



“An Exploratory study to find the relationship between Nursing Care and Patient Outcomes by using Performance Indicators in view to Standardize Staffing requirements in a tertiary care teaching hospital”.

Mrs. Metilda S Bijapur¹, Mr. Tilak Joshi², Ms. Mani Bijlee³

Prof & HOD of Child Health Nursing Department¹, Asso Prof of Community Health Nursing Department², Asst Prof & HOD of ObG Nursing Department³

Faculty Research Project, RGUHS Research Grants.

SDM Institute of Nursing Sciences,

Shri Dharmasthala Manjunatheshwara University,

Sattur, Dharwad-580009, Karnataka, India.

Corresponding author E-mail:

Metilda.bijapur@sdmuniversity.edu.in

metsbenita4@gmail.com

ABSTRACT

Background of the study:

Measuring the impact of nursing care on patient outcome is indeed a complex task. Despite the fact that Nurses make up the largest proportion of the health care workforce, shortage of nurses and the cost of the nursing workforce is a growing concern worldwide. To achieve positive patient outcomes, standardized measures are essential to evaluate nursing interventions and implement quality improvement initiatives. Patient satisfaction is central indicator for health care quality.

Aims: To assess the quality of nursing care provided and explores the relationship between nursing care and patient satisfaction so as to determine the association between patient satisfactions with nursing care.

Conceptual Frame work

Donabedian Quality Improvement framework was adopted in this study,

Methodology

A quantitative exploratory research design, Non Probability Purposive sampling technique based on the inclusions and exclusions criteria 600 patients and 610 staff nurses were selected, data was collected using a structured Performa for Socio demographic variables of the samples, Performance Indicators, Patient Satisfaction Scale and Performance Observational checklist.

Results

Data was analyzed using descriptive and inferential statistics. Majority of the subject's professional qualifications 83.8% were GNM and 24.2% had maximum 1-2 years of experience in the current ward, whereas majority 65.5% of the subjects, were between the age of 41-60 years. The staff nurses' practice level 86.67% were moderately compliant, comparatively patient satisfaction with nursing care 58% of patients were very satisfied. Significant association between Nursing Care and years of experience in the current ward (1-2years) at 0.05 level of significance and High significance between patient satisfaction with age (41-60years) and gender (Male) was found.

Conclusion

The findings revealed that the quality of nursing care provided did not reach the desirable level. There was a significant association between level of Patient Satisfaction (PSS) and Nursing Care among patients admitted in hospital with their personal variables.

There is a need to introduce Standards like Performance Indicator, patient Satisfaction scale and develop a standard staffing pattern to enhance quality in nursing care.

Key words: Quality, Nursing Care, Patient satisfaction scale, Performance Indicator, Staffing standards

INTRODUCTION

The quality of nursing care is central to the success of the health care. Nursing is the profession that is closest to patients, providing care 24 hours a day, seven days a week. Far too often, nurses are overloaded and work under-supported as organizations seek to lower costs and boost profits.¹The drive for quality in the Health Care today has birthed Accreditation, the most influential mechanisms to improve Health care quality rather than simply maintaining minimal levels of performance, so as to publically recognize the organizations performance for benefit of both the consumer and provider.

Quality of nursing care is invariably vital to patient outcomes. Though nursing care is conceptualized and practiced differently by individual nurse's philosophical approach to nursing, basically influenced by Nurse Education and background, nursing experiences and the practice settings in which they work. Whereas, Patients perception of good quality nursing care is viewed differently. Patients are likely to care more about the responsiveness of the nurses who are caring for them. It is clear therefore, that nursing is important and it is difficult to measure, but measuring it is important.²

The emphasis on quality of care and outcome measurement led to an increased recognition to the role of patients' perception of nursing care provided and has become element of significance in the modern health care management. Therefore, patients' perception related to quality of nursing care provided has been considered seriously in assessing and evaluating health care services. Nurses are involved in almost every aspect of patients care and interact with patients more often than any other health care professional in a hospital.³

In India, the healthcare system has undergone a radical change due to changing demographics, advanced medical technology and the depth of gap between Nursing education and Nursing service. The Nurses equally

face challenges at workplace, which leave them helpless and inefficient in providing quality care to patients. Shortage of Nurses being one of the challenges.⁴

Background of the study:

In today's increasingly competitive health care market, effective quality nursing care is a critical component of high value and an essential drive of the health system's success. Investigating the impact of Nursing Care on patient's health status and the need to determine work practices, along with the availability of Nurses (staffing) and policies associated with quality patient care continues to be a crucial.

Therefore, Measuring Patient outcome to determine if Nursing care makes a difference (what the nurse does for the patient, with predicted health outcomes that result from specified nursing interventions) requires a new set of Clinical skills. As Nurses' make up for the largest human resources in hospitals, there is an immense pressure on paying salaries, unfortunately to meet this need the organizations maintain shortage of Staff Nurses, This strategy however, is shortsighted, as appropriate Nurse staffing levels are essential to optimizing the quality of care and patient outcome in this era of value-based health care.⁵

Hence, even as adequate Nurse staffing is vital to patient care, measuring Nursing interventions with Performance Indicators (PI's) as standards are imperative for external accountability and can serve as a means to promote quality improvement and boost hospital performance. Nurses have a professional obligation to develop and document the evidence base for the entirety of nursing practice and shift from a task-based practice, which emphasizes what Nurses do for patients, to an outcome-based practice that emphasizes what Nurses achieve with patients.⁶

A study finding provides convincing evidence of the crucial role that staffing ratios and administrative, managerial support play in the quality of patient care and patient outcomes. The challenges that nurse face and the solutions to poor quality of care are common across countries; making the case that nursing is indeed a global community. Hence, when hospitals employ policies that favor highly educated nurses, established staffing policies for patient acuity, and organizational policies that support nurses in their decision making are the common attributes of hospitals where nurses will want to work and patients will have good outcomes.⁷

Qualified nurses must learn to develop skills and competency to deliver patient care efficiently. Measuring the performance of nursing care for quality improvement is mandatory in today's healthcare. Developing quality improvement tools and using it as yardstick in measurement is crucial. After an extensive literature review, discussions with experts and personal experience the investigators felt that there is a need to evaluate quality nursing care for better patient outcomes, patient satisfaction and develop staffing standards for the tertiary teaching hospital.

Title of The Project

“An Exploratory study to find the relationship between Nursing Care and Patient Outcomes by using Performance Indicators in view to Standardize Staffing requirements in a tertiary care teaching hospital”.

Aims & Objectives of the study:

1. To assess the Quality of Nursing Care provided and Patients Satisfaction towards the care received.
2. To explore the relationship between Nursing Care and Patient Satisfaction among patients.
3. To determine association between Nursing Care (PI's) and Patient Satisfaction (PSS) scores with their selected Socio Demographical variables.

Hypothesis

Following hypotheses were stated to determine the statistical evidence of the findings at 0.05 level of significance.

H1: There will be Significant Association between quality of Nursing Care assessed using the Modified PI's among Staff Nurses with their personal variables.

H2: There will be Significant Association between the levels of Patient Satisfaction (PSS) and Nursing Care among patients admitted in hospital with their personal variables at 0.05 level of significance.

Conceptual/Theoretical Framework

The study explored the relationship between Quality of Nursing Care and Patient Outcomes.

The conceptual frame work used for the study was adopted from Quality Improvement Donabedian framework, which provides with the three components approach for evaluating the Quality of care which underpins measurement for improvement. The structure, process and outcome represented by a chain of three boxes connected by Non-recursive arrows representing a reciprocal relationship between them.

Methodology

Research Approach :	Quantitative Research Approach
Research Design :	Exploratory research Design
Samples :	Staff nurses (Male & Female) & patients.
Sampling Technique :	Non Probability Purposive sampling technique
Sample Size :	620 Staff Nurses and 600 Patients
Tools :	4 Modified Performance Indicators &. Modified Laschinger's Patient satisfaction scale

Plan for Data Analysis:

Descriptive statistics (frequency, percentage, mean, median and standard deviation) and inferential statistics were used for analysis and interpretation of data.

Setting of the Study: Study was conducted in the Medical and Surgical wards grouped together as Study wards A, B and C of the selected Tertiary Teaching Hospital, Dharwad

Sampling Criteria: Present study samples were selected by keeping in view of the following criteria.

Inclusion criteria:

- Staff nurses (Male & Female) who possessed state council registration, working in the selected tertiary teaching hospital and who were involved in the direct nursing care of the patients.
- B) Patients admitted in the setting during the data collection period, whose age ranged between 21-60 years, who could read and write in English/ Kannada and were conscious, oriented to time, place, person and whose length of stay was more than 5 days were included in the study

Exclusion criteria:

- Staffs who were not involved in the direct nursing care of the patients.
- Patients staying for less no of days, who were not conscious and oriented.

Variables: study variables: Modified Performance Indicators &. Modified Laschinger's Patient satisfactionscale

Content validity:

Content validity of the tool was ensured by 5 experts in the field. The suggestions were considered and modified

Reliability of the tool:

The accuracy of an instrument was entrenched through pilot study. The reliability of knowledge was tested by Karl Pearson's Co-efficient of Correlation, the score was($r=0.80$). Item analysis was done to test internal consistency. This indicates that tools were reliable.

Data collection Instrument

Part I: Performa for selected personal variables (Staff Nurses)

This consisted of 7items regarding socio demographic variables of the study subjects such as area of work, age, sex, professional qualifications, total professional years of experience and area of highest experience in the hospital

Part II: Modified Performance Indicators (PI's)

Process indicators were identified and developed as essential after extensive research review for measuring the Quality of Practice Levels in Nursing Care

The Process PI's were

- Clear in the category, key result area/ outcome, target to be achieved, metric, start date, status, and follow up date, actions to be taken.
- Consistent in delivery of Nursing care with the Institutional Nursing Assessment format.
- Structured observational Check list was prepared separately for the PI's with two alternative responses Yes/No. Each Check list consisted of 10 items
 - Patient safety
 - Pressure ulcers
 - Fall risk
 - Infection control

The Outcome PI was related to Patient satisfaction (Modified Laschinger's Patient Satisfaction Scale) (PSS)

The Modified Laschinger's Patient Satisfaction Scale had three parts

- Requesting patient to share his/her opinion and date/ time of admission
- Patient personal information / socio demographical variables like age, sex Education, nature/reason for admission.
- Questionnaire consisted of ten items related to hospitalization and Nursing care provided they were grouped into 3 major categories:
 - Information given by Nurse's
 - Quality of Nursing Care provided
 - Overall satisfaction with the Nursing Care

Results:

To evaluate the quality of care provided by Staff Nurse and assess the Patient Satisfaction with the care they received in the hospital. The data from the participants were organized meet the objectives and hypothesis of the undertaken study. The analyzed facts of the study were organized as below mentioned section.

Measurements of Practice levels of Nursing care (PI's) Patients Level of Satisfaction towards it.**Table 1: Frequency and Percentage Distribution of Staff Nurses according to Practice Levels and Compliance.**

Practice Levels of Nursing Care and Compliance	F	%
Poor (1-12) Non Compliance	11	1.9
Average (13-25) Moderately Compliant	520	86.67
Good (26-38) Compliant	89	14.9

The above Table 1 outlines, majority of Staff Nurses 86.67% Practice levels of Nursing care was Moderately Compliant and 14.9% were Compliant

Table 2: Frequency and Percentage Distribution of Patients according to the Levels of Satisfaction.

Levels of Patient's satisfaction (PSS)	F	%
Dissatisfied (1-16)	82	13.67
Satisfied (17-33)	170	28.33
Very satisfied (34-50)	348	58

The above Table 2 shows patient's satisfaction level and (170)28.33% subjects were Very Satisfied and (348) 58% were satisfied.

Computation of correlation between Practice levels of Nursing Care and Patients Satisfaction.**Table 3:**

Variables	Pearson Correlation (R)	P Value
Practice levels of Nursing Care (P I's)	0.011*	0000.785
Patients Satisfaction scale (PSS)		

The Table 3, reveals there is no correlation between Practice levels of Nursing care (PI's) and Patient Satisfaction (PSS) ($r=+0.011$). Hence, there is a no statistical significance or any correlation between Practice levels of Nursing Care (PI's) and Patient Satisfaction scale (PSS)

Inference of Association between selected Personal Variables of Staff Nurses and Patients with Nursing Care and Patient Satisfaction. (Chi- Square)

**Table 4(A): Association between Nursing Care (PI's) of Staff Nurses with Personal Variables
n=620**

Sl. No	Staff Nurses Personal Variables	X ²	D F	P- Value
1.	Area Of Work a. Study Ward A b. Study Ward B c. Study Ward C	4.48	4	9.49
2.	Age a. 21-25 b. 26-30 c. 31-35 d. 36-40 e. 41-45 c. f. 46 & above	6.14	5	11.07
3.	Gender Male /Female	3.09	1	3.84
4.	Qualification a. GNM b. Basic B.Sc. (N) c. P.B.B.Sc d. M.Sc. (N) Any other specialization specify	1.16	3	7.82
5.	Years Of Experience In The Current Ward a. < 6 months b. 1-2 years c. 2-3 years e. > 4 years	62.09	3	*7.82
6.	Area Of Highest Experiences After Completion Of Nursing Course a. Study ward A b. Study ward B d. Study ward C	4.74	10	18.31

*= Significant

Data presented Table 4 (A), reveals highly significant association between Nursing Care and years of experience in the current ward (1-2years) at 0.05 level of significance. Therefore, the findings fully support the research hypothesis H₂, inferring significant association between levels of the Performance of Nursing Care among staff nurses and their personal variables.

**Table -4(B) Association between Patients Satisfaction scores with Personal Variables.
n=600**

Sl No	Personal Variables	X ²	D F	P- Value
1.	Age 21 – 40 years 41 –60 years	95.16	3	*7.82
2.	Gender Male Female	5.60	1	*3.84

3.	Education Illiterate Primary Secondary Graduate	65.22	3	*7.82
4.	Nature Of Admission Surgical • Male • Female Medical • Male • Female	0.17	1	3.84

*Significant

Data presented Table 4 (B) shows that the obtained chi- square value was highly significant between patient satisfaction and age (41-60years), gender (Male), education (Primary) at 0.05 level of significance.

Therefore, the findings fully support the research hypothesis **H₂** inferring significant association between levels of the patient's satisfaction with nursing care among patients with their selected personal variables.

Discussion

Nurses are essential for delivering high-quality patient care. The purpose of this research was to explore the Relationship of Nursing Care with Patient outcome by using Performance Indicators and Patient Satisfaction Scale.

To achieve the set objectives of the study, data was collected from 620 staff nurses and 600 patients in phase I selected through non probability purposive sampling, in the selected Tertiary Teaching Hospital.

In the phase II, The Quality of Nursing Care provided by Staff Nurses was assessed using structured observational checklist which were developed for the tool (Modified PI's) and Patient satisfaction tool (Modified PSS)

Majority of the subjects 49.3% worked in the study wards A 22.2% were from study ward B, and the rest 20.7% belonged to study ward C.

Considering age of the Staff Nurses majority (46.5%) belonged to age group of 21-25 years, (83.5%) Staff Nurses were females and the rest (14.6%) were males.

Related to professional qualifications majority of the subjects (83.8%) of them had completed GNM, a trivial (11.43%) Basic BSc Nursing, a few (3.5%) of them had completed Post Basic B.Sc. Nursing and the rest 1.12% had completed masters (M.Sc.) Nursing. Since the study was conducted in a tertiary teaching Hospital, nursing students after completion joined as staff nurses (GNM). This is in similitude with a study conducted in Gujarat Government hospital where the author opined his suggestion to the Gujarat state Government to improve nursing graduation levels for staff nurses to at least BSc degree.⁸

Regarding years of experience in the current ward majority of the staff nurses (32.7%) had maximum of at least 1-2 years of experience. Regarding area of highest experience after completion of the course 57% had experience in the Study Ward A. This implies that most of the Staff Nurses were in the same ward for at least 1-2years and all the Staff Nurses did get to work in major General wards (grouped as Study Ward A) which were good for practicing Nursing skills and becoming efficient.

Regarding patients, majority 65.5% of the subjects, were between the age of 41-60 years and most of the subjects were male 63%,

The finding of the present study in **Table 1** revealed that, a trivial (14.9%) of Staff Nurses practice levels were Compliant, where as a comparable (86.67%) of them were Moderately Compliant and few (1.9%) were Non -Compliant. This implies that the Quality of Nursing care was deficit and was not up to desirable level. These findings on compliance implies that there is an need for on the job training regarding the standards of practice,(Performance Indicator) which should be disseminated in the wards for information to Nurses for practice and maintenance of Quality in Nursing Care

The above findings are similar to a study which targeted training programs for different levels of nurses and hence enabled them to gradually increase their competency levels which promoted nurse's enthusiasm to provide quality nursing care and this improved the patient satisfaction levels as well.⁹

In regard to Patient Satisfaction **Table 2** outlines that the majority of the Patients (58%) were Very Satisfied compared to (28.3%) who were Satisfied and few (13.6%) who were Dissatisfied. In this study, the quality of nursing care and the patient's satisfaction with the care provided were investigated. The findings revealed that the quality of nursing care provided did not reach the desirable level and hence, concluded that the problems faced by Nurses should be resolved to attain quality in the care provided by them.

This is in similitude with a study conducted in a Tertiary hospital in Ethiopia, to assess patient perception with nursing care, 340 patients were included in the study Patients satisfaction with overall nursing care was neither satisfying or dissatisfying (Mean of 3.39), While only 36% of the respondents were satisfied with the Nursing Care.¹⁰

This calls for an action from the Nursing Administrators to perform continuous evaluation through Nursing Audit.

In **Table 3**, The calculated 'r' value was lesser than the table value at 0.05 level of significance (PSS) ($r=-+0.011$). Hence, there was no statistical significance or any correlation between Practice levels of Nursing Care and Patient Satisfaction.

Thus the stated Hypothesis H1 was rejected

This is in similitude with a descriptive study conducted in Neuro ward and ICU of a hospital in South India, with an aim to identify relationship between patient satisfaction with quality of nursing care, the study concluded that there was no significant relation between patient satisfaction with quality of nursing care.¹¹

Quality improvement is related to nursing care. Therefore, nursing care should be recognized as an important element in patients' satisfaction.

In **Table 4(A)**, the results were found to have significant association between Nursing Care and years of experience (1-2years) in the current ward at 0.05 level of significance.

In another similar study "Taking nurse staffing research to the unit level" where the author describes Nurse characteristics as the experience and skills of the nurses vary in terms of education level; years of experience; the experience of working on a specific unit or with a specific patient population; and the knowledge, or competency, to perform certain skills.¹²

In **Table 4 (B)** there was a significant association between patient satisfaction, and three personal variables like age(41-60years), gender(Male) and Primary education at 0.05 level of significance.

Therefore, the above findings of **Table 4 (A) and (B)** fully support the research hypothesis **H2** inferring the significant association between levels of the patient's satisfaction with nursing care among patients with their selected personal variables. The results were in tandem with another study where it was observed that, among the 19 socio-demographic variables found to be associated with satisfaction with quality of nursing care were male patients between 40-60years, who had basic education (primary). Therefore, age of patient could be said to be one of the determining factor in client's satisfaction with nursing care.¹³

Considering age of the Staff Nurses majority (46.5%) belonged to age group of 21-25 years, (30.9%) professional qualifications majority of the subjects (83.8%) of them had completed GNM, a trivial (11.43%)

Conclusions

Nursing is conceptualized and practiced differently by individuals. The measurement of nursing care and its impact on patient outcomes is expanded and refined; it is time that all nurses focused on the quality of care.

Nurses should be able to articulate the contributions that they make to patient outcomes as they are in an ideal position to act as an advocate for patients who are navigating the increasingly complex healthcare system. The assessment of nursing care quality and patient satisfaction permitted the identification of strengths and weaknesses in the study area, providing support for the reorganization of care, management and teaching activities and standardizing a Staffing Pattern for the Tertiary Teaching Hospital is essential.

- The findings revealed that the quality of nursing care provided did not reach the desirable level. There was a significant association between level of Patient Satisfaction (PSS) and Nursing Care among patients admitted in hospital with their personal variables.
- There is a need to introduce Standards like Performance Indicator, patient Satisfaction scale and develop a standard staffing pattern to enhance quality in nursing care.

Recommendations

- Performance Indicators to prevent adverse events in the hospital should be mandatory
- Accountability and Responsibility of patient care should be made active in appraisal of nurse.
- Standard staffing pattern should be developed for tertiary teaching Hospital.¹⁴

Bibliography

1. SafeStaffing: Critical for Patients and Nurses .<https://www.dpeaflcio.org/factsheets/safe-staffing-critical-for-patients-and-nurses>15 Apr 2019 ... 2019 Fact Sheet. PDF
2. J Sim, Measuring the quality and safety outcome of Nursing, School of Nursing, *University of Wollongong*, NSW Australia 2015.<https://ro.uow.edu.au>
3. Mufti Samina, Qadri GJ, et.al :Patients perception of nursing care at a large teaching hospital in India: *Int.J Health Sci.* 2008 Jul; 2(2): 92–100. PMID: PMC3068745
4. Chhugani M, James MM. Challenges faced by nurses in India-the major workforce of the healthcare system. *Nurse Care Open Access J.* 2017;2(4): 112-114. DOI:10.15406/ncoaj.2017.02.00045
5. Optimal nurse staffing to improve quality of care and patient outcome: Prepared for the American Nurses Association Prepared by: Avalere Health LLC: <https://cdn.ymaws.com/www.anamass.org/resource/resmgr/docs/NurseStaffingWhiteP> September 2015
6. Jones T. Outcome Measurement in Nursing: *The Online Journal of Issues in Nursing.* 2016; Vol. 21, No. 2, Manuscript 1. DOI: 10.3912/OJIN.Vol21No02Man01
7. Cheung Robyn B, Linda Aiken: Nursing care and patient outcomes: international evidence, Author manuscript: PMID: PMC2856593 NIHMSID: NIHMS125217, PMID: 182182652008 Jan–Feb; 18(1): 35–40

8. Homa Mosaffay Khomami and Nasreen Rustomfram, Nursing efficiency in patient care: A comparative study in perception of staff nurse and hospital management in a trust hospital: J Family Med Prim Care. 2019 May; 8(5): 1550–1557.doi: 10.4103/jfmpc.jfmpc_37_19 PMID: PMC6559059,PMID: 31198712
9. Zong-XiaChangGui-HuaYangWeiYua;Competency-based management effects on satisfaction of Nurses and patients, IOJ of Nursing Science Vol 1(1), Mar 2014, 121-125: <https://doi.org/10.1016/j.ijnss.2014.02.001>
10. Teshome Gishu, Abate Yeshidinber, et al, Patients' perception of quality of nursing care; a tertiary center experience from Ethiopia. BMC Nursing (2019) 18:37 <https://doi.org/10.1186/s12912-019-0361-z> PMID: PMC6694623 PMID: 31427889
11. Rajeshwari TA study to assess patients satisfaction with quality of nursing care. URI: <http://dspace.sctimst.ac.in/jspui/handle/123456789/1607>. Date: 2011
12. Rebecca A. Paulsen, Taking nurse staffing research to the unit level Nurse Manage. 2018 Jul; 49(7): 42–48, Published online 2018 Jun 11. doi: 10.1097/01.NUMA.0000538915.53159.b5, PMID: PMC6039374; PMID: 29894366
13. A Karaca, Patient satisfaction with the quality of nursing care: www.ncbi.nlm.nih.gov/pmc/articles/PMC6419107 Jan 4 2019
14. www.indiannursingcouncil.org. 2020. cited 2019 Dec 2. Available from: <http://www.indiannursingcouncil.org/pdf/ICNGoldenJublie.pdf>.

Source of funding: RGUHS Grants in aid for Advanced Research Project 2017-18

Ethical clearance: Taken from the Institutional Ethical Committee, Shri Dharmasthala Manjunatheshwara College of Medical Sciences and Hospital, Dharwad

Conflict of Interest : Nil

