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A Study to Assess the Functioning of A.N.M. In Relation to Health Care Services Under I.C.D.S. at Anaganwadi Centres of Kolar Taluk, Kolar District

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Need for the study: The services provided by Auxiliary .Nurse .Midwives are considered essential to provide safe and effective care and as a vital resource to achieve the health-related targets in coordination with other health care providers such as Anganwadi Workers., Accredited Social Health Activist workers and Male Health Workers. The present concern in the country is to provide accessible, affordable, accountable, equitable, effective and reliable health care especially to poor and vulnerable sections of population in rural areas. It is therefore necessary to assess the role being played by A.N.Ms in providing health care services at AnganwadiCentres.

Objectives of study: To assess the functioning of A.N.Ms at Anganwadi centers andto identify the problems faced by A.N.Ms while delivering Health services at A.W.Cs

Materials and methods: Study Setting: Anganwadi centres and Sub centres of Kolar Taluk.

Study population: A.N.Ms appointed by the Government of Karnataka and A.W.Ws appointed under Integrated Child Development Scheme in Kolar Taluk. Study Design**:** Cross sectional Study Duration**:** 2 months **Sampling:** In the vicinity of the University, eighteen Panchyaths will be purposeful selected for the study. Twenty Anganwadi centres each from the selected Panchyaths.

Approval for study:

The study was approved by the Institutional Ethical review Committee ,Permission was also obtained for the start of the study from the Deputy Director of Ministry of Women and Child Development, Kolar and also CDPOs of the study Taluk.

The Anganwadi worker will be contacted and requested to participate in the study after obtained her consent. Similarly the auxiliary nurse midwives of the sub enter covering the village to which the Anganwadi centre belongs to will be selected and will be invited to participate in the study after consent. Sample Size**:** 30 ANMs and 295 A.W.Ws in Kolar Taluk, from eighteen panchayaths will be included in the study.

Statistical Analysis: Collected data will be coded and entered into an excel data base. All the quantitative measures will be presented by (Mean ± SD) and confidence interval, qualitative measures by proportions and CI. The significance of differences in proportions was done using Chi-squaretest value < 0.05 was considered to be considered as statistically significant.

Key Words: I.C.D.S, ANM, AWC, SUB CENTER, ASHA

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I. INTRODUCTION

Integrated Child Development Services program (ICDS) is a government sponsored child-care and mother-care development program in India at village level**.** It caters to children in the 0-6 age group, pregnant mother, lactating mother and adolescent girls. Anaganwadi centers were started by the Indian government in 1975 as part of the Integrated Child Development Services program to combat child hunger and malnutrition.[1] An Anaganwadi center provides basic health care facilities in Indian villages, and it is a part of the Indian public health-care system. Basic health-care activities include contraceptive, counseling, nutrition, education and supplementation as well as pre-school activities. The centers may also be used as depots for oral re-hydration salts, basic medicines, contraceptives and child care.[2]Auxiliary has been defined as a technical worker in a certain field with less than full professional training (WHO 1961). Female auxiliary workers newly introduced were termed as Auxiliary Nurse Midwives (ANMs) and were earlier known as Female Multipurpose Health Worker under Multipurpose Health Worker Scheme (MPHW Scheme) launched in 1974 by Karter Singh Committee to ensure essential primary health care services at every corner of the country.[3] A.N.Ms receive a

vocational training of 18 months and subsequently operate from sub centers which are the most peripheral formal health outposts. Catering to 5000 population in plains and 3000 population in hilly, tribal and backward areas they are aided by M.P.H.W. (M), and Accredited Social Health Activists.[4]

Malnutrition among under five children is a chronic problem in developing countries. According to WHO, there are about 10.8 million child deaths a year globally. This number is attributed to iron, vitamin A and zinc deficiencies. Iron deficiency affects 2 billion people which is responsible for one fifth of early neonatal mortality, and kills 80000 people per day(WHO 2017) [4,5].Micronutrient deficiencies damages one third of world population, resulting in 2billion people living below their physical and mental potential [3].In south Asian region, nearly 5million children are dying every year and up to 3million of these deaths are directly or indirectly associated with malnutrition [4].In recognition of the burden of malnutrition among under five children, four of the eight United Nations Millennium Development goals (MDGs) are specifically directed towards improving child health outcomes in developing countries.in particular, a reduction in the mortality of children is a key MDG and a reduction in malnourishment among children is an important indicator of progress towards that goal[5].WHO (2010) states that nutrition is an input to and foundation for health and development [6].The development of any nation depends on the health and well-being of its child population. Therefore, ensuring their healthy growth and development ought to be a prime concern of all societies. The first few years of life is a dynamic phase and is characterized by rapid growth and development. When children do not get the right start, they never catch up or reach their full potential [7].

Every year 12million children in developing countries die before they reach their fifth birth day. Seven in ten of these deaths are due to acute respiratory infections, diarrhoea, measles, malaria or malnutrition or a combination of these conditions [8, 20.] India has the second largest child population in the world. Numbering over 2.2billion worldwide and 263.9million in (IndiaCensus2011)[25] they represent boundless potentials[9] The 158.8million children in the age group of 0-6 years constituting 13.1percent of the total population .The story is not very different .According to the information collected by National Family Health Survey-3 on the prevalence and treatment of these three health problems in children are acute respiratory infection, fever, and diarrhoea[10, 21].

It is well recognised that preschool children are nutritionally vulnerable segment of population in developing countries, also very susceptible to morbidity due to infections. Under nutrition associated with impaired immune function and consequent increased susceptibility to infections aggravate under nutrition, if this vicious circle continues it can result in death of the child. Interactions between nutrient intake, nutritional states and morbidity in preschool children are complex [11]. In the past 20years all over India severe child malnutrition had declined substantially while mild and moderate malnutrition remain wide spread. Data from National Surveys have shown that almost half of children less than five years of age of which 48percent stunted and 43percent are underweight. The proportion of children who are severely undernourished is also notable .24percent are severely stunted and 16percent are severely underweight. Wasting is a quite a serious problem in India, affecting 20percent of children under five years of age. Over all girls and boysabout equally likely to be undernourished[12].

Under nutrition is substantially higher in rural areas then in urban areas. Even in urban areas however, 40percent of children are stunted and 33percent are underweight. Inadequate nutrition is a problem throughout India [13].The nutrition scenario in Karnataka is also a cause for concern compared to other southern states. For example the IMR in Karnataka according to NFHS3 is 43as compared to 30.4 and 15.3in Tamil Nadu and Kerala respectively. The under-five mortality in Karnataka is also much higher than the TN and Kerala. The percentage of under three age stunted children in the state according to the 2015-16 National Family Health Survey NFHS-4 revealed that barely10% of children below two years have an adequate diet, nearly 40% of those under five are stunted and over 35% underweight. Clearly many more than the officially statistics urgently need such interventions. Karnataka Public Health Policy 2017 recommended by the Karnataka Knowledge Commission to follow the norms of the Indian Public Health Standards. Similarly 70.4percent children fewer than six years are anaemic which a matter of great concern demanding urgent action. These reports also reveals that rural preschool children have more difficulty in coming out of under nutrition trap when they enter in to the stages of adolescent and adulthood in contrast to the urban children. Several previous studies concluded prevalence of large disparities in district wise analysis of child nutritional status in Karnataka[14,29,30].

Historical aspects and Evolution of the ANM's role

Maternal care laid emphasis on antenatal care (ANC) and delivery. Most ANMs were required to stay at the sub centre village and conduct deliveries. There were few private health facilities in rural areas. It was mandatory for an ANM to stay at the headquarter village. This requirement was strictly enforced by the medical officers and district health officers [15, 16, 18.].

The immunization, family planning and infectious diseases prevention activities require the field worker to travel to villages to cover the target population and this reduced the time she spends at the

headquarters[22]. Targets given for family planning and immunization led to improved accountability to these activities and neglect of emergency services such as delivery care. Her activities for maternal and child health are limited to distribution of iron folic acid tablets and immunization to mothers and children [17,19].

Under National Rural Health Mission (NRHM), there is provision for additional ANM for sub centre to provide delivery care and curative services. However, about 55% of the sub centres do not have own building and 78% do not have tap water. In absence of such basic facilities it is not possible to provide ANC and delivery care. Before increasing the number of field functionaries there is a need to improve management of human resources, logistics and infrastructure. Unless India learns from failures of past programs, it is not possible for ANMs to revert to the role of comprehensive RCH service provider [20, 21]. The Government is increasing the density of ANMs from 1 to 2 per 5000 population in difficult areas. This would only help if it is ensured that this new ANM is staying in the SC village and has the confidence and competence to attend to deliveries and other emergencies. As seen in the past that in spite of the rapid increase in the number of ANMs in the last 30 years, the indicator on safe delivery does not show corresponding increase [22, 23]. Instead of increasing staff what is required is to improve the performance of the PHC system. Improving the skills of the ANM through training and support through supervision is equally important[24].

The services provided by A.N.Ms are considered essential to provide safe and effective care and as a vital resource to achieve the health-related targets in coordination with other health care providers such as A.W.Ws, A.S.H.A. workers and Male Health Worker [25]. The present concern in the country is to provide accessible, affordable, accountable, equitable, effective and reliable health care, especially to poor and vulnerable sections of population in rural areas. It is therefore necessary to assess the role being played by A.N.Ms in providing health care services at Anganwadi [26].

Table 1: Demographic profile of ANMs studied in Kolar

Demographic profile	N = 33 (%)	Chi-square Value	P Value
Age			
24-35	15(45.5)	9.061	0.028*
36-45	4(12.1)		
46-55	9(27.2)		
>56	5(15.1)		
Marital status		16.54	<0.001**
Married	22(66.6)		
Unmarried	6(18.1)		
Widow	5(15.1)		
Educational background			
10thStd	15(45.4)	14.88	0.002**
Plus two	12 (36.3)		
Degree	5(15.1)		
BHE	1(3)		
At present ANMs are working in the S.C. Centre			
0 – 1 yr	10 (30.3)	0.545	0.761
1 – 10 yrs	13 (39.3)		
11 -20 yrs	5 (15.1)		
>20 yrs	5 (15.1)		
Years of work(AWW)			
1 to 5 years	70(23.7)	139.90	0.001
6 to 10 years	58(19.7)		
11 to 15 years	11(3.7)		
16 to 20 years	41(13.9)		
21 to 25 years	106(35.9)		
> 25 years	9(3.1)		

Table1. Study shows that the age distribution of Auxiliary Nurse Midwife, the age of women in the24-35 years are 15, (45.5) is the highest majority of the as per our study. ANMs should be in this age group. The distribution of number of ANM in different age group was observed to statistically significant. (χ^2=9.061, P=0.028). Educational Background reveals that of the ANMs 45.4percent studied up to tenth

standard,36.3percent are plus two. The distribution of number of ANM with different education background was observed to highly statistically significant.($\varkappa^2$=14.88, P=0.002).

39.3percent ANMS are working since ten years in the working centre. All 33 ANMs had received the ANM training from government training institute. The above table shows that the numbers of years of service of the ANMs in the Sub Center.13 ANMs are 10 years of long duration, 5 ANMs working in the Sub enter from past 20 years. 10 ANMs are newly appointed by the District health Office The above table shows that the 66.6percent ANMs are married, 18.1percent unmarried, and 15.1percent are widow.This difference in proportions of ANM with different marital status background was highly statistically significant.($\varkappa^2$=16.54,P=0.002).The average experience of Anaganwadi workers was observed to be (13.89± 2.56).The differences in level of experience among AWW was statistically significant.($\varkappa^2$=139.90,P<0.001).

Table 2: Residential status of ANMs

Residence of ANM and some difficulties	(n =33)	Chi-square Value	P Value
Residing in the Sub centre/work station	5(15.1)	16.03	.0001**
Not Residing	28(84.8)		
Reason for not residing in the SC quarters.			
Reasons for child's education	5(15.1)	3.97	0.265
SC Building under repair	12(36.3)		
No facilities for residing	6(18)		
Not fit for residing	10(30.3)		
Some of the difficulties faced by the ANM ANM to their field visit.			
Bus facilities	13(39.3)	15.7	< 0.001**
Facilities in the SC	5(15.1)		
AWW cooperation	23(69.6)		
ASHA Cooperation	25(75.7)		

Table 3: Travelling information of ANMs of Kolar

Travel information of ANMs	N =33 (%)	Chi-square Value	P Value
Transport used to visit the village under Sub center			
Bus	13(39.3)	0.545	0.761
Auto	10(30.3)		
Two wheeler	5(15.1)		
Walk	5(15.1)		
Distance of the sub centre from the home of ANM			
Village	3(9.0)	22.09	0.001
0-10 km	10(30.3)		
10-20 km	10(30.3)		
> 21 km	10(30.3)		
Mode of carrying vaccines from PHC to SC		7.20	0.027
Bus	4(12.1)		
Auto	16 (48.4)		
Two wheeler	5 (15.1)		
Walk	5 (15.1)		
Distance from residing village (ANMs) to working SC centre			
In the village	3 (9.0)	5.42	0.143
0-10 km	10 (30.3)		
10-20 km	12 (36.3)		
> 21 km	8 (24.2)		

The Sub centre is to be provided by the Panchyaths in centres and the population covers within 3000-5000.The ANMs are residing in the different places.10 ANMs are travelling from 10-20 km and 10 ANMs are travelling beyond 20 km to reach the working sub centre.

Transport to reach the ANMs from their village to the SC the above table 3 shows that the ANMs are using different type of transport to reach the Sub Centre. 39.3 percent of ANMs are using the bus to reach the village, 15.2percent of ANMs by walk. The difference observed in different transportations availed by ANMs was not statistically significant. (χ^2=0.545,P=0.761).

Table 3 shows that the 36.3 present of ANMs are travelling from their village to the Sub Centre every day, only 9presentof ANMs are residing in their village. The range of the distance travelled by ANMs on an average from the sub centre was 15 KMs. The main mode of transport used to carry vaccine was auto which is significantly different from other mode of transport.(χ^2=7.20,P=0.027**).

Table 4 Mode of travelling of ANMs at Kolar

Type of transport to Reaching the SC to villages	N =33 (%)	Chi-square Value	P Value
Bus	4 (12.1)	5.90	0.116
Auto	10 (30.3)		
2 wheeler	6 (18.1)		
Walk	13 (13.3)		
Reason for not residing in the Sub centre quarters.			
For child's education	5(15.1)	3.97	0.265
SC Building under repair	12(36.3)		
No facilities for residing	6(18.1)		
Not fit for residing	10(30.3)		
Distance of km from the PHC to SC			
0 KM	6(18.1)	7.60	0.055
1-5 km	15(45.5)		
6-10 km	7(21.2)		
11-15 km	5(15.1)		
Mode of carrying vaccines from PHC to SC			
Bus	4(12.1)	7.20	0.027*
Auto	16 (48.4)		
2 wheeler	5 (15.1)		
Walk	5 (15.1)		

The salient features of Table 4 is briefly explained below

The table 4 shows that the ANMs are use different type of transport to reach the village from Sub Centre. 30.3 percent of ANMs are used the auto to reach the village, 13.1percent of ANMs are go by walk. Proportion of ANMs using use different type of transport to reach the village from Sub Centre was not statistically significant (P=0.116)

Further we can find that of our sample study out of 33 ANMs only 15.2(table 2) percent are residing in the Sub centre quarters. The above table reproduces the ANMs are not residing in the quarters because of buildings are under repair36.3 (table 4). Proportion of ANMs giving various reason for not residing in the Sub centrewas not statistically significantly different(P=0.265).

The details about the distance of kilometre, ANMs reach from the Primary Health Centre to the Sub centre are also reflected. The average distance from PHC to sub centre from which ANMs travelling was 5.62 KMs.

The mode of carrying different types of vaccines by ANMs is understandable 48.4percent ANMs have used the auto to carry vaccines and 15.5 by walk!.This difference observed in using different modes of transport for carrying vaccines was statistically significant. (χ^2=7.20, P=0.027)

The above table explains that only 12.1ANMs are using bus facilities to reach concerned sub center a and remaining 20 ANMs have expressed their difficulty to reach Sub-center.23 Anganwadi workers are giving good cooperation with ANMs while 25 ASHAs expressed their commitment to their health activates [1, 427,,19]. The communities are divided on lines of caste, gender, and socioeconomic status. Income opportunities are few and there is widespread poverty as evidenced by the fact that almost 60% of the district population lives below poverty line. We hypothesized that the decision of an ANM to reside in her work area is dependent on her interaction with the environment and the system. "Environment" includes the physical environment as well as social environment of her work area. The support that the health department provides her and the accountability that it enforces on its workers to reside also determines their performance. Response of an ANM to the environment and the system would be dependent on her personal needs and support systems. We collected

secondary information on the physical environment of place of posting of all the ANMs of the sampled area/blocks, such as availability of electricity, water, and schools. In the second phase, ANMs attending their work at their Anganwadi centers of PHCs and PHU areas were requested to fill a written, confidential questionnaire after taking their consent. In this phase, information was collected on individual factors that could affect their place of residence, such as socioeconomic background, availability of family support, needs for healthcare, etc. This was aimed to understand how various personal, environmental, and systemic circumstances affect the decision regarding the place of stay. For this qualitative phase, thirty three ANMs were randomly selected from the sixty-five ANMs who were residing within their work area. While 15.2 percent of the ANMs lived in the sub center area, others commuted to their place of work. They resided either in another village (84.8%) or in a town [2627, 28 29,.]

Physical and social environment amenities:

Availability and quality presence of amenities within the sub-center area such as electrification, presence of tap water or road were significantly associated with residential status of the ANMs. Whether or not the sub-center had living quarters also did not make a difference to their place of stay. Larger proportion of ANMs however stayed in sub-center areas where living quarters were located in the center of the village, than in those where they were remote. Poor quality of accommodation possibly does not make living any easier than not having any living quarters. During in-depth interviews most ANMs, irrespective of residential status, referred to poor quality of sub-center accommodation and lack of amenities. Many non-resident ANMs cited these difficulties as reasons for not staying in the sub-center village. In face of the difficulties posed by lack of amenities and infrastructure, husband's place of residence and relationship with the community became an important consideration in deciding where to stay. Analysis revealed that distance from the district headquarters significantly influenced the decision to reside in the sub-center area: the nearer an ANM is posted to the district headquarters, more likely she is to reside in the town In-depth interviews helped explain these findings: proximity to the town made it easier for them to commute to their place of work—commuting from a shorter distance entails less cost in terms of time, money, and energy [19, 20].

The analysis shows that the role of ANMs has changed from a midwife whose main job was to deliver babies and maternal and child health care to a paramedical whose activities are limited to FP, immunization and superficial antenatal care. Large numbers of the ANMs do not stay at the sub-center villages and so are available only for 3-5 hours a day. They are not easily accessible to the community in emergency such as delivery as they visit assigned villages and are busy with other administrative work. The social and political factors have supported the ANM's decision of not staying at their assigned villages. The central and state governments and international agencies have focused on FP and Immunization thereby neglecting maternal health especially the midwifery role of the ANMs [21, 22.]

Some of the difficulties faced by the ANMs to their field visit: Only 39.3perceent of ANMs are getting bus facilities while 15.1percent of sub centers have normal facilities. Only 69.6percent of AWW are cooperating with ANMs. 75.7percent of ASHS extend satisfactory cooperation in the village with ANMs.30.3percent of ANMs travelling the distance of ten kilometers, 39.3percent (table 3)ANMs use the bus to reach the Sub center, 30.3ANMS used the Auto for reaching the working center, and 15.1percent of ANMs go by walk to reach the Sub center. ANMs travelling Everyday more than 20kilometers (24.2) travel from village to sub center (table 3). The mode of carrying vaccines from the PHC to the Sub center is using Bus, auto, two-wheeler and by walk, 48.4percent of Auxiliary Nurse Midwife used autos to carry the vaccines from to the PHC[13].

ANMs are the key health field level functionaries entrusted with responsibility of delivering need based, client centered, and demand driven services at the doorstep of community. From the findings of the study it may be concluded that identified core activities were performed by ANMs. However there was variation in their performance grading as all the activities were not performed uniformly. Dissatisfaction among ANMs exists in certain areas related to their jobs like pay-scale, workload, personal satisfaction and training received irrespective of the geographical location of their designated sub-centers in plains of hilly areas. Health planners and policy makers may ensure productive outcome of health workforce by addressing the areas of dissatisfaction with appropriate interventions [9].

The framework presented above suggests the need to have a comprehensive strategy to ensure that ANMs reside in the work area: any such strategy should act both on increasing the ease (making living more comfortable) and in enforcing accountability (decreasing the inconvenience). There is an urgent need to have a comprehensive human resource policy for the health sector that explicitly lays down the roles of the ANM if the goal of decreasing maternal mortality mentioned in various plan documents of Government of India have to be met. The priority will have to change from FP and Immunization to comprehensive reproductive health including maternal and neonatal care and women's health such as RTI/STDs. These changes will require sustained and careful planning/resource allocation. Pouring in more resources without simultaneous systemic reforms will not lead to improved health status for women and children who are the focus of RCH. Combined

efforts of government, International agencies and non-government agencies are essential to improve performance of ANM and reduce maternal mortality in India. Developing countries like Sri Lanka and Malaysia have reduced MMR significantly by ensuring universal access to skilled birth attendance [18]

II. CONCLUSION

The analysis of maternal health services and outcomes focuses on the need for quality services; for which, availability of adequate and appropriate human resources is a critical pre-requisite. Diverse viewpoints have been accepted, appreciated, and experimented to meet these. The acceptance of ANMs in the health system and the current promotion of institutional delivery represent polar positions of sorts. While Janani Suraksha Yojana has been able to increase the rate of institutional delivery, with monetary incentives (both for beneficiaries and service providers) playing a pivotal role, critical in most of the high-focus states of India, the rate of institutional delivery is low among rural and marginalized populations and MMR is double the national average The health system still lacks services and infrastructure to meet the increasing load in the health centers. Reviews of JSY have revealed the absence of corresponding inputs for human resources, additional labor rooms, and post-natal beds, drugs and other supplies in most institutions. Our reach and effectiveness of rural health services are still not optimum and continue to be deficient in quality. With two-thirds of the population residing in rural areas, it is not possible that all normal births be attended by doctors and gynecologists given the shortage and the unwillingness to be placed in rural institutions.

Women with rural background may be preferred in recruitment given the fact that they are more likely to reside in the villages. Transfers, career path: It also emerged from the study that ANMs have varying needs at different periods of time during their career. Absence of a well-defined transfer policy means that while some of them continue to be posted in remote and difficult areas for long durations, others manage to remain at comfortable postings closer to town from where it is easier to commute daily. A transfer policy that takes into consideration increasing personal responsibilities and needs of ANMs over time by posting them into progressively bigger villages or towns after defined periods of time will be helpful in this regard. Meeting their needs: While fulfilling some of the needs such as schooling of the children requires larger inputs, responsive supervisors who are provided with requisite means can meet the demands of other ANMs For the latter, policy should emphasize making supervision more responsive and humane and provide mechanisms for ensuring the same.

Conflict of interest: Nil

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