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# **Original Research Article**

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# Assessment of knowledge of AWWs regarding growth monitoring and impact of training on their knowledge in Amritsar district of Punjab, India

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#### **ABSTRACT**

Background: Present study was planned to assess the existing knowledge and awareness among AWWs about growth monitoring and nutritional status of children and also to evaluate the impact of training on their knowledge. Methods: The study was carried out in the department of community medicine, SGRDIMSAR, Amritsar. A sample of 405 AWWs was selected by using simple random sampling technique. The data was collected by administering a predesigned and pretested Performa to the AWWs before and after each training session. Pre-test and post-test assessment was done to assess the existing knowledge of AWWs and also to evaluate impact of training on their knowledge regarding growth monitoring and nutritional status of children. The data collected was analyzed using SPSS 20.0 version.

**Results:** The study revealed that majority (72.1%) of the workers fell into the category of poor knowledge and only 4.2% had good knowledge regarding growth monitoring and nutritional status of children before the training session. Age, educational status and work experience of AWWs were found to be significantly associated with their pre-test knowledge. There was statistically significant improvement in the knowledge of AWWs after training. Also, association between education level and post-test knowledge of AWWs was found to be significant.

Conclusions: Regular in-service training or refresher training programmes should be organized for AWWs to enhance their knowledge regarding different aspects of ICDS especially growth monitoring and nutritional status.

Keywords: AWWs, Growth, Monitoring, Impact, Knowledge, Training

#### **INTRODUCTION**

Integrated child development services (ICDS) represents one of the world's largest community based programmes for early childhood development. It was launched on 2nd October 1975 by Ministry of women and Child Development of India in response to the evident problems morbidity, mortality, persistent hunger malnutrition especially among children under the age of 6 years.<sup>1</sup> The ICDS services, comprising supplementary nutrition, immunization, health check-up, referral services, pre-school education and health and nutrition education, are provided through a vast network of service centers called Anganwadi Centre (AWCs) located in rural, urban slums and tribal areas supported by key functionaries or key volunteers called Anganwadi Workers (AWWs).<sup>2</sup>

AWW is a community based front line voluntary worker of the ICDS programme chosen by the community and receives three months training for child and mother development. She plays a crucial role in promoting child growth and development due to her close and continuous contact with community.<sup>3</sup> The impact of ICDS is measured through an evolving monitoring system for which data from all AWCs are collected through several registers maintained manually at the AWC level.

The early childhood period is critical for the survival and development. Human growth is very fast in formative years, particularly from birth to 5 years. This is also the reason why children of this age group have been set as main target of ICDS. In our country, a significant number of children continue to be malnourished and neglected, which makes them vulnerable to several diseases. It is in this context that the practice of growth monitoring acquires significance. Growth monitoring, a process of regular weighing and comparing the results with a standard to assess the growth status of children is used as a diagnostic tool for identifying a child with a nutritional or health problem and thus enabling to take action before the child's nutritional status is seriously endangered.<sup>4</sup> AWWs, who constitute the backbone of ICDS system are responsible for taking and maintaining the growth record of all the children up to six years with the help of growth charts (WHO Child Growth Standards 2006) in their area. Thus the knowledge of AWWs regarding growth monitoring plays an important role related to her performance in AWC.

In spite of the big infrastructure under the scheme, the nutritional status of children remains almost same as of previous years.<sup>5</sup> Nearly half of the preschool children (50.3%) have been found undernourished whereas as much as 60% are stunted. Under 5 mortality rate in India is 39 per 1000 live births which constitutes 5.6 million deaths (UNISEF 2017). The output of ICDS scheme to a great extent depends on the profile of the AWW, her qualification, experience, skills, attitude, training etc. as she is the main resource person of this scheme.<sup>7</sup> It has also been reported that, in addition to education level, training of anganwadi workers regarding different aspects of ICDS especially growth monitoring plays a valuable role in improving their performance. Hence, a training of AWWs was conducted at SGRDIMSAR by Ministry of women and child development and the present study was planned to assess the existing knowledge and awareness among AWWs about growth monitoring and nutritional status of children and also the impact of training on their knowledge.

#### **METHODS**

There are 1850 anganwadi centers in the Amritsar District of Punjab. A training of all AWWs was held in the Department of Community Medicine at Sri Guru Ram Das Institute of Medical Sciences and research, Amritsar in May 2014 to June 2014. Due to dropout, only 1680 AWWs reported for the training. A total of 27 training sessions were held.

#### Sample size and sampling technique

Total sample size was determined using single population proportion formula with 95% confidence interval (CI) and marginal error (d) of 5%.

$$n = \frac{\left(Z_{\alpha/2}\right)^2 p(1-p)}{d^2}$$

Where n = Desired sample size Z = Standard normal scored = Margin of error (5%)

p = 50%; from the AWWs having good knowledge, taken from the study conducted in urban field practice area of Belagavi.<sup>9</sup>

$$Z_{\alpha/2}$$
= 1. 96  $n = 384$ .

Hence, a sample of 405 AWWs, 15 from each session, was selected for the study by using simple random sampling technique. The nature and purpose of the study was explained to them. Verbal consent was taken from the study subjects and confidentiality was ensured. Only those who were willing to participate in the study were included while others were excluded.

#### Tools applied

A pre-designed, pre-tested proforma was used to collect information from the selected AWWs. The basic information was collected in terms of age, education, area and experience. Total 16 questions were framed on the awareness regarding growth monitoring and nutritional status of a child under ICDS. One mark was given for a correct response, while no mark was given for a wrong response or no response. Based on the tool used, poor knowledge was implied when AWWs scored <9, average knowledge if score was 9 to 12 and good knowledge if score was 13 to 16.

#### Data collection

Data was collected first before the commencement and again at the end of each training session from the selected AWW. The same questionnaire was used for the assessment of knowledge in pre and posttest. It was made sure that the performas were filled individually by the AWWs under the direct observation of the researcher.

#### Data analysis

The results were computed using descriptive and inferential statistics based on the objectives of the study. p<0.05 and p<0.01 were considered to be significant and highly significant respectively.

#### RESULTS

In the present study, it was found that mean age of AWWs was  $40.30\pm8.35$  with minimum age 21 years and maximum age 56 years.

Table 1: Socio-demographic characteristics of AWWs (n=405).

Demographic characteristics		Number	%
Age in years	<25	19	4.7
	25-34	101	24.9
	35-44	168	41.5
	45-54	86	21.2
	55 and above	31	7.7
Education	Matriculate	122	30.1
	Senior secondary	179	44.2
	Graduate or above	104	25.7
Work experience	≤5	96	23.5
	6-10	124	30.6
	11-15	74	18.8
	More than 15	111	27.2

From Table 1, it was observed that the majority of AWWs i.e. 41.5 % were in the age group of 36–45 years.

Only 25.7% of the AWWs were educated till graduation or above level. Majority of the workers i.e. 30.6% had work experience of 6-10 years while the average work experience for all the workers was 10.98±9.30.

It was evident from Table 2 that majority (72.1%) of the workers fell into the category of poor knowledge (score <9) and only 4.2% had good knowledge (score 13-16) regarding the growth monitoring and nutritional status before starting the training session. There was statistically significant association between age and pre training knowledge of AWWs (p=0.034). Majority of workers (90.3%) who were 55 years or above had poor knowledge. The association between the education of AWWs and their pretest knowledge was found to be statistically significant (p=0.000). Only 0.8% of AWWs who had studied up to matriculation were having good knowledge in comparison to 11.5% among those who were graduated or above. The association between the work experience and pretest knowledge was also found to be statistically significant (p=0.025). It had been observed that with the increase in work experience, performance declined. Only (1.8%) of AWWs having experience of more than 15 years had good knowledge and performance was found to be the best in the AWWs (6.5%) who had work experience of 6-10 years.

Table 2: Association of demographic characteristics of AWWs with their pre-test knowledge regarding nutritional status of children.

		Pretest knowledge score, number (%)			P value
		<9	9-12	13-16	r value
	Less than 25	10 (52.6)	8 (42.1)	1 (5.3)	
<b>A</b> ===	25-34	67 (66.3)	26 (25.7)	8 (7.9)	
Age	35-44	119 (70.8)	43 (25.6)	6 (3.6)	$0.034^{*}$
(in years)	45-54	68 (79.1)	17 (19.8)	1 (1.2)	
	55 and above	28 (90.3)	2 (6.5)	1 (3.2)	
	Matriculate	105 (86.1)	16 (13.1)	1 (0.8)	
Education	Senior secondary	146 (81.6)	29 (16.2)	4 (2.2)	0.000**
	Graduate or above	41 (39.4)	51 (49.0)	12 (11.5)	
Work experience (in years)	≤5	62 (64.6)	29 (30.2)	5 (5.2)	0.025*
	6-10	80 (64.5)	36 (29.0)	8 (6.5)	
	11-15	59 (79.7)	11 (17.6)	2 (2.7)	0.025**
	More than 15	91 (82.0)	20 (16.2)	2 (1.8)	

Table 3: Pre and posttest knowledge of AWWs regarding different aspects of growth monitoring and nutritional status.

Type of questions		Pre-test frequency (%)		Post-test frequency (%)	
		Correct	Incorrect	Correct	Incorrect
		response	response	response	response
Waish to soonding	Weight at birth	204 (50.4)	200 (49.4)	315 (77.8)	90 (22.2)
Weight according to age of child	Weight becomes 2 times	129 (31.9)	275 (67.9)	322 (79.5)	83 (20.5)
	Weight becomes 3 times	113 (27.9)	292 (72.1)	314 (77.5)	91 (22.5)
Checkup intervals	Health checkup	208 (51.4)	197 (48.6)	316 (78)	89 (22)
	Weight checkup	163 (40.2)	242 (59.8)	275 (67.9)	130 (32)
	Weight checkup interval of less than 1 yr old	253 (62.5)	152 (37.5)	320 (79)	85 (21)
	Weight checkup interval of 3 to 6 year old	212 (52.3)	193 (47.7)	274 (67.7)	131 (32.3)

Continued.

Type of questions		Pre-test frequency (%)			
		Correct	Incorrect	Correct	Incorrect
		response	response	response	response
	Boys growth chart colour	186 (45.9)	219 (54.1)	326 (80.5)	79 (19.5)
	Girls growth chart colour	255 (63.0)	150 (37.0)	343 (84.7)	62 (15.3)
	Growth chart normal weight	191 (47.2)	214 (52.8)	397 (98)	8 (2)
Growth chart	Color of normal weight on growth chart	171 (42.2)	334 (57.8)	337 (83.2)	68 (16.8)
	Chart that shows 2 year old having 8 kg weight	95 (23.5)	310 (76.5)	353 (87.2)	52 (12.8)
	Position of weight in above question	90 (22.2)	315 (77.8)	275 (67.9)	130 (32.1)
	Right growth line	148 (36.5)	257 (63.5)	367 (90.6)	38 (9.4)
Mid upper arm circumference	Position of measurement of MUAC	173 (42.7)	232 (57.3)	301 (74.3)	104 (25.7)
(MUAC)	Minimum normal MUAC	84 (20.7)	321 (79.3)	318 (78.5)	87 (21.5)
Vuondodoo		Knowledge scores, frequency (%)			
Knowledge		<9	9-12	13-16	
Pre-test		292(72.1)	96 (23.7)	17 (4.2)	P value=
Post-test		0 (0)	146 (36)	259 (64)	$0.000^{**}$

<sup>\*\*</sup> Highly significant.

Table 4: Association of education status of AWWs with their post test knowledge.

		Post- test knowl	Davolaco		
		9-12	13-16	P value	
Education	Matriculate	52 (42.6)	70 (57.4)		
	Senior secondary	67 (37.4)	112 (62.6)	0.030*	
	Graduate or above	27 (26.0)	77 (74.0)		

<sup>\*</sup>Significant.

Average pretest percent knowledge and average posttest percent knowledge of AWWs was found to be 39.89±16.76 and 83.75±8.57 respectively. Knowledge of AWWs was compared before and after training sessions (Table 3). It was observed that at the end of training session none of the worker was in the category of poor knowledge, and majority (64%) of the AWWs found to have good knowledge. There was statistically significant improvement in the knowledge of AWWs regarding growth monitoring and nutritional status after the training session (p=0.000).

The association between education level and posttest knowledge of AWWs was found to be significant (p=0.030). After training, 74% of the workers who were graduated or above had good knowledge in comparison to the 57.4 % of workers who were matriculate (Table 4).

#### **DISCUSSION**

Present study revealed that the mean age of AWWs was 40.30±8.35 with minimum age 21 years and maximum age 56 years. Majority 41.5 % of AWWs were in the age group of 36-45 years. 44.2% had education up to senior secondary level and only 25.7% were educated till graduation or above level. Similar findings were revealed in another study done by Jena among AWWs in urban

area of Sundargarh district (Odisha) where 43.3% of workers were 12th passed and 30% were educated up to graduation and above. Majority (30.6%) of the workers had work experience of 6-10 years while the average work experience for all the workers was 10.98 ± 9.30. Another study done in ICDS block of Aurangabad City revealed that majority of AWWs had experience of more than 10 years.

In present study, it was found that knowledge of AWWs regarding growth monitoring and nutritional was statistically significantly associated with their age, education and work experience (Table 2). Knowledge was highest in young AWWs in age group 25-34 years and there was decrease in the knowledge with the increase in age. AWWs who were graduated or above had maximum knowledge (11.5%) and AWWs who were matriculate had least knowledge (0.8%). Majority (6.5%) of AWWs who had good knowledge had work experience of 6-10 years. In a similar study done by Sondankar et al, association of knowledge of AWW with their age, education and qualification was found to be highly significant. In their study they found that there was increase in knowledge with increase in education and decrease in knowledge with the increase in age and experience respectively.11

In our study, AWWs had least knowledge about correct Mid-upper Arm Circumference (MUAC) before training. Only 20.7 % of AWWs knew the cut-off measurements of MUAC for an optimally nourished child aged 2 to 4 years. These findings are comparable with the findings of the study done by Bhasin et al among AWWs in Delhi where only 17-30% knew correct MUAC. Another study done in urban blocks in Sundargarh district of Odisha reported that performance as well as awareness among Anganwadi workers regarding the importance of growth charts and growth monitoring was not satisfactory. One of the study of the

It was found that before training only 27.9% AWWs had knowledge score above average (score 9-16) while after training proportion of AWWs who had knowledge score above average increased to 100%. Thus, there was dramatic improvement in the knowledge of AWWs after training. Study done by Urvashi et al revealed that 62.3 % of AWWs had knowledge score above 50% before training and after training 90.2% of the AWWs had knowledge score above 50%. Another study done by Haldar et al in rural West Bengal reported that performance of AWWs can be improved by proper training.

All these findings revealed that performance as well as awareness among anganwadi workers regarding growth monitoring and nutritional status was not satisfactory before training. But after training there was tremendous improvement in the knowledge of AWWs as none of the AWW had poor knowledge regarding growth monitoring and nutritional status of children.

## CONCLUSION

Aanganwadi workers are the key persons who will promote the good practices of services related to ICDS to enhance the health and nutritional status among mothers and children, hence regular in-service training or refresher training programmes should be organized for AWWs to enhance their knowledge regarding different aspects of ICDS especially growth monitoring and nutritional status.

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