



## Knowledge regarding reproductive and child health: an intervention study among ASHAs in a block of West Bengal

Parthasarathi.R<sup>1\*</sup>, Aparajita Dasgupta<sup>2</sup>, Ram Prabhakar V<sup>1</sup>, Rahul Biswas<sup>1</sup>, Sourav Naiya<sup>1</sup>, A.Geethanjali<sup>1</sup>

GJMEDPH 2014; Vol. 3, issue 2

<sup>1</sup> Junior Resident  
Community Medicine,  
Department of PSM, AIHH & PH  
Kolkata, West Bengal, India

<sup>2</sup> Professor and Department Head  
Department of Preventive and  
Social Medicine  
All India Institute of Hygiene and  
Public Health  
Kolkata, West Bengal, India

\*Corresponding Author  
Room No-46, Gents hostel,  
AIHH & PH No-50  
Cooloolastreet  
C.R.Avenue  
Kolkata, West Bengal,  
India -700 073  
E-Mail:  
dr.parthasarathi03@gmail.com  
Phone: 8820559050, 9940758249

Conflict of Interest—none

Funding—none

### ABSTRACT

**BACKGROUND** ASHAs are the first port of call for any health related demands of the local community, especially women and children who find it difficult to access health services; hence it is imperative to assess their knowledge regarding reproductive and child health (RCH) and factors influencing their knowledge.

**METHODS** A cross-sectional study (Pre/Post-test study design) was conducted on ASHAs working in Singur block of West Bengal to determine their knowledge regarding specific pre-defined topics related to RCH services, to assess the effect of health education on their baseline knowledge and to study the association between their level of education and knowledge regarding RCH services.

**RESULTS** The mean age of the sample was 34.42 years (S.D:  $\pm 2.91$ ). About 27%, 35% and 39% of the ASHAs have completed secondary, higher secondary and graduate level of education, respectively. The mean baseline score was 9.65 (maximum-27) which improved to 21.21 following health education and this difference was statistically significant ( $p < 0.001$ ). A statistically significant difference in pre-test ( $p = 0.003$ ) and post-test scores ( $p = 0.012$ ) was observed between ASHAs with secondary and graduate level of education.

**CONCLUSION** There is deficiency in knowledge of ASHAs regarding various aspects of RCH services. Their education level has a strong positive influence not only on their knowledge levels but also on their learning ability following training sessions. The study recommends high quality refresher training at periodic intervals and strengthening of existent training programs for ASHAs.

**Keywords:** ASHA, Reproductive and Child Health, RCH, Knowledge, Health Education, Training of ASHA, Education of ASHA

### INTRODUCTION

The National Rural Health Mission (NRHM) was launched by Government of India on 12th April 2005, to provide accessible, affordable and comprehensive primary health care to all especially the poor and vulnerable population<sup>1</sup>. One of the key components

of NRHM was introduction of Accredited Social Health Activist (ASHA) in the village level, one for every 1000 population in the village. An ASHA is a literate woman with a minimum of formal education up to class 8 and must primarily be a resident of the village, married/ widowed or divorced, preferably in



the age group of 25 to 45 years. ASHAs are the first port of call for any health related demands of the local community, especially women and children, who find it difficult to access health services and are the first and primary link between the community and the existing three tier health care delivery system of our country.

Apart from being the health activist in the community and creating awareness on health and its social determinants such as nutrition, basic sanitation and hygienic practices, healthy living and working conditions, information on existing health services and the need for timely utilisation, they also mobilize the community towards local health planning and increased utilization and accountability of the existing health services<sup>2</sup>. They counsel women on birth preparedness, importance of safe delivery, breast-feeding and complementary feeding, immunization, contraception and prevention of common infections including Reproductive Tract Infection/Sexually Transmitted Infections (RTIs/STIs) and care of the young child and also provide a minimum package of curative care as appropriate and feasible for that level and make timely referrals in addition to being the depot holders for essential health supplies like ORS, contraceptives, Iron Folic Acid Tablets (IFA), chloroquine, Disposable Delivery Kits (DDK), and other basic drugs. ASHAs receive performance-based incentives for promoting universal immunization, construction of household toilets, referral and escort services for Reproductive and Child Health (RCH) and other healthcare programs.

After their selection they receive training by a learning program covering 19 themes through modules designed for them under the NRHM program. There is little doubt that knowledge of any community health worker like ASHA influences their performance levels and this finding is also complemented by research<sup>3</sup>. Since ASHAs play a vital role in delivery of reproductive and child health (RCH) services, it is imperative to assess their knowledge regarding various aspects of reproductive and child health, identify the lacunae in their knowledge and accordingly give them the appropriate training. Reassessment of the knowledge

gained after the training gives an insight into the quality and appropriateness of the training, thus facilitating the health policy-makers to determine the possible ways to augment the knowledge of ASHAs. Hence, this study was performed with the following objectives.

#### OBJECTIVES

- 1) To assess the baseline knowledge of ASHA regarding specific pre-defined topics related to reproductive and child health (RCH)
- 2) To give health education to the ASHA on the above topics and assess the change in knowledge by post test assessment.
- 3) To study the association if any, between knowledge levels of ASHA and their level of education

#### MATERIALS AND METHODS

This was a cross-sectional study (Pre/Post-test study design) conducted on ASHAs working in Singur block of Hooghly district, West Bengal; Ethical clearance was obtained from the institutional ethics committee. About 88 ASHAs were employed in the entire Singur block and all of them were invited to participate in the study. The venue for health education program for the ASHAs was Rural Health Unit and Training Center (RHUTC) and permission was taken from Block medical officer of Health (BMOH) and Officer in-charge of RHUTC prior to initiation of the study. 52 ASHAs gave consent to participate in the study.

#### TOOLS AND TECHNIQUES

A pre-designed and pre-tested self-administered questionnaire was used for data collection after obtaining informed consent from all participants. The questionnaire was designed keeping in mind the objectives of the study. All efforts were made to ascertain reliability, objectivity and simplicity of the questionnaire. A group of experts of the institute reviewed the questionnaire and made necessary corrections to enhance the face validity and content validity and remove any ambiguity. Further pretesting of the questionnaire was done by administering the questions to a small number of ASHAs from the neighboring block (Tarakeswar). Necessary modifications were made following their



response. The questionnaire was then translated to Bengali. It was again translated back into English. The questions in retranslated English version were matched with the originally developed English questionnaire and again necessary modifications were made. This English questionnaire was then translated again into Bengali. Thus the final Bengali questionnaire was so constructed that it had semantic equivalence with the original English questionnaire. Also utmost care was taken to make the language as simple as possible so that the respondents could understand the questions easily.

The questionnaire consisted of 3 parts. The first part contained questions intended to obtain data regarding the demographic characteristics like age, income, education level, number of family members, trainings received etc.

The second part contained 27 multiple choice questions aimed to ascertain the knowledge of ASHAs on predefined topics related to reproductive and child health. All 27 questions were framed from 6 domains or topics like anemia in pregnancy and children, infant and child feeding practices, newborn care, common illness in children, birth control methods and immunization. All questions were framed from Training modules for ASHA {module No: 1 (Introduction to ASHA and their tasks), 2 (Maternal and child health), and 3 (Family Planning, RTI/STIs and HIV/AIDS and ARSH)} provided under NRHM. Each question had 5 options out of which only 1 option was correct. About 30 minutes were given for all participants to answer all 27 questions (Pre-test assessment). Participants were not allowed to discuss with their peers while answering the questionnaire. After the specified time, the answered questionnaires were collected. Later, Health education was given on all the 6 domains mentioned above using lecture presentation and electronic media like power-point presentation and relevant videos. These health education tools were also pre-tested along with the questionnaire. Lectures were given for 60 minutes by 3 speakers. At the end of the Lecture all doubts and queries of the participants were clearly explained by the researchers. This questionnaire which contained the same 27 questions as in the second part was then re-administered which

and again 30 minutes were given for all participants to answer (Post-test assessment). After the specified time, the answered questionnaires were collected. The answers given by the respondents were scored {both pre-lecture and post-lecture}. One mark was allotted for the correct answer and 0 marks for wrong answer/don't know. Hence, the maximum attainable score was 27 marks and minimum attainable score was 0 marks. All the data were entered into Statistical Package for Social Sciences (SPSS) version 20 software and appropriate analysis was done. The pre-test and post-test scores were first checked for normal distribution and later comparisons were done using parametric tests for continuous data like paired student 't' test and Analysis of variance (ANOVA).

## RESULTS

The mean age of the sample population was 34.42 (S.D:  $\pm 2.91$ ) years and about two-third of the ASHAs were in the age group of 31-35 years (**Table 1**). Almost all the ASHAs were currently married (98.1%) except for 1 participant (widow). Nearly two-third of ASHAs belonged to nuclear family. All the participants had children and about half of them had 1 child. Regarding education level of ASHAs, about 27% and 35% were educated till secondary and higher secondary level, while the remaining were all graduates. The mean per capita income was Rs.1349 (S.D:  $\pm$  Rs.941) and more than two-third of the ASHAs belonged to socio-economic class 4 and 5 according to Prasad scale modified for 2013<sup>4</sup>. While ASHAs were at work, their children were taken care by their in-laws (46%), spouse (17%) and sometimes by parents of ASHA and neighbors. Nearly two-third of the ASHAs reported problems in their family primarily because of job. About 30% were carrying out part-time jobs like taking tuition class for children (21%), sewing clothes (5%) and insurance agent (4%). It was noted that all the ASHAs who participated in the study underwent training for NRHM modules 1, 2 and 3 prior to this study.

Both the pre-test and post-test scores were normally distributed and comparison of these scores revealed a statistically significant improvement in not only the total post-test scores but also the individual domain-wise scores (**Table 2**).



Table 1 Demographic characteristics of the participants (n=52)

Variables	Frequency (%)	
Age Group mean age 34.42 years(S.D: ±2.91)	25-30 years	2 (3.8%)
	31-35 years	35 (67.3%)
	36-40 years	14 (26.9%)
	41-45 years	1 (1.9%)
Education	Secondary (Class10)	14 (26.9%)
	Higher secondary (Class12)	18 (34.6%)
	Graduate	20 (38.5%)
Type of Family	Nuclear	34 (65.4%)
	Joint	18 (34.6%)
Number of Children	1	28 (53.8%)
	2	23 (44.2%)
	3	1 (1.9%)
Care-giver of the child when ASHA at work	Husband	9 (17.3%)
	In-laws	24 (46.2%)
	maternal parents	5 (9.6%)
	Neighbors	2 (3.8%)
	Not needed	12 (23.1%)
Problems in the family due to job	Yes	32 (61.5%)
	No	20 (38.5%)
Socio-economic class: Modified Prasad scale 2013 <sup>4</sup> (Per capita income per month)	Class 2 (Rs.2557 - 5112)	4 (7.7%)
	Class 3 (Rs.1533 - 2556)	12 (23.1%)
	Class 4 (Rs.767 - 1532)	20 (38.5%)
	Class 5 (Below Rs.767)	16 (30.8%)
Other Part-time jobs done by ASHA	Yes	16 (30.8%)
	No	36 (69.2%)



Table 2 Comparison of pre-test and post-test scores (n=52)

DOMAINS	PRE-TEST Mean score	POST- TEST Mean score	Maximum attainable score	Mean difference (Posttest - pretest)	p value	Paired T Test (95% Confidence Interval)
Family Planning	2.79	8.54	10	5.75	<0.001	5.296-6.204
Anaemia in mothers and children	2.06	4.38	6	2.32	<0.001	1.962-2.691
Infant Feeding practices	1.06	1.44	2	0.38	<0.001	0.200-0.569
Newborn care	1.37	2.00	2	0.63	<0.001	0.428-0.841
Common illness in children	0.79	2.98	5	2.19	<0.001	1.911-2.474
Immunization	1.60	1.88	2	0.28	0.001	0.129-0.448
<b>TOTAL SCORE</b>	<b>9.65</b>	<b>21.21</b>	<b>27</b>	<b>11.55</b>	<b>&lt;0.001</b>	<b>10.660-12.456</b>

Table 3 Comparison of pre-test and post-test scores with education level of ASHAs using ANOVA test (n=52)

Education level	Secondary (a)	Higher Secondary (b)	Graduate (c)	F statistic (df)*	p value
n (%)	14 (26.9%)	18 (34.6%)	20 (38.5%)	-	-
Pre-test mean score	7.71	9.56	11.10	6.2 (2)	0.004
Standard deviation	3.17	2.91	2.24		
Post-test mean score	20.00	21.33	21.95	4.6 (2)	0.015
Standard deviation	1.92	2.00	1.66		

\*df- degree of freedom



Comparison of pre-test and post-test scores of ASHA with their education level revealed statistical significant association between education level and both baseline knowledge score as well as post-test knowledge score whilst ASHA with higher level of education attaining high pre- and post-test scores (**Table 3**).

Post-Hoc analysis (Bonferroni test) between groups revealed that the differences in scores were not

statistically significant between ('a' versus 'b') ASHA with secondary level (designated as 'a') and ASHA with higher secondary level of education (designated as 'b') and also between ('b' versus 'c') ASHA with higher secondary level (b) and ASHA with graduate level of education (designated as 'c'). However, the differences in scores between ('a' versus 'c') ASHA with graduate level (c) and ASHA with secondary level (a) of education were statistically significant (**Table 4**).

**Table 4 Inter-group comparison of education level of ASHA with pre-test and post-test scores using Bonferroni Post-Hoc test (n=52)**

Education level		Secondary Vs Higher Secondary (b-a)	Higher Secondary Vs Graduate (c-b)	Secondary Vs Graduate (c-a)
Pre-test score	Mean difference	1.84	1.54	3.38
	95% Confidence Interval	- 0.59 to 4.27	-0.67 to 3.76	1.01 to 5.76
	p value	0.199	0.271	0.003
Post-test score	Mean difference	1.33	0.617	1.95
	95% Confidence Interval	-0.31 to 2.97	-0.88 to 2.11	0.35 to 3.55
	p value	0.148	0.935	0.012

## DISCUSSION

The mean age of ASHA in the current study {34.42 years} was higher than one observed by Garg et al<sup>5</sup> (31.36 years), Kansal et al<sup>6</sup> (30.14 years), and Mahyavanshi et al<sup>7</sup> (27.8 years) and in addition, about 67% and 27% of ASHAs in the current study were between 31-35 and 25-30 years, respectively which is comparable with observations of Kansal et al<sup>6</sup> (84% in <35 years). However, dissimilar findings were observed by Mahyavanshi et al<sup>7</sup> (53% in 25-34 age group), Garg et al<sup>5</sup> (39% in 20-29 years), Gopalan et

al<sup>8</sup> (45% in 25-30 and 32% in 31-35), Saxena et al<sup>9</sup> (42% in 25-30 and 30% in 31-35) and Shrivastava et al<sup>10</sup> (47.9% - below the age of 25 years).

The observation that majority of ASHAs belonged to lower socio-economic class (67% in class 4 and 5 of modified Prasad scale) corroborated with that of Gopalan et al<sup>8</sup> (70% in below poverty line category), on the other hand, Saxena et al<sup>9</sup> observed that 69% in class 2 and 3 of modified Prasad scale. Marital status (100% married) of ASHAs in this study are



comparable with Mahyavanshiet al<sup>7</sup> (90%-married), Garg et al<sup>5</sup> (89%-married) and Kansal et al<sup>6</sup> (100%-married).

The current study finding that 27%, 35% and 39% of ASHAs completed secondary, higher secondary and graduate level of education respectively is better than the observations made by Garg et al<sup>5</sup> (96% completed middle school (class 8)), Gopalan et al<sup>8</sup> (85% completed class 8), Kansal et al<sup>6</sup> (class 8 -31%, secondary- 37%, higher secondary-22%, and graduation-10%), Saxena et al<sup>9</sup> (Class 8 -51%, secondary-20%) and Shrivastava et al<sup>10</sup> (45.9% - Below secondary level).

Furthermore, Gopalan et al<sup>8</sup> observed that only about 8% of ASHAs had income from other sources while in this study, about 30% of ASHA were carrying out other part-time jobs to complement their income.

The deficiencies in the knowledge of ASHAs regarding maternal and child health as observed by low pre-test scores was also observed by Mahyavanshi et al<sup>7</sup> as it was found that 86%, 91%, and 68% of ASHAs had poor knowledge on newborn care, signs of dehydration and acute respiratory illness in children, respectively. In addition, Garget al<sup>5</sup> observed low knowledge levels regarding obstetric complications during delivery and immunization while Kumar et al<sup>3</sup> and Kansal et al<sup>6</sup> also observed deficiencies in knowledge of ASHAs regarding maternal care during pregnancy, infant feeding practices and contraception methods. Srivastava et al<sup>10</sup> also observed lacunae in knowledge of ASHAs regarding child health (immunization, common illness like diarrhea, ARI in children).

## REFERENCES

1. Ministry of Health and Family Welfare. National Rural Health Mission Framework for Implementation 2005-2012. New Delhi; 2005. Available from: [http://www.mohfw.nic.in/NRHM/Documents/Mission\\_Document.pdf](http://www.mohfw.nic.in/NRHM/Documents/Mission_Document.pdf)
2. National Rural Health Mission, Ministry of Health and Family Welfare, Government of India [homepage on the internet]. New Delhi: [updated 2012 Oct 31; cited 2013 May 10]. Available

The positive influence of education on the knowledge level and performance status of ASHAs as observed in this study was also reported by Kansal et al<sup>6</sup>. In addition, Kansal et al<sup>6</sup> also observed a positive effect of education level on the performance status of ASHA besides knowledge levels. In contrast, Mahyavanshiet al<sup>7</sup> reported that there was no association between education level of ASHA and their knowledge regarding various aspects of child health.

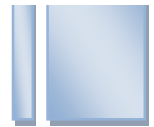
Moreover, the current study shows that uptake or gain of knowledge among ASHA also depends on their education level as evident from the statistically significant association between post-test scores and education level (Table-3 and 4). Hence, the observations by Garget al<sup>5</sup> and Shrivastava et al<sup>10</sup> regarding low knowledge levels of ASHA may be attributed to the relatively low level of education among their study population.

## CONCLUSION

It was observed in this study, that in spite of training given to the ASHAs, there is deficiency in their knowledge regarding various aspects of health care services especially maternal and child health and family planning services. Their education level has a strong positive influence not only on their knowledge levels but also on their learning ability following training sessions which in turn influences their performance status. As it is not possible to modify the educational status of ASHA, the study recommends high quality refresher training at periodic intervals and strengthening of existent training programs for ASHAs so that they can serve the society more effectively and efficiently.

from: <http://nrhm.gov.in/communitisation/asha/about-asha.html/>

3. Kumar, S., Kaushik, A., & Kansal, S. (2013). Factors influencing the work performance of ASHA under NRHM-A cross sectional study from Eastern Uttar Pradesh. Indian Journal of Community Health, 24(4), 325-331. Available from: <http://iapsmupuk.org/journal/index.php/IJCH/article/download/373/pdf>



4. Sharma, R. (2013). Revision of Prasad's social classification and provision of an online tool for real-time updating. *South Asian Journal of Cancer*, 2(3), 157. Available from: [http://journal.sajc.org/temp/SouthAsianJCancer23157-1713538\\_044535.pdf](http://journal.sajc.org/temp/SouthAsianJCancer23157-1713538_044535.pdf)
5. Garg, P. K., Bhardwaj, A., Singh, A., & Ahluwalia, S. K. (2013). An evaluation of ASHA worker's awareness and practice of their responsibilities in rural Haryana. *National Journal of Community Medicine*, 4(1):76-80. Available from: [http://www.njcmindia.org/home/article/1/4/2013/Jan\\_-\\_March/14](http://www.njcmindia.org/home/article/1/4/2013/Jan_-_March/14)
6. Kansal, S., Kumar, S., & Kumar, A. (2012). Is educational level of ASHA matters for their effective functioning? A cross-sectional study in Eastern UttarPradesh. *Indian Journal of Community Health*, 24(1), 41-44. Available from: <http://www.iapsmupuk.org/journal/index.php/IJCH/article/viewFile/68/pdf>
7. Mahyavanshi, D. K., Patel, M. G., Kartha, G., Purani, S. K., & Nagar, S. S. (2011). A cross sectional study of the knowledge, attitude and practice of ASHA workers regarding child health (under five years of age) in Surendranagar district. *Infection*, 72, 55-38. Available from: [http://www.iapsmgc.org/index\\_pdf/47.pdf](http://www.iapsmgc.org/index_pdf/47.pdf)
8. Gopalan, S. S., Mohanty, S., & Das, A. (2012). Assessing community health workers' performance motivation: a mixed-methods approach on India's Accredited Social Health Activists (ASHA) programme. *BMJ open*, 2(5). Available from: <http://bmjopen.bmj.com/content/2/5/e001557.full.pdf+html>
9. Saxena, V., Kakkar, R., & Semwal, V. D. (2012). A study on ASHA—a change agent of the society. *Indian Journal of Community Health*, 24(1), 15-18. Available from <http://iapsmupuk.org/journal/index.php/IJCH/article/download/55/95>
10. Shrivastava, S. R., Shrivastava, P. S., & Shrivastava, S. S. P. (2012). Evaluation of trained Accredited Social Health Activist (ASHA) workers regarding their knowledge, attitude and practices about child health. *Rural and remote health*, 12 (2099). Available from: [http://www.rrh.org.au/publishedarticles/article\\_print\\_2099.pdf](http://www.rrh.org.au/publishedarticles/article_print_2099.pdf)