



EFFECT OF AWARENESS PROGRAMME ON KNOWLEDGE AND PRACTICE REGARDING BIRTH PREPAREDNESS AND COMPLICATION READINESS AMONG PREGNANT WOMEN AT PANCHLA BLOCK, HOWRAH DISTRICT

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ABSTRACT

Birth preparedness and complication readiness or BP/ CR of pregnant women enable maternal and newborn survival. A quasi-experimental study was conducted to know the effect of awareness programme on knowledge and practice regarding BP/ CR among pregnant women in Panchla Block, Howrah District, West Bengal. Using the Mother and Child tracking system register 72 mothers with gestational age ≥ 36 weeks selected randomly from 12 sub-centers. Intervention was done through individual and group instructions and data were collected before and after intervention. The intervention through awareness programme to the pregnant women significantly raised the awareness level regarding BP/ CR, as the mean score was higher in the intervention group regarding birth preparedness ((17.1 after intervention versus 13.5 before intervention, t value 12.73 with 35 df, $p < 0.05$) and complication readiness (13.8 after intervention versus 6.1 before intervention, t value 25.31 with 35 df, $p < 0.05$). However, there is no significant improvement in mean score in the control group regarding birth preparedness. There is also, strong positive association between knowledge and practice (chi-square value 16.99 with 1 df and $p < 0.01$).

Keywords: birth preparedness; complication readiness

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INTRODUCTION

Birth preparedness motivates people to take proper care during pregnancy and childbirth through skilled care providers, while complication readiness raises the awareness of danger signs among women, family and community (Agarwal, Sethi, Srivastava, Jha, Baqui (2010). Together birth preparedness and complication readiness is a package for care of the mother and the newborn during pregnancy, childbirth and postpartum period and includes preparation for taking action in emergencies and thus, building an environment for better maternal and child survival. Birth preparedness is not so easy in a resource constraint situation. Many people in India live on less than US \$1 a day, which is too insufficient to

feed and clothe them. They hardly put aside money for a possible obstetric emergency. In addition, the situation is more complex in rural areas. Even if money is available, the non-availability of vehicles and lack of motor-able roads might still cause delay to endanger pregnant women's lives. Fortunately National Rural Health Mission 3 has come in a big shape to address all the issues. In addition to the infrastructural development (set up of new health facilities and engagement of human resources), two schemes Janani SurakshaYojana (JSY) (Government of West Bengal, 2010). Although evidence shows a clear relationship between improved knowledge and increase in health seeking behavior, which are still lacking particularly in adaptation of new policies associated with the empowerment of the individual, family and community. Several actions have been taken to raise awareness of the community about the importance of skilled care during pregnancy and childbirth and incorporated in the Maternal and Child Health Programme under the umbrella of National Rural Health Mission (NRHM) during the last seven years (2005-12).

United Nation Children Fund⁵ in the publication on 'Maternal Death Investigation' (MDI) in Purulia district of West Bengal reported that even after recognizing the complications, 46.6% of deceased mothers opted for either home care or non-formal care and more than 40% of them never sought any formal health care before death. Unfortunately enough, in half of the situations where complications occurred in mothers, the concerned family did not consider mother as sick enough to transport to a health care facility. In 10.7% cases, they had no faith in formal health care facility and 17.9% of them thought that non formal health care was sufficient to tackle the problem. Other major reasons for the delay in seeking formal health care was lack of suitable transport (25%) and lack of anticipated money for either transport (25%) or for health care (7.1%).

Commonly cited factors (contributing to maternal death) can be averted with advance preparation and rapid action during emergencies (if any), thus reducing delay in seeking, reaching and receiving care. Study⁶ conducted among women in rural and urban areas of Madhya Pradesh reported that less than half of the pregnant women and lactating women were prepared for the birth of their children. A study of West Bengal (Kakaire, Kaye, Osinde, 2012). Though reported more than 70% institutional delivery during the year 2010, a good number of maternal and neonatal deaths are reported. There is a little improvement in the reduction of maternal and neonatal deaths in the last 5 Years (Change, 2012). There is no study on Birth Preparedness and Complications Readiness including the effect of awareness programme, among pregnant and lactating women of Howrah district to understand the bottlenecks regarding the perception at individual and family level, on taking care during pregnancy and a skilled care provider at every birth, which is necessary to achieve the NRHM goal on maternal and neonatal mortality. Problem statement is effect of awareness programme on Knowledge and Practice regarding Birth Preparedness and Complication Readiness among pregnant women in the selected district of West Bengal, India. Purpose of the study to estimate the changes in knowledge and practice regarding birth preparedness and complication readiness of pregnant women in the gestational age of 36 weeks and above at Panchla Block in Howrah District, West Bengal, India. Objectives of the study to assess the knowledge regarding birth preparedness and complication readiness of pregnant women before and after introduction of awareness programme in

Panchla Block of Howrah District, to assess the practices regarding birth preparedness and complication readiness of pregnant women before and after introduction of awareness programme in Panchla Block of Howrah District, to find out association between knowledge and practices regarding birth preparedness and complication readiness of pregnant women.

METHOD

To conceptualize the study, Becker and Maiman's (1975) Health Belief Model (HBM) is used. The HBM is a conceptual framework used to understand health behavior and possible reasons for non-compliance with recommended health action (Becker & Rosenstock, 1984).

RESEARCH DESIGN

Research design use quasi experimental approach was undertaken to solve the objectives.

Group	Day-1	Day-8
E	$K_1 P_1 X$	$K_2 P_2$
C	$K_3 P_3 X$	$K_4 P_4$

K_1, K_3 = pretest of knowledge; P_1, P_3 = pretest of practice; K_2, K_4 = posttest of knowledge. P_2, P_4 = posttest of practice; X = Individual / group instruction.

The study population is all mothers in pregnancy of 36 weeks and above and registered in the Mother and Child Tracking System (MCTS) of Panchla Block (Population 2.45 Lakh and Birth Rate 16.3 as per 2011 Census) of Howrah district, West Bengal, India. Sample and sampling techniques:

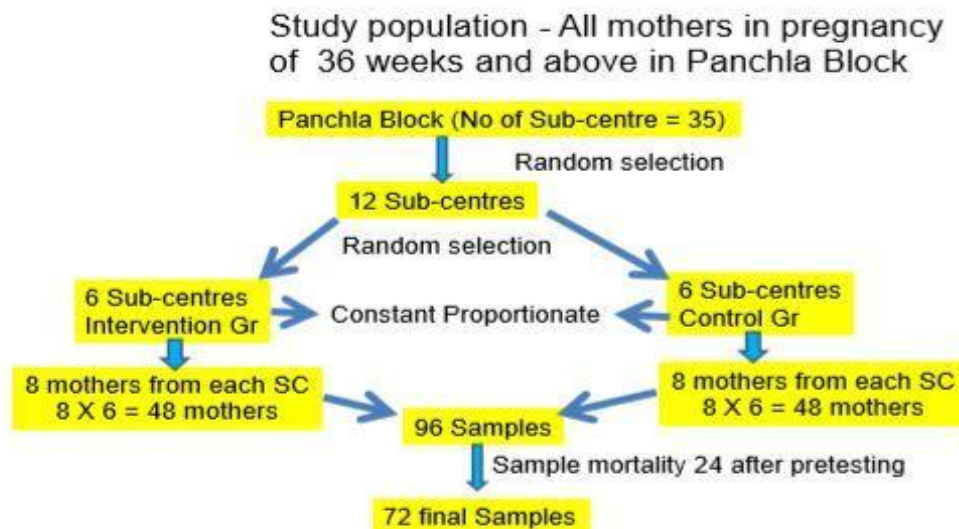


Figure 1. Schematic diagram showing the sample

Sample size use considering 95% confidence interval, 10% relative precision and 5% nonresponse, the estimated sample size was 96 [intervention – 48 (8 mothers X 6 sub centres), control – 48 (8 mothers X 6 sub centres)]. Inclusion and exclusion criteria:

The criteria for selection were,

- (1) Ambulatory mother
- (2) Attended the antenatal clinic during the period of data collection
- (3) Who were willing to participate in the awareness programme.

The criteria for exclusion were,

- (1) Seriously ill antenatal women, unable to attend antenatal clinic
- (2) Antenatal mother residing in other sub-centre of other block within or outside Howrah district, but taking services.

Data collection procedure:

- (1) Using Mother and Child Tracking System (MCTS) register 8 mothers with gestational age of 36 week and above selected randomly in 12 sub-centers using record analysis proforma.
- (2) Information given through HA (F) and ASHA workers to selected antenatal women to attend the MCH clinic of sub-centre.
- (3) In the clinic pre-test knowledge on BP/ CR was checked by using interview technique through structured interviewed schedule and pre-test practice was observed.
- (4) The mothers in the intervention group were asked to report on the next day and the awareness programme was given through participatory group meetings and lectures using charts, flip charts.
- (5) Posttest on knowledge was taken for all mothers after 7 days
- (6) Then after the delivery all the mother was observed for practice.

Ethical consideration:

- (1) Permission from ethical committee of Medical College, Kolkata
- (2) Administrative permission from the DHS, West Bengal and CMOH, Howrah District
- (3) Informed consent was taken from mothers

RESULTS

Ekabua, Ekabua, Odusolu, Agan, Iklaki, Etokidem (2011) conducted a multi-centric study involving 800 women in Nigeria was conducted to assess the awareness and intention to use maternity services. The study suggested that educational status was the best predictor of awareness of birth preparedness, but not a good predictor of intention to attend four ANC sessions. 41% of mothers, who had not delivered in hospital, stated financial scarcity as the main barrier, whereas 31% thought that the lack of proper transportation hindered them. The urban women mostly were interested in institutional delivery compared to rural ones.

Kakaire, Kaye, Osinde (2012) conducted a study in rural Uganda The content of the study was a bit different and highlighted male involvement in birth preparedness and complication readiness in obstetric emergency. 44.3% women saved money for any eventuality such as pregnancy complications, 42.9% were accompanied by the husband to the antenatal clinic and 43.4% were accompanied to the labor ward by the husbands. Parity,

age of spouse, educational level, occupation of 17 spouses, presence of pregnancy complications and the anticipated mode of delivery were associated with having a birth plan.

Table 1.
 Selected Socio-Demographic Characteristics of Study Subjects, Panchla Block, Howrah District, West Bengal 2012 (n = 72

Characteristics		f	%
Age group	<15 years	0	0
	15 – 30 years	67	93.1
	31-40 ears	5	6.9
	>40 years	0	0
Religion	Hindu	44	61.1
	Muslim	28	38.9
	Christian	0	0
	Others	0	0
	General	51	70.8
Caste	Scheduled caste	21	29.2
	Scheduled tribe	0	0
	Other	0	0
	<1000/-	0	0
Family income	1001/- - 2999/-	59	81.9
	3000/- - 4999/-	10	13.9
	5000/- - 7499/-	2	2.8
	7500/- - 9999/-	1	1.4
	10000/- - 19999/-	0	0
	20000/- - and above	0	0
Family size	5 or less member	55	76.4
	More than 5 member	17	23.6
Occupation	Agriculture	0	0
	Labour	5	6.9
	Service	0	0
	Business	2	2.8
	House wife	65	90.3
	others	0	0
Distance from nearest health centre	Within 5 KM	45	62.5
	5-10 KM	26	36.1
	More than 10 KM	1	1.4

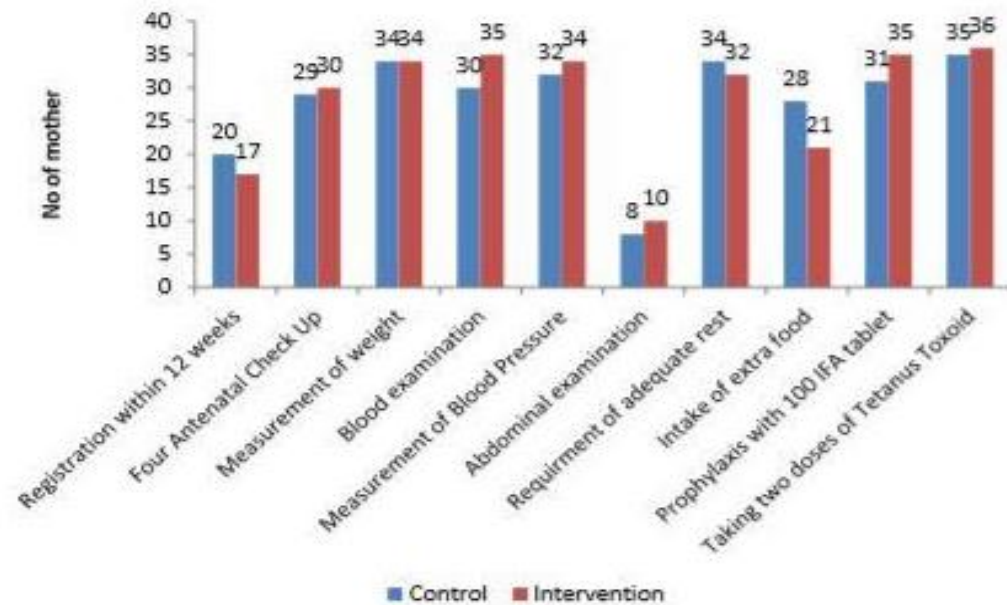


Figure 2. Pre test knowledge on birth preparedness among intervention and control group women, Panchla Block, Howrah (n=36)

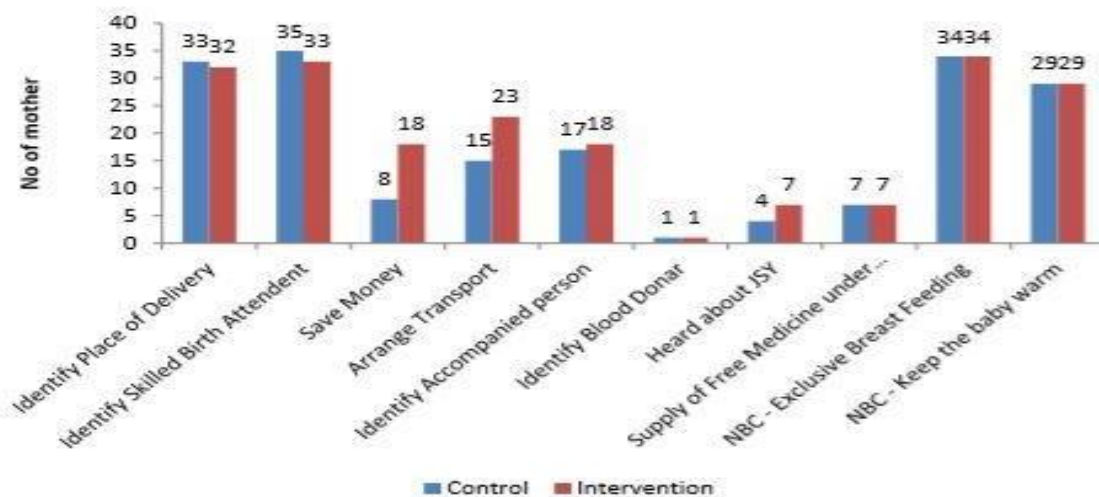


Figure 3. Pre test knowledge on birth preparedness among intervention and control group pregnant women, Panchla Block, Howrah (n=36)

Table 2.
T-test showing pre-test knowledge on birth preparedness among pregnant women, experimental and control group, Panchla Block (n=72)

	Mean score	Mean diff	Std Deviation	t-value
Intervention group	8.44	0.33	1.84	0.96
Control group	8.11			

$t_{\text{tab}} \text{ df } (35)=2.03$ $p>0.05$ $t_{\text{val}}<t_{\text{tab}}$ Not significant

Table 2 above showed the mean scores (8.44 in intervention and 8.11 in control), mean different (0.33) and standard deviation (1.84). The corresponding t value at 35 df was 0.96, which was non significant (tabulated value 2.03 with 35 df). So there is no difference between intervention group and control group i.e. both group are homogeneous.

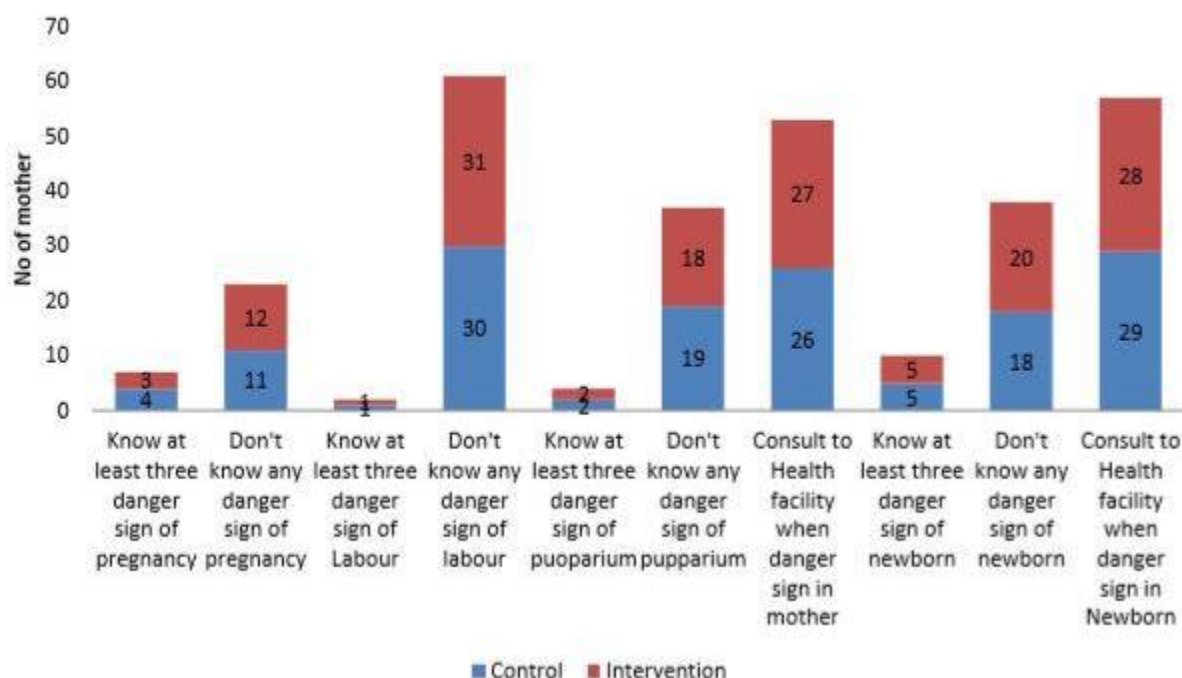


Figure 4. Pre-test knowledge on complication readiness among intervention and control group pregnant women (n=36; n=36)

Figure 4 revealed pre-test knowledge on complication readiness both in Control and intervention group. Important findings included knowledge of at least three danger sign of pregnancy (4 in Control versus 3 in Intervention), labour (1 in Control versus 1 in Intervention), puerperium (2 in Control versus 2 in Intervention) and newborn (5 in Control versus 5 in Intervention). Pregnant women who did not know any danger sign of pregnancy (12 in Control versus 11 in Intervention), labour (31 in Control versus 30 in Intervention), puerperium (18 in Control versus 19 in Intervention) and newborn (20 in Control versus 18 in Intervention). They also had the knowledge to consult health facility when there is danger sign of mother (27 in Control versus 26 in Intervention) and newborn (28 in Control versus 29 in Intervention).

Table 3.

T-test showing homogeneity of pre test knowledge on complication readiness among pregnant women, experimental and control group, Panchla Block (n=72)

	Mean score	Mean diff	Std Deviation	t-value
Intervention group	6.11	0.45	1.9	1.4
Control group	6.56			

$t_{\text{tab}} \text{ df } (35)=2.03$ $p>0.05$ $t_{\text{val}}<t_{\text{tab}}$ Not significant

Table 3 above showed the mean score (6.11 in intervention and 6.56 in control), mean different (0.45) and standar deviation (1.9). The corresponding t-value ad 35 df was 1.4, which was non significant (tabulated value 2.03 with 35 df). So there is no difference between intervention group and control group i.e both group are homogeneous.

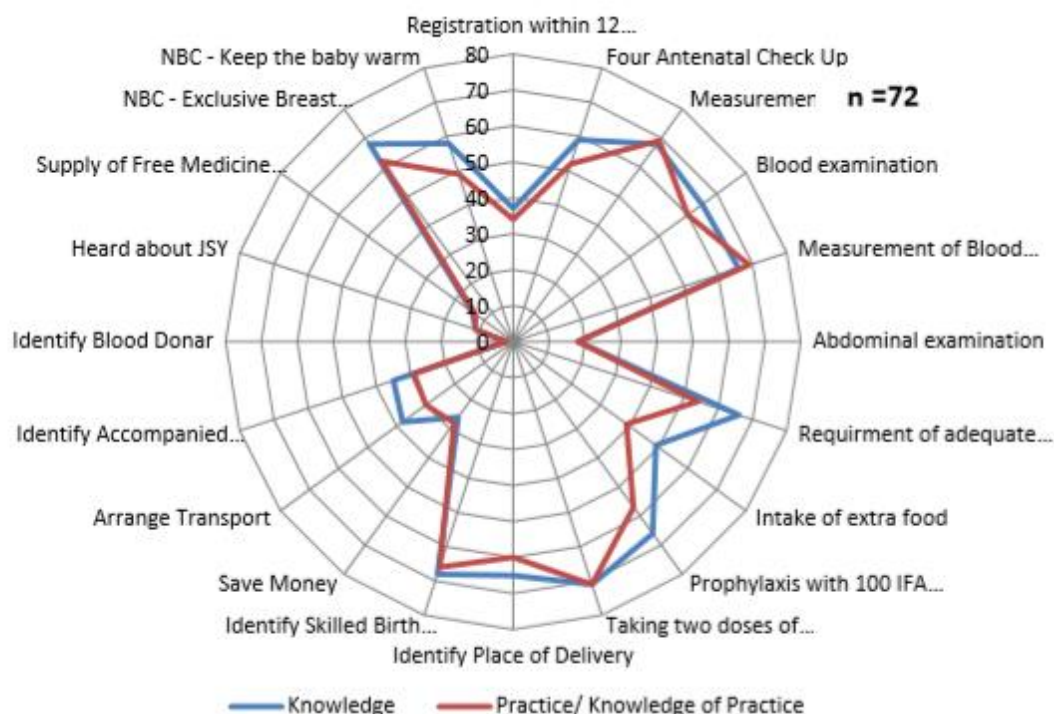


Figure 5. Pre-test knowledge and practice/ knowledge of practice on birth preparedness among intervention and control group, Panchla Block, Howrah

The radar diagram in figure 5 showed the pre-test knowledge compared with that of practice/ knowledge of practices regarding Birth Preparedness. High level of knowledge and practice/ knowledge of practice is observed in four Antenatal Care, measurement of weight, blood examination, measurement of blood pressure, taking two doses of inj. Tetanus Toxoid, identify place of delivery, identify skilled birth attendance and exclusive breastfeeding for the newborn. Low level of knowledge and practice/ knowledge of practice is observed in registration within 12 weeks, Abdominal examination during antenatal check

up, safe money identifying blood donor, heard JSY and supply of free medicine under JSSK. There is gap between knowledge and practice/ knowledge of practice in issues like taking adequate rest, intake of extra food, prophylaxis with 100 IFA tablet, arrangement of transport, identifying accompanied person and keeping the baby warm.

Table 4.

T-test showing pre test practice/ knowledge of practice/ knowledge of practice score on complication readiness, experimental and control group, Panchla Block (n=72)

	Mean score	Mean diff	Std Deviation	t-value
Intervention group	12.5	0.75	2.76	1.6
Control group	11.75			

$t_{\text{tab}} \text{ df } (35)=2.03$ $p>0.05$ $t_{\text{val}}<t_{\text{tab}}$ Not significant

Table 4 showed the homogeneity of pre-test practice/ knowledge of practice score on birth preparedness. The result included mean scores (12.5 in intervention and 11.75 in control), mean different (0.75) and standard deviation (2.76). The corresponding t-value at 35 df was 1.6, which was non-significant (tabulated value 2.03 with 35 df). So there is no difference between intervention group and control group i.e. both group are homogeneous.

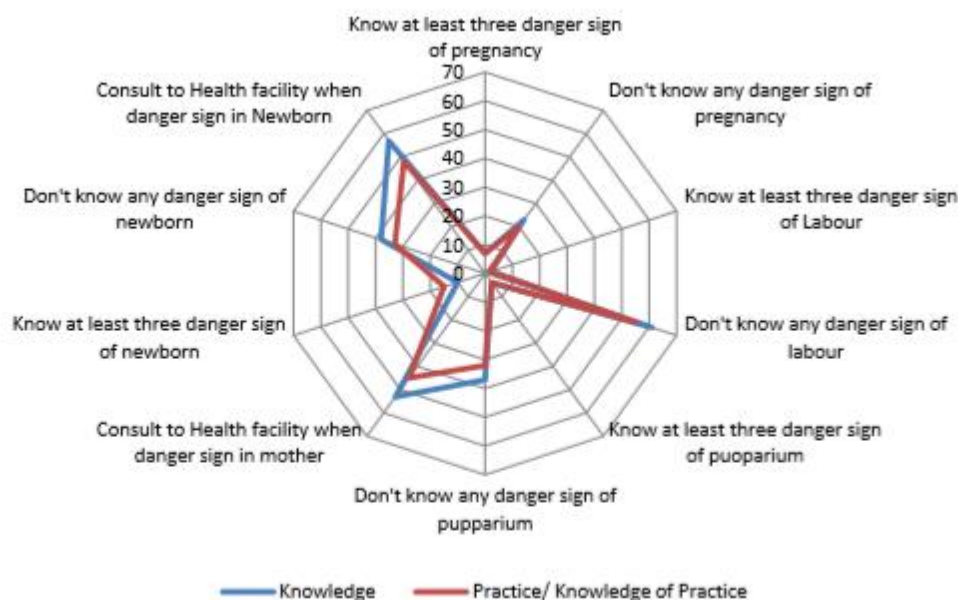


Figure 6. Post-test knowledge and practice/ knowledge of practice on completion readiness among intervention and control group, Panchla Block

The radar diagram in figure 6 showed the pre-test knowledge compared with that of practice/ knowledge of practices regarding complication readiness. High level of knowledge and practice/ knowledge of practice is observed in consultation to health facilities when danger sign(s) in mother and newborn. Poor level of knowledge and

practice/ knowledge of practice is recorded in acknowledging any danger sign in Pregnancy, Labour and Puerperium, as well as in newborn.

Table 5.

T-test showing homogeneity of pre test practice/ knowledge of practice score on complication readiness, experimental and control group, Panchla Block (n=72)

	Mean score	Mean diff	Std Deviation	t-value
Intervention group	5.8	0.3	1.4	1.26
Control group	6.1			

$t_{\text{tab}} \text{ df } (35) = 2.03$ $p > 0.05$ $t_{\text{val}} < t_{\text{tab}}$ Not significant

Table 5 showed the homogeneity of pre-test practice/ knowledge of practice score on complication readiness. The result included mean scores (5.8 in intervention and 6.1 in control), mean different (0.3) and standard deviation (1.4). The corresponding t-value at 35 df was 1.6, which was non significant (tabulated value 2.03 with 35 df). So there is no difference between intervention group and control group i.e. both groups are homogeneous.

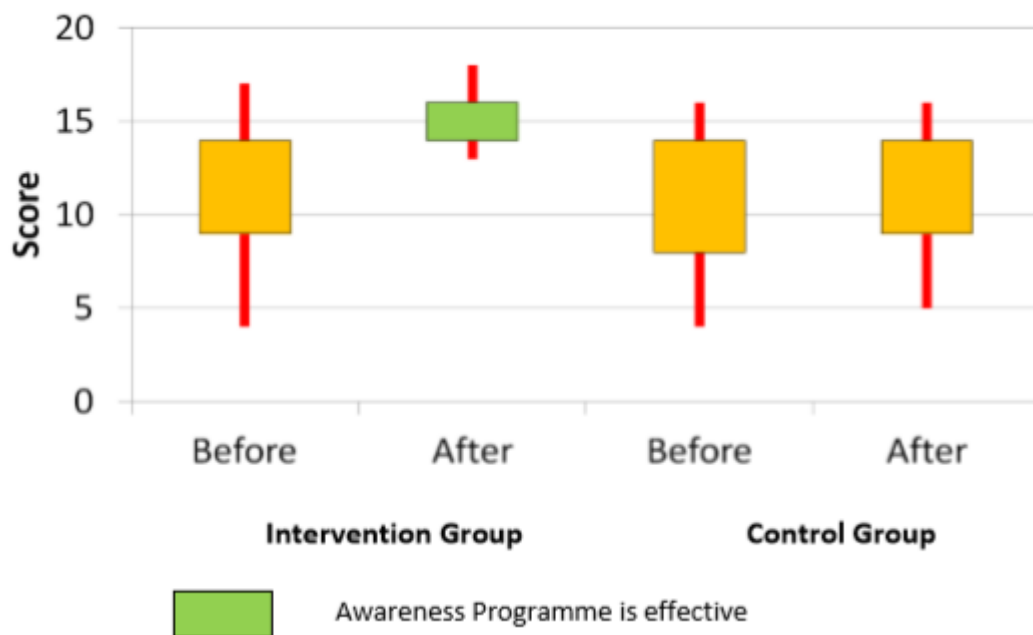


Figure 7. Pre and post intervention scores of knowledge on birth

Figure 7 showed the pre and post intervention scores of Knowledge on Birth Preparedness among intervention and control groups. The mean scores for pre and post intervention in the intervention group were 13.5 and 17.1 respectively. The corresponding scores in the control group were 12.9 and 13.3.

Table 6.

Paired t-test to compare pre and post knowledge score among mother on birth preparedness (Intervention and control group), panchla block, Howrah

		Mean score	Mean diff	Std Deviation	t-value (df=35)
Intervention group	Post	17.1	3.64	1.7	12.73*
	Pre	13.5			
Control group	Post	13.3	0.42	1.3	1.97
	Pre	12.9			

Intervention group : t_{tab} df (35)=2.03 $p < 0.05$ $t_{\text{val}} < t_{\text{tab}}$ *Significant

Control group : t_{tab} df (35)=2.03 $p > 0.05$ $t_{\text{val}} < t_{\text{tab}}$ Not significant

Table 6 showed the result of paired t-tests on post and pretest scores among mothers on birth preparedness both in intervention group and control group. The t-value with 35 df were 12.73 in intervention group compared to 1.97 in control group. The corresponding tabulated value of t at $p=0.05$ was 2.03.

Table 7.

Paired t-test to compare pre and post knowledge score among mother on birth preparedness (Intervention and control group), panchla block, Howrah

		Mean score	Mean diff	Std Deviation	t-value (df=35)
Intervention group	Post	13.83	7.72	1.8	25.31*
	Pre	6.11			
Control group	Post	7.06	0.5	1.6	1.84
	Pre	6.56			

Intervention group : t_{tab} df (35)=2.03 $p < 0.05$ $t_{\text{val}} < t_{\text{tab}}$ *Significant

Control group : t_{tab} df (35)=2.03 $p > 0.05$ $t_{\text{val}} < t_{\text{tab}}$ Not significant

Table 7 showed the result of paired t-tests on post and pre test scores among mothers on complication readiness both in the intervention group and control group. The t-value with 35 df was 25.31 in the intervention group compared to 1.84 in the control group. The corresponding tabulated value of t at $p=0.05$ was 2.03.

Table 8.

Chi square test between knowledge and knowledge of practices among mother on birth preparedness after intervention (n=360, panchla Block, Howrah)

		Knowledge of practice		Chi-square
Knowledge		Above median	Below median	
Birth preparedness	Above median	28	3	16.99**
	Below median	1	4	

Chi-square df (1)=3.84 $p < 0.01$ ** Highly significant

Table 8 showed the association between knowledge and practices/ knowledge of practices among mothers on birth preparedness. The Chi-square value with $df = 1$ was 16.99. The corresponding tabulated value at $p=0.05$ was 3.84. So strong correlation between knowledge and practice is established

DISCUSSION

The result of this small scale field trial suggested that educational intervention to pregnant women could significantly raise the awareness level of pregnant women regarding birth preparedness and complication readiness as it was shown that mean score was higher regarding both issues in the study area after intervention, whereas control area showed very minimum changes in mean score. It was also noted that the utilization of health services/ intention to utilize was significantly higher in the study area than their pre-intervention intention to use/ use of those services. However, birth preparedness was not easy to achieve, especially in countries like India where a considerable proportion of people live below poverty line. It was hard for them to gather enough food or clothes for subsistence let alone put aside money for probable obstetric/ neonatal complication.

Availability of vehicle for transport, liquid cash, motorable road were some factors responsible for sufficient delay in reaching health facility to endanger maternal health. Several initiatives have already been taken under National Rural Health Mission (NRHM) to increase the access to skilled care at birth and emergency obstetric care during complications. However, for optimum utilization, demand of services among the community and more specifically the target population is equally important. Conceptually, raising awareness about birth planning, its importance for maternal and neonatal wellbeing, key signs of obstetric and neonatal complications would help in transformation to favorable practices of the individual and their families provided the services are available and accessible. Though evidences are scarce showing linear relationship between birth preparedness activities and reduction of maternal mortality, small-scale studies suggested that there was considerable benefit to be gained from this intervention.

As per recommendation by WHO, Government of India advocated registration of pregnancy within 12 weeks. Our study finding show a good proportion of early registration of pregnancy which correlates with the findings of District Level Household Survey (DLHS - 3). Government of India introduces JSY (Government of West Bengal, 2010), scheme to facilitate institutional delivery and JSSK Hailu, Gebremariam, Alemseged, Deribe (2011) and Kakaire, Kaye, Osinde (2012), schemes to reduce out of the pocket expenses. For both the schemes, the knowledge of the mother is very poor. Recent study in Rewa, Madhya Pradesh by Deokinandan et al has similar observations. Studies in Ethiopia and Burkina Faso showed similar results (Government of West Bengal, 2010). The present study supports the findings (UNICEF, 2010). A cross-sectional study by Agarwal⁴ et al among urban poor in India showed that well prepared mother had three times more chances of having institutional delivery..

CONCLUSION

Awareness of Birth Preparedness and Complication Readiness used in the study was effective to improve both the knowledge and practice. Transformation of knowledge into practice, using the awareness programme was evidenced. There is strong positive correlation between knowledge and practice found in the study. The study has immense implications in the nursing practices. Health Assistant (F) and 2nd ANM who are the front-liners to implement Birth Preparedness and Complication Readiness can take special initiative on awareness activities among pregnant women during the antenatal checkup session using the individual and group instruction materials used in the study. Public Health Nurses (DPHNO, BPHN and PHN) can take special effort to conduct similar surveys using the structured questionnaires and observation checklist to understand the level of knowledge and practice on BP/ CR. They can use the observation checklist as an important tool for supervision.

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