

Activity Analysis of Nurses working in a Teaching Hospital of Dhaka, Bangladesh

Felomina Baroi¹, M Shahjahan², Papia Sultana², Mahmud Hossain Faruquee³, Nawzia Yasmin²

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¹Department of Nursing, Dhaka Medical College Hospital, Dhaka.

²Department of Public Health, State University of Bangladesh.

³Department of Occupational and Environmental Health, Bangladesh University of Health Sciences.

ABSTRACT

Nurses perform patient-related care activities (direct and indirect), and other nursing activities (unit-related and personal), which form part of the nursing work load in medical ward. A work sampling study was conducted in 2015 to analyze the activities performed by nurses in medical wards during their tenure of duty schedule in a selected teaching hospital of Dhaka city. A work sampling method was used and nursing activity was recorded at 5 min intervals from 8:00 am to 8:00 pm spread over 4 month of data collection, with one session from 8:00 am to 2:00 pm and the second from 2:00 pm to 8:00 pm. A total of 12913 nursing activities were observed and recorded over 1076 h and categorized as follows: 7476 (58%) direct patient care, 2055 (16%) indirect patient care, 2373 (18%) unit-related and 1009 (8%) personal time. The percentage of indirect patient care activities mainly concentrated in morning shifts. It was concluded that more than half of the nursing activities were direct patient care activities.

Key words: Activity Analysis and Nurse, Hospital and Bangladesh.

*Corresponding author. E-mail: papia@sub.edu.bd_Tel: +88.0281517815.

INTRODUCTION

Nursing and midwifery services are vital for attaining health and development. They form the backbone of health care and in many countries they representing over 50% of the overall labor force (Stanton et al., 2007). Adequate nurse staffing is a key to patient care and nurse retention, while inadequate staffing endangers patients and drives nurses from their profession. Staffing problems will only intensify as baby boomers age and the need for health care grows, making safe-staffing ratios an ever-pressing concern (DEP Fact Sheet, 2011). Nurses have an integral role in the health care system. Major concerns about the nursing shortage have been compounded by evidence of undesirable outcomes such as job dissatisfaction and burnout, which are major contributory factors of intention to leave, absenteeism, and turnover. Human Resources for Health (HRH), the backbone of the health care delivery system, are in a crisis situation in Bangladesh with a critical shortage of health workers, though health workers command three-fourths of the national health budget.

The 2006 World Health Report recognized 57 countries facing a health workforce crisis. Bangladesh has a population-nurse ratio of 5000:1, a bed-nurse ratio of 13:1, and a doctor-nurse ratio of 2.5:1. These fall far short of the international standard for bed-nurse ratio of 4:1 and doctor-nurse ratio of 1:3 (Bangladesh Health Workforce Strategy, 2008). There are at present 2,213 public and private hospitals in Bangladesh with a total capacity of 51,684 beds. There are approximately 26,644 registered nurses out of whom 15,086 nurses are working in the public sector, around 3000 are working in the private sector and 3000 are working abroad (Bangladesh Health Workforce Strategy, 2008).

OBJECTIVES OF THE STUDY

General Objective

Activity analysis of nurses working in teaching hospital of Dhaka during their job. Specific objectives:

Table 1. Distribution of patients in wards.

Ward	Sanctioned Bed	Average Number of Patient	
		Morning	Evening
Medicine			
Total ward=5	62/ ward	96	100
Surgery			
Total ward=6	30/ward	39	39

- To analyze the activities performed by nurses in ward during their tenure of duty schedule in a selected Hospital of Dhaka;
- To determine the time required for each of the activities and
- To determine the socio-demographic characteristics of respondents.

METHODOLOGY

An observational study was conducted over a four month period during 2015 at Medicine and Surgery wards of Dhaka Medical College Hospital, Bangladesh. All RNs working in the Medicine and Surgery wards were included in the study. Data were collected using observational 'work sampling' or activity analysis technique in each wards from 8:00 am to 2:00 pm (Morning shift), 2:00 pm to 8:00 pm (Evening shift) and 8:00 pm to 8:00 am (Night shift). For pragmatic reasons the period of night shift (8:00 pm to 8:00 am) was not included. A snapshot of nursing activity was collected every 5 min. This timeframe was supported by study that suggested shorter time intervals between data collection points provide greater accuracy of actual workload (Finkler et al., 1993). A record was kept explaining the assignment of codes and their relationship to nurse grade and dependency need. A daily activity sheet was used to record all the observed nursing activities.

RESULTS

It was reported that there were 62 beds per ward in medicine department and 30 beds per ward in surgery department on an average 80 to 110 patients stayed in medicine wards and 21 to 45 patients in surgical wards (Table 1). All 110 nursing staff RNs working in the wards during the study period participated in the investigation. Among them 58.2% (n=64) were in the age group of 41 to 50 years and mean age was 41.66±6.5 years. Majority of the RNs (98.2%) were female. By professional qualification 49.1% (n=54) had Diploma in Nursing education, 30.9% (n=34) monthly income were 20001 to 25000 Tk and 54.6% (n=60) had been working in the study hospital for 11 to 20 years (Table 2). Figure 1 shows the percentage of total observed activities in relation to the

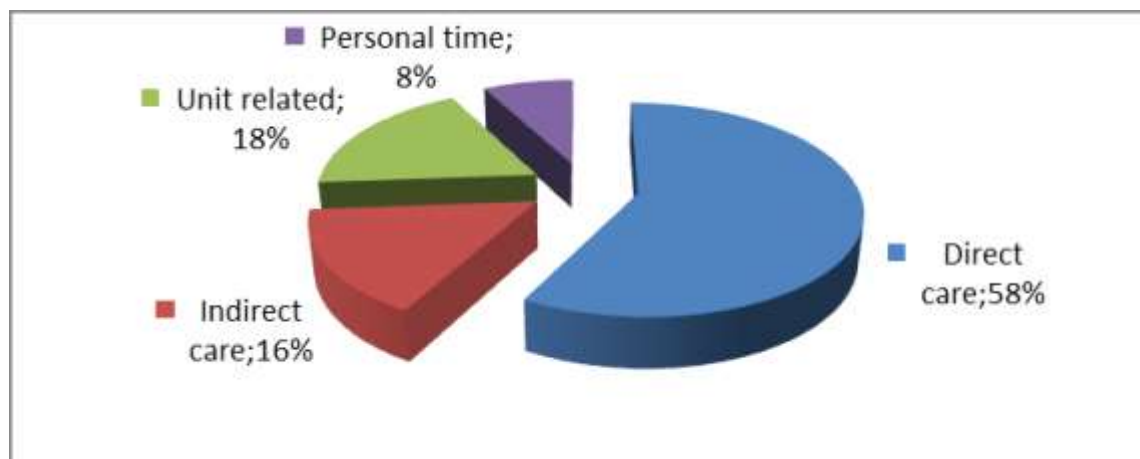
category of activities. Among the total period of observation 58% nursing activities were involved in direct care, 16% activities followed by indirect care, 18% were the unit related, and 8% were involved in personal times. A total of 110 nurses' activities were recorded through direct observation. Direct care totaling 7476 units of five-minute duration was recorded, of which injection administration 25.9%, oral medication 21.2%, iv cannulizing / iv infusion 15.7%, vital sign checking 11.0%, specimen collection 4.9%, communication and health education 4.7%, nebulization 4.3%, blood transfusion 2.8%, post-operative care 2.5%, oxygen inhalation 2.5%, post-operative care 1.5% and naso-gastric suction 0.5% were mostly done. indirect care observation recorded a total of 2055 units; bed making 18.0%, treatment sheet checking 19.5%, accompany doctors' round 16.5%, therapeutic communication 12.5%, changing bed linen 8.7%, discussion with team member 8.6%, report writing 7.3%, intake-output chart/diabetic chart etc. 5.5% and diet/order sheet 3.4% were recorded. as for unit related activities, 30.7% was hand over taking, 21.5% was patient admission procedure, 9.9% was requisition for medicine/food/ stationery, 9.7% was patients' discharge papers including death certificate, supervising ward cleanliness 8.6%, medicine receipt 8.4%, laboratory tests (specimen) related paper work 6.5%, making duty rosters 2.3%, ordering bed linen 1.9% and ordering bed linen 0.3%. Those related to personal activities, such as taking snack 62.7%, conversation with colleagues 25.2% and reading newspaper/magazine 11.1%, were recorded (Table 3), data indicates that nurses spent their activities mostly in direct patient care 58%, followed by 18.4% in unit related and 16.0% in indirect activities, only 7.8% of their activities are personal in nature. A greater proportion of direct care activities were observed in the evening shifts (2:00 pm to 8:00 pm). Whilst direct nursing care activities accounted for 58% of the overall nursing activities. The nurses spent their indirect patient care activities mostly in morning shift (8:00 am to 2:00 pm). It was also noted that unit related and personal activities increased towards evening (Figure 2).

DISCUSSION

This study was conducted in two medical wards and may not reflect workload distribution in all medical wards. The

Table 2. Socio-demographic characteristic of nurses.

Characteristic	Frequency (n)	Percentage (%)
Age (years)		
30- 40	36	32.7
41- 50	64	58.2
>50	10	9.1
Sex		
Male	2	1.8
Female	108	98.2
Professional qualification		
Diploma in Nursing	54	49.1
Bachelor in Nursing	36	32.7
Post-graduation in Nursing	20	18.2
Monthly income (Tk)		
< 20000	27	24.5
20000 – 25000	34	30.9
25001 – 30000	25	22.7
>30000	24	21.8
Job experience in study hospital		
Up to 10 years	30	27.3
11 - 20 years	60	54.6
21 - 30 years	20	18.1

**Figure 1.** Distribution of observed activities.

study was also confined to morning and evening shifts. There may be differences in activities for nursing staff working in the night shifts. This study represented patient-related nursing care activities (direct and indirect), and other nursing activities (unit-related and personal). Among the total activities fifty eight percent was direct care, 16% as indirect care, 18% as unit related and only 8% as personal times as recorded. In related studies the total percentage of direct care activities was found 42% (Flynn et al., 1999) and 46% (Williams et al., 2009). A similar study found basic nursing care (6.2%), complex nursing care (66.8%), administration (4.1%), clerical (9.9%), housekeeping (1.7%), maintenance (2.4%) and non-productive activities (8.7%) (Tamilselvi, 2013). An

observational study conducted by Chaboyer et al. (2008) on comparison of activities undertaken by enrolled and registered nurses on medical wards in Australia, found that 47.3% of their time was spent on indirect care tasks (activities related to patient care but undertaken away from patients), 33.2% on direct care (patient care activities in close proximity to the patient), 13.5% on personal (that is, break), and 6.0% on unit-related activities (that is, meetings). Greater proportion of direct nursing activities was observed in the evening shifts.

The proportions of observed direct care were shown to fluctuate throughout the day, with morning shift and to a smaller extent evenings requiring the most direct care suggesting that much more than half the time is spent on

Table 3. Observed nursing activities recorded in different categories.

Activity/category	Observation		Time spent	
	Number	Percentage (%)	Minutes	Percentage (%)
Direct Care				
Specimen collection and sending to lab/ X-ray	370	4.9	1850	4.9
IV cannulizing / IV infusion	1176	15.7	5880	15.7
Administer Injection,	1933	25.9	9665	25.9
Oral medication,	1587	21.2	7935	21.2
Topical medication,	2	0.0	10	0.0
Wound care/dressing,	178	2.4	890	2.4
Vital sign checking (TPR, BP)	823	11.0	4115	11.0
Blood transfusion	212	2.8	1060	2.8
Pre-operative preparation	185	2.5	925	2.5
Post-operative care	110	1.5	550	1.5
Oxygen inhalation	187	2.5	935	2.5
Nebulization	319	4.3	1595	4.3
Naso-gastric suction	39	0.5	195	0.5
Communication and health education	355	4.7	1775	4.7
Total	7476	100.0	37380	100.0
Indirect Care				
Bed making	370	18.0	1850	18.0
Changing bed linen	179	8.7	895	8.7
Accompany Doctors Round Discussion with team member	339	16.5	1695	16.5
Treatment sheet checking	401	19.5	2005	19.5
Intake-output chart/diabetic chart etc.	112	5.5	560	5.5
Therapeutic Communication (Telephonic liaison)	256	12.5	1280	12.5
Diet/Order sheet Writing	70	3.4	350	3.4
Report writing	151	7.3	755	7.3
Discussion with team member	177	8.6	885	8.6
Total	2055	100.0	10275	100.0
Unit Related				
Hand over taking	729	30.7	3645	30.7
Making duty rosters	55	2.3	275	2.3
supervising ward cleanliness	205	8.6	1025	8.6
Requisition for medicine / food/stationery	236	9.9	1180	9.9
Ordering bed linen	46	1.9	230	1.9
Patient admission procedure	511	21.5	2555	21.5
Patients' discharge papers (including death certificate)	229	9.7	1145	9.7
Laboratory tests (specimen) related paper work	155	6.5	775	6.5
Medicine receipt	200	8.4	1000	8.4
Ordering bed linen	7	0.3	35	0.3
Total	2373	100.0	11865	100.0
Personal Time				
Taking snacks	633	62.7	3165	63
Reading professional books/journal	10	1.0	50	1
Reading newspaper/magazine	112	11.1	560	11
Conversation with colleagues	254	25.2	1270	25
Total	1009	100.0	5045	100.0

direct patient care and other important activities. Personal time activities in this study was recorded as 7.8% while the personal time activities in a similar studies was 4% (Cardona et al., 1997); 14% (Urden et al., 1997); 13% (Undgren et al., 2001; Chaboyer et al., 2008); 18% (Hurst, 2002); and 17% (Bordin and Fugulin, 2009). Among the total direct care activities injection administration, oral

medication and IV infusion were mostly done by the nurses. As indirect care treatment sheet checking, bed making, accompanying doctors round, and therapeutic communication were recorded mostly. In indirect care activities some major difference was observed between morning and evening shift. Nurses spent their time in morning shift mostly in bed making, treatment sheet

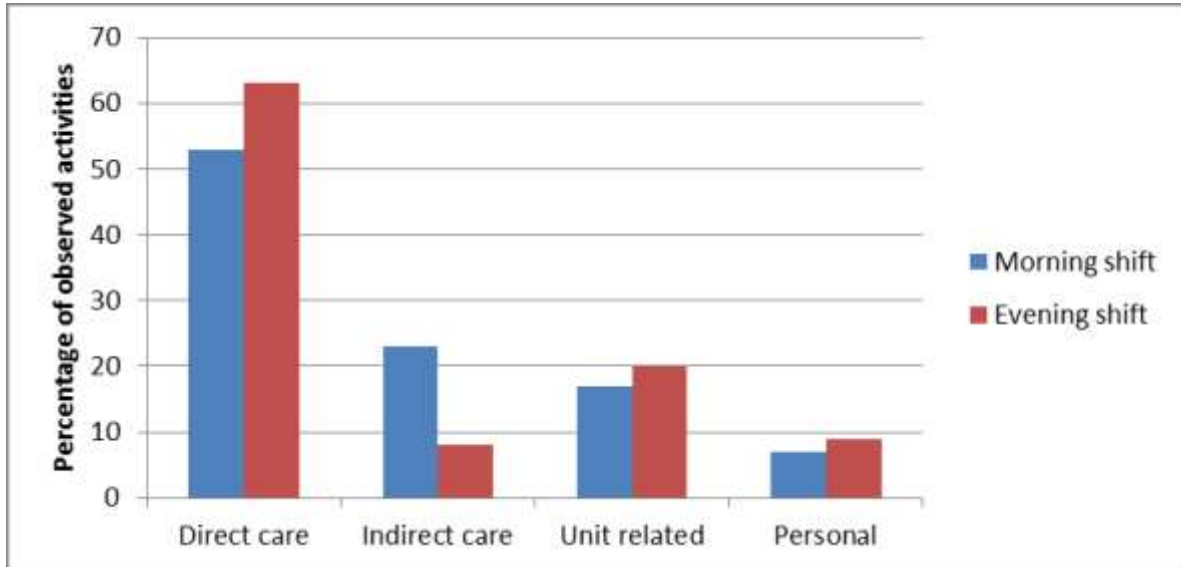


Figure 2. Distribution of nursing workload by shift.

checking and accompany doctors round while in the evening shift they spent most of the time in treatment sheet checking, report writing, therapeutic communication (telephonic liaison) and discussion with team members. As unit related activities nurses spent their time in hand over taking (30.7%), patient admission procedure (21.5%) and patients' discharge papers (including death certificate) (9.7%) were recorded mostly.

In personal activities which constituted a smaller proportion, nurses used up their time taking snacks (63%), conversations with colleagues (25%) and reading newspaper (11%). They get more of such time in evening shift. By analyzing the nursing activities the total care pattern in the hospital and number of patients should be coordinated. Otherwise there may be wrong interpretation. In the context of our country, especially in tertiary level hospital, the most vital part of patient management is in the rounds that are visiting the patients by doctor, where plans for treatment are decided. In the morning shift nurses have to spend valuable time in bed making and hand over taking, whereas morning shift is vital for planning of nursing care for patients.

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