

Original Research Article

Knowledge and skills of accredited social health activists in home based new-born care in a rural community of Northern India: an evaluative survey

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ABSTRACT

Background: Home based new-born care (HBNC) is a strategy implemented by the Government of India to overcome the problem of new-born deaths and reach the unreached new-borns in the community. Aim was to assess the knowledge and skills of ASHA workers and factors influencing the skills.

Methods: In an observational study, a total of 48 accredited social health activists (ASHA) working under a primary health centre (PHC) were enrolled using a total enumeration sampling technique. A self-developed, pre-tested and validated tool based on home based new-born care was used for data collection.

Results: Mean knowledge and skill scores of ASHA workers were 16.4 ± 4.2 and 27.7 ± 4.3 respectively. Nearly half of the ASHA workers had average knowledge, while two-thirds had good skills towards HBNC. Most of ASHA workers had shown good skills in measuring the temperature of new-borns, handwashing and count the respiration correctly, while less than 40% of ASHA workers performed weight recording correctly. Knowledge and overall skill scores of ASHA workers were positively correlated ($r=0.58$, $p<0.001$). Statistically significant associations were observed between the overall skills scores of ASHA workers and educational status, working experience and the last training attended on HBNC ($p=0.001$).

Conclusions: Most of the ASHA workers had exhibited good skills, but were lacking scientific knowledge related to HBNC. There is need for having periodic re-orientation training for facilitating application of scientific knowledge to HBNC.

Keywords: ASHA, Competencies, HBNC, Rural community

INTRODUCTION

Globally, over 2.5 million new-borns died in the first month of life in 2018, accounting to approximately 7,000 every day.¹ India contributes to one-fifth of global live births and more than a quarter of neonatal deaths. About three-fourths of total neonatal deaths occur in the first week of life.² The current neonatal mortality rate (NMR) of India is 23 per 1,000 live birth for the year 2018.³ Available data trends shows that among those who died before reaching 5 years of age, 75% died within their first

year of life and of those who died within their first year, a majority lost their lives within the first one month of their life. The first month of life, the post-natal period, for the post-natal mother and the new-born is the most critical time in the life.^{4,5}

Based on these facts Government of India implemented a strategy, home based new-born care (HBNC) in 2011 (revised 2014), to ensure that all new-borns are provided with home based new-born care for first six weeks through series of home visits paid by ASHA workers.

Under HBNC program, both post-natal mother and new-born have access to essential home-based health services in order to ensure positive health outcomes. ASHA, a trained female community health activist, before her placement is provided training in HBNC skills. The entire training is provided in four rounds in a year, five days each by the experts with the help of a training module. Over the years ASHA, the main frontline health worker has become an important resource at the community level.⁶ Some studies reported that ASHA had average knowledge and demonstrated average practices towards HBNC.⁷⁻⁹ Also, large inconsistency in her self-reported services and field performance was observed. The new-borns were not getting good quality of HBNC, and the need for having periodic competency based HBNC training was felt.^{10,11}

The present study was planned in a selected rural community of Northern India to assess the knowledge and skills of ASHA workers in order to identify the gap areas in HBNC and the factors influencing. The secondary objective was to assess the adequacy of HBNC kit carried by ASHA workers.

METHODS

This community based observational survey was conducted among 48 ASHA workers in one of the selected primary health centres (PHC) of the intensive field practice area (IFPA) of the comprehensive rural health services project (CRHSP) covered a total population of 1,00,772, located in the Ballabgarh block in Faridabad district of the Northern state of India. The selected PHC catered health services to seventeen villages covering a population of 52,000 approximately with 98.2% institutional deliveries and 38.6 infant mortality rate per 1,000 live births.¹²

Ethical approval was taken from the institute ethics committee (Ref. No. IECPG-148/ 28.02.2019). The study was conducted from 1st July to 30th November 2019. ASHA workers trained for module 6 and 7 of HBNC, willing to participate and available during the survey were enrolled using a total enumeration sampling technique. ASHA workers not available during data collection period were excluded. Informed written consent was taken after explaining the purpose of the study from the participants before their enrolment.

Pretested and validated tool used for data collection included socio-demographic profile, structured knowledge questionnaire ($\alpha=0.82$) and observation checklists ($\alpha=0.88$). In socio-demographic profile information related to age, religion, marital status, educational status, total work experience, last training attended and population served in a village by her were included. The structured knowledge questionnaire had 25 multiple choice questions (MCQs) and true and false items covering various aspects of HBNC like thermal care, breastfeeding, cord care, eye care and identification

of high risk new-borns. A score of '1' was given for correct response and '0' for incorrect response. The maximum possible knowledge score was 25. There were four observation checklists for assessing the skills namely handwashing, measuring temperature, weight recording and counting respiration of the new-borns. For every correctly performed step, a score of '1' was given and '0' if the task was not performed or incorrectly performed. The maximum possible scores in the skill areas of handwashing, measuring temperature, weight recording and counting respiratory rate of the new-borns were 11, 9, 10 and 5 respectively. Equipment used for ASHA worker's skill assessment were from her HBNC kit. Both knowledge questionnaire and observation checklists were developed from HBNC training module 6 and 7. Knowledge and skills scores were categorized as good >75%, average 50-75% and poor <50%. The knowledge questionnaire was administered to ASHA workers on the monthly meeting day, under the direct supervision of the researcher and medical officer (MO) of the PHC, while skills were assessed during their family home visits by the researcher.

The collected data were entered into the MS Excel 2013 spreadsheet, coded appropriately and analysed using statistical package STATA 14.0. Appropriate descriptive statistics such as frequency, percentage, mean, standard deviations were used to describe demographic variables of the study participants. Inferential statistics like Karl Pearson's coefficient of correlation for assessing correlation between knowledge and skills and Kruskal Wallis test and t-test were used to assess the association of the study variables and skills of the ASHA workers. The level of significance was considered as p value <0.05.

RESULTS

Mean age of the participants was 39.3 (7.5) years. Majority of ASHA workers (95.8%) belonged to Hindu religion, married (91.7%) and more than 75% had studied up to 10th standard. The mean work experience of ASHA workers was 9.0 (2.5) years and most of them (60.4%) served a population of 1000 or less. Majority of ASHA workers attended last training on HBNC in past 1-2 years. Meetings and trainings were the two main sources of information for ASHA workers (Table 1).

Mean overall knowledge and skill scores of ASHA workers were 16.4±4.2 and 27.7±4.3 respectively. Almost half of the ASHA workers (47.9%) had average knowledge, while two-thirds had good skills (66.7%). Domain-wise half of ASHA workers exhibited good knowledge in identification of high risk new-born (50%), followed by breastfeeding (41.7%), thermal care (35.5%), cord and eye care (35.4%) (Table 2). Nearly 80% of ASHA workers had shown good skills in measuring the temperature of new-borns correctly, followed by handwashing (66.7%) and most of the ASHA workers (72.9%) could count the respiration correctly, while less

than 40% of ASHA workers performed weight recording correctly (Table 2).

Table 1: Socio-demographic characteristics of ASHA workers (n=48).

Variables	Frequency (%)
Age (years)*	39.38±7.55
Religion	
Hindu	46 (95.8)
Muslim	2 (4.2)
Marital status	
Married	44 (91.7)
Widow	4 (8.3)
Educational status	
8 th class	12 (25)
9-10 th class	25 (52.1)
>10 th class	11 (22.9)
Population being served	
≤1000	29 (60.4)
>1000	19 (39.6)
Working experience (years)*	9.06 ±2.57
Last training attended (years)	
≤2	36 (75)
>2	12 (25)
Source of information**	
Meetings	48 (100)
Training(s)	48 (100)
Training modules	18 (37.5)
Social media	2 (4.1)
TV/radio/newspapers	6 (12.5)

*Mean±SD, ** Multiple responses

Table 2: Domain-wise knowledge and skill scores of ASHA workers on HBNC (n=48).

Domains	Mean±SD	Good knowledge, f (%)
Knowledge (0-25)		
Thermal care (0-6)	4.0±1.2	18 (35.5)
Breastfeeding (0-8)	4.3±1.3	20 (41.7)
Cord and eye care (0-3)	2.0±0.8	17 (35.4)
High risk new-born (0-8)	6.1±1.8	24 (50.0)
Skills (0-35)		
Handwashing (0-11)	9.1±1.2	32 (66.7)
Respiration counting (0-5)	4.0±1.2	35 (72.9)
Temperature measurement (0-9)	7.1±0.9	38 (79.2)
Weight measurement (0-10)	8.1±1.6	19 (39.6)

Knowledge and overall skill scores of ASHA workers were positively correlated ($r=0.58$, $p<0.001$) (Figure 1). Significant association was observed between the

overall skills scores of ASHA workers and educational status, working experience and the last training attended on HBNC ($p=0.001$) (Table 3).

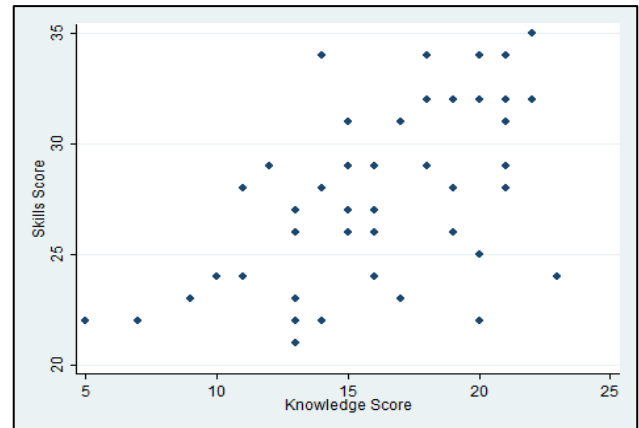


Figure 1: Correlation between knowledge and skills of ASHA workers on HBNC (n=48).

As part of secondary objective, the HBNC kit carried by ASHA workers for home visit was checked. A sling weighing scale (100%) was present in all the HBNC kits. Majority of ASHA workers were carrying HBNC forms (97.9%) and digital thermometer (95.8%). They also carried flip chart (79.2%), and referral slip (75%). The less commonly found items were cotton (14.6%), digital watch (12.5%), baby feeding spoon (10.4%) respectively, while none of the kit had soap with soap case and blanket for new-borns.

Table 3: Association between socio-demographic variables and skills scores of ASHA workers on HBNC (n=48).

Variables	N	Mean/median	SD/range	P value
Age (years)†				
<30	4	31.5	28-35	0.2
30-39	23	28	22-35	
40-49	16	26.5	21-34	
≥50	5	29	23-34	
Educational status†				
8 th class	12	23	23-34	0.001
9-10 th class	25	28	23-34	
>10 th class	11	32	22-35	
Population being served#				
≤1000	29	27.9	3.7	0.9
>1000	19	27.8	4.6	
Working experience (years) †				
≤5	5	28	22-31	0.001
6-10	29	27	21-35	
>10	14	29	22-35	
Last training attended (years) †				
≤2	36	29	22-35	0.001
>2	12	24.5	21-29	

†Kruskal-Wallis test, #t test, $p<0.05$

DISCUSSION

Major findings of the study revealed that more than half of the ASHA workers had average knowledge, and majority of ASHA workers had good skills in HBNC. Majority of ASHA workers had shown good skills in measuring the temperature of new-borns correctly, and performed hand hygiene. Slightly more than half of the ASHA workers had good skills in counting respiration of new-born correctly, while significant number of ASHA workers could not perform weight recording correctly. Knowledge and skill scores of ASHA workers were positively correlated. Significant association was observed between the overall skills scores of ASHA workers and their educational status, working experience and the last training attended on HBNC.

ASHA workers can contribute significantly in achieving national health and population policy goals due to their close proximity with the community. They are the social agents, who act as a bridge between rural community and public health care system. In the present study, nearly half of the ASHA workers had good knowledge, and almost two-thirds had good skills suggestive of good hands on training being imparted to them, without giving much emphasis on scientific knowledge. Main sources of information for all ASHA workers were either regular monthly meetings or training programs. So, it can be inferred that periodic meetings of ASHA workers at PHC with public health nurse (PHN), auxiliary nurse midwife (ANM) and the MO of the PHC were really useful in improving their knowledge and skills.

However, they should be motivated to read the training module on their own to update their knowledge. Under NHM, every ASHA workers should know about the correct assessment of body weight and temperature of new-born during her home visit because of high vulnerability of new-borns to hypothermia, one of the important causes of neonatal mortality. In this study ASHA workers' skills in temperature measurement was good, while in the domains like handwashing and respiration counting, weight recording need supervised enhancement. The most common error identified while observing handwashing was failure to remove bangles, wrist watch and rings (93.8%) and 60.4% failed to do 'zero error' correction before weight recording. These findings are similar of Grover et al and Stalin et al.^{11,13} ASHA workers should be sensitized about the importance of checking respiration for full one minute using either a stop watch or a wrist watch having seconds' facility. Both counting respiration and weight recording are helpful in early detection of danger signs among new-borns. Findings of the present study are in concordance with the findings of Bansal et al.¹⁰ Significant association was found between the overall skills of ASHA workers with educational status, working experience and last training attended on HBNC. ASHA workers having higher educational status, more work experience and last training attended in less than 2 years had better skills. These

findings are similar to the findings of Pandit et al.⁹ ASHA workers are provided with the HBNC kit as part of induction training and trained about using the content of the kit. Majority of ASHA workers were carrying weighing scale (100%) and digital thermometer (95.8%) similar to the findings reported by Grover et al.¹¹ Only three-fourth of ASHA workers were carrying flip chart, a medium of health education and referral slip required for urgent referral of high risk new-born to nearest PHC. None of the ASHA workers carried soap with soap case and blanket for neonates, similar to the findings reported by Sinha et al.¹⁴

In the present study, one to one assessment of skills of ASHA workers was done using the standardized checklists based on HBNC module to bring objectivity to the assessment. Errors committed by ASHA workers in HBNC were noted and rectified along with briefing in the PHC. However, the study has number of limitations. Single centre, and small sample size of ASHA workers limit the generalizability of study findings. Possibility of having observation bias in the present study cannot be ignored. Similar study can be conducted on large scale in multi-centric facilities using large sample size.

CONCLUSION

Most of ASHA workers had demonstrated good skills, but were lacking scientific knowledge related to HBNC. There is need for having periodic re-orientation training for facilitating application of scientific knowledge to HBNC.

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