

Original Research Article

Knowledge of anganwadi workers about integrated child development services: a study in Sitamarhi district of Bihar, India

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ABSTRACT

Background: The anganwadi worker (AWW) is the backbone of integrated child development services (ICDS) for delivering the services of the program. Being a key functionary, her level of knowledge regarding various components of ICDS is linked to the ultimate outcome of the ICDS program. Thus, this study was aimed to assess the level of knowledge among AWW regarding services of ICDS.

Methods: This was a cross sectional study in which level of knowledge regarding ICDS among anganwadi worker was assessed using structured questionnaire. The primary outcome of the study is the knowledge of AWW about ICDS component services. Descriptive statistics was presented as frequency and percentage for categorical variable. The knowledge of AWW was assessed by knowledge score made under all the themes of the questionnaire and was presented as mean and median score. Analysis was done in STATA version 14.2.

Results: Nearly 55% of the respondents were not aware about ICDS services. Whereas majority had knowledge on growth monitoring and immunization respectively, above the median score, only 39% of AWW had knowledge on nutritional supplementation above median score. The variables such as education level and training of AWW showed significant association with the knowledge of ICDS components.

Conclusions: There is need for improving knowledge and awareness about various ICDS components and the training quality provided to AWWs.

Keywords: Anganwadi worker, Education, Knowledge, Integrated child development services, Training

INTRODUCTION

Integrated child development services (ICDS) program is a centrally sponsored scheme of government of India and one of the world's largest community-based programs. It was launched as a centrally sponsored scheme to address the gaps and challenges related to malnutrition among children aged 0-6years with special focus on children less than 3 years, pregnant women and lactating mothers.¹

This programme has spread its network throughout the length and breadth of the country, making it the world's largest outreach programme for early childhood care and protection. Recently the Government of India took the historic decision to universalize the ICDS in all the 5652 blocks of the country. Nearly six hundred thousand anganwadi centres are now in operation providing day care services to 63.81 lakh pregnant and lactating mothers and 295.89 lakh children below six years of age.²

The anganwadi worker (AWW), a female voluntary community based frontline worker is the mainstay for providing the services of ICDS. Thus, her educational level, her level of knowledge about the various services like proper nutrition, immunization etc play an important role related to her performance in the anganwadi centers. Being a key functionary, her performance and profile (level of educational qualifications, training, skills etc.) is linked to the ultimate outcome of the ICDS scheme.³ Even though lots of research have been focused on outcome of ICDS services like nutritional status of beneficiaries, very few studies have explored the knowledge level of AWW who are the key functionary delivering the ICDS services in the community.⁴⁻⁶

The state of Bihar has 38 districts out of which the district of Sitamarhi has been identified as one of the backward districts of Bihar by the National Institution for Transforming India (NITI aayog) and its health indicators are one of the poorest in India.⁷ But studies focusing on AWW knowledge of ICDS the state of Bihar are almost nonexistent.⁸⁻⁹ Therefore this study was planned to address this gap, with the aim of assessing the level of knowledge among AWW regarding services of ICDS in the district of Sitamarhi, Bihar.

Objectives

- To explore the socio demographic profile of AWW of the study area.
- To assess level of knowledge of AWW regarding ICDS services like nutritional supplement, components of immunization, growth chart monitoring and record keeping.

METHODS

This was a cross sectional study in which level of knowledge regarding ICDS among anganwadi worker was assessed during the period of 18th December 2017 to 30th March 2018. This study focused on anganwadi workers working in the ICDS projects of Sitamarhi district. All the ICDS project offices were randomly numbered from 1 to 19. Accordingly, each anganwadi center under every ICDS project office jurisdiction was listed from 1 to 2646. Then using random number generator, 330 random numbers were generated and anganwadi workers were picked according to the numbers generated based on the inclusion and exclusion criteria for the study. All the 330 selected Anganwadi workers were interviewed during the monthly and sector meetings of the respective anganwadi. The micro plans for these meetings were taken from District program officer and accordingly locations were visited on that specified day and respective interviews were conducted.

Inclusion criteria

- Anganwadi workers who gave their consent for inclusion in the study.

- Those anganwadi workers working in jurisdiction of Sitamarhi district program officer (DPO)-ICDS for more than one year were included in study.

Exclusion criteria

- Anganwadi workers outside the jurisdiction of Sitamarhi district DPO-ICDS.
- Those anganwadi workers working for less than one year under DPO-ICDS.

Sample size and Sampling technique: Sample size was calculated using OpenEpi, Version 3 software. A sample of 330 was calculated at 95% CI, taking design effect 1 with 5% absolute precision. The anticipated frequency was taken as 57.14% for calculation of sample size.⁹

Study tool and data collection method

A structured questionnaire comprising of closed ended questions were administered to get a clear understanding among anganwadi workers about the various services of ICDS. This questionnaire was piloted on anganwadi workers of another block, prior to finalizing and later on changes were made. Questionnaire was prepared in English and subsequently translated to Hindi. A participant information sheet was made in local language explaining the purpose of the study for the respondent. A written consent was obtained from the respondent. Data was collected using paper form.

Data analysis

MS Excel was used to enter the data followed by sorting and cleaning of data. This data was later imported to STATA version 14.2 for further analysis. Descriptive statistics were presented as frequency and percentage for categorical variable. A knowledge score was made under all the themes of the questionnaire and was presented as mean score.

Chi-square test was applied for looking at the statistical significance of variables. On the basis of the questionnaire three themes were made which were knowledge about nutritional supplement, growth monitoring and immunization.

Themes were developed in such a way that all the aspects about the objectives in the study were covered. There were 12 questions for nutritional supplement section and 14 questions each for growth monitoring, and immunization section. Every correct response gives a score of 1 or else 0. Total knowledge score was estimated by adding the individual scores of each response.

Ethical Clearance and confidentiality

The research proposal was approved by the Research Ethics Committee and Institution review Board. Privacy and anonymity of sample group members was maintained.

RESULTS

A total of 330 anganwadi workers were included in study. The mean age of the respondents was found to be 36 years. Majority of the respondents that is 57%(n=189) had completed education upto matriculation standard. Almost 70%(n=230) had more than 10 years of work experience (Table 1).

The median score of overall knowledge of AWW regarding ICDS is found to be 30 and the inter quartile range(IQR) ranged from 13-33. Further only half of the AWW i.e. 49.1%(n=162) had their knowledge scores for different components of ICDS above the median (Table 2). Next the association of knowledge status with socio demographic profile and training status was determined.

Table 1: Background characteristic of study respondents (AWW) in Sitamarhi district, Bihar, India (n=330).

Variable	Category	No of Participants(n)	Percentage (%)
Education	Matriculation	189	57
	Intermediate	73	23
	Graduation	60	18
Caste	General	105	32
	OBC	123	37
	SC/ST	102	31
Working experience as AWW	<5 years	23	7
	5-10 years	77	23
	>10 years	230	70

Table 2: Knowledge status among the study respondents (AWW) in Sitamarhi district, Bihar, India. (n=330)

Variable	Mean(SD) / Median(IQR)	Min-Max	Knowledge, above the Mean (%) / Median score (%)
Nutritional supplement (0-12)	7.9 (3.6) 9 (5.7-10)	(0-12)	221 (67.0%) 127 (39%)
Growth monitoring (0-14)	7.7 (5.6) 11 (1-13)	(0-14)	184 (55.8) 113 (34.2)
Immunization (0-14)	7.5 (4.7) 9 (3-10)	(0-14)	195 (59.1) 164 (49.7)
Total score (0-40)	23.1(12.7) 30 (13-33)	(0-40)	185 (56.1) 162 (49.1)

Table 3: Association of knowledge status with socio-demographic factors among AWW in Sitamarhi district, Bihar, India (n=330).

Variables		AWW having knowledge		χ^2 value	p-value
		Above Median (n=162)	Below-median (n=168)		
Age (in years)	<35	67 (47.2)	75(52.8)	0.363	0.312
	>35	95 (50.5)	93 (49.5)		
Religion	Hindu	147 (50.7)	143 (49.3)	2.447	0.081
	Muslim	15 (37.5)	25 (62.5)		
Caste	General	55 (52.4)	50 (47.6)	4.696	0.096
	OBC	51 (42.5)	72 (58.5)		
	SC/ST	56 (54.9)	46 (45.1)		
Education	Matriculation	97 (51.3)	92 (48.7)	18.655	<0.001†
	Intermediate	45 (61.6)	28 (38.4)		
	Graduation	20 (33.3)	40 (66.7)		
	Post-graduation	0 (0.0)	8 (100)		
Working as AWW	<5 years	1 (4.3)	22 (95.7)	20.196	<0.001†
	5-10 year	38 (49.4)	39 (50.6)		
>10 years		123 (53.5)	107 (46.5)		

Note: † Significant at 1% level of significance

Table 4: Association of knowledge status with training status among AWW in Sitamarhi district, Bihar, India (n=330).

Variables	AWW having knowledge		χ^2 value	p-value
	Above Median (n=162)	Below-median (n=168)		
Time since training				
<2.5yrs	2 (4.4)	43 (95.6)	93.937	<0.001†
2.5-5yrs	58 (61.1)	37 (38.9)		
5-7.5yrs	90 (72.6)	34 (27.4)		
>7.5yrs	12 (18.2)	54 (81.8)		
Training status of AWW				
Yes	162 (49.7)	164 (50.3)	3.904	0.066
No	0 (0.0)	4 (100)		
Growth chart training				
Yes	162 (49.5)	165 (50.5)	2.919	0.369
No	0(0.0)	3 (100)		
Immunisation training				
Yes	162 (49.4)	166 (50.6)	1.94	0.258
No	0 (0.0)	2 (100)		
Register management training				
Yes	162 (50.2)	161 (49.8)	6.896	0.008*
No	0 (0.0)	7 (100)		
Aware of ICDS services				
Yes	92 (50.8)	89 (49.2)	0.484	0.279
No	70 (47.0)	79 (53.0)		
Aware of objectives of ICDS				
Yes	39 (56.5)	30 (43.5)	1.928	0.105
No	123 (47.1)	138 (52.9)		

*Chi-square test used for analysis and p-value <0.05 was considered statistically significant

†Significant at 1% level of significance

It was found that the factors associated with knowledge level above the median score were education, working experience as AWW, time since training, and register management training.

Nearly half of the respondents 49.1% (n=162) were found to have knowledge score above the median. About half of those respondents having experience more than 10 years had knowledge scores above the median (p<0.001), showing that the percentage of AWW having knowledge score above the median increased as the years of experience of working as AWW increased (Table 3 and 4).

DISCUSSION

The present study explored the socio demographic profile and factors affecting knowledge status of AWW regarding the ICDS services in the district Sitamarhi of the state of Bihar, India. The ICDS scheme providing supplementary nutrition, immunization and preschool education to the children is nearly universal covering all the districts in different states of India.¹⁰ A total of 330 anganwadi workers were interviewed for the study and altogether 40 knowledge related questions were made to estimate the mean knowledge score related to three

crucial domains of ICDS services. Similar scoring pattern was adopted in a study by AS Mahajan (2014) conducted in 3 urban blocks of Patna district found that the mean knowledge score about various ICDS services is about 12.83, and the individual score ranged from 7-19 on the knowledge score.¹¹

Regarding the socio demographic profile of AWW, this study found that more than half (61%) of anganwadi worker had educational level up to intermediate and around 18 percent had qualification up to graduation. A study conducted in Nelamangala, Bangalore, India by K Vasundhara M and N Harish B. (1993) also found that 96.16 percent of AWWs had education up to the high school level.¹² This article also found that 69.2% of AWW were not able to weigh children correctly and only 53.8% of AWW plotted growth charts satisfactorily and our study too corroborated this as just one-third of the respondents 34.2% (n=113) had their scores regarding growth monitoring above the median score. Similar findings were reported by Kapil et al.1994; Basin et al. 1995. Further our study found that 67% of AWW had knowledge about the ICDS component of nutritional supplement. Other studies too reported similar lack of knowledge of nutritional component findings wherein

41.67% AWWs were not aware about basic nutritional component of ICDS.¹³

As nearly 50% of the AWWs had knowledge about current immunization schedule and vaccine specific route of administration above the median score of 9, our findings suggest better knowledge about immunization component than nutritional component of ICDS among study respondents.

The factors found to be significantly associated with good knowledge of anganwadi workers about the various components of ICDS were the educational qualification, working experience as AWW, time since training, and register management training. The percentage of AWW associated with knowledge score above the median increased as the years of experience of working as AWW increased, one percent of those having less than five years' experience, and about half of those having experience 5-10 and above 10 years respectively had knowledge scores above the median which is statistically significant ($p \leq 0.001$).

The percentage of the AWW having knowledge score above the median score increased with increase in time since training. It was found that 61.1% of those trained 2.5-5 years ago, near about three-fourth 72.6% of those trained 5-7 years ago, had their knowledge score above the median score which is statistically significant ($p \leq 0.001$). Awareness about ICDS services and objectives has no significant relation with their knowledge. Our study strongly suggests that there is significant association of knowledge score of AWW with their educational qualification. The results of this study as well as previous studies, strengthens the fact that education is an important component for better knowledge about ICDS services among in the anganwadi workers.

CONCLUSION

The authors conclude that in-spite of having a better understanding about the services and their work, anganwadi workers were unable to answer the basic questions about ICDS scheme, which indicates that there is need of regular monitoring and proper supervision along with it regular training with practical orientation. Knowledge related to nutrition, growth chart and immunization among AWWs helps in effectively achieving the objectives of the ICDS scheme and should be considered important for the success of ICDS scheme. From the present study it can be inferred that anganwadi workers have inadequate knowledge about overall nutrition, growth chart, immunization and basics about ICDS scheme.

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