



A Study on Health Education as Intervention Tool for Grass-Root Level Antenatal Care-Givers in Ahmedabad

Dr. Margi Patel

Intern, Smt. NHL Municipal Medical College, Ahmedabad

Mr. Shalin Shah

2nd year MBBS, B.J. Medical College, Ahmedabad

Dr. Sonal Parikh

Associate Professor, Department of Community Medicine, Smt. NHL Municipal Medical College, Ahmedabad

ABSTRACT

Introduction: Most of the developing nations are victims of poor quality health care meted out by insufficiently knowledgeable and trained health-workers. Current study tests the effectiveness of health education intervention on knowledge about proper antenatal care of grass-root level health workers in Ahmedabad, India. **Methodology:** The study was carried out on 239 Link Workers (LWs - urban health workers), evaluation done by pre-tested semi-open questionnaire, pre and post health education given by audio-visual aids. Results were drawn by Z-values and probability with an increase in mean score of each question. **Results:** Knowledge about weight gain recorded the highest increase (266.67%), followed by that in personal care (83%). Increase of 48.96% and 54% was recorded in knowledge about warning signs and high-risk pregnancy respectively, while 37.6% and 51.52% increase in correction of misbeliefs and postures respectively. A significant rise in awareness about lab. tests done in Urban Health Centre (51.79%) and nutrition (26%) was noted. The overall increase in mean score was about 20%. **Conclusion:** This study shows a positive effect on the knowledge increase of LWs after health education who otherwise had insufficient comprehension about antenatal care. More interactive training programs need to be organized periodically to bring about sustained and complete knowledge. Several such studies at large scale need to be carried out to ascertain further policies.

KEYWORDS: Health Education, Intervention, Antenatal Care, Training of healthcare workers

INTRODUCTION:

During the United Nations MDG summit in 2010, UN Secretary-General Ban Ki-moon launched a Global strategy for women's and children's health, which aimed at improving maternal health and reducing maternal mortality by providing evidence-based clinical and programmatic guidance, setting global standards, and providing technical support to Member States.

In addition, World Health Organization (WHO) advocates for training materials and guidelines for health workers, hereby in our study, which are the main participants[1]. Thus Antenatal Care (ANC) is of prime global importance and the Link Workers (LWs) (health workers in urban areas of India) are the executioners at grass-root level. The term behavior refers to a person's and communities' demeanor, opinions, attitudes based on the knowledge they have for health and healthcare. It changes over the time span as they acquire newer information. [2] Proper and adequate knowledge about ANC to LWs changes their behavior, which in turn projects over a greater part of the community. Antenatal period being long, providing high-quality, accessible healthcare across all economic classes during it, is logistically and operationally a very complex undertaking than providing the same during just the labor and delivery. At this stage, the LWs come in, whose job includes providing quality ANC in low-income areas [3,4,5]. High-quality ANC is of extreme necessity to achieve a reduction in maternal morbidity and mortality which still lingers at an unacceptable level, despite allocation of various national programs towards improving the maternal and child health. Moreover it is generally recognized that the standards set by WHO regarding quality ANC meted out by health workers are not met with by most of the developing nations. Ahmedabad, being an upcoming well-urbanized metro city and financial capital of Gujarat state, India, thus needs to focus on quality health service. Hereby, this study assesses the baseline knowledge of the LWs (East zone, Ahmedabad) about proper ANC and observes the increase in the same after a health education intervention. Also, various socio-demographic factors affecting knowledge and the aftermath increase are studied.

METHODOLOGY:

Study Location & Personnel involved: East Zone of Ahmedabad is divided into 10 wards. Each ward has one Urban Health Centre (UHC). UHC is an institution which provides preventive and curative services to the community. A medical officer is in charge of the UHC. Field activities to provide services are carried out by LWs which are in turn supervised by Multipurpose Health Workers (MPHWs). LW is a male or female (female worker - underprivileged and resident of the local community is preferred) part time worker. They do house-to-house work in high risk areas like slums, low-income areas, etc.

Study Design: Sessions were arranged in all ten UHCs of East Zone of Ahmedabad after due permission from the local healthcare authority and the study was thus carried out on 239 LWs and consisted of Pre-Training evaluation, followed by intervention regarding proper ANC. Thereafter, LWs were evaluated again on the same issues (Post-Training) after a month.

Study Tool: Intervention was carried out by the means of Audio-Visual aids in regional language for one hour. The Pre and Post evaluation was carried by a pre-designed, pre-tested, semi-open questionnaire in regional language, primed on the lacunae after piloting done on the basic knowledge and routine job duties of the LWs, also after going through various literatures from similar previously carried out studies [14-17] and consulting local obstetricians catering to low-income areas.

Study Limitation: There was a data loss of 76 LWs in Post-Training evaluation due to logistic reasons (holidays, administrative problems, turnover of LWs etc.) Thus, 239 LWs for Pre and 163 for Post comprised of the study population. As every other study, here too, there was space for human and machine errors. Only LWs of East Zone of Ahmedabad were studied upon, so if more respondents are recruited, this study can be generalized to a larger population.

Inclusion Criterion: All the LWs of all the ten UHCs of East Zone of Ahmedabad.

Data Analysis: Score was given in response to each question and all the data was entered using Google Docs by Google Inc. Quantitative analysis was thus carried out by the SPSS software v18 projecting Z values and probabilities.

Time Duration: The entire study was carried over time frame of March-November 2010.

Study Variables: Food to be taken ; Food to be avoided ; Antenatal weight gain ; Amount of Sleep-Rest ; Personal care: Clothes, Bathing, Oral hygiene, Addition, Coitus ; Antenatal services: Vaccination, Centers for free HIV testing, Tests in UHC, Minimum antenatal visits ; Antenatal warning signs ; High-risk pregnancies ; Misbeliefs ; Postures .

RESULTS:

The analysis of the study has been divided into two parts: Baseline (pre-interventional) and post-interventional Study. In the Baseline Study, LWs' knowledge on various topics is analyzed quantitatively. Post-interventional Study is mainly comparison study. The change in knowledge

is compared with either increase or decrease in mean score and the significance of that change is calculated using Z-test and probability.

Baseline Study:

It was very evident from the results that the LWs had very little basic knowledge about the food to be taken (55% respondents being correct), food to be avoided (27%) and the weight to be gained (25%) during pregnancy, while about half could answer correctly about adequate amount of sleep/rest needed. 87% respondents were aware that addiction (smoking and alcohol) was to be avoided totally, but shockingly, 13% still believed it to be safe. 33% workers thought that coitus should be totally avoided. Around 70% respondents could answer correctly about free HIV testing centers and the tests done in UHC for antenatal women, while around 80% could answer correctly about minimum number of antenatal visits and vaccination required. In the question about the high risk pregnancies and warning signs, the perception of which is an immediate indication of referral to the hospital, 22% and 24% could not respond even with a single answer (even though they were asked to list out any five conditions). Only 10% and 6% LWs could answer all the questions regarding the misbeliefs and postures respectively, correctly.

Post-Interventional Study:

Table 1 shows the pre and post comparison of the LWs' score as per their age group. It can be concluded from the table that age does not have much influence on knowledge about ANC, but obviously there is an increase after the intervention which is for good.

Table 2 shows the impact of the education on the result, pre and post intervention, which can be concluded as those who were graduates had higher baseline score than those who only had primary schooling, and there has been an increase in knowledge score in all the three education groups.

Table 3 summarizes the mean scores and Z values along with probability values and percentage difference comparing pre and post intervention data. As seen in table 3, there is 266.67% increase in the weight gain question, while increase in knowledge regarding food to be avoided was 45.10%, and sleep/rest by 20.59%. The knowledge about food to be taken increased by 13.16% as seen in increase in the mean score. Overall percentage difference in pre and post intervention knowledge about personal care is 83%. Individual increase for each sub-question in personal care is shown in Table-3. Regarding services provided by the UHC, highest increase is in the question regarding which tests are done in the UHC (51.79%), second, third and fourth being 12.50%, 7.58% and 2.47% respectively for vaccination, HIV testing centre and Minimum number of Antenatal visits required, with the latter two being not significant. The mean increased notably in awareness of both warning signs and high-risk pregnancies: (48.96%) and (54%) increase respectively. There was an increase of 37.6% about the correction of the misbeliefs. Sub-question analysis shows the highest increase was on the correction of the belief that pregnant women must take complete rest, must not do any work. In the question regarding correct postures to be adapted during pregnancy, the figure recorded a 51.52% increase with the highest being in standing posture.

DISCUSSION:

Antenatal counseling by health workers opens floodgates of possibilities for proper implementation of range of other programs-Nutrition information, HIV, other infections, routine care as well as door-to-door reach of health information and services having potential to significantly increase the health of pregnant women and their to-be born babies. Yet, this remains insufficiently exploited. [3] Maximum utilization can only be done by giving adequate knowledge to the health-workers, and in this study, the effectiveness of health-education is thus studied.

Food to be taken and avoided: Almost 55% of the respondents gave the ideal answer regarding what food to be taken, in the baseline evaluation, which included green vegetables, milk and its products, pulses majorly, the knowledge of which increased as assessed in post-interventional evaluation as seen in the mean score increase by 13.16%. Surprisingly, only 27% respondents were correct regarding food to be avoided during pregnancy, majority stating stale, oily and spicy foods, previous to the intervention. After education, the increase in mean score was by 45.10%.

Weight gain and Sleep/Rest: In the baseline study, only 1/4th of the LWs were correct about the ideal weight gain during pregnancy which is 10-12 kilograms, while 22% answered 4 kg as satisfactory which is a

gross difference from the correct response. Post-education the increase in mean score was a stunning 266.67%. Only half of the workers could respond 2 to 3 hours day rest and 8 to 10 hours night sleep as the ideal and correct answer in the pre-interventional analysis and the mean score increased by 20.59% post-intervention.

Personal care: Questions targeting the knowledge regarding personal care lingered over: type of clothing, frequency of bathing, oral hygiene, alcohol intake/smoking and coitus should be avoided or not, with the first three having around 63% positive responses in the baseline study. 87% were aware that addiction was to be avoided but astonishingly, 13% still believed it to be safe, while 33% workers thought that coitus should be totally avoided whereas 12% and 8% respectively thought it to be safe during first and third trimester, which endangers the foetus. There was a noteworthy increase of 83% in the overall mean score for personal care subsequent to the intervention. A point to be noted most appreciably is that there is an awareness in relation to passive smoking from 0 to 14 % post-education.

Services provided by Health-centers:

Vaccination: While 87% respondents were aware of the vaccine to be given- tetanus, however the knowledge about dose and schedule was insufficient. Post intervention rise noted was 12.5% in the mean score.

Free HIV testing centers: 70% could answer about free HIV testing centers nearest to their area of service, which increased in score by 7.58% post intervention which is not significant. These results indicate an increased prevalence of knowledge among the LWs that the antenatal visits can be productively utilized to motivate the pregnant women to undergo HIV testing which would ultimately help us in achieving PMTCT(Prevention of Mother-to-Child transmission) [6,7,8]

Tests in UHC: Shockingly only 28% of the respondents in the baseline study could answer all the tests done in UHC for antenatal women which comprised of general examination, Blood (TORCH, CBC, ESR, Sugar, Hb etc), Urine (Protein, Sugar, Routine, Micro.), increasing by 51.79% in mean score following the intervention.

Antenatal visits: 81% respondents answered this question correctly with minimum of four visits pre-intervention which is relatively good as it is a very important part of their job to encourage the mother to go to a clinic for timely antenatal visits. There was no significant rise post-education.

Warning Signs: This question projected a very important aspect about the warning signs, the discernment of which indicates an immediate referral to the hospital. As per one study [9], warning signs of danger were explained to only 10% of Antenatal and Postnatal women by the health-workers. In this study, Pre-intervention, an astonishing 24% could not come up even with a single answer out of any five (Edema of legs, fits, Leaking/Bleeding P/V, Blurring of vision, Headache, Fever, vertigo, vomiting etc.) supposed to be given. After intervention, there was a notable increase in the mean score by 48.96%.

High-risk pregnancies: Here , in the baseline study, 22% of the LWs failed to even generate a single response , which was unexpected (any 5 out of : age<20 , >35, multiple pregnancy, bad previous obstetric history , Grand multipara, Anaemic, HIV positive, Major systemic illness, short stature, infection, antepartum hemorrhage, malpresentation etc.). The question registered an impressive increase of 54% in the mean score post intervention. A staggering number of unattended High-risk pregnancies lead to the current Maternal Mortality Rate(MMR) pegged at 212 per 100,000 live births in India. Lack of proper corrective measures here casts an ambiguity over the nation's ability to reach the millennium development goal of 109 maternal deaths per 100,000 live births by 2015. [10,12]

Misbeliefs: As seen in chart-1 (placed after all the tables), there is an increase in correct responses in each sub-question after intervention, with the overall increase in mean score being 37.60%. Highest success was seen in decreasing the misbelief that a pregnant woman must not work and take complete rest. As per some studies, daily physical activities in moderate amount infact help the infant health on the better aspect. [13]

Postures: There is high (approximately 50%) prevalence of low back pain among pregnant women which hinders them in carrying out

their daily activities. Moreover it can lead to problems like insomnia, and reduction in their physical activeness. [11] There was an admirable percentage rise in the understanding and knowledge regarding all appropriate postures to be attained during routine activities as seen in chart-2 (placed after all the tables), while the overall mean score registered an increment of 51.52% post-education.

The overall increase in mean score(out of 35) of all the questions aggregated was 20% after the health education intervention for the LWs. This knowledge increase ultimately will project over the whole community and work for a healthy maternal and child future.

CONCLUSION:

LWs will continue to play a pivotal role in maternal and child health in India for foreseeable future. But with insufficient knowledge, this role cannot be much exploited. As seen in this study, also several others, the quality content of the proper and adequate knowledge is quite low. [3,9] Given the dearth of better health workers in low-income areas than the present, more such studies are needed to be carried out on a humungous scale. Turnover of the LWs should be reduced so that the retention of the same LWs will bring about more competency and sustained knowledge. They should be made working in the field only after an induction training. Competent Health Authorities do train LWs but those trainings should not be limited to an induction training, but also 6 monthly refreshment courses. LWs are fixed salaried people and taking care of numerous vertical health programs. Their burn out issues need to be addressed periodically. Interactive training programs specially designed for this, which are also having provisions for formative and summative evaluations also should be thought upon. This is

the best hope for Millennium Development Goals to reach its target by 2015, [10,12] and thus should be harmonized with National policies and existing priorities.

TABLES AND CHARTS:

Table-1: Pre and Post comparison of the LWs' score as per their age group

(* age not available, otherwise 239 in pre and 163 in post; **out of 35 marks)

Age Groups	Pre		Post		Percentage Difference
	Number	Mean**	Number	Mean**	
20-29	67	19.6	41	26.8	21%
30-39	126	18.5	90	25.5	20%
40-49	33	16.6	25	22.3	16%
50-59	2	23	2	27	11%
Total	228*	18.93	158*	25.4	18.50%

Table-2: Impact of the education on the result, Pre and Post intervention (*out of 35 marks)

Education	Pre		Post		Percentage Difference
	Number	Mean*	Number	Mean*	
Primary	9	16.6	3	25.6	25.70%
High-School	158	17.7	108	24.2	18.60%
Graduate	72	20.9	52	26.3	15.40%
Total	239	18.45	163	25.33	19.90%

Table-3: Change in knowledge – comparative tabulation, pre and post-intervention

S.N.	Question	Pre - Mean	Post- Mean	% Increase	Z- value	Probability	Significance
1	Food to be taken	0.76	0.86	13.16	3.67	<0.01	Highly significant
2	Food to be avoided	0.51	0.74	45.1	7.1	<0.01	Highly significant
3	Weight Gain	0.21	0.77	266.67	13.3	<0.01	Highly significant
4	Sleep	0.68	0.82	20.59	3.77	<0.01	Highly significant
5	Personal Care						
	Clothes	0.73	0.9	23.29	5.94	<0.01	Highly significant
	Bathing	0.66	0.81	22.73	4.11	<0.01	Highly significant
	Oral Hygiene	0.66	0.86	30.3	5.54	<0.01	Highly significant
	Addiction	0.87	0.91	4.6	1.48	>0.05	Not significant
	Coitus	0.26	0.65	150	9.85	<0.01	Highly significant
6	Antenatal Services						
	Vaccine	0.72	0.81	12.5	2.5	<0.05, >0.01	Significant
	HIV Testing	0.66	0.71	7.58	1.36	>0.05	Not significant
	Tests in UHC	0.56	0.85	51.79	8.44	<0.01	Highly significant
	Minimum Antenatal Visits	0.81	0.83	2.47	0.719	>0.05	Not significant
7	Warning Signs & High Risk Pregnancy						
	Warning Signs*	1.92	2.86	48.96	8.87	<0.01	Highly significant
	High Risk Pregnancy*	2	3.08	54	7.5	<0.01	Highly significant
8	Misbeliefs#	3.59	4.94	37.6	9.07	<0.01	Highly significant
9	Correct Postures#	2.97	4.5	51.52	10.53	<0.01	Highly significant

(Each question row is scored one mark maximum except *five marks and #6 marks maximum) (Z value <1.96- not significant ; >1.96 and <2.58- significant ; >2.58- highly significant)



Chart-1: Change in misbeliefs regarding antenatal care after intervention

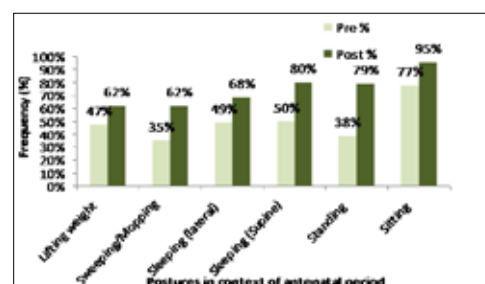


Chart-2: Change in knowledge after intervention about correct postures in context of antenatal care

ACKNOWLEDGEMENT:

We are highly obliged to the concerned authorities for granting us permission to hold this study amongst the LWs of UHCs of Ahmedabad. The crews of the study however were the LWs, without whom this study would never have been a reality. We thank them, for their patience and co-operation.

REFERENCES

1. <http://www.who.int/mediacentre/factsheets/fs348/en/> | 2. Communication for Behaviour Change. Manual on RCH. IJPH. 2002; 46:117–9 | 3. Abou Zahar, Carla Lydia/Wardlaw, Tessa 2003 . WHO Antenatal Care in Developing countries-Promises, Achievements and missed opportunities. WQ175 2003 AN | 4. World Health Organization . Working with individuals, families and communities to improve maternal and newborn health Making Pregnancy Safer Initiative.2003. Geneva: WHO . | 5. Renkert S, Nutbeam D. Opportunities to improve maternal health literacy through antenatal education: an exploratory study. Health Promotion International 2001; 16: 381–388. [PubMed] | 6. Carroli G et al. for the WHO Antenatal Care Trial Research Group. WHO systematic review | of randomized controlled trials of routine antenatal care. The Lancet 2001, 357:1565-1570. | 7. Villar J, Bergsjø P. Scientific basis for the content of routine antenatal care. I. Philosophy, | recent studies and power to eliminate or alleviate adverse maternal outcomes. Acta Obstetrica | et Gynecologica Scandinavica, 1997, 76:1-14. | 8. Bergsjø P, Villar J. Scientific basis for the content of routine antenatal care. II. Power to | eliminate or alleviate adverse newborn outcomes: some special conditions and examinations. | Acta Obstetrica et Gynecologica Scandinavica, 1997, 76:15-25. | 9. Bratati Banerjee. Information, Education, and Communication Services in MCH Care Provided at an Urban Health Center. Indian Journal of community medicine 2009 October;34(4):298-300 PMID: PMC2822188 | 10. New York: United Nations; 2000. United Nations General Assembly. United Nations Millennium Declaration. A/RES/55/2. | 11. Liebetrau A, Puta C, Schinowski D, Wulf T, Wagner H. Is there a correlation between back pain and stability of the lumbar spine in pregnancy? A model-based hypothesis. Schmerz. 2012 Feb;26(1):36-45. | 12. WHO. PMTCT strategic vision 2010-2015: preventing mother-to-child transmission of HIV to reach the UNGASS and Millennium Development Goals. Geneva: World Health Organization; 2010. | 13. M Koushkie Jahromi,1,* B Namavar Jahromi,2 and S Hojjati . Relationship between Daily Physical Activity During Last Month of Pregnancy and Pregnancy Outcome. Iran Red Crescent Med J. 2011 January; 13(1): 15–20. | 14. Park's Textbook of Preventive and Social Medicine, 20th edition, Feb 2009. M/S Banarsidas Bhanot Publishers. 447-453 | 15. Textbook of Obstetrics by Dutta, 6th edition. 2004. New Central Book Agency PVT LTD. 95-105 | 16. http://www.childinfo.org/antenatal_care.html | 17. <http://www.who.int/topics/pregnancy/en/> |