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Original Article

Birth Preparedness and Knowledge of ASHAs regarding danger signs of pregnancy in rural India: A cross sectional study

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ABSTRACT:Background: Birth preparedness and complication readiness (BPCR) strategy based on the premise that preparing for childbirth reduces delays in obtaining timely, skilled maternal and neonatal care. Study was undertaken with objective to assess the knowledge of Accredited Social Health Activists (ASHAs), considered key frontline workers, regarding danger signs of pregnancy and birth preparedness services provided.

Material and Methods: Cross-sectional descriptive study, undertaken in Community Health Centre, Dubaldhan, rural field practice area of PGIMS, Rohtak. 60 ASHAs of total 120 posted in the area were recruited for study.

Results: More than three fourth ASHAs (78.3%) identified swollen hands and feet as danger sign while only 28% considered blurred vision as danger sign during antenatal period. Almost 40% knew about all 3 key danger signs of post-natal period followed by ante natal (15%) and natal period (6.7%). Knowledge score about danger signs of pregnancy was higher in ASHAs who were graduates as compared to those educated up to middle class.

Conclusion: The knowledge of danger signs and birth preparedness services provided by ASHAs is poor, emphasizing the need to raise the knowledge and awareness about components of BPCR towards reducing maternal and infant mortality.

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INTRODUCTION

Pregnancy is a normal physiologic phenomenon and a moment of rejoice for all mothers which is looked upon with mixture of anticipation and happy expectations in terms of safe pregnancy and a healthy baby. But every pregnant woman is at risk of potential complications which are unpredictable and may result in adverse outcome for both mother and child [1]. A healthy childbirth experience is significant for the woman as well as newborn's health and wellbeing. Every minute of every day, somewhere in the world, a woman dies because of complications arising during pregnancy and childbirth [2]. Globally, more than 40% of pregnant women experience acute obstetric problems. Developing countries account for 99% (286 000) of the global maternal deaths of which 16% occur in India [3,4]. The majority of these deaths are avoidable by accessing quality maternal health service [2].

Studies in developed part of world have demonstrated a positive impact on pregnancy and birth outcomes when the woman feels in control of the process of pregnancy and birth; childbirth preparation has been shown to facilitate this feeling of self-control and autonomy. Accredited Social Health Activists (ASHAs), instituted as part of the National Health Mission (NHM), are community health workers acting as a link between community and rural healthcare system in India. ASHAs has important roles play such as counseling women on issues such as birth preparedness and importance of safe delivery, arranging escort services to accompany pregnant women, mobilizing funds, arranging transport and blood donor, which ensure better outcomes of pregnancy and child birth. The success of Janani Suraksha Yojana (JSY) which aims to reduce maternal and neonatal mortality by promoting institutional deliveries relies largely on ASHAs [5].

“Birth Preparedness and Complication Readiness” (BPCR) is a strategy which promotes timely use of skilled maternal and neonatal care especially during child birth, based on theory that preparing for child birth and being ready for any complication reduces delays in obtaining this care [6].

Despite the reliance on ASHAs and their critical role in preparing pregnant mothers for child birth in India, there is paucity of studies on knowledge, skills and performance assessment of ASHAs regarding the maternal, neonatal and child health.

Hence, the present study was undertaken with an aim to assess the knowledge and skills of ASHA workers pertaining birth preparedness and complication readiness in accordance with BPCR strategy [6].

MATERIAL AND METHODS

Study design and period:

It was a descriptive and cross-sectional type of study, undertaken over a period of one year i.e. September 2014 and August 2015.

Study area

The study was conducted in Community Health Center, Dubaldhan in block Beri, District Jhajjar, Haryana, a rural field practice area attached to Department of Community Medicine, Pt. B. D. Sharma PGIMS, Rohtak.

Study Subjects

There were 120 ASHAs posted under CHC Dubaldhan and every alternate ASHA was included in the study. So a total of 60 ASHAs were contacted and all the post-natal mothers under supervision of each ASHA worker were included in the study. So, in the present study 264 post-natal mothers were recruited. A written consent from ASHA was taken and she was accompanied by the investigator for home visits.

A written informed consent was also obtained from mothers and those who refused to give the consent were not included in the study. After taking the consent, post-natal mothers were enquired regarding birth preparedness by ASHA.

Data collection and analysis

Data was collected using a predesigned, pretested semi-structured questionnaire. There was a total of 5 activities to be done in birth preparedness by ASHAs. Each activity was given a score of one. Score between 0-3 was categorized as inadequate quality and score 4-5 categorized as adequate quality of birth preparedness.

Collected data were entered in the MS Excel spreadsheet, coded appropriately and analyzed using SPSS (Statistical Package for Social Studies) for Windows version 20.0.

RESULTS

Socio Demographic Profile of ASHA Workers

A total of 60 ASHAs were recruited in the study with no refusal. Table 1 demonstrate, the mean age of the respondents as 35.26 years (SD 5.99) with majority in age group 36-40 years and < 30 years (40% and 35% respectively) while 15% were in age group 41-45 years. More than half (55%) of ASHA workers belonged to general caste followed by scheduled caste (28.3%) and backward caste (16.7%). Around 93% ASHAs were married and 6.7% were widow.

More than half ASHA workers (53.3%) were living in joint family as compared to 43.3% in nuclear family and only 3.3% belonged to 3 generation family. More than 95% ASHAs were educated up to high school and above whereas only 5% and 1% were educated up to middle and graduate level respectively. Furthermore, nearly two third of ASHAs (65%) had experience of more than 5 years while similar proportion (63.3%) not imparted HBPNC training in the last one year.

Knowledge of ASHA workers regarding danger signs of pregnancy

As exhibited in Table 2, ASHAs were assessed regarding their knowledge of danger signs of pregnancy in antenatal period, natal and post-natal period, using a 10-item questionnaire tool. Score 1 was granted if they have knowledge of danger sign and score 0, if not. Subsequently a composite knowledge score of the key danger signs was computed by summing up the responses obtained in all the three periods giving a maximum score of 10 and the minimum score of zero. Interpretation of score was done by considering scored 0-3 as Very Poor; score 4-5 as Poor; score 6-7 as Average and score 8-10 as Good in terms of knowledge of key danger signs of pregnancy and accordingly 43.3%, 35% and 10% workers were observed to possess average, poor and very poor knowledge respectively while only 11.7% displayed good knowledge.

During antenatal period, more than three fourth (78.3%) ASHAs recognized swollen hands or swollen face as danger sign followed by severe vaginal bleeding by nearly two-third (61.7%) while only about one-fourth (28%) ASHA could identify blurred vision as danger sign. Whereas during Natal period, severe vaginal bleeding, convulsions and retained placenta were identified as danger signs by 70%, 48.3% and 36.7% ASHAs respectively while prolonged labor was considered as danger sign by only 26.7% of workers. Furthermore, severe vaginal bleeding, high fever and Foul-smelling vaginal discharge were identified as danger signs of postnatal period by 86.7%, 53.3%, and 73.3% ASHAs respectively.

Out of 60 ASHAs 61%, 70% and 86% recognized severe vaginal bleeding is a risk factor in ante natal, natal and post-natal period respectively. From the study finding it is observed that ASHAs have better knowledge during post-natal period, as compared to natal and post-natal period. 40% ASHA workers knew about all key danger signs of post-natal period followed by ante natal (15%) and natal period (6.7%). Only one ASHA among 60, had knowledge about all 10 danger signs of pregnancy.

Table 1: Socio Demographic Profile of ASHA Workers (n=60)

Characteristics		Frequency	Percentage (%)
Age group	< 30	21	35.0
	31-35	5	8.3
	36-40	24	40.0
	41-45	9	15.0
	> 46	1	1.67
	Mean ± S.D.	35.26± 5.99 years	
Caste	General caste	33	55.0
	Backward Caste	10	16.7
	Schedule caste/ tribes	17	28.3
Marital status	Married	56	93.3
	Widow	4	6.7
Type of family	Nuclear	26	43.3
	Joint	32	53.3
	3 Generation	2	3.3
Education	Middle School	3	5.0
	High School	39	65.0
	Senior secondary	17	28.3
	Graduate	1	1.67
	6 months to 1 year	14	23.3
	>1 year	38	63.3
Experience as ASHA worker	<1 Year	1	1.7
	1 to 5 years	20	33.3
	> 5 years	39	65
Last training attended	<6 months	8	13.3
	6 months to 1 year	14	23.3
	>1 year	38	63.3
Total		60	100

Table 2: Knowledge of ASHA workers regarding 10 danger signs of pregnancy

Period	Danger Signs	Frequency	Percent
Ante natal period	Severe vaginal bleeding	37	61.7
	Swollen hands /face	47	78.3
	Blurred vision	17	28.3
Natal period	Severe vaginal bleeding	42	70.0
	Convulsions	29	48.3
	Prolonged labor (> 12 hours)	16	26.7
	Retained placenta	22	36.7
Post-natal period	Severe vaginal bleeding	52	86.7
	Severe vaginal bleeding	52	86.7
	Foul-smelling vaginal discharge	32	53.3
	high fever	44	73.3

Association of knowledge with Sociodemographic profile of ASHA workers

Table 3 demonstrates, association of knowledge of key danger signs with socio-demographic profile variables namely age, caste, family type, education and last training attended.

No statistically significant association of knowledge observed with age, caste and family type whereas education and last training attended displayed statistically significant association. 87.5% of ASHA workers who received HBPNC training within last 6 months, demonstrated good knowledge of danger signs which is highly significant statistically (p=0.000).

Table 3: Association of knowledge with Sociodemographic profile of ASHA workers

Factors	Knowledge of danger signs					P value	
	Very Poor	Poor	Average	Good	Total		
Age	<30	2(9.5)	7(33.3)	10(47.6)	2(28.6)	21(100)	0.523
	31-35	0(0)	2(40)	2(40)	1(20)	5(100)	
	36-40	4(16.7)	8(33.3)	10(41.7)	2(8.3)	24(100)	
	41-45	0(0)	4(44.4)	4(44.4)	1(11.1)	9(100)	
	>46	0(0)	0(0)	0(0)	1(100)	1(100)	
Caste	General caste	5(15.1)	11(33.3)	13(39.4)	4(12.1)	33(100)	0.265
	Backward caste	1(10)	5(50)	2(20)	2(20)	10(100)	
	Scheduled caste/ tribes	0(0)	5(29.4)	11(64.7)	1(5.9)	17(100)	
Family Type	Nuclear	3(11.5)	7(26.9)	13(50)	3(11.5)	26(100)	0.498
	Joint	3(9.3)	14(43.7)	12(37.5)	3(9.3)	32(100)	
	Three generation	0(0)	0(0)	1(50)	1(50)	2(100)	
Education	Middle School	0(0)	3(100)	0(0)	0(0)	3(100)	0.028
	High School	6(15.3)	14(35.9)	15(38.5)	4(10.2)	39(100)	
	Senior secondary	0(0)	4(23.5)	11(64.7)	2(11.8)	17(100)	
	Graduate	0(0)	0(0)	0(0)	1(100)	1(100)	
Last Training attended	<6 months	0(0)	1(14.2)	0(0)	7(87.5)	8(100)	0.000
	6 months to 1 year	1(7.1)	8(57.1)	5(35.7)	0(0)	14(100)	
	>1 year	5(13.1)	12(31.6)	21(55.3)	0(0)	38(100)	

Birth Preparedness services provided by ASHA

Birth preparedness services provided by ASHAs were studied by considering five elements as depicted in Table 4. Adequacy of the services was interpreted by considering score of 0-3 as inadequate and score of 4-5 as adequate.

Majority of ASHAs (88.2%) counseled for the institutional delivery, explain transport assistance benefits for institutional delivery (82.2%), identified functional government/ accredited health facility for delivery while only 8.3% of ASHA identified the blood donor who would donate blood in case of an obstetrics emergency. On the score of 0-5 adequacy scale only 6.7% ASHAs provided adequate birth preparedness services.

Table 4: Birth Preparedness by ASHA Workers

S. No.	BIRTH PREPAREDNESS	Percent
1	Counsel for institutional delivery	88.2
2	Explain transport assistance benefits for institutional delivery	82.2
3	Identify a functional Government health centre or an accredited private health facility for delivery	84.1
4	Identify Institution for referral/deliveries	15.5
5	Identify blood donor	8.3

Association of Birth Preparedness with Sociodemographic profile of ASHA

Tables 5 shows, association of quality of birth preparedness was studied with age, caste, marital status, education and training status of the ASHA workers and age, education and training status is observed to demonstrate highly statistical significance ($p < 0.01$).

DISCUSSION

Birth preparedness and complication readiness (BPCR) is recognized as an effective approach to increase the capacities of women, their partners and their families to take appropriate steps to ensure a safe birth and seek timely skilled care in emergencies. Accredited Social Health Activists (ASHAs) act as a link between pregnant women and health facilities and are

expected to possess knowledge and awareness of danger signs of pregnancy, thence required to have a birth preparedness plan to reduce delays in appropriate obstetric care. The study findings demonstrate the knowledge of ASHA regarding danger signs of pregnancy during antenatal, natal and post-natal period and accompanying birth preparedness services offered. Swollen hands and feet were recognized by more than three fourth ASHA (78.3%) as danger sign while only 28% ASHA considered blurred vision as danger sign during antenatal period. Similar findings were observed by Kori *et al.*, [7] in Madhya Pradesh where 85% and 32% of ASHA identified swollen hands & feet and blurred vision as danger signs, in ante natal period.

Furthermore, out of 60 ASHA in the study, 61%, 70% and 86% could recognized severe vaginal bleeding as risk factor in ante natal, natal and post-natal period respectively. Similarly study by Kohli *et al.*, [8] in Delhi reported that around 80% of ASHA workers knew that swelling of feet, vaginal bleeding and convulsions are dangers signs in pregnancy.

Table 5: Association of Birth Preparedness with Sociodemographic profile of ASHA

Factors (ASHA workers)		Quality of Birth Preparedness			P value
		Inadequate	Adequate	Total	
Age	<30 years	21(100)	0(0)	21(100)	0.000
	31-35 years	3(60)	2(40)	5(100)	
	36-40 years	24(100)	0(0)	24(100)	
	41-45 years	8(88.9)	1(11.1)	9(100)	
	>46 years	0(0)	1(100)	1(100)	
Caste	General caste	29(87.9)	4(12.1)	33(100)	0.173
	Backward caste	10(100)	0(0)	10(100)	
	Schedule caste	17(100)	0(0)	17(100)	
Marital status	Married	53(94.6)	3(5.4)	56(100)	0.128
	Widow	3(75)	1(25)	4(100)	
Education	Middle School	3(100)	0(0)	3(100)	0.002
	High School	37(94.9)	2(5.1)	39(100)	
	Senior secondary	16(94.1)	1(5.9)	17(100)	
	Graduate	0(0)	1(100)	1(100)	
Last Training attended	<6 months	6(75)	2(25)	8(100)	0.07
	6 months to 1 year	13(92.9)	1(7.1)	14(100)	
	>1 year	37(97.3)	1(2.7)	38(100)	

Approximately half of ASHAs regarded foul smelling discharge as danger sign in post-natal period. Furthermore, 85% ASHA considered excessive bleeding as danger signs during natal period. Study by Smita K [9] observed the similar pattern, more than 80% of ASHAs reported postpartum hemorrhage as danger sign. Approximately 74%, 32% and 13% ASHA workers identified excessive bleeding, high grade fever and foul-smelling discharge respectively as danger signs in post-natal period. Similar findings were presented by a report by Centre for Operations Research and Training [10] on assessment of ASHA workers in Orissa (2007), stated that 64% ASHA workers knew that swelling of hand and feet are a danger sign, whereas, only 19.1%, 15.7% and 12.4% ASHA cited high fever, convulsions and visual disturbances as pregnancy related complications. Similarly, in a study conducted by Karol and Pattanaik [11] in Rajasthan, mean knowledge score for maternal health care was found to be 86.7%. Furthermore, a study conducted by Kebalepile [12] in Northern Botswana observed, majority (94%) of midwives identified rise in temperature during postpartum period is a sign of infection, while 69% stated foul smelling discharge is danger sign.

In the present study, knowledge of danger signs of post-natal period among ASHA workers was comparatively good as compared to natal and ante natal period. Almost 40% ASHA workers knew about all 3 key danger signs of post-natal period followed by ante natal (15%) and natal period (6.7%). Only 1 ASHA out of 60 knew all 10 danger signs of pregnancy. Whereas, Smita K [9] found that 7.2%, 1% and 4.8% knew key danger signs of ante partum, partum and postpartum period. Based on scores obtained for key danger signs of pregnancy, majority of ASHAs (43%) scored average (score 6-7), 35% scored poor (score 4-5), 10% poor (score 0-3), whereas, 11% scored good (score 8-10).

Similar findings were quoted by Smita K [9] i.e. majority (55.1%) of ASHAs scored very poor (score 0-3), 37.7% scored poor (score 4-5) and only 7.2% scored average (score 6-7) while none score as good. Furthermore, findings depict that those ASHAs workers who were educated up to middle school had poor knowledge about danger signs of pregnancy as compared to those who were graduates. In contrast, Karol GS and Pattanaik [11], reported that 8th class passed ASHAs have higher knowledge score as compared to those who have educational qualification of graduation and above.

Birth Preparedness provided by ASHA workers

Study depicts that about 88% and 82% mothers were counseled regarding institutional delivery and transport assistance respectively, whereas, only 15.5% and 8.3% mothers got information from ASHA regarding identifying institution for referral and blood donor respectively. Comparable to our study, Smita K [9], observed that almost all ASHA workers (98.6%) counselled mothers for institutional delivery and 75.8% ASHA workers explained transport assistance. However, only 1.4% and 0.5% respectively of the ASHA workers identified in advance a referral institution and blood donor in case of obstetric emergencies. Fathima *et al.* [13] reported in their study that 60% of women were motivated for institutional delivery by the ASHA

CONCLUSION AND RECOMMENDATIONS

Birth preparedness and complication readiness (BPCR) strategy based on the premise that preparing for childbirth reduces delays in obtaining timely, skilled maternal and neonatal care. More than three fourth ASHAs (78.3%) identified swollen hands and feet as danger sign while only 28% considered blurred vision as danger sign during antenatal period.

Severe vaginal bleeding is most commonly recognized risk factor in ante natal, natal and post-natal period. Knowledge of danger signs of post-natal period was good as compared to natal and ante natal period. Almost 40% knew about all 3 key danger signs of post-natal period followed by ante natal (15%) and natal period (6.7%). Knowledge score about danger signs of pregnancy was higher in ASHAs who were graduates as compared to those educated up to middle class.

ASHA is a key link between community and healthcare system working in effective provision of reproductive child health services. Despite the great potential of BPCR in reducing the maternal and newborn mortality, knowledge and practice of this strategic approach among ASHAs is lacking. Hence, it is recommended to invest in appropriate training and supervision of ASHAs within a supportive and responsive health care system, aimed at reducing maternal and child mortality.

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