An Observational Study on Activity Analysis of Nursing Personnel Working in Pediatric In-patient Unit of a Selected Hospital in Delhi

Neeraj¹, Bindu Shaiju², Shilpi Sarkar³

Abstract

The activities of nurses in wards are different throughout the day as the needs of the children vary with the time of the day. Time spent by nurses in direct care activities has been identified as a determinant of better patient outcome and fewer errors.^{1,2} Patient satisfaction is also related to the amount of care received. Role of nurses working in pediatric wards are multifaceted as the needs of a hospitalized child are different from an older patient. Information about the amount of time spent on various activities is very important for the nurse manager. It provides them with evidence to maximize productivity by evaluating the appropriate staff development; skill-mix and whether they need job re-allocation and changes in the model of delivery care. Information is needed for evaluating changes in nursing practice following the introduction of new system and to assess effectiveness of the new system. The present study aimed to analyze the activity of nursing personnel working in pediatric in-patient units. The objectives of the study were to assess the proportion of time spent by nursing personnel in various activities in pediatric in-patient units and to compare the proportion of duty time spent by nursing personnel in various activities in different duty shifts. The activities of 41 nursing personnel working in pediatric wards of Sanjay Gandhi Memorial Hospital, New Delhi, comprised the sample. An observation checklist was used to analyze the activities. Total 1511 activities were observed during seven days period in the pediatric units, using the work sampling method. Findings showed that most of the nurse participants were engaged in direct care activities (53%), followed by indirect care activities (28%), miscellaneous activities (14%) and least common were unit related activities (5%). Medication, documentation, reporting was the most time-consuming activity in the pediatric wards. The proportion of time spent in all groups of activities were different in morning and evening and time spent for direct care and indirect care was same in the pediatric wards. The nursing personnel in pediatric ward spent most of the time in direct care patient activities more than indirect care patient activities. And the least common time was spent in unit-related activities in pediatric in-patient units in both the duty shifts.

Keywords: Direct patient care, Indirect patient care, Work sampling, Activity analysis

Background

Nurse, the frontline caregiver, represents critical and costly resources.³ Cost-effective nursing care, staffing levels and adequate skill mix are significant in meeting patient care needs. It also provides the evidence to maximize productivity by evaluating appropriateness of staff development and skill mix such as patient care nursing activities, unit-related activities and personal activities.

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The activities of nurses working in pediatric ward clearly include many aspects of direct patient care such as medication administration, monitoring, carrying out procedure, providing personal hygiene care, assisting with the bladder and bowel eliminations, admission and discharge counselling, etc. Indirect activities performed by nurses in pediatric ward include documentation, reporting, billing, helping in investigations, preparing for procedure, etc. In addition to these, there are unit-related activities such as material management, ward maintenance, housekeeping, supervision, etc. Nursing activities of each unit changes according to the patient's condition. The activities performed by the nurses in any unit can be broadly divided into direct patient care activities, indirect patient care activities, unit-related activities and miscellaneous activities. How health workers spend their working time is of interest to health services. Time spent on various activities is important such as medication, monitoring of the child, assisting in procedure documentation, reporting etc.^{4,5} It provides them with evidence to maximize productivity by evaluating the appropriate staff development; skill mix and whether there is need for job re-allocation and changes in the model of delivery care. Information is needed for evaluating changes in nursing practice following the introduction of new system and to assess the new system effectiveness.⁶

Abbe et al. conducted a study to describe and analyze the work activities of bedside Intensive care unit (ICU) nurses during the day shift.⁷ Just over 76 hours of observation occurred over 10 days and 3081 activities were documented at that time. The major activity groups for the ICU nurses were: 'direct care' 1857 activities and 40.5% of the time. 'Indirect care' 986 activities and 32.4% of the time, "personal" activities 140 activities and 21.9% of their time and "unit-related" 98 activities and 5.0% of their time. The ICU nurses undertook two activities simultaneously for 43% of the study time frame.

Aim

The aim of this study was to analyze the activities of nursing personnel working in pediatric in-patient units.

Objectives

- To assess the proportion of time spent by nursing personnel in various activities in pediatric in-patient

units.

- To compare the proportion of time spent by nursing personnel in various activities in different duty shifts.

Methods and Materials

The present study was aimed to analyze the activity of nursing personnel working in pediatric in-patient units. A quantitative non-experimental research approach was found appropriate and most suitable for the study and a cross-sectional research design was adopted for the study. The study was conducted on 41 nursing personnel working in pediatric wards of Sanjay Gandhi Memorial Hospital, New Delhi. The activities of 41 nursing personnel working in pediatric wards of Sanjay Gandhi Memorial Hospital, New Delhi, comprised the sample. Convenience sampling technique was used to obtain the samples. The tool had three sections: Section-1: Demographic data sheet eliciting the demographic details of the participants; Section-2: Guidelines code for nursing activities. The nursing activities were grouped into direct patient care activities, indirect patient care activities, unit-related activities and miscellaneous activities; Section-3: Observation checklist. Tools were developed based on the manual "Guide to the study of activities of health personnel in hospital". The content validity of the tool was established with suggestion and necessary modification from five experts from different fields of nursing and administration. The reliability was established by inter-observer method. Reliability of tool was found to be 0.88.

After getting ethical permission from Jamia Hamdard Institutional Review Board, formal administrative approval was obtained from the concerned authority of the selected setting to conduct the final study. All the nurses working in the study setting, who met the inclusion criteria, were enrolled into the study. Demographic data was collected with the help of demographic data sheet. Activities were observed by participant observation method. The activities of all the nursing personnel on duty were recorded every half hour. There were 26 observations in hours in two shifts for each staff on duty. For morning shift, observation was made from 8 am to 2 pm. The activities were observed from 2 pm to 8 pm in the evening shift. The observations were recorded by the researcher. Descriptive analysis (frequency, percentage and proportion) was done for calculating the time spent in different activities.

Results

Sample Demographic Characteristics

Table 1. Frequency and Percentage Distribution of Study Participants by Their Demographic Characteristics

n=41

Demographic Characteristics	Frequency and Percentage	
	Frequency	Percentage
Age of the staff		
20–25 years	17	41.46
25–30 years	6	14.63
30 years and above	18	43.90
Gender		
Male	6	14.63
Female	35	85.36
Qualification		
DGNM	24	58.53
B.Sc.	7	17.07
M.Sc.	4	9.75
B.Sc.(PC)	6	14.63
Nature of Job		
Permanent	31	75.60
Contractual	10	24.39

Proportion of Time Spent by Nurses in Different Nursing Activities

Table 2. Frequency and Proportion of Various Activities of Study Participants in the Pediatric In-patient Units

*n₂=126

Group Of Activities	Activities	Frequency	Average	Relative Time Proportion (hours)	Total Time Proportion (%)
Direct Activities (Code no. 1-14)	Administration of medication	115	.91	.27	53
	Monitoring of child	139	1.10	.33	
	Feeding through the tube	67	.53	.15	
	Performing procedure	8	.06	.02	
	Providing Personnel hygiene care	21	.16	.05	
	Assisting with bladder, bowel elimination	56	.44	.13	
	Communication with child/ relative	48	.38	.11	
	Collecting specimen	39	.30	.09	
	Comfort measure	41	.32	.1	
	Play therapy	40	.31	.09	
	Assisting in examination	40	.31	.09	
	-Preparation of child prior to surgery/any other procedure	26	.20	.06	
	-Receiving the pt. after surgery/	69	.54	.16	
	-after procedure care	55	.43	.13	
Indirect Care Activities (Code no. 15-20)	Documentation/Reporting	149	1.18	.35	28
	Preparing for procedure	59	.48	.14	
	Helping for procedure	45	.35	.10	
	Billing	17	.13	.04	
	After care of articles	28	.22	.06	
	Communication with doctor/ other staff	101	.8	.24	
Unit Related Activities (code no. 21-23)	Housekeeping	36	0.2	.08	5
	-Supervising	16	0.12	.03	
	-Material Management	22	0.17	.05	
Miscellaneous Activities (Code no. 24-29)	Standing without work	40	.31	.09	14
	-Talking among each other	9	.71	.02	
	-Talking in phone	17	.13	.04	
	-Going outside department	23	.18	.05	
	-Eating food/snacks	89	.70	.21	
	-Other personal activities.	23	.18	.05	

(Total no. of nurses' activities observed in one-week period)

Figure 1. Pie Diagram Showing Proportion of Time Spent by Nurses in Various Activities in Pediatric Wards

As shown in Table 2 and Fig 1, total 1511 activities were observed during seven days period in the pediatric units. Most of the nurse participants were engaged in direct care

activities (53%), followed by indirect care activities (28%), miscellaneous activities (14%) and least common were unit-related activities (5%).

Assessment of Proportion of Time Spent by Study Participants for Different Activities

Table 3. Frequency and Proportion of Various Activities of Study Participants in the Morning Shifts of Pediatric In-patient Units

*n₃=78

Group Of Activities	Activities	Frequency	Average	Relative Time Proportion (hours)	Total Time Proportion (%)
Direct Activities (Code no. 1-14)	Administration of medication	89	1.14	.34	64
	Monitoring of child	94	1.20	.36	
	Feeding through the tube	51	.65	.19	
	Performing procedure	53	.67	.20	
	Providing Personnel hygiene care	13	.16	.50	
	Assisting with bladder, bowel elimination	50	.64	.19	
	Communication with child/relative	24	.30	.09	
	Collecting specimen	23	.29	.08	
	Comfort measure	31	.39	.11	
	Play therapy	28	.35	.10	
	Assisting in examination	33	.42	.12	
	Preparation of child prior to surgery/any other procedure	11	.14	.04	
	Receiving the pt. after surgery/	30	.38	.11	
	-after procedure care	33	.42	.12	
Indirect Care Activities (Code no. 15-20)	Documentation/Reporting	100	1.28	.38	22
	Preparing for procedure	32	.41	.12	
	Helping for procedure	20	.25	.07	
	Billing	7	.08	.02	
	After care of articles	10	.12	.03	
	Communication with doctor/other staff	69	.88	.26	
Unit Related Activities (code no. 21-23)	Housekeeping	9	.01	.03	2
	Supervising	7	.08	.02	
	Material Management	10	.12	.04	
Miscellaneous Activities (Code no. 24–29)	Standing without work	15	.19	.05	12
	Talking	5	.06	.02	
	Talking in phone	8	.10	.03	
	Going outside department	19	.24	.07	
	Eating food/snacks	65	.83	.25	
	Other personal activities.	13	.16	.05	

(no. of nurses observed in one week period in morning shift)

As shown in Table 3, total 952 activities were observed during morning shifts during seven days period. Most of the nurse participants were engaged in direct care

activities (64%), followed by indirect care activities (22%), miscellaneous activities (12%) and unit related activities (2%) in the morning shift in the pediatric units.

Table 4. Frequency and Proportion of Various Activities of Study Participants in the Evening Shifts of Pediatric In-patient Units*n₄=48

Group Of Activities	Activities	Frequency	Average	Relative Time Proportion (hours)	Total Time Proportion (%)
Direct Activities (Code no. 1-14)	Administration of medication	26	0.54	.16	49%
	Monitoring of child	45	0.93	.28	
	Feeding through the tube	16	0.33	.10	
	Performing procedure	28	0.58	.17	
	Providing Personnel hygiene care	8	0.16	.05	
	Assisting with bladder, bowel elimination	6	0.12	.04	
	Communication with child/ relative	24	0.5	.15	
	Collecting specimen	16	0.33	.10	
	Comfort measure	10	.28	.06	
	Play therapy	12	.25	.07	
	Assisting in examination	7	.14	.04	
	Preparation of child prior to surgery/any other procedure	15	.31	.09	
	Receiving the pt. after surgery/	39	.82	.24	
	after procedure care	22	.45	.13	
Indirect Care Activities (Code no. 15-20)	Documentation/Reporting	49	1.02	.30	29%
	Preparing for procedure	27	.56	.16	
	Helping for procedure	25	.52	.15	
	Billing	10	.20	.06	
	After care of articles	18	.37	.11	
	Communication with doctor/ other staff	32	.66	.20	
Unit Related Activities (code no. 21-23)	Housekeeping	27	.56	.17	9%
	Supervising	9	.18	.06	
	Material Management	12	.25	.07	
Miscellaneous Activities (Code no. 24-29)	Standing without work	25	.52	.15	13%
	Talking	4	.08	.02	
	Talking in phone	9	.18	.05	
	Going outside department	4	.83	.02	
	Eating food/snacks	24	.5	.15	
	Other personal activities.	10	.2	.06	

(No. of nurses observed in one week period in evening shift)

As shown in Table 4, total 559 activities were observed in the evening shifts during seven days period. Nurse participants were involved more in the direct care activities (49%) followed by indirect activities (29%), miscellaneous activities (13%) and unit-related activities (9%).

Discussion

According to a study by Abbey et al.,⁷ the major activity groups for the ICU nurses were: 'direct care' 1857 activities and 40.5% of the time, 'indirect care' 986 activities and 32.4% of their time, 'personal' activities 140 activities and

21.9% of their time and 'unit related' 98 activities and 5% of their time. The ICU nurses undertook two activities simultaneously for 43% of their study time frame. The present study showed similar results in that most of the nurses were engaged in direct care activities (53%), followed by indirect care activities (28%), miscellaneous activities (14%) and least common were unit related activities (5%).

Vasta and Gupta found that nurses working in orthopedic ward of a tertiary care hospital in India spent 7% of time for patient care basic and 17% of time for patient care complex activities. Other activities included off-station (24%),

clerical (8%), administration (7%), maintaining supplies and equipment (3%), housekeeping (2%) and non-productive (32%). After the intervention on collaboration between nursing services and nursing education, the activities changed as patient care basic (10%), patient care complex (37%), off station (9%), and clerical (11%), maintaining supplies and equipment (4%), housekeeping (3%) and non-productive (15%). Whereas findings related to present study which was done in pediatric wards shows most of the nurse's engaged in direct care activity (53%) followed by indirect activities (22%), miscellaneous activities (12%) and unit-related activities (2%).

Conclusion

The nursing personnel in pediatric ward spent most of the time in direct care patient activities more than indirect care patient activities. And the least common time was spent in unit-related activities in pediatric in-patient units. Nurses in pediatric wards spent almost same proportion of time in different activity groups and direct care activity was higher in both shifts. The study drew implications that the curriculum in the nursing courses must incorporate time management strategies, especially in the pediatric settings and that the students must be taught regarding effective organization of patient care activities in their clinical practices.

Conflict of interest: None

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