

# Study to assess the knowledge and practice of accredited social health activist workers regarding dengue in Bengaluru urban district Karnataka India

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## ABSTRACT


**Background:** The upsurge in the incidence of dengue cases shows that there is still need to increase the level of awareness in the public about vector-borne diseases especially the dengue fever (DF). Accredited Social Health Activists (ASHA's) are one among the key instruments for achieving this goal. **Objective:** The objective of the study was to find out the knowledge and practice of ASHA workers regarding dengue. **Materials and Methods:** A cross-sectional study conducted during July–August 2016 in Bengaluru urban district which has 571 ASHA workers. By population probability sampling and simple random method, 166 ASHA selected. Data collected using a pre-tested semi-structured questionnaire.  $\chi^2$  test and descriptive statistics analyzed using SPSS (17.0). **Results:** Mean age of the ASHA's 33.4 ± 6.63 years. Majority of the ASHA was aware of the characteristics symptoms of the DF 160 (96.4%), only 51 (30.7%) were known of the danger signs of DF. 101 (60.8%) of ASHA's were not aware of self-protective measures, 140 (84.3%) were aware of partial control measures, ASHA's who had work experience of >2 years and with higher education had higher knowledge of danger signs and control measures and practice about the dengue. About 68.7% of ASHA's received the good response by the community, whereas 24.1% and 43.4% of ASHA's were encountered the problems of lack of community participation and rejection for the preventive measures. **Conclusion:** Training is the backbone of capacity building and functioning of ASHAs. Monitoring should be made an integral part of ASHA working in the field to ensure that knowledge is converted into practices as well.

**KEY WORDS:** Dengue; Accredited Social Health Activist; Knowledge; Practice

## INTRODUCTION

Dengue viruses are arboviruses capable of infecting humans by the bites of virus-infected *Aedes aegypti* and *albopictus* mosquito causing disease. The World Health Organization

estimates that presently about two-fifths of the world population is at risk for this viral infection.<sup>[1]</sup> Symptomatic dengue virus infections can present with a wide range of clinical manifestations, from mild febrile illness dengue fever (DF) to a life-threatening hemorrhagic shock syndrome or organ dysfunction.<sup>[2]</sup> DF is characterized by fever, headache, muscle and joint pains, rash, nausea, and vomiting. Some infection results in dengue hemorrhagic fever (DHF) - a syndrome that in its severe form can threaten the patient's life primarily through increased vascular permeability and shock. DF and DHF are caused by the four dengue viruses DEN 1, 2, 3, and 4, which are closely related antigenically. There is no vaccine or specific treatment for dengue/severe dengue,

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but early detection and access to proper medical care lowers fatality rates below 1%. Vector control is one of the most important preventive measures in combating dengue.<sup>[3]</sup> India is one of the seven identified countries in the South East Asia region regularly reporting incidence of DF/DHF outbreaks and may soon transform into a major niche for dengue infection in the near future. Both viral and host factors are thought to contribute to the manifestations of disease in each infected individual.<sup>[4]</sup> The upsurge in the incidence of dengue cases shows that there is still need to increase the level of awareness in the public about vector-borne diseases especially the DF. National Health Mission envisioned universal access to health, with a strong focus on community involvement. This was to enhance the people's participation in health and enable action on its various social determinants. Accredited Social Health Activist (ASHA) workers are one among the key instruments for achieving this goal. There are defined job responsibilities and guidelines for reporting of an outbreak of dengue.<sup>[5]</sup> At the village level, ASHA, and AWW, and other members of village health and hygiene committee should be sensitized by the area health worker (ANM/MPW) on prevention and control of dengue. In general, in an outbreak situation, there is clustering of fever cases of similar nature in the affected areas. An outbreak of fever would be considered if the number of fever cases of similar nature reported by the health workers/ASHA/other health volunteers is five or more in a village during a period of 7 days. ASHA/Aanganwadi workers or any voluntary organization would report occurrence of fever outbreak to the ANM/health workers as well as to the medical officer, sector primary health centers. Recognition and reporting of such outbreak of suspected DF cases by ASHA and other health volunteers would trigger the health system for prompt remedial measure and containment of the disease.<sup>[6]</sup> Various knowledge, attitude, and practice (KAP) studies have been conducted on ASHA workers in the field of child health, maternal and child health, nutrition, general awareness, malaria, etc. There are many KAP studies available on the community, but there are very few specific studies with regard to the dengue KAP among the ASHA workers. Hence, this study was undertaken in Bengaluru urban district with the following objectives:

1. To assess the knowledge and practices of ASHA workers regarding dengue control.
2. To associate their knowledge and practice with education and total duration of service.

## MATERIALS AND METHODS

A cross-sectional study conducted in Bengaluru urban district which comprises four talukas and has 571 ASHA workers. Study carried out during the month of July–August 2017 when there was sudden increase (epidemic) in the dengue cases. As there were no specific documented data available with regard to dengue KAP among the ASHA workers. We conducted a pilot study in 5% of total ASHA workers and then computed

an estimated for the value for ' $P$ ' which then was applied to calculate sample size. The value of  $P$  used in this study is 72% for KAP which was obtained after pilot study. Using the formula:  $N = 4pq/d^2$  calculated at 5% significance level with 10% allowable error a sample size of 155 was obtained and for the study 155 + 10 extra for loss to follow-up, a total of 166 ASHA's were considered. By population probability sampling method from all the four talukas of Bengaluru urban district by simple random method, 166 ASHA workers who were working in their respective places for minimum of 3 months were included for the study. In the majority of the places recruitment of ASHA workers were based guidelines and in few places when no suitable person with desired qualification was available in those places educational qualification was relaxed as per the norms.<sup>[7]</sup>

Those who could not be contacted at least twice during the visit were excluded. After taking an informed verbal consent, data were collected using a pre-tested semi-structured questionnaire regarding sociodemographic profile, their knowledge regarding dengue and the preventive measures practiced by the ASHA workers in their field practice area by their records, based on the guidelines provided on Job responsibilities of ASHA workers in control of dengue and operational definition of complete implementation of preventive services in their field practice area by ministry of health and family welfare services.<sup>[8]</sup>

## Statistical Analysis

The data were entered in Microsoft Excel. SPSS version 16 was used for analysis. Data were analyzed using descriptive statistics such as frequencies, mean, and standard deviation were used, Chi-square test analysis was applied to know the association between the various variables.  $P \leq 0.05$  was considered statistically significant.

## RESULTS

Mean age of the ASHA workers was found to be  $33.4 \pm 6.63$  years with average educational level of  $8.93 \pm 2.06$  standards. About 32 (19.3%) of ASHA workers were educated up to 7<sup>th</sup> standard, 125 (75.3%) had completed their education until 10<sup>th</sup> standard, 9 (5.4%) were educated until PUC. Average work duration was  $4.92 \pm 2.24$  h and  $30 \pm 5.55$  numbers of houses were visited per day. All the ASHA workers were trained in dengue prevention 166 (100%) which was conducted once in that year, and the average number of Information Education and Communication activities conducted were 2 per month to the community [Table 1]. Majority of the ASHA workers were aware of the characteristics symptoms of the DF 160 (96.4%), their role when suspected DF case was 161 (97.0%), complete preventive measures to practice 157 (94.5%), mode of transmission 152 (91.6%), breeding sites of mosquitoes

146 (88.0%), and man-made disease 147 (88.6%), whereas only 51 (30.7%) were known of the danger signs of DF [Table 2]. About 101 (60.8%) of ASHA workers were not aware of self-protective measures, 140 (84.3%) were aware of partial control measures, only 3 (1.8%) were aware of complete control measures, and 23 (13.9%) were not aware of the control measure at all. Of the study participants, 147 (88.6%) knew that dengue is a man-made disease. ASHA workers who had work experience of more than 2 years had higher knowledge and practice about the dengue. Knowledge about danger signs and control measures were significantly higher among the ASHA workers with more than 2 years of experience [Table 3]. Awareness of control measures and knowledge about danger signs were less in both the groups. Although the knowledge and practice measures of dengue were better understood by ASHA workers with higher education, it was not statistically significant [Table 4]. About 68.7% of ASHA workers received the good response by the community with regard to the discussion on dengue, whereas 24.1% and 43.4% of ASHA workers were encountered the problems of lack of community participation and rejection for the preventive measure like emptying the open vessels [Figure 1].

## DISCUSSION

A total of the 166 ASHA workers who were trained in dengue prevention, were residing and working in their respective places, covering a population of 800–1000 as

**Table 1:** Basic profile of the ASHA workers

Variables	Values
Mean age of the ASHA workers	33.4±6.63
Mean education (standards)	8.93±2.06
Mean Work duration in hours per day	4.92±2.24
Number of houses visited per day	30±5.55
Trained in dengue prevention (%)	166 (100)
Training with regard to dengue attended in a year	One
Number of IEC activities conducted	2/month

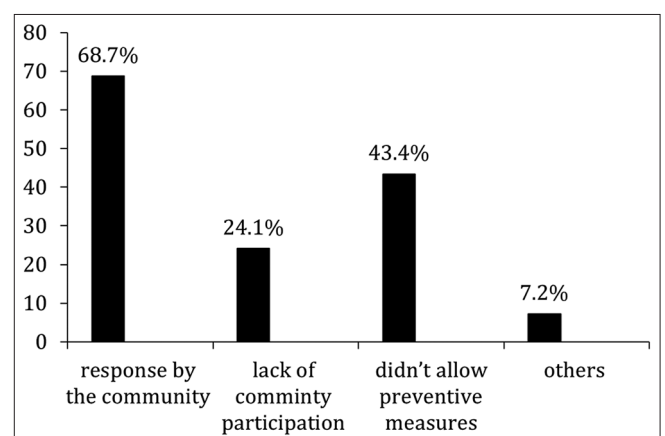
ASHA: Accredited Social Health Activist, IEC: Information Education and Communication

**Table 2:** Details regarding knowledge about dengue characteristics (n=166)

Characteristics	Frequency n (%)
Symptoms about dengue fever	160 (96.4)
Danger signs of dengue fever	51 (30.7)
Mode of transmission	152 (91.6)
Breeding sites of mosquitoes	146 (88.0)
Biting time	143 (86.1)
Their role when suspected dengue fever case	161 (97.0)
Man-made disease	147 (88.6)
Complete preventive measures to practice	157 (94.5)

per NRHM guidelines. Mean age of the ASHA workers was 33.4 ± 6.63 years with average educational level of 9<sup>th</sup> standards. Majority of the ASHA workers was aware of the characteristics symptoms of the DF such as their role when suspected DF, complete preventive measures, mode of transmission, and breeding sites of mosquitoes; whereas only 51 (30.7%) were known of the danger signs of DF. Awareness of self-protective measures and control measures was poor. ASHA workers who had work experience of more than 2 years had higher knowledge and practice about the dengue, including the knowledge about danger signs and control. Majority of ASHA workers was encountered the problems of lack of community participation and rejection for the preventive measure like emptying the open vessels.

As per the NRHM guidelines all the ASHA workers resided and were working in their respective villages covering a population of 800–1000. All 166 workers were trained and it is been known that ASHA training is a continuous process which helps in improving her knowledge and skills for better implementation of the program.<sup>[5]</sup> Mean age of ASHA workers was 33 ± 6.63 years which are similar to many other studies.<sup>[9–12]</sup> Thus, majority of the ASHAs was young and this may be strength for program as they are enthusiastic and may deliver better service with proper motivation and capacity building.<sup>[9]</sup> Mean education of ASHA workers found in this study 8.93 ± 2 was similar to Mahyavanshi *et al.* study<sup>[13]</sup> which is sufficient enough for their proper learning and performance. Majority of ASHA's had knowledge about symptoms of DF, mode of transmission, breeding sites of mosquitoes, etc., similar results to the other studies whereas only 30.72% knew the danger signs of dengue which is very essential for early referral to hospital to prevent complications and deaths due to dengue, this aspect has been enhanced and given importance in guidelines for reporting of an outbreak of dengue<sup>[6,14]</sup> and these results indicate that this aspects needs to be stressed in their training program.<sup>[15,11]</sup> Although the study showed 143 (86.1%) practiced complete preventive measures, nearly 15% of the ASHA workers were lacking in that, hence there is need for reinforcement in the training sessions.<sup>[15,14]</sup>



**Figure 1:** Response by the community during the activity

**Table 3:** Knowledge and practice based on work experience

Variables	Responses	Working experience (in years) n (%)		Total (%) n=166
		≤2 years (n=14)	>2 years (n=152)	
Knowledge about danger signs	Not aware (%)	13 (92.8)	102 (67.1)	115 (69.2) *
	Aware (%)	1 (7.2)	50 (32.9)	51 (30.8)
Practice of preventive measures	Not aware (%)	2 (14.3)	7 (4.6)	9 (5.4)
	Aware (%)	12 (85.7)	145 (95.4)	157 (94.6)
Man-made disease	Not aware (%)	1 (7.1)	18 (11.8)	19 (11.4)
	Aware (%)	13 (92.9)	134 (88.2)	147 (88.6)
Control measures	Aware of complete control measures	1 (7.1)	2 (1.3)	3 (1.8)
	Aware of partial control measures	9 (64.3)	131 (86.2)	140 (84.3)*
	Not aware control measure at all	4 (28.6)	19 (12.5)	23 (13.9)
Self-protection measures	Not aware of self-protective measures	8 (57.1)	93 (61.2)	101 (60.8)
	Aware and following	5 (35.7)	50 (32.9)	55 (33.1)
	Aware not following	1 (7.1)	9 (5.9)	10 (6)

$P < 0.05$  statistical significant

**Table 4:** Knowledge and practice based on education

Variables	Responses	Education		Total (%) n=166
		Up to 7 <sup>th</sup> (n=32)	8 <sup>th</sup> standard and above (n=134)	
Knowledge about danger signs	Not aware (%)	24 (75.0)	91 (67.9)	115 (69.3)
	Aware (%)	8 (25.0)	43 (32.1)	51 (30.7)
Practice of preventive measures	Not aware (%)	2 (6.2)	7 (5.2)	9 (5.4)
	Aware (%)	30 (93.8)	127 (94.8)	157 (94.6)
Man-made disease	Not aware (%)	2 (6.2)	17 (12.7)	19 (11.4)
	Aware (%)	30 (93.8)	117 (87.3)	147 (88.6)
Control measures	Aware of control measures	27 (84.4)	116 (92.8)	143 (86.1)
	Not aware control measure at all	5 (15.6)	13 (13.4)	23 (13.9)
Self-protection measures	Not aware of self-protective measures	24 (75.0)	77 (57.5)	101 (60.8)
	Aware and following	6 (18.8)	49 (36.6)	55 (33.1)
	Aware not following	2 (6.2)	8 (6.0)	10 (6)

One of the important factor influenced was about one-fourth of the workers complained that there was lack of community participation in implementation of control measures. Similar observation was noticed Malhotra and Kaur study,<sup>[4]</sup> Kohli *et al.* study in Delhi,<sup>[10]</sup> and Sreedevi *et al.* study in Karnool.<sup>[15]</sup> A study by Arpit *et al.* among the link workers of public health centers where the overall knowledge was increased from 15.7% to 25.6% after intervention ( $P < 0.0001$ ).<sup>[16]</sup> Current study showed better knowledge and practice in ASHAs with more years of experience than compared to the higher level education. similar observations noted by Mahyavanshi *et al.* study in Surendranagar district wherein the duration of total services increased, knowledge, and practices also improved.<sup>[13]</sup> It is recommended that an assessment of the information that ASHAs have retained from theoretical and practical training must be conducted before ASHAs are able to work in the field, so that valuable information is not provided in error or omitted when they are counseling.

### Strength and Limitations of this Study

Major strength of the study is selection of the study participants by randomization techniques as it represents the all ASHA workers in Bengaluru urban district, chances of bias are less. There are very few specific studies with regard to the dengue KAP among the ASHA workers. Hence, this study will add on to the knowledge in understanding the gaps knowledge and practices of ASHA workers regarding dengue control. Limitations of this study are that as it is self-administered questionnaire by ASHA workers, on-field practical assessment is not done by investigator hence detailed attitude component could not be carried out.

### CONCLUSIONS

Present study showed that ASHAs knowledge is good but their practices are poor due to number of problems faced

by them like lack of community participation which need to be addressed through skill-based training in terms of good communication and problem solving. Monitoring should be made an integral part of ASHA working in the field to ensure that knowledge is converted into practices as well. There are still lacunae left among some percentage of ASHA workers in their knowledge and practices about the dengue control. Training is the backbone of capacity building and functioning of ASHAs. Hence, it must be done timely, properly, and effectively. It has to be ensured during training that all ASHAs (100%) are well aware about their job responsibilities and are capable to fulfill their work. Hence, frequency and quality of training for ASHA workers needs to be strengthened by hands-on training sessions.

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## REFERENCES

- World Health Organization. Dengue and Dengue Hemorrhagic Fever; 2016. Available from: <http://www.who.int/media/centre/factsheets/fs117/en>. [Last accessed on 2017 Mar 15].
- WHO Regional Office for Southeast Asia. Comprehensive Guidelines for Prevention and Control of Dengue and Dengue Hemorrhagic Fever. Revised and expanded version. New Delhi, India: SEARO Technical Publication Series; 2011.
- Malhotra V, Kaur P. The Community Knowledge, Attitude and Practices Regarding Dengue fever. *Int J Res Dev Health* 2014;2:19-26. Available from: <http://www.ijrdh.com>. [Last accessed on 2017 Mar 17].
- Tejaswi CN, Patil SS, Shekharappa KP. Study of clinical manifestations of dengue cases in a tertiary care hospital, Bangalore, Karnataka. *Int J Med Sci Public Health* 2016;5:2503-7.
- Ministry of Health and family welfare, GOI. Annual Report of Department of Health and Family Welfare 2014;5:157-64.
- National Vector Disease Control Programme, Ministry of Health and Family Welfare. Long Term Action Plan for Prevention and Control of Dengue fever/dengue Haemorrhagic Fever/Dengue Shock Syndrome and Chikungunya in India. India: National vector disease control programme, Ministry of health and family welfare 2007.
- Operational Guidelines for ASHA under NRHM Guidelines. Accredited Social Health Activist (ASHA) Background of ASHA Concept, Role & Responsibilities of ASHA, Selection Criteria for ASHA, Removal Criteria for ASHA and Institutional Arrangements for ASHA; 2007.
- MOHFW, GOI. National Vector Borne Disease Control Programme. Health Bulletin for Asha On Prevention and Control of Vector Borne Diseases: Dengue Fever. Bulletin No. 3. MOHFW, GOI; 2007.
- Garg PK, Bhardwaj A, Singh A, Ahluwalia SK. An evaluation of Asha worker's awareness and practice of their responsibilities in rural Haryana. *Natl J Community Med* 2013;4:76-80.
- Kohli C, Kishore J, Sharma S, Nayak H. Care knowledge and practice of accredited social health activists for maternal healthcare delivery in Delhi. *J Fam Med Prim* 2013;4:359-63.
- Bajpai N, Dholakia RH. Improving the Performance of Accredited Social Health Activists in India. Working Papers Series Columbia Global Centers | South Asia, Columbia University Working Paper No. 1. 2011.
- Gosavi SV, Raut AV, Deshmukh PR, Mehendale AM, Garg BS. ASHA's Awareness and Perceptions about their Roles and Responsibilities: A Study from rural Wardha. School of Public Health Incorporating Department of Community Medicine, MGIMS, Sevagram, District Wardha; 2009. Available from: <http://www.medind.nic.in/jaw/t11/i1/jawt11i1p33.pdf>. [Last accessed on 2017 Jun 10].
- Mahyavanshi DK, Mitali GP, Kartha G, Shyamal KP, Sunita SN. A cross sectional study of the knowledge, attitude and practice of ASHA workers regarding child health under five years of age) in Surendranagar district. *Healthline* 2011;2:50-3.
- Kohli C, Kishore J, Sharma S, Nayak H. Knowledge and practice of accredited social health activists for maternal healthcare delivery in Delhi. *J Family Med Prim Care* 2015;4:359-63.
- Sreedevi A, Vardhan BR, Visweswara RG, Yalamanchili P, Subhaprada C, Kumari V, *et al.* Study on awareness about vector borne diseases and education about preventive measures in rural field practice areas of Kurnool medical college, Kurnool. *Int J Med Sci Public Health* 2016;5:1803-7.
- Arpit P, Sonal P, Manish F, Bala DV. Impact of educational intervention regarding mosquito borne diseases and their control measures among the link workers of Urban Health Centers (UHCS) of Ahmedabad city. *Natl J Community Med* 2012;3:178-82.

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