delivery in remote tribal areas. Technology assessment is an essential component of medical practice. In India, most people are from poor, marginalized, and rural backgrounds and expect medical treatment at a low cost. Thus, there is an emergency to move forward from established medical care to innovative medical care. The innovation in IT-enabled health services in tribal areas, especially focusing on the Savara tribe of Andhra Pradesh, is studied.

The study community Savara lives exclusively on hills and practice shifting cultivation. Savaras have their own language, which has cultural significance, and religious practices are mixed with folk Hinduism; Akshara Brahma or Madi Brahma, an internal religious movement; and Christianity of various sects. Traditionally, extended families with male domination were common, but now nuclear families are predominant among the Savara.

The disease profile of the studied community shows that the rates of infectious diseases like tuberculosis and leprosy are high. While malaria is rampant, typhoid and chikungunya to occurs very frequently. Also, hypertension and diabetes are more prevalent in the study area. Similarly, diarrhoea, jaundice and anaemia are observed to be significant health issues. Malnutrition, addiction to tobacco and alcohol, and practices of open-air defecation are honoured to have severe implications for their health. The health care resources available to Savaras of Seethampeta Mandal are Government hospitals, Traditional Medical Practitioners (TMP), Private hospitals and Registered Medical Practitioners (RMP). The health infrastructure in Seethampeta has one district hospital, one area hospital, two CHCs, 19 PHCs, 102 sub- centres and 53 e- sub-centres, along with the ambulance service of 102, 104 and mobile feeder ambulance.

The Savara's link with culture and religion plays a crucial role while choosing the healthcare provider. The hamlets with Christian domination recently preferred modern medicine through government and private hospitals. In contrast, Hindu-dominated hamlets prefer TMPs initially, followed by references from TMPs and community ASHA workers. The patient-practitioner relationship among the Savaras has barriers like language and bodily expressions to describe their symptoms. The 'cultural sensitivity approach' is missing while providing healthcare from the government part. The standards of the existing healthcare facilities determine the utilization of modern medical systems. Savaras traditional medicine is of the 'same standard'; the standards of medical practices in the government and private hospitals vary greatly. Often, they feel that the medication given by private practitioners and, for that matter, the RMPs are more effective. With the benefit of incentives and financial support, the government is encouraging them to utilize IT-enabled healthcare services.

Acceptance of modern medicine has increased among Savaras in recent years, but access to good care is the central issue. The levels of illiteracy concerning understanding health policies and schemes are relatively low. The better-educated hamlets or hamlets near to mainstream are aware of their healthcare needs (and rights) and better care-seeking practices. Savaras have the right to good healthcare, which can be achieved using modern technology and innovative approaches suitable to community members.

The study has shown that the lack of health education and difficulty in access to healthcare facilities are the main factors which are responsible for the poor health of Savaras. Quality healthcare is unavailable because of vacant staff positions, unavailability of essential drugs and equipment, insufficient infrastructure, rugged terrain and constraints of distance and time, and the lack of transport and communication facilities. The health status of Savara tribe cannot be improved only with the increase in health infrastructure in terms of PHCs and sub-centres. The health standard can be achieved by proper training of manpower and additional innovative health services and considering the socio- cultural context of the health. The government has expanded its health services in terms of IT-enabled health care to interior Savara hamlets. The two IT-enabled healthcare services part of the study are: a) Mother Child tracking system and b) Telemedicine services.

Mother and Child Tracking System (MCTS) helps to track the health of pregnant women and children to ensure quality care for about 5 years through institutional delivery. This maternal health care service includes ante-natal Care (ANC), delivery care (intra- natal care), and post-

natal care services. ASHA workers identify the eligible couples in hamlets and when a woman is conceived, they were taken to nearby PHC or CHC for required check-up. After the confirmation of pregnancy by doctor, the woman is registered and provided with a mother tracking ID number which is valid all over India for tracking reproductive history. The major health functionaries who involve in the service are Medical Officer, ANM and ASHA worker. The incentive of 5000 rupees is provided for availing complete MCTS service which is divided as 1000 in first trimester, 2000 in second trimester and 2000 in third trimester along with NTR baby kit- towel, liquid soap and mosquito net.

The child's birth order from first to fifth shows that the majority of the child comes under the age group of below three months and six months for about 36% and 25%, respectively. Five pregnant women were utilising the service under MCTS. The outcomes of the pregnancies of the respondent women revealed that 75% of the pregnancies resulted in live births. The abortions constituted for 5% and the stillbirth accounted for 20%. In the live births, 41% of them had a full-term pregnancy, and the remaining women had delivered before attaining 36 weeks, accounting for 20%. The birth weight of the new born varied between 2.5 kgs to 4.5 kgs for a majority of the respondents. The new- born whose weight is below 1 kg accounted for only 8%, and essential care was given to these new- born in the hospital under MCTS service. The majority of the institutional deliveries took place in the CHC (30%) the district hospital (16%), and Area hospital (13%). The deliveries in the PHCs being 10% can be inferred that the services of the PHCs are underutilized. Even though the deliveries were conducted in institutions, assistance was provided by family members, ASHA and AWW

The ANC care was availed entirely by 70% of the women with the assistance of ASHA workers, ANM and doctors in PHC and CHC. A minimum of four antenatal visits are required for pregnant women under the MCTS service. 32% of the women have visited at least four times per the doctor's guidance. The women who visited less than four times accounted for 23%, and their reasons include ASHA unavailability, health and personal reasons. 19% of the women visited more than four times due to health complications such as high-risk and very high-risk cases.

Under antenatal care, health check- ups of weight, height, blood pressure, hemoglobin, abdominal checkup and HIV are conducted. The nutrient food is served by anganwadi centers to registered pregnant women. Iron-folic acid tablet is given till 5 months to prevent anemic cases and required injections were in 5th month. The health issues such as organ dysfunction,

growth issues, heart rate and genetic abnormalities along with reproductive morbidity were identified during diagnostic tests and appropriate health care is given to the mother and child. In the intra- natal care, the estimated date of delivery of pregnant women is monitored and ambulance service provided depending upon the health seriousness.

The cases of high- risk such as height less than 145 cm and anaemia and very high- risk cases of premature labour, bleeding before delivery, abnormalities of baby, growth issues of baby were referred to Area and District hospital. The other encouraging factor is that the ASHA worker accompanies and stay with her in hospital during delivery. The post- natal care tracks the health progress of mother and new-born, provide immunization and import family planning guidance to the parents.

MCTS render service to only married women, interestingly unmarried women are also availing the service as the healthcare providers considered their socio- economic background. The educational attainments up to 13 years of schooling of the respondents accounted for 96% and their spouses for 93% have increased their utilization of MCTS services. The women who were working as horticultural labour constituted for 65% resulted in less avail of iron- folic tablets, diagnostic tests in antenatal care and rest of two hours per day. The preference to take injections is common among the Savara women as they believe injection is the instant and best solution for biomedical care, which was imparted by RMP. 76% of pregnant women were aware of the MCTS services and the key- functionaries involved in it. The acceptance of MCTS service by family members and community members constituted for 76% and 78%, respectively. About 96% of the women had experienced some illness or the other during the pregnancy such as anaemia, stomach pain, backache, swelling of hands and legs, jaundice and typhoid. The respondents reported consultation with PHC, CHC, TMP, and private hospitals for treatment for the illness during the pregnancy. Almost one fifth of them have consulted a traditional medical practitioner. Private hospitals were not so much favoured by the respondents for treatment during pregnancy. However, some women resorted to simultaneous use of different sources of health care.

The majority neo- natal child illness is due to fever, vomiting, diarrhoea and low birth weight. The Savaras initially believed that the illness was caused due to some supernatural powers or by the evil eye and spirit possession (supernatural) accounted for 57% and natural for 41%. The reluctance to consume iron tablets has been decreased by 33% with continuous tracking. The adoption and implementation of new practices in medical care is achieved better as public

health providers such as ASHA workers are from same tribal community. Also, the public health hospitals had considered the socio- cultural context of the community to achieve the overall well- being of mother and child. For instance, the nutritious food is provided in anganwadi with consideration of Savara food beliefs. The perception and attitude of pregnant women towards institutional delivery is encouraging in the matters of accesses to free treatment with good incentives. There is constant and sufficient number of trained health staff working for creating awareness about institutional delivery as a part of MCTS, which has decreased mortality and morbidity cases of mother and child. The significant number of pregnant women (76%) availed the MCTS service for three trimesters. Overall, MCTS has shown great improvement on health care level of antenatal care, intra-natal care and postnatal care and helped in safe birthing practices. The health standards of mother and child have improved in full spectrum which led to success of MCTS service among Savara community.

Telemedicine centre acts a communication process between doctor and patient. The infrastructure available in telemedicine centre include tab (computer) and vending machine. The study area had telemedicine set up in clinic, which is considered as real- time telemedicine where both doctor and patient communicate through video call.

The people involved in telemedicine service are Telemedicine doctor, specialized doctor (through video calls) and ASHA workers. After completion of the registration process, the patient is redirected to specialists who hail from Vishakhapatnam, Vijayawada, Vijayanagaram and Guntur. Based on patient's symptoms, the doctor provides medication and the patients with serious health condition were referred to PHC or CHC for further treatment.

The majority of morbidity occurred lasted for less than seven days which is categorized as minor morbidity. The main illness category is fever, which accounts for 16.7%, followed by headache and body pains, estimated at 10.4% and 8.3%, respectively. Among Savaras, the head of the family is a male member, so the important health decisions with regard to treatment are taken by the husband and father in the family, which is estimated for 71%, followed by the son with 18.75%. The decisions of the wife, mother and father-in-law were considered less significant. The major reasons to consider and share the symptoms of patients are to seek medical advice, for accompanying to the hospital and for moral and financial support.

The respondents were using telemedicine services for the first time, accounted for 87.5%. The important reason to choose telemedicine services is the easy access lasted for 29% and easy

access and free treatment for about 25%. The respondents depended on private transport for about 85.4% due to the lack of public transport facilities. 43.75% of the respondents have travelled more than 6 km to utilize the services. 54% of the respondents have travelled between one to six km. Out of 48 respondents who visited the telemedicine centre had spoken to the doctor through a video call facility with the help of a telemedicine doctor, and ASHA workers accounted for 83%. Telemedicine is challenged in tribal settings, because of a lack of staff efficiency to work with new medical devices and impractical schedules, absence of telemedicine doctors. The patients who were not satisfied with telemedicine services and were not interested in further continuing the service accounted for 65%.

The study highlights the gaps in the health infrastructure like great absenteeism of care providers, the improper supply of medical drugs and devices, and low cooperation between medical staff and insensitivity towards cultural beliefs and values of people are great concern for Savaras. The necessity of medical innovation is assumed by government without the knowledge the community's perspective such as social, cultural, economic, religious and political factors. The barriers in the utilization of telemedicine services are delay in answering the video call, patient's dissatisfaction towards not meeting the doctor personally, language barriers in understanding socio- cultural context of symptoms, inefficacy and absence of telemedicine doctors, absence of basic medical supplies, internet connection and transport issues. The facilitating factors for telemedicine service are easy accessibility to hamlets near to main stream, free service and saves time.

It is true that the use of telemedicine services did not give the intended benefits to Savara community, however the burden on healthcare system of government of Andhra Pradesh has reduced to some extent with regard to minor illnesses.

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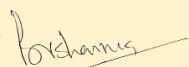
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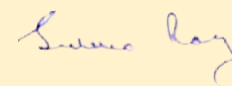
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Innovation in health services: Assessment of Mother Child tracking system**(Schedule for the women who availed of MCTS services during the calendar years of 2018 and 2019)****1. Respondent's identification and socio-demographic details:**

- 1.1. Name: 1.2. Husband name: 1.3. Village: 1.4. Panchayat: 1.5. PHC: 1.6. Contact no:
- 1.7. Age: 1.8. Marital status: 1.9. Religion: 1.10. Years of schooling: 1.11. Spouse's education:
- 1.12. Occupation: 1.13. Husband's occupation: 1.14. The numerical size of the family: 1.15. Type of family:
- 1.16. The primary source of income for a family: 1.17. An approximate annual income of the family:

2. Brief reproductive history of the respondent:

Birth order	Age	Out come	If live birth					If stillbirth			If abortion		Details of prenatal care					
			Full term?	If not full, term pregnancy	Birth Weight	Place of delivery	Sex	Term of pregnancy	Place	Any reason	Month	Any reason?	Yes	Who provided?	ANC visits	I & F tablets consumed	TT injections	If ANC is not fully availed, any specific reason?

3. Awareness of the mother-Child tracking system (MCTS):

- 3.1. Are you aware of the MCTS? Yes/No
- 3.2. If yes, please explain what is this scheme?

For whom is this scheme meant?	What are the requirements?	What are the intended benefits?	Whom are the key health functionaries involved?	From whom did you learn about MCTS service?

4. Use of services of Mother Child tracking system (MCTS):

a. Registration:

4a.1. Did you avail of MCTS service for your last conception? Yes/ No 4a.2. If yes, what Year?

4a.3. Birth order:

4a.4. Month of pregnancy: 4a.5. How many months after your conception, initial confirmation was made by the CHW?

4a.6. How many months after the initial confirmation by CHW, you visited PHC for confirmation of pregnancy and registration under MCTS?

4a.7. When did you register under MCTS? (1-3 Months/ 4-6 Months) 4a.8. Did they take your concern while registering? Yes/No

4a.9. Do you have MCTS ID No: Yes/ No
Yes/No

4a.9. Do you think the registration was delayed?

4a.10. If yes, what was the reason for to delay?

4a.11. Where did you register? (Anganwadi/Sub Centre/PHC/CHC/ Other) (Pick multiple options) (is it not they can register only at PHC?)

4a.12. Did you use this registration number in another government hospital? Yes/No

4a.13. Could you recall your last menstrual period date (LMP) at the time of registration under MCTS? Yes/ No

4a.14. If no, do you think it was estimated by the health staff and was recorded in the records of MCTS? Yes/No

4a.15. Did you get your estimated date of delivery from the hospital (EDD)? Yes/No

4a.16. Did you and your family members think the EDD was correctly estimated? Yes/No

4a.17. What was the time lag between your estimated date and the date estimated by the PHC?

b. Services:

- 4b.1. Do you use a Mobile phone? Yes/No 4b.2. If yes, do you possess a mobile phone for your use? Y/N
- 4b.3. If no, whose mobile phone do you frequently use? Spouse/parents/siblings/neighbors/others
- 4b.4. Do you know how to use SMS services on your phone? Yes/No
- 4b.5. Did you give any contact number for receiving messages relating to childbirth from the health staff during your registration for MCTS? Yes/No
- 4b.6. If yes, whose mobile number did you give? Self/spouse/Other family members/Neighbor/ASHA/Others
- 4b.7. Did you receive any message with regard to MCTS after registration? Yes/No
- 4b.8. Did you use any app for tracking MCTS services? Yes/No
- 4b.9. From whom did you learn about this tracking? Yes/No
- 4b.11. Did you go through the manual to be aware of the services? Yes/No
- 4b.12. If no, did you take anyone's help to become aware of these services? Yes/No
- 4b.13. Did your family members accept this service? Yes/No (Reasons for both)
- 4b.14. Did any one of your family members use this service before you used it? Yes/No
- 4b.15. Did any one of your community members use this service? Yes/No
- 4b.16. If yes, specify:
- 4b.17. What was your community's initial response when you started accepting this service?
- 4b.18. How many times did you go for scanning during the last pregnancy? (Once/ twice/ thrice/ more than thrice)
- 4b.19. What was the purpose of the scanning?
- 4b.20. Who motivated you in this regard?
- 4b.21. What type of health check-ups were conducted during pregnancy? (ANC/ Intra- natal care/ Neonatal care)
- 4b.22. Did you go for a general physician scan on the 9th of every month? Yes/No
- 4b.23. After every scanning, any report of mother and child health were given? Yes/No
- 4b.24. Did they identify any health issues of a child? (Organ dysfunction/ Growth issue/ heart disease/ Genetic abnormalities/ Any other)
- 4b.25. If yes, what care was given next?
- 4b.26. If any organ dysfunction, what did your family members suggest you do? (Abortion)
- 4b.27. What decision did you take?

- 4b.28. Did you go for any radiology scans? Yes/No
- 4b.29. If yes, for what?
- 4b.30. Does the physician identify any high-risk cases? Yes/No
- 4b.31. What action was taken next?
- 4b.32. Did you go for a basic health checkup with the PHC doctor on the 20th of every month? Yes/No
- 4b.33. What tests were conducted on this day? (BP/HB/Sugar/Urine/Height/weight/Other)
- 4b.34. Did you go to CHC/Area hospital on 21/22/23 of each month for a test with a gynecologist? Yes/No
- 4b.35. What tests were conducted on these days?
- 4b.36. Was there any ambulance service to reach the hospital? Yes/No
- 4b.37. If no, what was your mode of transport?

5. Reproductive morbidity:

- 5.1. Did you suffer from any illness during the last pregnancy? Yes/No
- 5.2. If yes, specify the details of the illness.
- 5.3. Illness: 5.4. Duration of it? 5.5. Which week/month of pregnancy?
- 5.6. Whom did you consult? (PHC/CHC/Other)
- 5.7. What was the reason for choosing this particular health provider?
- 5.8. What was the diagnosis given by him/her?

6. Antenatal care in MCTS:

- 6.1. How many months did you avail of this service? (1st trimester/ 2nd trimester/ 3rd trimester)
- 6.2. What tests were done in ANC? (BP/Sugar/Hb/HIV/Heart/Lungs/Urine/ Other)
- 6.3. What tablets were given under ANC? (Iron- Folic/B. Complex/Other)
- 6.4. Did you use these tablets regularly? Yes/No 6.5. If no, what was the reason?
- 6.6. Any injections were given in ANC? Yes/No 6.7. If yes, what were they?
- 6.8. When did these injections were given? (In which month)
- 6.9. How many injections were given?
- 6.10. What was the duration between the two injections?
- 6.11. Why did you prefer injections over taking pills?
- 6.12. What was your perception of injection?

- 6.13. Did you gain weight during pregnancy? Yes/No 6.14. How much?
- 6.15. Does the weight and height of the mother were continuously monitored each month? Yes/No
- 6.16. Did you take rest every day during pregnancy? Yes/No If so, how many hours?
- 6.17. Did you consult a doctor with any health issues while availing of ANC? (Eclampsia/ Stomach ache/Other)
- 6.18. What were the initial symptoms of it?
- 6.19. What were the initial preventive measures taken for improving the health of the mother and child?

7. High-risk case: (Pregnancy above 40 years age/1st pregnancy before 15 years or after 35 years/ pregnancy after 10 years infertility/ Fifth pregnancy or above it/ Height less than 145 cm/ Threatened abortion/ Other minor complications)

- 7.1. Did you go to PHC on the 9th of each month in the second and third trimesters? Yes/No
- 7.2. Were high-risk cases identified through this? Yes/No
- 7.3. If the high-risk case, who specified this? (PHC Doctor/ CHC Doctor/Other)
- 7.4. Any special care was given? Yes/ No
- 7.5. If the high-risk case, what type of treatment is given by the MCTS service?
- 7.6. Why do you think, it is a high-risk case? (Reason by pregnant women- Eclampsia/Bleeding/Any other supernatural reason)
- 7.7. What was the reason given by the doctor? (Multiple pregnancies/ Pre term delivery/ post-term delivery/ Anemia/ Genetic disorder/ baby growth issue/ /Any other)
- 7.8. What tests were done if it is a high-risk case? (Ultrasound scan/Urine test/BP/HB/Movement of baby/ Other)
- 7.9. Were there any preventive measures taken if it was a high-risk case? Yes/No
- 7.10. If yes, what measures were taken?

8.Very high risk: delivery referral hospital (Reason: Premature labour/ Bleeding before delivery/ Abnormalities of baby/ Growth issues of baby/ Twins or multiple pregnancies/ Hydramnios/ Severe anemia/ Cardiac disease/ Diabetes Mellitus/ Gestation after 42 weeks)

- 8.1. If the outcome of the last pregnancy was preterm delivery/Stillbirth/Neonatal death/C. Section/ Obstetric complications, what type of care was given under MCTS?
- 8.2. Did they refer you to any hospital if it was high-risk or very high-risk? Yes/No
- 8.3. If so, where did they refer?

9. Intra-natal care in MCTS:

- 9.1. Where did you deliver for the last pregnancy? (PHC/CHC/Area hospital/District hospital)

9.2. If it was in a government hospital, did you receive 1000 rupees as an incentive? Yes/No

9.3. Who accompanied you to the hospital? (ASHA/Family members/Community/other)

9.4. When did you admit to the hospital for delivery? (Before how many days)

9.5. What was the weight of the baby?

9.6. Was there any ambulance service to reach the hospital? Yes/No

9.7. If no, what was your mode of transport?

9.8. Did you reach on time? Yes/No 9.9. If no, were there any complications? Specify:

Normal delivery/C-Section/ Forceps/Other Stillbirth/ Premature?

9.10. If the delivery was complicated, where were you referred? (CHC/Area hospital/District hospital/Private hospital/Other)

9.11. In the last pregnancy, does your first scanning report match with the delivery report in terms of EDD and type of delivery? Yes/No

9.12. Did you think the MCTS service help you to have safe birthing practice? Yes/No

9.13. If yes, how was it different from general pregnant care?

10.Neo natal care (post-natal care) in MCTS:

10.1. Does the health provider ask you about health issues after delivery? (Heavy bleeding/Any other) If so, what type of care is given?

10.2. What care was given to the baby generally?

10.3. Did the baby suffer from any illness after birth? Yes/No

10.4. If yes, nature of the illness? 10.5. Duration:

10.6. Whom did you consult? (PHC/CHC/Other)

10.7. What was the reason for choosing the particular health provider?

10.8. What was the diagnosis given by him/her?

10.9. What was the duration of treatment?

10.10. Any hospitalization? Yes/No 10.11. Is any ICU care given? Yes/No

10.12. Do you get a birth certificate in the hospital after the delivery? Yes/No

11. Immunization for mother and child:

11.1. Did you take any TT for yourself? Yes/ No

11.2. If yes, how many?

11.3. What TT was given?

11.4. When did you take it?

- 11.5. Who provided assistance in this regard?
- 11.6. Was there any gap between the 2 TTs? Yes/ No
- 11.7. Did the child get any TT?
- 11.8. If yes, how many? 11.9. What is TT?
- 11.20. In which month, the baby got the TT?

12. Accompany when you visit the hospital:

- 12.1. Who accompanied you when you visit the hospital? (ASHA/Husband/Any other)
- 12.2. If the husband didn't accompany her, what was the reason for it?
- 12.3. If ASHA was not accompanying, whom did you choose?
- 12.4. Was there any replacement or alternative to it? Yes/No 12.5. If yes, who was it?
- 12.6. In this case, did you delay going to the hospital? Yes/No 12.7. If yes, what were the consequences of it?

13. Food and nutrition:

- 13.1. Did you register in Anganwadi after conceiving? Yes/No
- 13.2. What type of food was provided in Anganwadi?
- 13.3. How many days food was provided in Anganwadi?
- 13.4. Did you eat the food provided to you in Anganwadi? Yes/ No
- 13.5. If not, where did you eat?
- 13.6. Was it sufficient to get the nutrients for both mother and child?
- 13.7. What type of food was preferred by you during pregnancy?
- 13.8. Did you eat in CHC, when you came for ANC? Yes/No
- 13.9. Did you get food in the hospital at the time of delivery? Yes/No

14. Beliefs and perceptions in MCTS:

- 14.1. What was believed when you got ill during pregnancy?
- 14.2. What reason was attributed, when the child got ill?
- 14.3. Were you or your family members planning any particular day to deliver?
- 14.4. If so, which day? What was the reason behind it?
- 14.5. Are there any beliefs related to abortion in your community? If so, what is the reason?

15. Incentive through MCTS:

- 15.1. Did you get 300 rupees when you first conceive? Yes/No

- 15.2. Was it sufficient to go to CHC? (For 1st scan) Yes/No
- 15.3. Did you get the total amount of 5000 rupees in 3 phases? Yes/No
- 15.4. Was this money supported to take proper care of you and the baby? Yes/ No
- 15.5. If no, what did you do with the money?
- 15.6. Was your spouse happy with the money you receive from MCTS? Yes/No
- 15.7. What was his reaction if you spend all the money?
- 15.8. Does your spouse use this money? Yes/No
- 15.9. If yes, for what purpose? (Health/ Other)
- 15.10. Does the ASHA worker who accompanies you will get 200 rupees? Yes/No
- 15.11. Did you receive the kit from MCTS? Yes/No 15.12. If yes, did you find it useful?
- 15.13. What was given in the kit?
- 15.14. Were incentives given in MCTS driving you to avail of the services? Yes/No
- 15.15. If yes, do you stop taking the service? Yes/No
- 15.16. If yes, why do you continue?
- 15.17. Based on your experience, do you suggest other women use MCTS service? Yes/No
- 15.18. If yes, specify:
- 15.19. If not, why do you think MCTS was not effective? (Reason) (I will take case studies if the MCTS service is not effective).

Innovation in health care services: Assessment of Tele medicine services

Schedule for the person who availed Tele medicine services during the calendar year from 2019 till now

Illness morbidity survey

1. Person particulars:

- 1.1. Name: 1.2. S/O D/O W/O: 1.3. Age: 1.4. Sex:
1.5. H. No: 1.6. Years of schooling: 1.7. Contact no:
1.8. Village: 1.9. Panchayat: 1.10. PHC:
1.11. Marital status: Married/Unmarried/Separated/Widow
1.12. Religion: Animism/Hinduism/Christian/Other
1.13. Occupation: Self-employment/Wage labor/ Agriculture/ Government/ Others
1.14. The numerical size of the family:
1.15. Type of family: Nuclear/ Joint/ Joint extended/ Polygamous/ Others
1.16. Family income:

2. Major/Minor morbidity: (In the last 1 year)

- 2.1. Did you suffer from any illness? Yes/No 2.2. Illness:
2.3. Days/Months of illness: 2.4. Initial symptoms suffered:
2.5. Did you share these symptoms with your family members? Yes/No
2.6. If yes, whom did you share with?
2.7. What was the reason to share these symptoms? (To seek medical advice/ For accompanying to hospital/Any other)
2.8 Did you share these symptoms with members outside the family? Yes/No
2.9 If yes, whom did you share with? (Community members/ ASHA/ Village head/ Other)
2.10. What was the reason to share these symptoms? (To seek medical advice/ for accompanying to hospital/Any other)
2.11. Did you receive any medical advice from him/her? Yes/ No
2.12. Were these symptoms considered worthy of treatment by doctor? Yes/No
2.13. If yes, whom did they suggest? (Telemedicine/ Traditional healer/ Govt hospital/ Private hospital/ Other)
2.14. Who take important health decisions in your family?

2.15. Whom did you prefer to contact initially? Telemedicine/ Other (Traditional healer/ Govt hospital/ Private hospital)

2.16. Why this particular person is preferred?

3. If Telemedicine,

3.1. Did you use the telemedicine for the first time? Yes/No

3.2. If no, when did you first use this service?

3.3. How many times did you use this service during the last three years?

3.4. How did you know about telemedicine service? (Family members/Community/PHC/ASHA/Other)

3.5. Did any of your family members suggest this service? Yes/No

3.6. If yes, who suggested it?

3.7. If not, who suggested this service?

3.8. What was the reason to choose this service? (Easy to access/ Specialist treatment was given/ Free treatment/ treated similar cases/ Other)

3.9. When did you consult the doctor of Telemedicine for the last illness episode? Days/ Months

3.10. Who were all involved in this service? (ASHA/Telemedicine doctor/Other)

3.11. How far is the telemedicine Centre from your place? Km 3.12. Mode of transport:

4. Diagnosis through Telemedicine:

4.1. If this is your first use of telemedicine services, did you register in Tab initially by providing personal details of you? Yes/ No

4.2. If yes, did you get your ID number? Yes/No

4.3. If this is not your first use, did you use the ID number, that was provided to you earlier? Yes/No

4.4. Did you receive any message when you register? Yes/No

4.5. Were the symptoms entered in the tab by the doctor? Yes/No

4.6. Are you aware of what symptoms were entered?

4.7. Do you think the symptoms reported by you and those entered were the same?

4.8. If yes, did you consult the doctor through video call? Yes/ No

4.9. How much time was taken for the doctor to pick up the call? (Less than 5 minutes/ Less than 10 minutes/ More than 10 minutes)

- 4.10. The time delay in picking up the call was acceptable for you?
- 4.11. Did you for any reason, **not** wait to consult the doctor? Yes/No
- 4.12. If yes, what was the reason? (Village is far away/ Had to go for work/ Treatment was delayed)
- 4.13. What was your next decision? (Consult other doctors/ Comeback the next day)
- 4.14. Which doctor responded to you in a video call? Male/female
- 4.15. What were the demographic details of the doctor?
- 4.16. What did he/she suggest to you? (Tablets/ tests)
- 4.17. How much time did you talk to the specialist doctor?
- 4.18. Did you feel that the time is enough to talk to him/her? Yes/ No
- 4.19. Do you think that the doctor understood your health condition in a phone call? Yes/ No
- 4.20. If no, what was your reaction to this?
- 4.21. Do you think the right specialist talked to you? Yes/No
- 4.22. If not, why do you think so?
- 4.23. Did the specialist ask you to visit PHC/CHC for diagnostic tests? Yes/No
- 4.24. If yes, did the telemedicine doctor give the list of tests to you? Yes/No
- 4.25. Whom do you consult next, if the specialist prescribes a medical test to you?
- 4.26. Did the specialist refer you to any private hospital? Yes/No
- 4.27. If yes, which hospital?
- 4.28. Did he/she give details about the duration of treatment? Yes/no
- 4.29. If yes, how many days?
- 4.30. Did you face any language issues? Yes/No
- 4.31. If yes, who helped you to talk to the doctor? (ASHA/ Telemedicine doctor/ Person who accompanied you/ Other)
- 4.32. Did you satisfy with the service? Yes/No
- 4.33. Do you like to continue with this service? Yes/No
- 4.34. If yes, do you suggest this to anyone? Yes/No
- 4.35. If not satisfied, what was the reason for it? (Technical issues/ call waiting/ doctor didn't understand the issue clearly/ Other)
- 4.36. Did your family members accept the diagnosis through telemedicine? Yes/No

- 4.37. If yes, what is the reason?
- 4.38. If not, what is the reason?
- 4.39. Do you feel telemedicine service saves time and travel issues? Yes/No
- 4.40. If yes, why do you think so?
- 4.41. How far did you travel to take a diagnosis before the introduction of this service?
- 4.42. Did your community members accept the diagnosis through telemedicine? Yes/No
- 4.43. If not, what is the reason?
- 4.44. Do you feel personal health issues can't be shared through this service? Yes/No
(Gynecological problems)
- 4.45. General opinions based on frequent use of telemedicine services:
- 4.46. Advantages of Tele medicine services:
- 4.47. Disadvantages of Tele medicine services:
- 4.48. Perceptions about the quality of services:
- 4.49. Any suggestions for improvement of services: