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RESEARCH ARTICLE

Efficiency of Anganwadi Centres–A Study in Thiruvananthapuram District, Kerala

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Abstract

Integrated Child Development Scheme (ICDS) is one of the world's largest and most unique programmes for early childhood care and development in India. This study aims to find out the efficiency of anganwadi centres in providing service to beneficiaries and the factors affecting the efficiency. A cross-sectional study was conducted in 200 anganwadi centres in Thiruvananthapuram district. An operational definition was developed for each six services in ICDS in order to measure efficiency of anganwadi centres. Beneficiaries like mothers of 3-6 years of children, pregnant women and lactating mothers enrolled in the anganwadi centres and anganwadi workers were the study participants. Proportion and chi-square test were used for data analysis. This study revealed that 5% of anganwadi centres were highly efficient, 63.5% are efficient and 31.5% are not efficient. The factors like educational status of anganwadi worker, job status, infrastructure facility, logistic facility, supervision, intersectoral coordination, support from health department and community participation showed a statistical significant association with efficiency of anganwadi centres. Infrastructure and logistic facility, supportive supervision and anganwadi worker's educational status are the important factors needed for the improvement of service delivery of an anganwadi centre. In addition to this, coordinated work with health department, local self-government and of course the involvement of community in all phase of the health activities help in its service quality.

Keywords: Childhood care, anganwadi centres, anganwadi workers, efficiency, chi-square test, service quality.

Introduction

Integrated Child Development Scheme (ICDS) is one of the unique programmes for early childhood care and development in India. Under this scheme, a package of services consist of supplementary nutrition, immunization, health check-up, referral services, health education and non-formal preschool education provided to children below 6 years and pregnant and nursing mothers (Park, 2013). This scheme is centrally sponsored program implemented by Department of Women and Child development, Ministry of Human Resources Development of India. Under the Directorate of Social Welfare at State level ICDS projects are set up in the blocks with each block having anganwadi centres. The administrative unit of an ICDS project is the Community Development Block in rural areas, the Tribal Development Block in tribal areas and a group of slums in urban area. The "Anganwadi Centre" literally means a courtyard play centre located within the village or slum area, which is the focal point of delivery of services at community level to children below 6 years of age, pregnant woman, nursing or lactating mothers and adolescent girls. Anganwadi worker is in charge of anganwadi centre that is selected from the same community where the anganwadi centre is located. The impact of this scheme made a big difference in the health and development of the vulnerable groups in India. There was a significant decline in severe and moderate malnutrition among children (Lancet, 1983). Immunization coverage and antenatal care increased significantly after its implementation (Tandon, 1992). But there are some lacunae in its implementation as evidenced by evaluation studies conducted by National Institute of Public Cooperation and Child Development (NIPPCCD, 1998, 2006). In this context, this study was conducted to find out how efficient an anganwadi centre in delivering services to its beneficiaries especially preschool children, pregnant and lactating mothers and also the factors associated with it.

Materials and methods

Experimental design: A cross-sectional study was conducted in anganwadi centres in Thiruvananthapuram district. Study population was anganwadi workers and beneficiaries of ICDS scheme which include mothers of 3-6 years old children, pregnant women and lactating mothers. A pilot study was conducted in rural and urban anganwadi centres and the proportion of not efficient anganwadi centres was found to be 35%. The sample size was calculated using the formula $4pq/l^2$, where p is 35%. Considering the alpha error 5% and beta error 20%, sample size required was 200. Stratified random sampling technique was the sampling procedure used to select anganwadi centres.

Anganwadi centre is the sampling unit in this study. There were 14 ICDS projects functioning in Thiruvananthapuram district, 2 in urban area and 12 in rural area. Total number of anganwadi centres under these 14 ICDS project were 2168 (209 in urban and 1959 in rural). In the urban project, there were two projects i.e. urban I and urban II so a proportionate sample was taken from each of these two projects. Urban I (49.3%) 9 anganwadi centres and Urban II (50.7%) 11 anganwadi centres were randomly selected. For rural projects, taluk and block were taken as strata. There were four taluks and twelve blocks in Thiruvananthapuram district, so a proportionate sample was calculated first at taluk level and then at block level to get 180 samples (Table 1).

Outcome variable

Efficiency of anganwadi centres: An operational definition was developed for each six services in ICDS in order to measure the efficiency of anganwadi centre. Six services are immunization for children and pregnant women, supplement nutrition, health check-up, nutrition and health education, referral services and non-formal education.

Exposure variables:

1) Characteristics of anganwadi worker like age of anganwadi worker, job status (permanent or temporary), years of service, educational status, place of residence, job training etc.
2) Facilities of anganwadi centre which include (i) infrastructure facility–area of anganwadi centre, building ownership, roof material and floor material, number of rooms, kitchen facility, water supply, toilet facility and availability of electricity. (ii) Logistics facilities–availability of weighing machine, adequacy of education aids, table and chair for anganwadi worker, bench/chair for children, indoor and outdoor play equipment, registers and growth charts. (iii) Availability of food supplements–frequency of food supply, quantity of food supply and transportation problems. (iv) Availability of medicines.
3) Supervision–frequency of visit by supervisor, child development project officer/assistant child development officer and health staffs.
4) Intersectoral coordination–Support from health department in conducting health education program, health check-ups, immunization camps and house visit. Support from local self-government in providing funds, food supplements, logistics, maintenance of building, health education programs and immunization programs were assessed for intersect oral coordination.
5) Community participation–Participation of local people in health education programs, immunization programs. Information on following variables like facilities, supervision, intersectoral coordination and community participation were collected from records available in the anganwadi centre.

Tools: A structured performa with two sets of questionnaire was used in this study. First set of questionnaire was used to assess the efficiency of anganwadi centres. For this, beneficiaries were interviewed and information from theanganwadi centre registers was collected. Mothers of preschool children, pregnant and lactating mothers were interviewed for getting information from beneficiaries. Scoring was given to each question and based on that anganwadi centres were categorized in to highly efficient anganwadi centre, efficient anganwadi centre and not efficient anganwadi centre. Both anganwadi centre score and beneficiary score were equal to or more than 75%, it was categorized as highly efficient anganwadi centre. When the score obtained between 50% and 75%, the anganwadi centres were categorized as efficient. Either the anganwadi score or the beneficiary score is less than 50%, it was categorized as not efficient anganwadi centre. Second set of questionnaire was used to interview anganwadi worker to collect information about the facilities of anganwadi centres. Each facility of anganwadi centres was given scores.

Table 1. Distribution of sampling units (Sample size = 200).

Urban project (10%) = 20	Rural project (90%) = 180	No. of anganwadi centres
Urban-I 9	Thiruvananthapuram Taluk (23.5%)	43
Urban-II 11	Kazhakoottam block	22
	Thiruvananthapuram rural block	10
	Nemom block	11
	Neyyattinkara Taluk (23.8%)	43
	Parasala block	17
	Athiyanoor block	13
	Perumkadavila block	13
	Nedumangadu Taluk (29.7%)	54
	Nedumangadu block	14
	Vellanad block	19
	Vamanapuram block	21
	Chirayinkeezhu Taluk (22%)	40
	Chirayinkeezhu block	13
	Varkala block	12
	Kilimanoor block	15

About 75% was taken as the cut of point to assess whether each facilities were adequate or not. Informed consent was taken from the Anganwadi worker and beneficiaries before collecting information.

Statistical analysis: Chi-square test with P value less than 0.05 was taken as significant level. To study the association between exposure variable with efficiency, the anganwadi centres were categorized as efficient anganwadi centres and not efficient anganwadi centres. The variable for which the association studied was also categorized into two. For age, 55 years was taken as cut-off level to categorize age into ≤55 years and >55 years, education status categorized to ≤SSLC and above SSLC, job status categorized into permanent and temporary, years of service categorized into ≤10 years and >10 years, residence same as operational area –yes or no, training–yes or no. Facilities, supervision, community participation, intersectoral coordination were categorized as adequate and inadequate.

Results

Majority (55.5%) of the anganwadi centres serving a population between 1000 to 1500. About 34% of anganwadi centres serving a population of above 1500 and only 10.5% were serving a population up to 1000. About 41% of anganwadi centres were enrolled with more than 15 preschool children, 20.5% of anganwadi centres enrolment was more than 25. Less than 15 children were enrolled in 38.5% of anganwadi centres. Majority of anganwadi centres (94.5%) enrolled up to 5 pregnant women and 4.5% of anganwadi centres were enrolled by more than 5 pregnant women. No pregnant woman enrolled in 2 anganwadi centres. The enrolment of lactating mothers in 89% and 7.5% of anganwadi centres was less than 5 and more than 5 respectively. Remaining anganwadi centres were not enrolled by lactating mothers (Table 2). According to the operational definition developed for six services of ICDS for measuring efficiency of anganwadi centres, this study found that 63.5% of anganwadi centres were efficient and 31.5% were not efficient. Only 5% anganwadi centres were highly efficient (Table 3). The association between exposure factors and efficiency of anganwadi centres were analyzed by chi-square test. Inadequate infrastructure facility (χ^2=3.86 p<0.05) and inadequate logistic facility (χ^2=20.87, p<0.05) were statistically significant. In this study, availability of medicine was inadequate in 77.5% of anganwadi centres and 22.5% had adequate availability of medicines. But statistical association was not obtained between availability of medicine and efficiency. Food supplementation was the only 100% service in all anganwadi centres. Supervision (χ^2=3.84, p=0.05), Support from health department (χ^2=28.83, p<0.05), Intersectoral coordination (χ^2= 8.95, p<0.05), Community participation (χ^2=10.80, p<0.05) were found to be statistically associated with efficiency of anganwadi centres.

Table 2. Population covered and beneficiaries enrolled in the anganwadi centres.

Total population covered	No. of anganwadi centres (N=200)
≤1000	21 (10.5%)
1001-1500	111 (55.5%)
1501-2000	38 (19%)
≥2001	30 (15%)
Enrolment of beneficiaries	
No. of preschool children	
≤15	77 (38.5%)
16-25	82 (41%)
26-35	37 (18.5%)
≥35	4 (2%)
No. of pregnant women	
Nil	2 (1%)
1-5	189 (94.5%)
6-10	8 (4%)
≥11	1 (0.5%)
No. of lactating mothers	
Nil	7 (3.5%)
1-5	178 (89%)
6-10	15 (7.5%)

Table 3. Distribution of anganwadi centres according to efficiency.

Efficiency	Frequency	Percentage
Highly efficient	10	5
Efficient	127	63.5
Not efficient	63	31.5
Total	200	100

Regarding the characteristics of anganwadi workers, only education (χ^2=5.30, p<0.05) and job status (χ^2=8.04, p<0.05) have got a significant association (Table 4).

Discussion

The anganwadi centres of Kerala are graded as A (Very good 75-100), B (Good 50-74), C (Average 35-49), D (Below average 20-34) and E (Poor below 19). This grading is based on the infrastructure facility, quality of preschool education and supplementary feeding. About 60% of the anganwadi centres were above average. In this present study, 63.5% were efficient, 31.5% were not efficient and only 5% were highly efficient. It was observed that infrastructure and logistic facilities were found inadequate in 73.5% and 34.5% of anganwadi centres respectively. A study conducted in Kerala noted that 22% of anganwadi centres did not have weighing machine and most of the anganwadi centres are inadequate in terms of benches and chairs with unsatisfactory building facilities (Seema, 2001). Kullar (1988) and Gragnolati *et al*. (2006) reported poor quality of services including non-palatable food supplements, irregular supply of food and medicine by the government. A study conducted by Datta *et al*. (2010) in urban and rural anganwadi centres in Pondicherry and Tamil Nadu revealed a poor service delivery.

Table 4. Relationship between efficiency of anganwadi centres and its factors.

Study variables	Efficient	Not efficient	Chi-square value	P value
Characteristics of anganwadi workers				
Age				
≤55 years	120 (87.59%)	53 (84%)	0.44	0.5054
>55 years	17 (12.41%)	10 (16%)		
Education				
SSLC	63 (46%)	40 (63.5%)	5.30	0.0213
Above SSLC	74 (54%)	23 (36.5%)		
Job status				
Permanent	130 (95%)	52 (82.5%)	8.04	0.0045
Temporary	7 (5%)	11 (17.5%)		
Years of service				
≤10 years	51 (37%)	32 (51%)	3.27	0.0704
>10 years	86 (63%)	31 (49%)		
Residence same operational area				
Yes	100 (73%)	49 (78%)	0.52	0.4707
No	37 (27%)	14 (22%)		
Training				
Yes	127 (92.7%)	55 (87.3%)	1.54*	0.2152
No	10 (7.3%)	8 (12.7%)		
Facilities of anganwadi centres				
Infrastructure				
Adequate	42 (31%)	11 (17.5%)		
Inadequate	95 (69%)	52 (82.5%)	3.86	0.0494
Logistic				
Adequate	104 (76%)	27 (43%)	20.87	0.00001
Inadequate	33 (24%)	36 (57%)		
Availability of medicine				
Adequate	35 (25.5%)	10 (15.9%)	2.32	0.1280
Inadequate	102 (74.5%)	53 (84.1%)		
Supervision				
Adequate	47 (34.3%)	13 (21%)	3.84	0.0500
Inadequate	90 (65.7%)	50 (79%)		
Intersectoral coordination				
Adequate	35 (25.5%)	4 (6%)	8.95*	0.0027
Inadequate	102 (74.5%)	59 (94%)		
Support from health department				
Adequate	57 (41.6%)	2 (3%)	28.83*	0.00001
Inadequate	80 (58.4%)	61 (97%)		
Community participation				
Adequate	35 (25.5%)	3 (5%)	10.80	0.0010
Inadequate	102 (74.5)	60 (95%)		

Degree of freedom -1, *Yates correction done.

But in this present study, food supply was found to be 100%. Providing food to young children was considered as the yardstick to measure the performance of anganwadies by most of the communities. Regarding the supervision, support from health department, intersectoral coordination and community participation were inadequate in 70%, 70.5%, 80.5% and 81% anganwadi centres respectively which are statistically significant. Similar findings were observed in other studies also (Kullar, 1988; Seema, 2001; Gragnolati *et al*., 2006). Study conducted by Sampath (2010) revealed that only 20% of mothers, 14% of youth, 36% of adolescent girls and 10% of councilors participated in 20-40% of ICDS program.

Educational status and job status of anganwadi workers were the other factors statistically associated with efficiency in the present study. Mismatch in the service delivery and characteristics of anganwadi workers were observed in study conducted by Vadhera *et al.* (1990) and Gupta *et al*. (2005). This mismatch can affect the nutritional status of children as evidenced by the study done by Vasundhara and Harish (1993) and Vijayaraghavan (2002). Qualitative approach will be the ideal method to study the factors affecting the ICDS service delivery. In the present study, quantitative method was used to measure the factors associated with service delivery due to time constraint.

Conclusion

This study explores the efficiency of anganwadi centres in delivering service to beneficiaries. It has shown that more than half of the anganwadi centres are efficient and very few are highly efficient. However, more than one fourth of the anganwadi centres are not efficient in service delivery. This study also delves the factors associated with efficiency of anganwadi centres. It identifies educational status of anganwadi workers, job status, infrastructure facility, logistic facility, supervision, intersectoral coordination, support from health department and community participation are the factors associated with efficiency of anganwadi centres. Anganwadi centres are considered as the best place for children to get good nutrition, health care and formal education economically. However, quality of service still needs to be evaluated. Thus, present study recommends that improvement in anganwadi centre's infrastructures and logistic facilities are inevitable components in delivering services to beneficiary. Yet another factor is the educational qualification of anganwadi worker. For the assessment of growth and minor health issues of the children, anganwadi worker must have basic educational qualification. Lastly, community participation and coordinated work with other departments also help in accomplishing the objectives of ICDS.

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References

1. Datta, S.S., Boratne, A.V., Cherian, J. And Joiu, Y.S. 2010. Performance of anganwadi centres in urban and rural area: A facility survey in coastal South India. *Ind. J. Mater. Child Health*. 12(4): 1-9.
2. Gragnolati, M., Bredenkamp, C., Gupta, M.D., Lee, Y.K. and Shekar, M. 2006. ICDS and persistent under-nutrition strategies to enhance the impact. *Econom. Political Weekly.* 41(12): 1193-1200.
3. Gupta, D., Lokshin, M.M. and Ivaschenko, O. 2005. Improving child nutrition: The integrated child development services in India. *Develop. Change*. 36: 613-640.
4. Kullar, V. 1998. Integrated child development services: A critique of evaluation techniques. *Econom. Political Weekly.* 33(10): 537-545.
5. Lancet. 1983. A coordinated approach to children's health in India. Progress report after five years (1975-1980), 15(831): 109-111.
6. National institute of public cooperation and child development. 1998. Involvement of voluntary organization in implementation of ICDS–A workshop report, New Delhi.
7. National institute of public cooperation and child development. 2006. Three decades of ICDS–An appraisal. New Delhi National Institute of Public Cooperation and Child development, 2006.
8. Park, K. 2013. Park's Text book of Preventive and Social Medicine. M/s Banarsidas bhanot Publishers, Jabalpur, India. 22nd Edition, pp.546-547.
9. Sampath, T. 2010. A study on community participation in integrated child development scheme in Chennai. Research abstracts on ICDS, 1998-2009.
10. Seema, T.N. 2001. Performance of Anganwadi Centres in Kerala: An evaluation and experiment to develop a model centre with community participation. Discussion paper No. 28, 2001. Kerala research programme on local level development studies, Thiruvananthapuram, ISBN no.81-87621-30-3.
11. Tandon, B.N. 1992. Immunization coverage in India for areas served by the integrated child development services programme. *Bull. WHO.* 70(4): 461-465.
12. Vadhera, K.K. *et al.* 1990. A study of beneficial impact of non-formal preschool education component of ICDS on various psycho-social developmental parameters of children-Central Technical Committee, Department of Gastroenterology and HNU, All India Institute of Medical Sciences, New Delhi.
13. Vasundhara, M.K. and Harish, B.N. 1993. Nutrition and health education through ICDS. *Ind. J. Maternal Child Health*. 4: 25-26.
14. Vijayaraghavan, K. 2002. Control of micronutrient deficiencies in India: Obstacles and strategies. Nutrit. Rev. 60: 73-76.