

# Effectiveness of “Tele Moms” A Text Messaging Program on Knowledge and Health Attitude of Pregnant Women on selected Hospitals and Urban Communities of Indore



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## Abstract

Mobile text messaging is 'a potentially powerful tool' for behavior change because it is widely available, inexpensive, and instant. Research design adopted for the study was baseline end line survey. The sample size comprised of 100 pregnant women selected using purposive sampling technique out of which 50 were from those who visited the antenatal OPD's and 50 from urban communities of Indore. 'Tele Moms' a text messaging program was initiated to achieve the study objectives. Structured knowledge questionnaire, attitude scale and opinionnaire of pregnant women regarding “TELE MOMS” were the tools used in data collection. The mean knowledge score of end line survey 9.63 was higher in comparison to baseline survey which was 6.33 simultaneously in regard to mean attitude score of end line survey 52.86 was higher to baseline survey which was 50.65. The 'z' test value for knowledge was  $df\ 98 = 10.6$ ;  $p\ 0.03$  and attitude was  $df\ 98 = 10.6$ ;  $p\ 0.02$ . Thus the study concluded that “TELE MOMS” text messaging program was effective in improving the knowledge and health attitude of pregnant women.

**Key Words:** Out Patient Department (OPD), Tele moms/Text messaging program, end line, baseline.

## Background

*“God could not be everywhere so He made mothers. A mother's joy begins when new life is stirring inside....when tiny heartbeat is heard for the very first time, and a playful kick reminds her that she is never alone”.*

**-Anonymous**

Pregnancy is the most beautiful phase in a women's life. It brings about emotional and physiological changes as well as poses extra demand on the body. Having a baby is a wonderful thing; of course it is also an occasion of changing your life. When a woman becomes pregnant, she is very aware that a new life is growing inside her for the next nine months. Millions of women give birth to healthy babies every day. On the other hand, one often hears of women who have miscarriages, or who give birth to still born children or children with birth defects. This acts as a constant reminder of just how fragile and delicate the process from conception to childbirth is. It is a long road with pitfalls at every turn. While most women negotiate the path to motherhood successfully, always at the back of

their minds runs the thought that things can go wrong if they are not careful (**M S Aruna, S K Shafiya Begum, Prasanna J L, Prabha M S, N R Rao 2008**)<sup>1</sup>

Pregnant women in general and first-time mothers in particular are provided with a vast amount of information. Although this knowledge and related skills are important for a successful pregnancy and childbirth, women need different knowledge and skills for successful parenthood. (**Zwelling, 1996**)<sup>2</sup>

The rapid expansion of mobile health programs through text messaging provides an opportunity to improve knowledge, health attitude, behaviors, and clinical outcomes, particularly among hard-to-reach populations. The mobile technology infrastructure presents an opportunity to improve health and health care through new forms of interactive mobile health services that promote personal wellness, preventive care, and disease management. In recent years, health promoting interventions delivered by technology have been used for the provision of postpartum healthcare to mothers and

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their babies. (Diane Brage Hudson, Christie Campbell-Grossman, Melody Hertzog 2012)<sup>3</sup>

### Need of the Study & Literature Review

Despite a high level of activity and interest in Health applications and programs, documented evidence of their effectiveness remains limited. However, recent evaluations of text messaging applications indicate their potential for supporting patient self-management by facilitating patient education, behavior change, and adherence to recommended care practices. For example, a systematic review of the literature on disease management and prevention services delivered through text messages found evidence to support text messaging as a tool for behavior change in eight of nine studies with sufficient sample sizes. (Cole-Lewis H, Kershaw T 2010)<sup>4</sup>

Smart phones are increasingly important for the growth of medical Health, as evidenced by the rise in the development and use of health-related software applications. These applications cover a wide variety of topics, including (but not limited to) preventive care, prenatal and well-child care, exercise and fitness, health education, chronic disease management, medication adherence and education, and physiological monitoring. (Rachel Zabinski, Ruder Finn 2013)<sup>5</sup>

In 2012, 31 percent of mobile phone owners used their smart phones to search for health-related information (up from 17 percent in 2010), while 19 percent had health-related applications on their phones (up from 9 percent in 2010). (Susannah Fox, Maeve Duggan 2012)<sup>6</sup>

Considering the documented usefulness of mobile phones in delivering health related information, the investigator decided to conduct the present study.

### Problem Statement

"A Pre experimental study to assess the effectiveness of text messaging program "TELE MOMS" on knowledge and health attitudes of pregnant women at selected hospitals and urban communities of Indore in the year 2014-15".

### Objectives

To conduct baseline survey regarding knowledge of pregnant women.

To conduct baseline survey regarding health attitude of pregnant women.

To prepare and implement text messaging program "TELE MOMS" on antenatal care.

To assess the effectiveness of text messaging program "TELE MOMS" on knowledge of pregnant women through an end line survey.

To assess the effectiveness of text messaging program "TELE MOMS" on health attitude of pregnant women through an end line survey.

To obtain opinion from the pregnant women regarding the effectiveness of text messaging program "TELE MOMS".

### Hypothesis

**H<sub>1</sub>:** There is significant difference on knowledge of pregnant women in baseline and end line survey through the use of text messaging program "TELE MOMS" at the level  $p \leq 0.05$ .

**H<sub>2</sub>:** There is significant difference on health attitude of pregnant women in baseline and end line survey through the use of text messaging program "TELE MOMS" at the level  $p \leq 0.05$ .

### Methodology

**Research Design :** Pre experimental one group pre-test post-test design was adopted for the present study.

**Population:** All Pregnant women irrespective of any gravida.

**Sampling Technique:** Non-probability purposive sampling technique was used.

**Sample Size:** The sample comprised of 100 pregnant women.

**Setting:** The study was conducted in OPD's of Choithram Hospital & Research Centre and Urban Communities under IDSSS, Indore.

**Tool:** The tools for Data collection, in this study consisted of three sections.

**Section I (A):** Socio- Demographic Data - 6 items.

**Section I (B):** Obstetric History - 2 items

**Section II:** Structured knowledge Questionnaire consisted of 15 items regarding pregnancy and child birth.

Score was graded as follows:

Poor Knowledge	:	(00-03)
Average Knowledge	:	(04-07)
Good Knowledge	:	(08-11)
Excellent Knowledge	:	(12-15)

**Section III:** Attitude Scale consisted of 13 statements regarding the health attitude

Score was graded as follows:

Very positive attitude	:	(01-13)
Positive attitude	:	(14-26)
Neutral	:	(27-39)
Negative attitude	:	(40-52)
Very negative attitude	:	(53-65)

**Section IV:** Opinionnaire on "TELE MOMS".

Opinion from the samples was gathered using four statements in the Opinionnaire.

**Validity:** 10 experts of obstetric specialty and one statistician validated the tools.

**Reliability:** The tool was tested for reliability on 10 respondent's i.e. pregnant women. Split half method was used & the reliability was calculated using Karl Pearson's Correlation Formula. The reliability obtained was 0.86 by Karl Pearson formula proved that the tool was reliable.

**Data Collection Procedure:** Ethical consideration was fulfilled by taking written permission from the concerned authorities before data collection. The data were collected from 100 pregnant women who were selected irrespective of gravida by purposive sampling technique after taking informed written consent & explaining the importance and purpose of the study. Baseline assessment of pregnant women was done using structured knowledge questionnaire and attitude profile

rating scale. Average time taken for baseline assessment was 20-25 minutes. "TELE MOMS" A text messaging program was introduced to the pregnant women where they were informed of receiving one message daily as per their pregnancy stage. Endline assessment was obtained on completion of one month after the baseline survey by administering the same questionnaire.

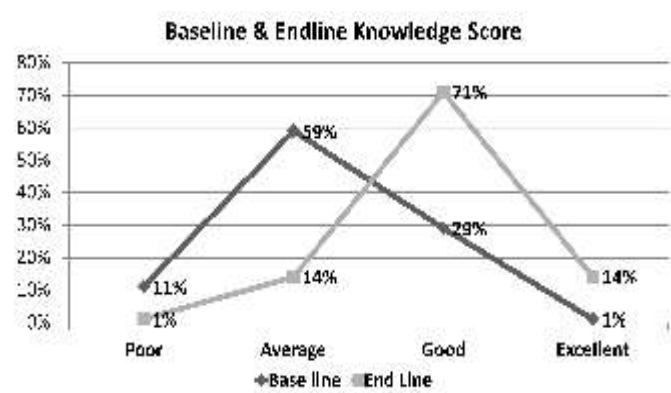
## Findings

**Section I (A): Socio-demographic characteristics of pregnant women.**

The present study showed that most of the pregnant women 39(39%) belonged to the age group of 21-25 years, nearly half of the sample i.e. 49(49%) had their education up to primary school level. Out of 100 samples, majority 80(80%) were home makers and only 20(20%) were employed. In family type, nuclear family 71(71%) outnumbered the category of extended family type. Most of the pregnant women i.e. 41(41%) had family income less than Rs 5,000/- per month, irrespective of this, all of them owned mobile phones. Remarkably, a high number 86(86%) of pregnant women were not aware of any of the text messaging programs. 51(51%) had registered themselves to their concerned institution in the 1<sup>st</sup> trimester of their pregnancy.

**Section I (B):** In obstetrical history of pregnant women, primi-parous 59(59%) outnumbered wherein multi-parous were 41(41%).

**Section II. Assessment of baseline and end line survey regarding knowledge score of pregnant women**



**Fig 1:** Line diagram showing distribution of samples according to knowledge score.

Data presented in Fig.1 reveals the baseline assessment where more than half of the samples i.e. 59(59%) possessed average knowledge regarding care in antenatal period, while those who had scored good were only 29(29%), 11(11%) of them had scored poor, wherein only 1(1%) had excellent knowledge. A remarkable difference was seen after the end line survey which revealed that text messaging was effective in improving the knowledge score in the category of good 71(71%), while an equal ratio of 14(14%) fell under the category of poor and excellent knowledge respectively, while a remarkable fall in the sample number was observed to 1(1%) in the category of poor knowledge score.

### Section III. Assessment of baseline and end line score regarding health attitude of pregnant women.

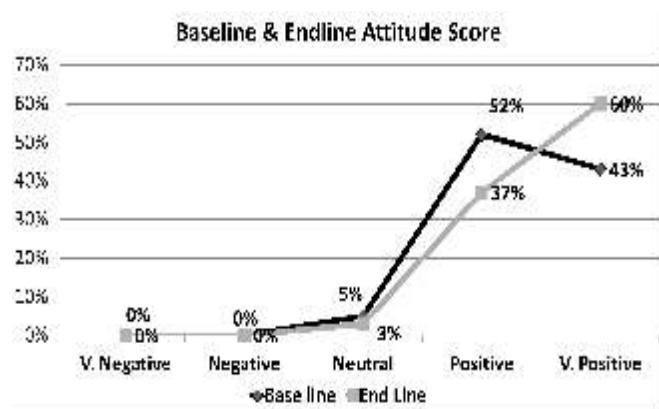


Fig 2: Line diagram showing distribution of samples according to health attitude score.

Data presented in fig . 2 reveals that the baseline and end-line survey for the assessment of health attitude using attitude profile rating scale, samples with positive attitude were high 52(52%) in baseline scoring while in end line survey remarkable fall in the sample size up to only 37(37%) were noted. Those that were having very positive attitude were 43(43%) in baseline survey whereas it ranked up to 60(60%) in end line survey. Samples who stayed neutral throughout were 5(5%) and 3(3%) respectively in the baseline and end-line survey. Lastly there were absolutely no samples that showed negative and very negative attitude.

### Section IV: Effectiveness of “TELE MOMS” A text

messaging program on knowledge of pregnant women.

Table 1: Mean, Mean difference, SD and 'z' value of baseline and end line survey. (N=100)

Groups	Mean	Mean Diff.	SD	SE	df	z Value
Baseline Survey	6.33	3.30	2.14	0.31	98	10.6
Endline Survey	9.63		2.32			

\*  $p \leq 0.05$  S- Significant

Data presented in Table No. 1 reveals that the mean of baseline survey done to assess the effectiveness of Text messaging program came out to be 6.33, after which the intervention was implemented which depicted a remarkable change in the end line survey which was 9.63. Mean difference score was 3.30 and 'z' value at df (98) was 10.6, which was significant at the level  $p \leq 0.05$ . This proved that “Tele moms” mobile app was effective to improve the knowledge of pregnant women.

### Section V: Effectiveness of “TELE MOMS” a text messaging program on health attitude of pregnant women.

Table 2 : Mean, Mean difference, SD and 'z' value of baseline and end line survey. (N=100)

Groups	Mean	Mean Diff.	SD	SE	df	z Value
Base line survey	50.65	2.21	6.03	0.88	98	2.51
End line survey	52.86		6.56			

\*  $p \leq 0.05$  S- Significant

Data presented in Table No. 2 reveals that the mean of baseline survey done to assess the effectiveness of Text messaging program came out to be 50.65, after the intervention there has a slight change in the endline survey to 52.86. Mean difference score was 2.21 and 'z' value at df (98) was 10.6 which was significant at the level  $p \leq 0.05$ . This proved that “TELE MOMS” was effective to improve the health attitude of pregnant women.

### Section VI: Opinionnaire on “TELE MOMS”.

Findings revealed that all of the 100 respondents were satisfied with the text messaging program.

## Discussion

### Assessment of “TELE MOMS” A text messaging program on knowledge of pregnant women.

The present study revealed a significant difference on knowledge of pregnant women through text messaging program “TELE MOMS” at the level of  $p \leq 0.05$ . The computed 'z' test values between the baseline and end line survey depicted that there was a significant difference on knowledge of pregnant women with the text messaging program with df (98) was 10.6 at the level of  $p \leq 0.05$ . This proved that “TELE MOMS” text messaging were effective to improve the knowledge of pregnant women. Hence H1, there is significant difference on knowledge of pregnant women through text messaging program “TELE MOMS” at the level of  $p \leq 0.05$  is accepted. The researcher regrets for not having any supportive study for this hypothesis.

### Effectiveness of “Tele moms” a text messaging program on health attitude of pregnant women.

The present study revealed a mean difference of 2.21 in which baseline score was found to be 50.65 while end line score was 52.86, significant difference on health attitude of pregnant women with the text messaging program was found to be at df (98) was 2.51 at the level  $p \leq 0.02$ . This proved that Tele moms was effective in improving the health attitude of pregnant women. Hence H2, there is significant difference on health attitude of pregnant women through text messaging program “TELE MOMS” at the level of  $p \leq 0.05$  is accepted.

The above findings were supported by the study done by **W Douglas Evans (2014)**<sup>7</sup> on improving the health care attitudes, beliefs and behaviors of military women's population in Madigan Army Medical Center in Tacoma, Washington, from December 2011 through September 2013. For this study, 943 patients were randomized and completed a baseline assessment. 48.7% of enrollees (459/943) completed the first follow-up assessment. All of these attitudes had been targeted by at least one text message during the 4-week evaluation period examined in this study. In unadjusted models, there was a significant effect of intervention exposure on belief in the importance of visiting a health care provider to be a healthy new

mother (OR 1.52, 95% CI 1.01-2.31,  $P = .046$ ) and in the health risks of alcohol during pregnancy (OR 2.06, 95% CI 1.00-4.31,  $p = .05$ ). No behavioral effects of the intervention were observed in this analysis. There were significant improvements in several outcome attitudes, beliefs, and behaviors from BL to EL. However, no significant differences in improvements over time were observed between the treatment and control study conditions. Overall, they found that exposure to text messages improved some targeted attitudes and beliefs.

## Conclusion

The past success and future potential of text messaging to reach the right audience at the right time with the right message at a minimal cost has caught the attention of the health research community. As the era is of smart phones and technology which is rising with high speed, this method of creating awareness will be cost-effective. “TELE MOMS” outcome revealed that baseline mean score depicted a significant percentage change in knowledge and also in health attitude of pregnant women after the same one month intervention, as the health attitude cannot be changed to a larger extend.

“TELE MOMS” was effective in improving the knowledge and health attitude of pregnant women.

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