

## Mobile as an effective medium for improving Maternal, Infant and Young Child Nutrition in Tribal areas of Gujarat

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**Abstract:** ST communities have a history of self - sufficiency in their culture and way of life which creates exclusion from the mainstream, but such exclusion is not discriminatory in and of itself. The prevalent notions about tribal ways of living which are discriminatory at times have perpetuated their marginalization. Concurrently, many ST communities reside in inaccessible and distant areas with poor transport services which add another layer of exclusion (Sonowal, 2008).

Maternal, Infant and child nutrition is a crucial component of public health, especially in tribal community. Unawareness among women about maternal care and nutrition, Infant and child care & nutrition results into poor nutritional and health status. Systematic review of literature suggests that caste and gender create wide difference in MIYCN seeking behavior. Tribal Districts of Gujarat are a unique example of this our field work in Poshina area of Sabarkantha district, It was found that MIYCN condition in those area could be improved if nutrition and health education is disseminated through different informatics tools like mobisodes and FFL Video shows. A survey was conducted in Chochar and Dedka villages of Poshina Block of Sabarkantha District. Respondent were chosen through purposive random sampling from women who were either pregnant or had given birth in three years preceding the survey. Our study shows that tribal women rely on their immediate family members for information related to MIYCN as different channels of information are absent. Moreover, the ASHAs and AWWs fail to provide reliable and complete information. This when compounded with caste affiliation act as major barrier in the nutrition seeking behavior of women affecting MIYCN. Through this study is illustrated that ICT is the most accessible nutrition informatics tool which can be useful in

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propagating necessary and need based information to tribal women, thus, being instrumental for nutrition promotion.

**Keywords:** Nutrition Education, Nutrition Promotion, Mother, Infant and Child Nutrition,

## INTRODUCTION

Tribal are also known as Tribes. Tribal are considered as indigenous inhabitants of the land. A tribe is viewed, historically or developmentally, as a distinct social group existing before the development of states. A tribe is a group of distinct people. Tribes are found to be self sufficient people who largely depend on their land for livelihood and not integrated into the national society. More than half of the world's tribal live in India. Around 698 communities are identified as a member of Scheduled Tribes (ST)<sup>4</sup> in India Scheduled Tribes (STs) is historically disadvantaged people who are given express recognition in the Constitution of India. STs constitute around 8.2%<sup>5</sup> of the total population of India, according to the 2011 census.

Tribal seems to be most exploited and ignored people and hence are more vulnerable to malnutrition, disease and disorders, morbidity and mortality. Their despair is due to illiteracy, poverty, unawareness, hostile environment, poor sanitation, lack of safe drinking water and blind beliefs etc.<sup>6</sup>

Health is an important aspects of development and the nutritional status is considered to be one of the indicators for community health as malnutrition has emerged as a major health problem of many tribal groups<sup>7</sup>. The physical growth of children is reflected by

Developing countries like India experience high incidence of maternal and infant mortality due to poor maternal health status of women (WHO 2004). Reason can be attributed to their ignorance regarding antenatal care, postnatal care and faulty Infant and Young child feeding practices; it is a vital component of public health. Various Social Determinants of Nutrition (SDON) mainly caste, gender, income, culture, environment and education directly impact the maternal, Infant and Young Child's nutritional status and nutrition seeking behavior of women. Out of these SDON, caste and gender are the most prominent, hugely affecting the Health seeking behavior of women, exposing them to high health risks of maternal & Infant mortality. **Maternal mortality** is defined as the death of a woman while pregnant or within 42 days of termination of

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<sup>4</sup> Indian Ministry of Tribal Affairs (2004) The National Tribal Policy (draft), New Delhi, India ministry of Tribal Affairs.

<sup>5</sup> Agrawal S. (2013) Journal of Community Nutrition and Health, 2(1), 3:14.

<sup>6</sup> Balgir R.S. (2010) Online Journal of Health and Allied Sciences, 9 (4), 275- 289.

<sup>7</sup> Rao H.D. and Satyanarayana K. (1987) Nutrition Society of India, 33, 1-6.

pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by pregnancy or its management but not from accidental or incidental causes (WHO 2012). **Infant mortality** is the death of young children under the age of 1 year.

The first 1000 days of life - between a woman's pregnancy and her child's second birthday - is a unique period of opportunity when the foundations for optimum health and development across the lifespan are established. The right nutrition and care during the 1000 day window influences not only whether the child will survive, but also his or her ability to grow, learn and rise out of poverty. As such, it contributes to society's long-term health, stability and prosperity (Nourishing India's Tribal Children, UNICEF; 2015) Thus for improving the MIYCN scenario in tribal Gujarat, It is imperative equip women with right information related to MIYCN at right time. Providing such information directly to women would empower them to make informed and timely decisions without depending much on other channels of information, like their immediate family members and Frontline workers (FLWs) including Accredited Social Health Activists (ASHA) and Anganwadi Worker (AWW). Primary source of information available to women to look for other sources of information in such circumstances. Health informatics is one such alternative they may reduce the excessive dependence of women on health workers by equipping them with firsthand information related to MIYCN.

## **Literature Review**

A study by sarbadhikari (2012) evinces that imbibing health information verbally and even in written form is a tedious task especially when the population is illiterate. It asks for behavioral change among women with inculcation of certain practices that can only be adopted within a long span of time. Caste, gender, educational background and financial status, both positively and negatively influences on maternal health of rural women, health informatics tools like mobisodes can be immensely helpful. It can be used for propagating right information to pregnant and lactating women in a persuasive and effective manner.

Health informatics is the systematic application of information and communication technology tools in public health practice, research and learning.<sup>8</sup> It has the capability to improve social health. i.e. the ability to build healthy and supportive relationships and ensure better quality health services. Health informatics can be of huge significance, if applied in rural healthcare and nutrition sector of the developing world, since it can serve both the demand and supply side of healthcare effectively.<sup>9</sup>

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<sup>8</sup> Yasnoff et al., 2000; Sullivn, 2001

<sup>9</sup> Kumar et al, 2014

Quiang (2012) has identified five major health informatics tools that are crucial in promoting public health and these tools are : Geographical information system (GIS), Electronic Health Records (HER), Mobile Health (mHealth), internet based information system (e Health) and Telemedicine.

Mobile phone is important tool of health and nutrition informatics

### **Mobile an effective medium:**

Mobile phone, especially smartphone, has been emerging as one portable education and entertainment device that capable of providing wide ranges of information, education and entertainment services such as downloading and uploading music and videos of films and albums, games, cameras, FM radio, etc. In fact, the time spent for getting new information, enjoying entertainment content on mobile phone by users found to be many times higher than voice calls and other activities. Mobile phone is important tool of nutrition informatics that surpasses all other nutrition informatics tools when it comes to portability and accessibility. It serves as a great medium for information dissemination to both service provider and service seekers. The systematic use of mobile phones in the delivery of nutrition related information is called mobisodes.

Mobile phone has been facilitating the need-based and user-centric information and services at such a low cost that even the rural population can easily afford it. It is seen as a device that has the potential to break the rural–urban developmental gap by delivering information on a variety of economic and social issues<sup>10</sup>.

In 2017, Telecom Regulatory Authority of India (TRAI) declared that India has more than 900 million mobile telephone users and the number is growing continuously since at a rate of 20 million each month. Report published by TRAI in 2017-18 evince that India is witnessing a data revolution. There are certain advantages of using mobile phone for information dissemination in rural and tribal areas related to nutrition and health as compared to other nutrition informatics tools. For instance Tiwari (2010) informs that mobile phone needs lowest maintenance cost and can have less dependence on electricity making it the most suitable for tribal and rural areas in India.

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<sup>10</sup> Aker and Mbiti 2010

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Moving on to use of mobile and its critical role in maternal and nutrition health sector. Ramchandran et al, (2010) have argued that it possesses the ability to persuade key actors of nutrition and health, including the medical practitioners, frontline workers and women health seekers. Under the project “Strengthening community networks to promote appropriate maternal and Infant & Young Child Nutrition Practices at Family and Community level in Sabarkantha” funded and technical supported by Unicef, mobile were used as one of the important tool for information dissemination and feedback mechanism. Chib et al (2012) emphasize on understanding the potential of mobile for enhancing the work efficiency of frontline worker in India and suggest that mobile phones can act as opportunity producer, capability enhancer, social enabler and knowledge generator if utilized effectively by the FLWs serving the maternal, Infant and young child nutrition sector. It can also be applied to disseminate locally generated locally relevant nutrition information<sup>11</sup>

Based on the review of literature, it can be argued that mobile can lead to an enhancement of self care among tribal women by enhancing their knowledge regarding maternal, infant young child nutrition of tribal areas of Gujarat and India. The study is comprising client perspective observing only pilot initiatives.

### **Material and Method:**

The study was based in Chhochhar and Dedka village of Poshina taluka, Sabarkantha district of Gujarat. Chhochhar Village with total population of 3674 and Dedka village with total population of 1481. Chhochhar village has lower literacy rate compared to Gujarat. In 2011, literacy rate of Chhochhar village was 45.94 % compared to 78.03 % of Gujarat. In Chhochhar Male literacy stands at 55.85 % while female literacy rate was 36.34 %. Child Sex Ratio for the Chhochhar as per census is 865, lower than Gujarat average of 890. In Chhochhar village, most of the village population is from Schedule Tribe (ST). Schedule Tribe (ST) constitutes 99.84 % of total population in Chhochhar village.

Dedka village has lower literacy rate compared to Gujarat. In 2011, literacy rate of Dedka village was 29.07 % compared to 78.03 % of Gujarat. In Dedka Male literacy stands at 34.16 %

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<sup>11</sup> Bhavani et al., 2008

while female literacy rate was 23.69 %. Child Sex Ratio for the Dedka as per census is 983, higher than Gujarat average of 890. In Dedka village, most of the village population is from Schedule Tribe (ST). Schedule Tribe (ST) constitutes 99.93 % of total population in Dedka village.

The following tools were used for carrying out the study; some of the tools were purely used for exploratory research.

**Secondary Data:** Data reports of Government of India.

**Primary Data:** Primary research was done in form of personal interview of Pregnant mother or mother of children upto age group of 3 years.

**Study Type:** Cross-Sectional analytical Study

**Sampling Unit:** Purposively selected Pregnant Mothers'/Mother's of children under age of 2 Years of age

**Study Respondents:** Pregnant Mothers'/Mother's of children under age of 2 Years of age

**Sampling Design:** Purposive Random Sampling

**Tools and Techniques:**

**Tools**

**In-depth interview:** Semi structured Questionnaire for qualitative information Techniques

**Interview:** In depth interview for Pregnant and mothers of children age upto 2 Years will be conduct to get relevant information.

**Data Analysis Plan:**

Each interview was transcribed and coded for analysis. The data was arranged thematically

**Results:**

Majority of the responders belonged to joint families and decisions were influence or dependes on family members especially mother-in-laws and Husbands regarding health, foods and other daily requirements. Major responders are Daughter- in-laws so they are socially bounded in tribal rituals and restrained more as compared to daughters of the family.

Out of the 250 women interviewed, 55 per cent belonged to the age group of 19-26 years, 22 per cent from 27-32 years and 19 per cent from more than 32 years respectively. 4 percent responders were even more than age of 35 years. It came in notice that only 9-10 percent of women able to complete there graduation and 12 percent complete higher secondary, 18 per cent

able to reach door of upper primary and about 60 percent of responders able to complete primary. As in tribal community wealth is more valued than education.

Out of the interviewed respondents only 15 percent were first time pregnant, 25 percent were second time pregnant and 60 per cent were getting pregnant more than 2 times. Out of 85 lactating mother responders only 12 per cent given birth to first child.

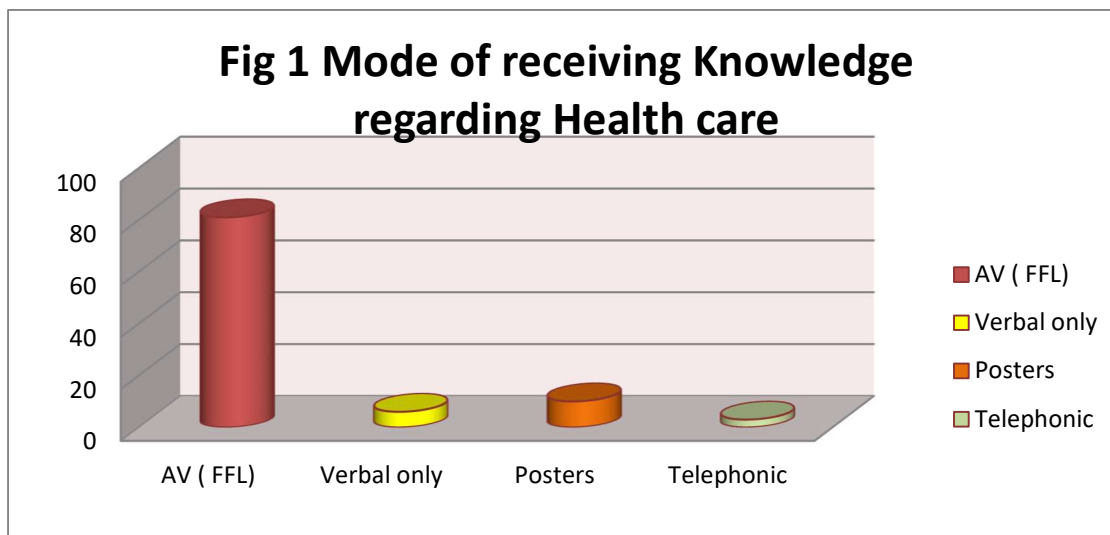
### **Awareness regarding Government services for ANC.**

Base of Maternal health is lie on ANC.

During study 95 percent of the pregnant women's did not know regarding ANC services and other schemes running for their benefits during ANC (4-ANC check up, Gynecologist check up, PMMVY schemes etc). After attending mobisodes and FFL Video shows 96 percent responders approached to nearest AWC and FHWs for availing benefits of services. 4 percent availed all free services but under process of receiving DBT benefits as there forms were submitted lately due to Adhar card and bank account issues.

Majority of the mother not even consumed IFA and calcium tablets as per recommended doses prescribed by FHWs during their last pregnancy but later on after watching FFL videos regarding importance of IFA to mother and infant during pregnancy they started taking daily doses.

Hetalben (31 Years), a respondents that” she use to throw the tablets which she use to get from Sub center during mamta divas because she use to pass black stool after consuming and FHW use to give instruction in so hurry mode that she not able to grasp but after attending FFL video show and watching mobisodes, she easily understand the importance and methods followed with precaution to be taken during consuming IFA. Audio visual communication really helped me for taking care of myself and informing others”



When asked responders regarding preferred mode receiving knowledge. Through Fig, It is evident that more than 81 percent of responders preferred AV mode of communication for gaining knowledge rather than verbal communication or through poster.

It was found that almost 90 percent of the responders are having mobile phones for making calls and messaging and remaining 10 percent having camera mobiles with android features.

87 percent of responders preferred call as medium of reminders for availing services and that too in local languages

### **Perception towards Breast milk and its importance.**

Colostrum is thick yellowish colour milk secreted by lactating mother as soon she deliver a neonate to provide natural vaccine which prevent from hypothermia and many of the major diseases and decreases 27% chances of infant death. In tribal community first milk of mother is not allowed to new born rather than that in laws prefers to provide packed milk, honey.

Almost 100 percent of responders received such messages from there mother- in-laws and other elder ladies in family and community.

Before attending mobisodes, 80 percent mothers not given their first milk to new born for early 3 days and they just eject the milk and thrown away until colour of milk not changed from yellow to white. After attending few mobisodes and FFL videos at AWCs , 15 percent first time pregnant women ensured that they will provided colostrum to there child without any hesitation and start breastfeeding as soon as possible.

Remaining 85 % also ensured that from now onwards they will also prefer colostrum and act like a messengers for bring change in community.

Kinjalben, (age 28 years) mother of 2 child and carrying 3rd child in her womb. She also shared experience of mobisodes to her husband regarding importance of breast milk

“ First he was not ready to listen any thing and asked me to stop attending such meeting but when I calmly explained him that how mothers first milk can save our new born life and savings, He also supported me to providing my first breast milk to upcoming new born without fail. Video with perfect messages can give base to explain and counter arguments”

AWWs who attended the mobisodes also shared there view that, “we use to fail in make them understand how important breast milk is for new born but they just listen and ignore but after starting FFL video session, Mothers are getting more sensitive and our time are getting utilize in other good works”.

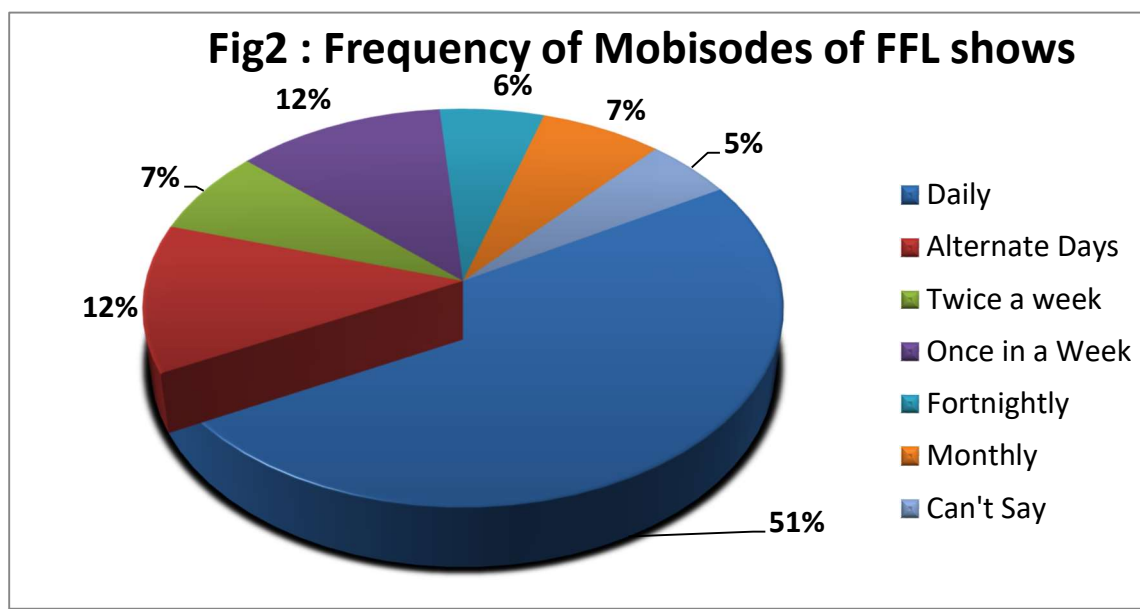


## Nutrition Care of mother and children

In tribal community, mostly people prefer only stable foods even pregnant women. Most of the mother responded that they neglected their food intakes especially nutrition part during pregnancy. Under ICDS programme, pregnant women and lactating mother use to receive Take home ration (THR) as supplementary per month in form of Raw ration or Packets, but 85% responders who use to receive THR before participating in FFL shows and Watching mobisodes shared with other family members and 5 per cent just received from Anganwadi center and not consumed and because of stable food habit and taking non nutritious food 90% of the pregnant women having problem of low hb, less weight gain and even given birth to low weight babies.

After attending Community meeting under FFL shows and counseling received through mobisodes, 95 % of the pregnant women start adopting food diversity and preferring different nutritious foods which are locally available. 93% of responders started attending rasoï show organized by AWW at anganwadi centers every months and learned new recipes of THR with locally available food. Even 87 per cent mother of children age group 6 months to 2 years also started using food diversity for there children. They have started timely initiation of complementary feeding after completing exclusive breastfeeding for 6 months.

Shardhaben, AWW of village Dedka working from more than 10 years accepting the changes among community behavior after introducing video shows and using of latest gadgets for counseling. She also adds to her words that awareness regarding exclusive breastfeeding and complementary feeding practices increased that helped in reducing malnutrition among children of villages other wise more than 60 percent of children enrolled in AWC were comes under malnourished criteria.



Interestingly, as shown in Fig no 2 , more than 50 percent of responder recommended that such communication for awareness regarding nutrition and healthcare should be provide on daily basis rather than monthly or weekly as that will help them to remember actual information provided. Observations from the field survey and interaction with responders show that communication and willingness play major role in changing Health seeking behavior of person. Women were extremely enthusiastic about receiving maternal and child health related updates from new mode of intervention especially from easy to access approach.

### **Discussion and Conclusion**

Based on the field survey, it can be contended that women of tribal area are not affected on basis of education level as there in-laws play major role in decision making and even prefer private practitioners for availing ANC services but also prefer to avail money related services of government. A woman's who never visit AWC but in contact of AWWs and ASHA and avail benefits of ICDS for children and her self. Major information gap was detected between respondents and FLWs regarding consumption of IFA and Calcium tablets and proper intake of Nutritious food intake and consuming Supplementary foods before introducing mobiles and FFL shows in community.

Despite presence of social and economical barriers the evidence from the field suggests that women irrespective to caste, education level were eager to receive new updated information regarding maternal and child nutrition and health services. As Mobisodes and FFL shows bring all women under one roof for discussion and providing platform for sharing experiences. These reduce their dependency on FLWs for receiving accurate information regarding health and nutrition. The technology in community communication bringing social change and improve maternal and child health scenario owing to its higher outreach at lower cost. Also helps in receiving fruitful information that directly effects on reducing MMR & IMR of village and state.



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