

Original Research Article

Assessment of gaps of knowledge and practices of frontline community workers in Chandragiri Mandal, Chittoor district, Andhra Pradesh: maternal and child health services

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ABSTRACT

Background: The undernutrition status among the vulnerable groups in rural areas still persists, despite provision of Anganwadi services in villages. Assessment knowledge and practices about maternal and child health services of frontline workers, will identify knowledge and implementation gaps. Objective was to assess the knowledge, attitude and practices of community health workers of maternal and child health services for identifying gaps for designing and implementing intervention.

Methods: In this community based prospective, pre and post intervention-based study, Knowledge, Attitude and Practices (KAP) of the community health workers, in 16 villages and 13 Anganwadi centres of Chandragiri Mandal, Chittoor district, Andhra Pradesh about maternal and child health services were collected. The basic infrastructure of the anganwadis and health centres of Auxiliary nurse midwives were assessed using a prevalidated survey instrument. Descriptive analysis was used.

Results: The knowledge of antenatal and postnatal care was least among Anganwadi workers. Awareness regarding need of colostrum feeding was high in AWW compared to ASHA. ANM and AWW had lesser knowledge about duration of the exclusive breast feeding to the infant. Only 57.1% of ANM had sufficient knowledge about protein energy malnutrition consequences. AWW, ASHA did not have knowledge of vitamin A deficiency signs and symptoms although providing massive dose of vitamin A to children. ASHAs did not have awareness about anaemia and the knowledge was below 50% in ANMs.

Conclusions: The study emphasizes the need for proper training with interactive sessions to these frontline workers, which will enhance their knowledge and skills for provision of quality services.

Keywords: Anganwadi workers, ASHA workers, ANM, ICDS, KAP

INTRODUCTION

Nutritional status is one of the key indicators of the health of a child. Healthy children are the future of a nation, and play a pivotal role in the economic development and productivity of a country. Malnutrition, including under-

nutrition has been declared as a 'silent emergency' by the United Nations Children's Fund (UNICEF), as it is an outcome of provision of quality maternal health services.^{1,2} Multipurpose Community Health Workers (CHWs) were recruited by Government of India and State Government for provision of maternal and child health,

health education and other services at community level. Anganwadi worker (AWW), Auxiliary Nurse Midwife (ANM) and Accredited Social Health Activists (ASHA) are the frontline team in the community for provision of services. They provide services by conducting home visits and from fixed-site facilities. An AWW plays an important role as a mediator of social change, mobilizing community support for better care of young children, girls and women.^{3,4} They monitor, organize supplementary feeding to promote the growth of children, provide vitamin A, iron and folic acid supplements, assist in organizing immunization sessions, and refer cases for medical services. ANMs are important field level health staff under the Ministry of Health and Family Welfare (MoHFW) responsible for delivering client centered, need based, and demand driven services at the doorstep of community. The services of ANMs include counselling services to pregnant and postpartum mothers, preparation of mothers for birthing, immunization and encouraging utilization of family planning services.⁵⁻¹¹

ASHA is a trained female community health volunteer recruited under National Health Mission (NHM). An ASHA is typically selected by the community and serves a population of approximately 1000 people in her own village. ASHA workers get fixed activity-based incentives instead of wages. They organize the participation of community towards increased utilization and accountability of the existing health services. The responsibilities of ASHA workers include survey of health and related events, community sensitization of Government programmes, counselling, provision of drugs for infectious diseases, community mobilization, health planning, participation in community health and allied activities, logistic services (ante and post-natal care, institutional delivery, immunization, diabetes test, family planning).¹²⁻¹⁹

Anganwadi centre is the nodal point for Integrated Child Development Services (ICDS) delivery. The undernutrition status among the vulnerable groups of under-five year children, adolescent girls and pregnant and lactating mothers still persists, despite provision of anganwadi services in the villages. There is very limited data on the barriers for provision of quality services at anganwadi centres of Andhra Pradesh. Considering AWW, ASHA and ANMs are the frontline workers, assessment of their knowledge regarding maternal and child health services will identify knowledge and implementation gaps, and addressing it by appropriate training to provide better services to the beneficiaries. In this milieu, the current study intended to assess the knowledge, attitude and practices of community health workers of maternal and child health services and also to identify gaps for designing and implementing intervention. The findings of the formative research will be taken into consideration for appropriate intervention strategies to enhance the KAP of community health care workers.

METHODS

A community based prospective, pre and post intervention-based study was conducted among community health workers from June 2016 to August 2017 in 16 villages and 13 anganwadi centres of Chandragiri Mandal, Chittoor district, Andhra Pradesh, India. Ethical clearance was obtained from the Institutional Ethics Committee of Sri Venkateswara Medical College, Tirupati, Andhra Pradesh, India. Permission was obtained from the Child Development Project Officer (CDPO) at Chandragiri for carrying out the study. The objective and purpose of the study was explained and fully informed written informed consent was obtained from AWWs, ASHAs and ANMs belong to the respective villages. The study was carried out with their consent and cooperation. Data was collected by visiting the anganwadi centres between 9 am to 2 pm during 2016-2017. The basic infrastructure of the anganwadis and health centres of ANMs was assessed using a prevalidated survey instrument. Knowledge, Attitude and Practices (KAP) of the AWWs, ANMs and ASHAs about existing National Nutrition programmes; antenatal, intranatal and postnatal care; awareness about anaemia and vitamin A supplementation; growth monitoring and immunization practices; and details of their training programs was collected.

Statistical analysis

Descriptive analysis was carried out to determine the KAP of community health workers of antenatal care (ANC) services such as adequate knowledge, consumption of iron folic acids, immunization practices, requirement of extra calories during pregnancy; intranatal care (INC) knowledge details such as delivery care, cleanliness measures to be taken during delivery; and postnatal care (PNC) services knowledge such as birth weight, breast feeding and complimentary feeding practices; knowledge about growth charts and nutritional programs implemented by government of India. The analysis was carried out using SPSS version 17.0 (SPSS Inc., Chicago, IL, USA).

RESULTS

Table 1 reveals the knowledge of ANC in AWW, ASHA and ANMs. The proportion of adequate knowledge of ANC was high in ANMs and lowest in AWW. Compared to ANMs all ASHA workers have sufficient knowledge on registration of ANC at 1st trimester, on the contrary all ANMs revealed that pregnant women should have at least 4 ANC visits. The response about consumption of IFA supplements was high in ASHA and ANMs. All AWW and ASHAs said that TT immunization is required for pregnant women, however, the awareness regarding provision of TT immunization soon after ANC registration is high in ASHAs and ANMs.

Table 1: Knowledge distribution of ANC in ASHA, ANM, and AWW.

Knowledge distribution	ASHA (n=11)	ANM (n=7)	AWW (n=13)
Adequate knowledge of ANC*	36.4	57.1	7.7
Scored responses of ANC			
Registration of ANC at 1st trimester	100.0	85.7	–
At least 4 ANC Visits	81.8	100.0	–
> 100 IFA tablets	72.7	71.4	61.5
Required Immunization (TT)	100.0	–	100
TT soon after ANC registration	63.6	85.7	7.7
TT during pregnancy (2)	90.9	–	–
Extra calories during pregnancy (350 Kcal)	Nil	Nil	–
7 to 13 Kg is usual weight gain during pregnancy	45.5	100.0	–

Values are proportions; *Adequate knowledge means to acquire ≥ 80% of the total score

Table 2: Knowledge distribution of delivery care and PNC in ASHA, ANM, and AWW.

Knowledge distribution	ASHA (n=11)	ANM (n=7)	AWW (n=13)
Adequate knowledge of Delivery care and PNC*	54.5	100	76.9
Scored responses of Delivery care and PNC			
Clean components utilized during delivery	18.2	85.7	–
Low birth weight (< 2.5 kg)	81.8	100.0	–
Breast feeding initiation (< 1Hr)	100.0	100.0	–
Colostrum awareness	72.7	–	76.9
Exclusive Breast feed (up to 6 months)	100.0	57.1	92.3
Initiation of Complementary feeding	81.8	100.0	–

Values are proportions. *Adequate knowledge means to acquire ≥ 80% of the total score

Both ASHAs and ANMs don't know about need for extra calories during pregnancy. ANMs have sufficient knowledge about usual weight gain during pregnancy and the knowledge is below 50% in ASHAs. Data presented in Table 2 depicts that all ANMs had sufficient knowledge about delivery and postnatal care (PNC) while it was lesser in AWW followed by ASHA. The components of delivery and postnatal care (PNC) included knowledge regarding hygienic practices during delivery, low birth weight and breast-feeding practices. Response about utilization of clean components at the time of delivery was much higher in ANMs compared to ASHA and all ANM's had sufficient knowledge regarding low birth weight. All ASHA and ANMs expressed that breast feeding is to be initiated within 1 hour of delivery. Awareness of need of colostrum feed to the new-born was high in AWW compared to ASHA. Majority of ASHAs and AWW workers had an opinion that colostrum is nutritious and it protects the child from infections; however, the latter opinion was very minimal and majority knew only about the nutritious value of colostrum. All ASHAs said that exclusive breast feeding should be provided up to 6 months (180 days), however, the knowledge was least in ANMs compared to AWWs. All ANMs answered that complementary feeding of children has to be initiated soon after 6 months age. Only 57.1% of ANM had sufficient knowledge about protein

energy malnutrition consequences such as marasmus, kwashiorkor and underweight (Figure 1).

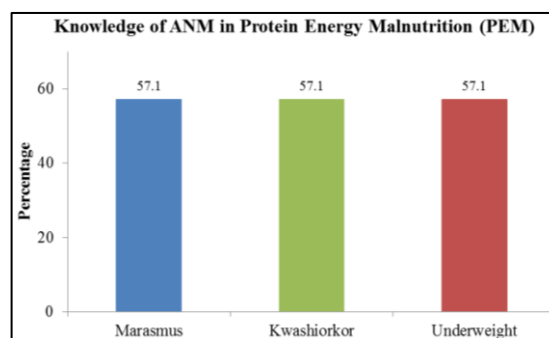


Figure 1: Knowledge of ANM in Protein Energy Malnutrition.

Figure. 2 shows that 69.2% AWW had awareness regarding growth monitoring chart but only 46.2% had knowledge of plotting of growth chart, and 6.9% regarding appropriate referral of severe undernourished children to nutritional rehabilitation centre (NRC). The components of growth monitoring purpose include assessment of nutritional status of children, early detection of growth faltering and identification of at-risk children, educating mothers regarding nutritional status of their children, grading the children to fix the quantity of

supplementation, referring the severely undernourished children.

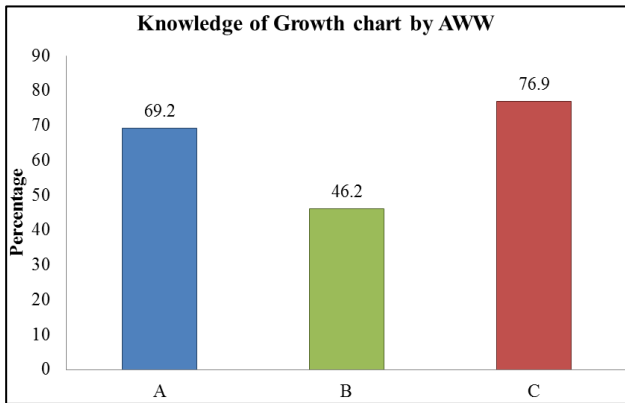


Figure 2: Knowledge of growth chart by AWW.

A: Awareness of growth monitoring chart; B: Knowledge of detection of undernutrition by Growth Monitoring chart, C: Appropriate referral of severe undernourished children

Majority of ASHA and AWWs revealed that the feedback is not being given from health functionaries about referrals, however, most of the ANMs said that the verbal feedback was provided during visits and meetings.

Both AWW and ASHA do not have knowledge of vitamin A deficiency signs and symptoms and only 57.1% of ANMs had knowledge of the same (Figure 3). All these frontline workers had sufficient awareness of massive dosage of vitamin A programme and all ANMs had knowledge of half-yearly schedule of massive dosage of vitamin A.

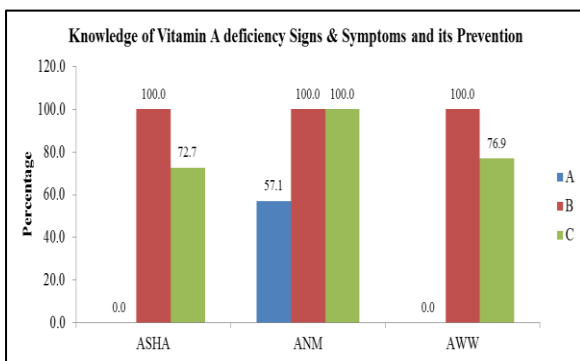


Figure 3: Knowledge of vitamin A deficiency sign and symptoms and its preventions.

A: Knowledge of vitamin A deficiency signs and symptoms (Night Blindness and Bitot’s Spot); B: Awareness of GOI program of massive dosage of vitamin A.; C: Knowledge of half-yearly schedule of massive dosage of vitamin A.

Although all these frontline workers in villages had awareness about anaemia, knowledge about symptoms of anaemia such as weakness, pallor, pedal edema breathlessness and loss of appetite was only 42% in ANMs and 7.7% in AWW while ASHAs did not have any awareness (Figure 4).

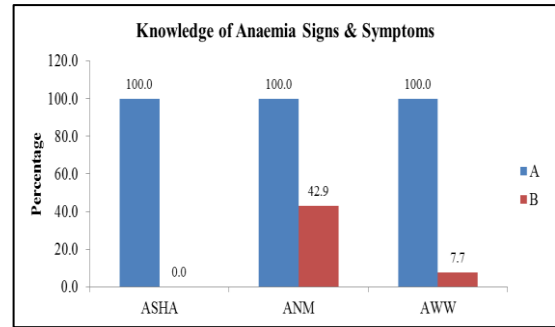


Figure 4: Knowledge of anaemia signs and symptoms.

A: Awareness about Anaemia., B: Knowledge of anaemia signs and symptoms (Weakness, Pallor, and Loss of Appetite).

DISCUSSION

ICDS is a flagship scheme of Government of India launched on 2nd October 1975 for provision of maternal and child health services. The objectives of the scheme are providing supplementary nutrition to families to fill the gap between RDA and RDI, teaching and caring of pre-school children, educating women, mothers and families about extra calories and essential micronutrient required during pregnancy and lactation, health and hygiene practices, provision of immunization services to under-five children, monitoring of weight gain during pregnancy and growth of under-five children, and referral of undernourished child to nutritional rehabilitation centre (NRC), children prone to acute respiratory tract infection, acute diarrhoea etc., to nearest primary health centres.

Our study intended to assess the frontline health workers at the community (AWW, ASHA and ANM) and their knowledge of implementation of these practices. Our results show that most of ASHA and ANM had knowledge regarding registration of pregnancy for antenatal check-up at 1st trimester; minimum of four ANC check-ups and immunization schedule. Knowledge of first dose of TT injection after ANC registration was high among ANM (86%), moderate among ASHA (64%) and low among AWW (8%), While knowledge of AWW in urban blocks of Odisha was 30%.²⁰ These findings in our study are lower than that reported by Baliga et al who revealed that 88.16% of AWW in Belagavi, Karnataka, India had knowledge on immunization and supplementary nutrition.²¹ The present study showed that knowledge about requirement of immunization during ANC was 100%. However, knowledge regarding time of first dose of immunization was only 8% among AWW and the results are comparable with Parmar et al., study.²⁰ Our study findings show that ASHA and ANM had no knowledge of the additional calorie requirement during pregnancy and this in turn reflects on the quality of health education imparted to the mothers.

Knowledge of ‘5 cleans’ during delivery was low in ASHA workers (18.2%) and adequate in ANM workers (85.7%). It implies poor knowledge of ASHA for birth

planning and preparation of mothers. Knowledge of infant and young child feeding practices of community workers reveal ASHA had adequate knowledge of breast feeding within 1 hour of birth and exclusive breast feeding, while ANM had adequate knowledge of initiation of breast feeding but inadequate knowledge of exclusive breast feeding. However, both had adequate knowledge of initiation of complementary feeding to the child. Awareness of importance and duration of colostrum feeding is marginal in ASHA (72%) and AWW (77%). Our findings corroborate with another studies from South India.²²⁻²⁴ Therefore, improving the knowledge of ICDS workers will improve the Infant and Young Child Feeding (IYCF) practices of lactating women.²⁵ Knowledge of awareness and utilization of growth monitoring chart for detection of undernutrition, signs of nutritional deficiency are poor among AWW. Baliga et al at Belagavi, Karnataka, India reported the knowledge about non-formal pre-school education and growth monitoring among AWW was 84%.²⁴ In the current study, the knowledge among AWW was 69.2%.

Anganwadi centre is a nodal point for the delivery of ICDS programme service and the ANM, ASHA, and AWW together constitute the frontline workers of a village health and sanitation. Poor and inadequate infrastructure was observed in few anganwadi centres and this can lead to several challenges in the delivery of ICDS services. Lack of proper training for most of the ASHAs was identified in the study and providing the same will enhance their work efficiency towards the improvement of village health and ICDS services.

Knowledge of IYCF practices of ICDS workers and functionaries has improved but knowledge, skills and practices for growth monitoring of under-five children, general health check-up and pre-school education is lacking. Therefore, Government should invest to actively engage the field staff of ICDS with the communities by launching innovative programs for training, periodic monitoring and evaluation of their practices to attain the overall objectives of the scheme.

Under nutrition arises due to the insufficient food intake than required for proper growth, maintenance and development of the body. Being a national programme, ICDS provides a package of service for children, pregnant women and lactating mothers. Gaps related to implementation of the programme lead to issues in quality and acceptability of nutritional supplements. Using current knowledge and evidence-based research on healthy and value-added foods by providing supplementation the nutritional status of the children and their mothers can be improved. The yield of ICDS scheme is depended on AWW profile such as her qualification, experience, skills, attitude, training provided etc.⁴

ASHAs symbolize to address the Millennium Development Goals on health-related indicators. They

also play a central role in achieving national health and population policy goal by creating awareness on health and its determinants. Being the grass root level workers, the performance ability of ASHAs, leads to the success of NRHM in India.²⁶

CONCLUSION

The findings of the study reinforce the need for proper training with interactive sessions, which will enhance the knowledge and skills of AWW, ASHA and ANMs for quality provision of services.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Saluja N, Garg S, Chopra H. Prevalence of morbidity and morbidity pattern in school children (5-11 yrs) in urban area of Meerut. *Int J Epidemiol*. 2011;9(2):1-5.
2. Bellamy C. The State of the World's Children 1998: Focus on Nutrition. UNICEF, UNICEF House, 3 UN Plaza, New York, NY 10017; World Wide Web. Available at <http://www.unicef.org>. Accessed on 30 August 2020.
3. ICDS. Available at <http://www.icds-wcd.nic.in/icdsteam.aspx>. Accessed on 20 October 2020.
4. Meenal TM, Kurll BM, Doibale MK, Naveen GK. Knowledge of Anganwadi workers and their problems in an urban ICDS block. *J Med College Chandigarh*. 2011;1(1):15-9.
5. Agrawal PK, Agrawal S, Ahmed S, Darmstadt GL, Williams EK, Rosen HE, et al. Effect of knowledge of community health workers on essential newborn health care: a study from rural India. *Health Policy Planning*. 2011;27(2):115-26.
6. Tandon BN, Ramachandran K, Bhatnagar S. Integrated child development service in India: evaluation of the delivery of nutrition and health services and the effect on the nutritional status of the children. *Indian J Med Res*. 1981;73:385-94.
7. Nanda P. Female health workers--responsibilities and constraints. *Health for the millions*. 1993;1(1):25-6.
8. Avsm YS, Gandhi N, Tandon BN, Krishnamurthy KS. Integrated child development services scheme

- and nutritional status of Indian children. *J Tropical Pediatr*. 1995;41(2):123-8.
9. Government of India. 1995. *Integrated Child Development Services*. New Delhi: Department of Women and Child Development, Ministry of Human Resources Development:1-24.
 10. Bhattacharyya K, Winch P, Karen LB, Tien M. 2001. *Community health worker incentives and disincentives: how they affect motivation, retention, and sustainability*. Arlington, VA: Basic Support for Institutionalizing Child Survival Project (BASICS II) for the United States Agency for International Development. October.
 11. Ghosh N, Chakrabarti I. Performance and satisfaction of auxiliary nurse midwives at the sub-centre level in two blocks of Darjeeling District, West Bengal, India. *IOSR J Dental Med Sci*. 2015;14(4):111-6.
 12. Communicatio with asha. Available at <http://nhm.gov.in/communitisation/asha/about-asha.html>. Accessed on 12 September 2020.
 13. Karol GS, Pattanaik BK. Community health workers and reproductive and child health care: an evaluative study on knowledge and motivation of ASHA (Accredited Social Health Activist) workers in Rajasthan, India. *Int J Humanities Social Sci*. 2014;4(9):137-50.
 14. Bajpai N. Accredited social health activist (ASHA) guidelines, National Rural Health Mission. New Delhi: Ministry of Health and Family Welfare, Government of India. 2005.
 15. IFPS Technical Project (2012). *Community based Workers Improving Health Outcomes in Uttarkhand, India*”, IFPS Technical Assistance Project, USAID.
 16. Bajpai N, Dholakia RH. *Improving the performance of accredited social health activists in India*. Mumbai: Columbia Global Centres South Asia. 2011.
 17. Joshi SR, George M. Healthcare through community participation: role of ASHAs. *Economic Political Weekly*. 2012:70-6.
 18. MOHFW. *Indian Public Health Standards, Guidelines for Community Health Centre*, Ministry of Health and Family Welfare, Government of India, New Delhi. 2006.
 19. SIFPSA: Report on Evaluation of ASHA Scheme under NRHM in Uttar Pradesh, VIMARSH, Uttar Pradesh. 2013.
 20. Parmar M, Patel S, Rathod S, Patel N, Ninama K. Knowledge of anganwadi worker about integrated child development services (ICDS): a study of urban blocks in Ahmedabad district of Gujarat. *Int J Multidiscip Res Dev*. 2015;2:170-4.
 21. Baliga SS, Walvekar PR. A study on knowledge of anganwadi workers about integrated child development services at three urban health centres. *Int J Community Med Public Health*. 2017;4(9):3283-7.
 22. Khargekar V, Geethalakshmi RG. A study on the awareness regarding infant and young child feeding (IYCF) practices among anganwadi workers (AWWs) attending anganwadi training centre, davangere. *Indian J Public Health Res Development*. 2015;6(1):174-8.
 23. Chandorkar S, Miyawala T. Assessing gaps in Infant and Young Child Feeding (IYCF) practices and capacity building of functionaries and beneficiaries of Integrated Child Development Services (ICDS) for improved outcomes. *J Nut Res*. 2014 Dec 30;2(1):26-31.
 24. Taksande A, Tiwari S, Kuthe A. Knowledge and attitudes of anganwadi supervisor workers about infant (breastfeeding and complementary) feeding in gondia district. *Indian J Community Med*. 2009;34(3):249-51.
 25. Agrawal PK, Agrawal S, Ahmed S, Darmstadt GL, Williams EK, Rosen HE, et al. Effect of knowledge of community health workers on essential newborn health care: a study from rural India. *Health Policy Planning*. 2011;27(2):115-26.
 26. Abhay MB, Sanjay KV. Strengthening primary health care through Asha Workers: a novel approach in India. *Primary Health Care*. 2014;4(149):2167-79.

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