

A Time Motion Study to Measure and Analysis Clinical Nursing Workload in One of the Leading Hospitals in Bangalore

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Abstract:- At current situation, there are concerns about rising nursing workforce shortages due to covid 19 pandemic, which could be attributed to both recruitment and retention issues. As the covid pandemic getting worsen in worldwide, there is an increase in demand for more trained nurses to avail new facilities. At present due to this pandemic what world is facing, there is a need for other solutions besides increasing recruitment rate. A time-motion study of nurses' workload can assist us in determining how nurses spend their time on during their working shift. Results of the current study demonstrated main processes (communication, documentation, bedside care, transportation, attending call, and admission process) that can be improved upon. Some of these processes do not require skilled nurses; and can be performed by other staff members. In Future studies can target on the effectiveness of strategies to improve the efficiency and quality of nursing care.

Keywords:- Time–Motion Study, Nurses, Working Time, Hospital.

I. INTRODUCTION

A. Definition :

Nursing:

According to V. Henderson¹, 1960

Nurses unique function is to help individuals, both sick and well, perform activities that contribute to the health or recovery (or facilitate a peaceful death) that they would perform unaided if they had the necessary strength, will, or knowledge, and to accomplish this function in such a way as to help individual gain independence.

Workload:

Hart and staveland² (1988) describe workload as “the perceived relationship between the amount of mental processing capability or resources and the amount required by the task”

B. How does nursing workload impact patient safety:

Nursing workload and lack of time:

Nursing workload definitely affects the time that a nurse can allot to various tasks. Under a heavy workload, nurses may not have sufficient time to perform tasks that can affect the patient safety. A heavy nursing workload can influence the nurse's decision to perform various procedures. A heavy workload may also reduce the time spent by nurses in communicating with physicians, therefore affecting the quality of nurse-physician collaboration

Nursing workload and deteriorated motivation:

Several studies have shown the relationship between nurses' working conditions, such as high workload, and job dissatisfaction. Job dissatisfaction of nurses can lead to attrition, absenteeism, and poor job performance, and potentially threaten patient safety and organizational effectiveness.

Impact of workload on nursing stress and burnout:

High workload is a key job stressor of nurses in a variety of care settings. A heavy nursing workload can lead to distress and burnout. Nurses experiencing stress, burnout and may not be able to perform efficiently and effectively because their physical and cognitive resources may be get down; which may affect patient care and its safety.

Nursing workload and errors:

Workload can be a factor contributing to errors like slips and execution errors, and mistakes or knowledge errors. High workload in the form of time pressure may reduce the attention devoted by a nurse towards the patient care, thus creating conditions for errors and unsafe patient care.

Nursing workload and violations or work-around:

Violations are defined as deliberate deviations from those practices (i.e., written rules, policies, instructions, or procedures) believed necessary to maintain safe or secure operations. Violations occur more frequently when nurses are under time pressure or high workload because of emergency situations. Under high workload, nurses may not have time to follow rules and guidelines for safe care, which lead to unsafe patient care.

II. LITERATURE REVIEW

According to Isik U. Zeytinoglu et.al, (2007) conducted a survey with 1,396 nurses and examined the associations between deteriorated external work environment, heavy workload, nurses' job satisfaction and turnover intention. They found that the nurses had a poor job satisfaction and they revealed as were not happy because of their workload and environment. They identified the negative association between workload and job satisfaction and nurses' turnover intention.

According to Pratibha P. Kane(2009) tried to establish the existence and extent of work stress in nurses in a hospital setting, she pointed out most important causes of stress were jobs not finishing in time because of shortage of staff, conflict with patient relatives, overtime, and insufficient pay. Because of these the nurse suffered from psychosomatic disorders like acidity, back pain, stiffness in neck and shoulders, forgetfulness, anger, and worry significantly increased in nurses having higher stress scores.

According to Amin Supreeta G (2011) conducted a study toward investigating the effects of workload and the influence of workload on nursing personnel. She found the cognitive loading was influenced by task complexity and task manipulations and long working hours, working more than one job, low staffing ratios, high patient acuity, minimal social support, low experience level, complicated equipment, complex procedures and varying workload were some of factors that may have a negative impact on the quality of care provided by nursing personnel.

III. METHODOLOGY

This is an exploratory research that aims on to measure and analysis clinical nursing workload of the selected hospital. The Census sampling used for the data are about 300 nursing staffs data were collected from the hospital. An observational method is used for collecting the data. For the data collection the nursing staff time taken for each processing (i.e. documentation, bedside care, communication, on phone, patient shifting, on system time) were observed based on their daily routine shift. Accordingly the survey tool used here is observational method.

IV. ANALYSIS

Chart I

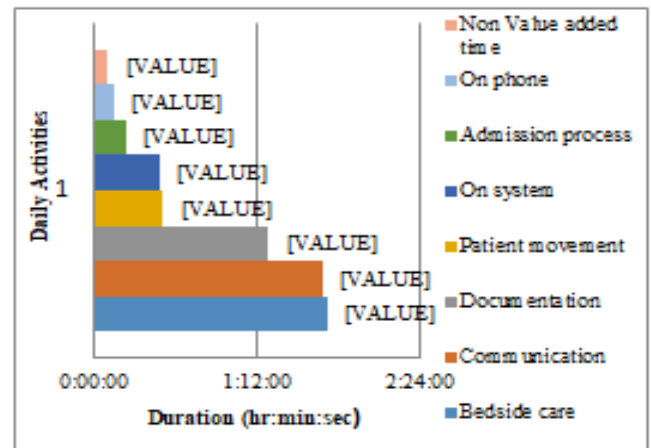


Fig.1 showing the average time spent on daily activities by Nurses.

Fig 1. - shows that, nursing staffs spent the average time of 5min54sec on Non-Value added time, 8min33sec on phone, 14min3sec for admission process, 28min47sec On system, 30min43sec for Patient movement, 1hr17min15sec for documentation, 1hr41min18sec for communication, 1hr43min18sec for bedside care from their Daily Activities.

Chart II

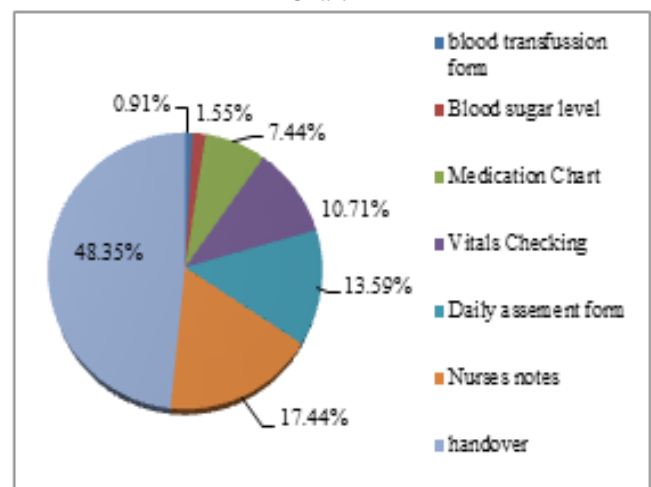


Fig 2. Chart showing the Percentage of time spent on Documentation by Nurses.

Fig 2.- shows that, nursing staffs spent 0.91% of the time on filling the Blood transfusion form, 1.55% for documenting the Blood sugar level, 7.44% for documenting the Medication Chart, 10.71% for documenting the Vitals Checking, 13.59% for documenting the Daily assessment form, 17.44% for documenting the Nurses notes, 48.35% for documenting the handover, from their Daily Activities .

TABLE I

Table I. Showing the average time spent on communication by Nurses

S.NO	Communication	AVERAGE TIME
1.	With patient	00:01:33
2.	With attender	00:03:24
3.	With support staff	00:05:58
4.	With doctor	00:06:49
5.	With nursing staff	00:09:51
6.	Handover	00:36:01
7.	Doctors round	00:37:41

Table I - shows that, nursing staffs spent the average time of 1min33sec on with patient, 3min24sec for with attender, 5min58sec for with support staff, 6min49sec with doctor, 9min51sec for with nursing staff, 36min1sec for handover, 37min41sec for Doctors round, from their Daily Activities.

TABLE II

Table 2. Showing the percentage of time spent on bedside care by Nurses.

S.NO	BEDSIDE CARE	PERCENTAGE TIME
1.	Blood sugar testing	0.06%
2.	Vital checking	2.35%
3.	Medication	3.80%
4.	IV Infusion	7.12%
5.	Blood transfusion	9.87%
6.	Dressing	13.36%
7.	Other care	22.10%
8.	IV Cannulation	30.08%

Table II - shows that, nursing staffs spent 0.06% of the time on blood sugar testing, 2.35% of the time on vital checking, 3.80% of the time on medication, 7.12% of the time on IV Infusion, 9.87% of the time on blood transfusion, 13.36% of the time on dressing, 22.10% of the on other care, 30.08% of the IV cannulation from their Daily Activities.

V. MAJOR FINDINGS & RECOMMENDATIONS

- The nursing staffs, spent the average time of 5min54sec on Non-Value added time, 8min33sec on phone, 14min3sec for admission process, 28min47sec On system, 30min43sec for Patient movement, 1hr17min15sec for documentation, 1hr41min18sec for communication, 1hr43min18sec for bedside care from their Daily Activities.
- The nursing staffs, spent 0.91% of the time on filling the Blood transfusion form, 1.55% for documenting the Blood sugar level, 7.44% for documenting the Medication Chart, 10.71% for documenting the Vitals Checking, 13.59% for documenting the Daily assessment form, 17.44% for documenting the Nurses notes, 48.35% for documenting the handover, from their Daily Activities.
- The nursing staffs, spent the average time of 1min33sec on With patient, 3min24sec for With attender, 5min58sec for With support staff, 6min49sec With doctor,

9min51sec for With nursing staff, 36min1sec for handover, 37min41sec for Doctors round, from their Daily Activities.

- The nursing staffs, spent the average time of 11sec on billing, 20sec for calling attender, 23sec for radiology, 51sec for lab, 2min for shift boy, 2min10sec for helping other staffs, from their Daily Activities.
- The nursing staffs, spent 4.97% of the time on other work, 8.48% of the time on attending calls of other staffs, 13.74% of the time on radiology, 19.59% of the time on pharmacy, 25.44% of the time on doctor, 27.78% of the time on lab, from their Daily Activities.
- The nursing staffs, spent 0.06% of the time on blood sugar testing, 2.35% of the time on vital checking, 3.80% of the time on medication, 7.12% of the time on IV Infusion, 9.87% of the time on blood transfusion, 13.36% of the time on dressing, 22.10% of the on other care, 30.08% of the IV cannulation from their Daily Activities
- The nursing staffs spent the average time of 29sec on shifting to ward/ICU, 6min52sec for Shifting to OT, 19min28sec for Shifting to radiology, from their daily activities
- The nursing staffs spent 6.78% of the time on printing report, 27.72% of the time on Request for investigation, and 65.51% of the time on indenting medicine, from their Daily Activities

The recommendations include:

- *Admission*
 - Prior arrangement of in-patient department charts by staffs before the patient admission at ward.
 - Proper communication should be maintained between inter department (billing, admission and nursing staff).
 - While admission processing, the checklist of basic detailed of patient (history of hospitalization, allergies etc.) Can be filled by the patient or their attender it will reduce the time spent by staff on particular patient admission process at bed side.
- *On system*
 - Each staff nurse should be avail with personal gadgets, so there won't be ant collision between the staffs.
 - The system must be updated because there is an issue in system hanging which leads to intending process.
- *Patient movement*
 - Separate investigation setup can be generated to reduce the time spent on the patient movement.
 - Assigning new shift boy for patient movement which will reduce the time for staffs and patient.
 - Proper communication between inter department which would reduce patient.

Movement and time.

- *Documentation*
 - Electronic health record will help the nurses to reduce the written work burden.

- Can generate separate nurse's documentation folder to prevent entering of information into the wrong chart and missing of documentation.
 - Proper education should be provided to staff regarding the entry of information in the charts.
 - Separate issue chart can be generated to highlight it.
- *Pneumatic tube system installation will minimize the issue of delay in medicine supply*
 - *Tracking system*

VI. CONCLUSION

Internationally, there are concerns about rising nursing staff's shortages, which could be attributed to both recruitment and retention issues. Results of the current study demonstrated that main processes (preparing and clearing requisites, documentation, care coordination, transportation) that can be improved upon and some of these processes do not require dedicated nursing skills; and can potentially be performed by other staff members (non - nursing profession). In future to reduce the workload on nursing staffs the, hospital management can consider such ideas, to make nursing staff to work smoothly and to prevent any clinical error, because it's a matter of patient safety.

REFERENCES

- [1]. Virginia Henderson: The Nightingale of Modern Nursing September 8, 2020, https://www.americansentinel.edu/blog/2020/09/08/virginia-henderson-the-nightingale-of-modern-nursing/http://currentnursing.com/nursing_theory/Henderson.html.
- [2]. Hart, S. G., & Staveland, L. E. (1988). Development of NASA-TLX (Task Load Index): Results of empirical and theoretical research. In P. A. Hancock & N. Meshkati (Eds.), *Human mental workload* (pp. 77–106). New York: Elsevier Science Publishers B.V (North Holland).
- [3]. Isik U. Zeytinoglu, Margaret Denton, Sharon Davies, Andrea Baumann, Jennifer Blythe, Linda Boos. "Deteriorated External Work Environment, Heavy Workload and Nurses' Job Satisfaction and Turnover Intention," *Canadian Public Policy*, Volume 33, Supplement/numéro special 1 / 2007, S31- S47
- [4]. Pratibha P Kane, "Stress causing psychosomatic illness among nurses", *Indian journal of occupational & environmental medicine*, Year: 2009, Volume: 13, Issue: 1, Page: 28-32.
- [5]. Amin Supreeta G., "A study to determine the influence of workload on nursing personnel", Ph.D. Dissertation submitted to the WESTERN MICHIGAN UNIVERSITY", 2011,480,ProQuest® Dissertations & Theses, pages; 345517