PUBLIC HEALTH RESEARCH

Workload and Performance of Auxiliary Nurse and Midwives at Selected Health Care Settings in North India

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ABSTRACT

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Introduction Auxiliary Nurse Midwives (ANMs) are the back bone of primary health care services in India. The horizontal integration of various national health programmes has increased their responsibility and workload. So a need was felt to conduct a study to assess the workload and performance of ANMs. The objective of the study was to explore the workload and performance of ANMs in selected health care settings in North India. An exploratory cross-sectional study was conducted in two selected health care settings of North India.

Methods The study was conducted on all the 7 ANMs working in the selected health care settings. Data was collected by observing the activities of ANMs using time activity record sheet. The nursing care procedures performed were observed and scored by using performance check list. T-test was used to compare actual time against standard time for performing procedures.

Results ANMs spent 2/3rd of their time in indirect care activities. Direct care and personal activities accounted for 19 % of their time. Their performance was rated as good.

Conclusions Majority of the time spent by ANMs was utilized in performing indirect care activities. This study recommends that more time is needed to be devoted to direct care by ANMs.

Keywords ANMs - health care settings - workload.

INTRODUCTION

Auxiliary Nurse Midwives (ANMs) are the first contact persons in the health care settings in India. They also have to perform multiple tasks related to maternal and child health besides doing other tasks related to various national health programmes. Various studies have shown that increased workload negatively affects the performance of ANMs[2,3,4]. Hence, by systematically assessing the workload by ANMs will help to understand and identify problems faced by them in delivering health care services. The present study was undertaken with the objective to determine the workload and performance of ANMs in selected health care settings in North India.

METHODS

This was a cross sectional study**.** Convenient sampling technique was used to select two health care settings. The data was collected for two months in both dispensaries. All the seven ANMs working in the selected health care settings were included in the study. Written consent was taken from the ANMs prior to data collection. The activities done by ANMs were classified into direct care, indirect care and personal activities. Direct Care activities involved direct provision of care and interaction which include home visit, interaction with patients, performing various nursing care procedures. **Indirect Care** activities involve all activities which support the direct care activities which include maintenance of records and reports, official communication (face to face and phone), official meeting, data entry, travelling, waiting for patient and unit related activities. The last category was personal activities**.** All the tasks related to personal work (going to tea/lunch, going home early and late arrival). For the purpose of data collection time activity record sheet to note the activities of ANM and the performance checklist for evaluating nursing care procedures were used. Using time activity record sheet the ANMs were observed by a trained nurse for 10 days in the health care setting during the antenatal clinic and immunization and 6 days outside the health care setting while doing home visits, tracking antenatal, postnatal mothers and official meetings. During non-clinic days and special activities like official meetings, escorting the patient for laparoscopy, and during village health nutrition day when the researcher was accompanied by the ANMs. Using performance checklist, ANMs were observed for 6 procedures during their routine work. Each procedure was observed for 6 times and average performance was calculated. The performance was categorized as good (66.67-100), average (33.34 - 66.66) and poor (0-33.33).Standard time for each nursing care procedure was calculated by performing each procedure as per protocol and recording the time. Each procedure was performed three times by the researcher and the time for each procedure was recorded. The average time was taken as standard time. The protocol for procedures was validated by experts from community medicine and nursing department. Modified Indian Public Health Standards checklist 2012 was used for record analysis. Record analysis of a complete one year from April 2012 to March 2013 was performed using modified Indian Public Health Standards checklist, 2012.The records accessed were antenatal register, immunization register, family planning register, and postnatal register. Data was also taken from Health Management Information System, Chandigarh. Ethical approval for the study was obtained from Institute Ethics Committee, PGIMER, Chandigarh. T-test was used to compare time taken by ANM to perform a procedure with the standard time.

RESULTS

Overall 7 ANMs were included in the study. All the participants were females and on contract basis and all had completed their diploma in Auxiliary Nursing and Midwifery. Majority of the nurses were in the age group of 21-30 years old and 3 ANMs were married. Three of the ANMs had less than one year experience. Majority of them had good score in measuring weight of adults. Four out of the seven ANM scored average in the procedures of measuring weight of baby, height of adult, immunization and antenatal examination. Only one ANM had satisfactory score in measuring blood pressure. While the remaining ANM scored average or poor.

Table 1 shows comparison between time taken by ANMs for performing nursing care procedures and standard time required for the procedure which revealed that difference recorded for antenatal examination was 9.32 minutes and minimum difference recorded for weight of adult was 0.17 minutes and this difference was statistically significant for all procedures except for measuring adult weight. It was observed that time spent by ANMs was less than time required when procedures were performed as per protocol.

Table 1 Comparison between times taken by ANMs for performing nursing care procedures as compared to standard recommended time.

Procedures	Time Required (minutes)	
	Actual time	Standard time
Measuring weight of Adult	0.35±0.28	0.52±0.11
Measuring weight of baby*	1.09±0.26	2.36±0.58
Giving Injection*	4.10±2.65	4.53±0.42
Antenatal examination*	10.21±2.54	19.53±3.08
Measuring BP**	2.34±1.04	3.07±0.64

P value : *<0.001,** 0.003

Table 2 depicts the average time spent by ANM throughout the week on various activities. Throughout the week the time consumed in indirect activities was more than direct activities. Percentage of time spent on direct care activities was higher on clinic days as compared to non-clinic days. Average time spent on direct care was found to be highest (27.83%) on Wednesday and lowest (5.97%) on Monday as compared to other days of the week. Average time spent on indirect care was found to be highest (76.20%) on Monday and lowest (52.86%) on Wednesday.

Table 2 Average time spent by ANMs on different weekdays during working hours

Days	Activities (in minutes)			
	Direct Care	Indirect Care	Personal Activities	Total time (in minutes)
Monday	10.29(5.97)	131.25 (76.20)	30.52 (17.72)	173.03
Tuesday	35.46 (23.45)	92.91 (60.95)	23.58 (15.60)	151.24
Wednesday	53.06 (27.83)	101.08 (52.86)	36.83 (19.32)	190.70
Thursday	14.54(17.35)	52.25 (62.34)	17.01 (20.30)	83.81
Friday	18.87(16.60)	65.60 (57.70)	29.23(25.70)	113.70
Saturday	32.10 (22.77)	87.48 (56.10)	31.05 (20.23)	153.50

†The figures in parenthesis indicates percent time

Figure 1 show that around the ANMs spent 14.32% of their time on performing procedures on clinic days, 8.29% for interacting with patients 8.29%, and 0.81% of their time was spent for home visits. Maintenance of records commanded 21.53% of their time. ANMs spent 13.53% of their time for official communication. For dispensing medicines 5.32% time was utilized. Around 1.99 % time was spent in attending official meeting. Almost 6 % was spent for data entry while 4.38% of their time was utilized for travelling during home visits. The ANMs spent 47.87% of their time waiting for patients. Time spent for activities related to unit work was 1.70%. The time for lunch/tea was 8.35%.Time spent for personal activities and coming and going home late was 5.19% and 15.30% respectively.

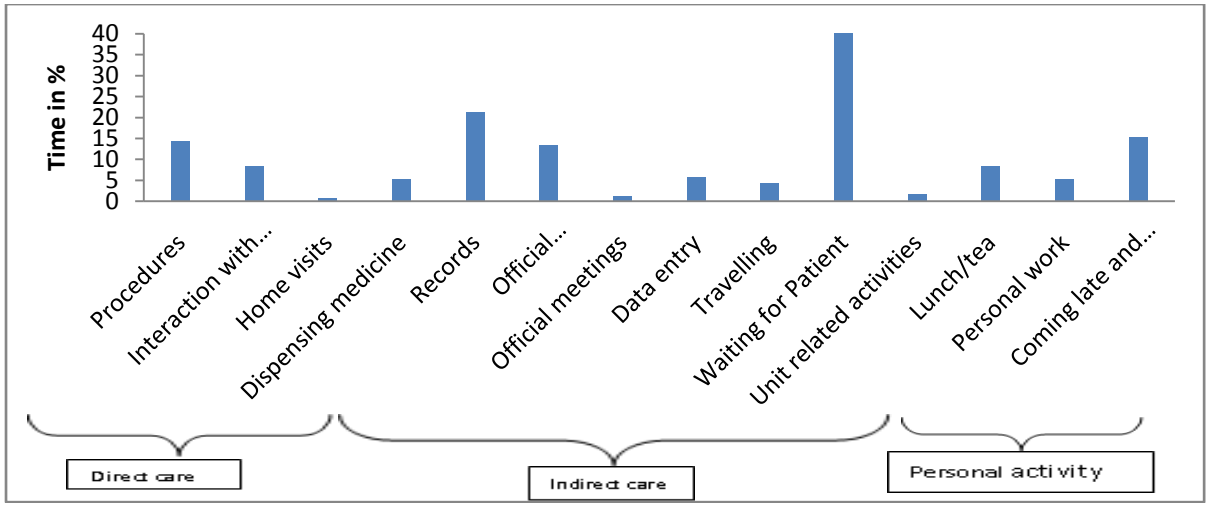

Figure 1 Total time spent by ANMs in various activities

Results of record analysis for maternal and child health services from April 2012-March 2013 as per IPHS (Indian Public Health Standards) guidelines revealed that the number of antenatal women registered (i.e. 861 women) was more than expected (i.e. 740.). Hence, antenatal registration fluctuated to 116.35%.Only 41.57% women were registered during the 1st trimester while 30.54% women received 4 or more antenatal check-ups. Blood pressure was monitored for all antenatal mothers. Around 81.53 % antenatal women had been checked for haemoglobin and blood group. Urine test was done for 74.56% of women. All of them were referred to referral centres for HIV and RPR testing. Around 14.28% women were diagnosed with high risk pregnancy. All of the high risk cases were referred to referral centres for further treatment. The antenatal records mentioned that all the pregnant women were given iron and folic acid (IFA). When there was no supply of these tablets, the patients were asked to purchase IFA from medical shops. Almost all women in the urban area received anti tetanus injection.According to Indian Public Health Standards (IPHS), 2012 guideline ANM is required to make four visits to postnatal mothers after a home delivery, three visits after institutional delivery and 6 visits for low birth weight babies. For home delivery, birth weights of the babies were taken and follow up will be required for low birth weight babies. Out of the twenty three home delivery babies, 92% of these women were visited three times and only 12% received the fourth visit. After institutional deliveries 96.01% mothers had three postnatal visits. Postnatal visit coverage for LBW babies was 71.42%.

The record analysis for child health services as per IPHS guidelines shows that almost all children were fully immunized. Number of children receiving hepatitis B vaccine was higher as there was a camp organized in the study area where all children who missed hepatitis B doses initially were immunized .The number of immunized children for the 1st dose of DPT and Polio was less (i.e.95.07%).This was because mothers visited the private settings to receive this immunization. The low birth weight babies were 50% than expected and all were given care by ANMs. Almost 33% of the children were treated for diarrhoea by the ANMs whereas some cases were referred to medical officers for treatment. The coverage for 1st dose of vitamin A was 100%.

According to IPHS guideline all eligible couples should be registered. Sixty percent couple protection rate is required to achieve net reproduction rate of one. Therefore the expected value was calculated using 60% couple protection rate. Use rate of family planning methods was 92.63%.The number of eligible couples registered were 70.35%.

As per Indian Public health Standards guideline ANM has to attend the monthly staff meeting, co-ordinate activities with other male health workers as well as other health workers , draft annual village health plan, conduct house to house surveys and participate in camps and campaigns and organize village health nutrition day at *Anganwadis*. The results show that the ANMs had attended all the 12 monthly staff meetings. The ANMs co-ordinated 11 village health nutrition days with *Anganwadi* workers. Apart from this the ANMs also organized 6 health camps. Two house to house surveys were also done by the ANMs in the area.

DISCUSSION

Auxiliary Nurses Midwives (ANMs) form an important part of the health team at the most peripheral level in the health care delivery system of India. They provide a wide spectrum of primary health care services to the community through sub-centres .e.g., maternal and child health services,

family planning services, universal immunization programme, do house to house survey, treat minor ailments, maintenance of records and reports related to vital events. Besides this After National Rural Health Mission (NRHM) was launched in 2005, they were also asked to co-ordinate team activities, work for communicable and non-communicable disease programme and to act as facilitators of ASHAs. Hence, taking into consideration their workload an additional ANM was posted at the dispensary[1].

The essence of time management in any organization or for any worker revolves around the Pareto's principle and Parkinson's law[5]. The Pareto's principle states that 80% of the effective results or rewards are derived from about 20% of all energy of the worker (the 80/20 rule).While originally described for economic endeavors, the application of this principle in time management helps one to appreciate that we achieve major portion of our goal with the minor portion of our energy. Parkinson's Law states that there is a human tendency to spend effort and time on more insignificant tasks that are perceived as important rather than those of true importance. The tasks carried out by a person can be further divided into various categories. In this study the activities were segmented into direct, indirect and personal activities[5].

Findings of the present study revealed that ANMs spent only 19% of their working time in activities directly related to patient care. The possible reasons for ANM giving less time for patient care was that 62 % of their time was spent in indirect care activities followed by 19 % in personal activities. Two third of their time was spent in maintaining records which is one of the indirect activities. An observational time motion study done on female health workers supports the findings of present study that nurses spent 17% time in maintaining records and reports. The indirect care activities are an essential requirement of any job as they affect the direct care activities and provide essential support in carrying them out. For example, a comparison between ideal and actual data for time spent by sales representatives showed that low priority activities such as travelling and administration took much more time than more important activities like selling and order processing[6]. Similarly, a study on hospital physicians in Southern Germany showed that physicians spent only 25.5% time in direct patient care while most of their time was spent in documentation and charting[7].

In the present study out of the indirect care activities two thirds of the time was spent in maintaining records. Studies done in Denmark, USA and Austria also reported that physicians spend more time in indirect care activities[8, 9, 10]. A study on physical therapists also showed that most of their time was spent on personal as well as out of department activities[11]. A study from Gujarat on ANMs reported that they spend 49% of their time in the office[12]. Findings of a study done in Karnataka by NRHM reported that ANMs spent up to 40% of their time in record keeping which could be utilized for patient care[13]. It has also been seen that managers spend 30-65% time in dealing with low priority activities. However, it is not possible to dispense with all routine tasks. However, these can be and must be minimized[14]. The Indian Public Health Standard guidelines were developed under NRHM to ensure availability of standard facilities in all sub centres so as to provide health care services like maternal and child health services, immunization and other health services.

On any given day, ANMs go to sub-centres and get things ready for scheduled activity. For example, on the immunization days, they will bring the vaccine supply from primary health centres in vaccine carriers and arrange syringes/ needles, register books and other things on the table and wait for mothers and children to come. Our study revealed that a lot of the ANM's time (48%) was wasted on waiting for patients. This indicates that proper organization of activities of health care workers was needed. Various recommendations in immunization modules used across the globe also mentioned that efforts should be made by health workers in requesting mothers and children to come to health centre on a scheduled time to avoid unnecessary waiting[15]

In the present study, ANMs were observed for 6 nursing care procedures carried out by them. Overall, they performed these procedures satisfactorily. However, for measuring BP only 1 ANM scored 'good' while 3 scored 'average 'and another 3 scored 'poor'. A study from Raipur Rani on the skills of ANM regarding blood pressure (BP) monitoring reported that they did not follow all the steps involved in this activity[16].

The IPHS guidelines recommend that all antenatal women should be registered in the first trimester. However, it is a matter of concern that not all women were registered during this trimester in the study area. The number of antenatal women registered in the first trimester were only 41.57% as compared to 66.8 % reported in District Level Household and Facility Survey-3.Similar to our findings, a study from Kashmir reported a registration rate of 57.27%[1,17,18]. In our study, 30.54% women received 4 or more antenatal check-ups as compared to 37% mothers in another study on maternal health[19].

The BP of all mothers was monitored in urban and rural area. Contrary to our finding, DLHS-3 reported BP monitoring of 80.40% of the antenatal mothers. In our study 82.3% ladies were given a tetanus toxoid injection. Whereas a study

from Kashmir reported that 78.90 % women had a tetanus toxoid injection[17, 18].

Current study found that more than 96% of women received postnatal visit by ANMs and this was much more than reported in a study from Kashmir where only 6.7% of the women received postnatal visit. On the other hand, according to DLHS-3 and NFHS-3 survey77% and 42% of women received postnatal visits by ANMs respectively[17,18,20]. Another study on postnatal care reported 42% of women had 4 or more visits but in this study only 12% of women had 4 or more visits[21]. In the present study all the registered children were fully immunized where as 73% children were reported as immunized in DLHS-3 survey and 43.6% in the NHFS-3 survey. Another study by Baba et al showed that 67.66% of the children were fully immunized[18]. In the present study 92.63% couples used spacing methods, as contrasted to 75.6% inDLHS-3&56.3%in NFHS-3[17, 20].

CONCLUSIONS

ANMs are overburdened as they have to cater to almost double of the population that is recommended by the IPHS standards. About two thirds of their time was spent in performing indirect care activities. In spite of all these problems, the ANMs were able to complete their work according to IPHS standards and most of them were rated as good while performing their nursing care procedures.

RECOMMENDATIONS

There is a need to make changes in the time allocation for activities to be conducted by ANM so that more time can be devoted to direct patient care activities. Comprehensive records can be prepared in order to reduce time and avoid duplication. There is a need to conduct regular in service education programmes for ANM so that their knowledge and skills are updated.

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