

Original Research Article

## How Do Nurses Perceive Hospital Bed Utilization: A Prerequisite for Quality Improvement in Nursing Care

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### ABSTRACT

**Background:** Hospital bed utilization is influenced by various factors which can be divided into patient, physician and administration related. These factors can be seen from the perspective of Nursing staff as they are biggest human resource of any healthcare organization. Any improvement initiative taken by the administration be matched with the nurses perception which ultimately affect the hospital efficiency and quality of care.

**Aim and Objective:** To ascertain the factors influencing hospital bed utilization from the perspective of Nurses.

**Methods:** This cross sectional study was conducted in an apex tertiary care public institution in northern region of India. All the nurses in the 14 wards of different specialties were interviewed using a structured validated self administered questionnaire.

**Statistical analysis:** The data was analyzed using statistical software SPSS version 16, by percentages, mean scores and chi-square test.

**Results:** A total of 162 nurses were enrolled in the study. The factors significantly influencing bed utilization with regard to nurses are patient (1.97, 0.40), physician (1.97, 0.46), administrative (2.39, 0.40).

**Conclusion:** With changing healthcare trends in recent past (innovations in policy decisions, technological advances, business sustainability aspect, quality initiatives etc.), gave an insight to policy makers (administrators) to consider the perception of Nurses (human resource) regarding bed utilization as an important component of healthcare delivery system.

**Keywords:** Perception, Nurses, Bed Utilization, Quality of care.

### INTRODUCTION

The perception of nurses regarding characteristics of healthcare organization and its subsystems can play a vital role in improving structures, systems and processes of the organization. The first and foremost criterion to improve any healthcare

institution is to know how their employees perceived regarding actual performance (of utilization) to desired performance. Perception and awareness of Nurses regarding hospital bed utilisation can be considered as mechanism of internal audit, quality improvement initiatives.<sup>[1]</sup> The term

"hospital bed utilization" denotes the manner in which a certain community makes use of its hospital resources. Over utilization or underutilization are two primary components of inappropriate utilization.<sup>[2]</sup> Over utilization refers to care or use of hospital resources (beds, manpower) which is of no benefit to the patient (such as staying more days after the patient has recovered enough to go home) or care which can be provided in a lower level, less costly healthcare setting<sup>[3,4]</sup> whereas underutilization refers to the care or the use of hospital resources which is below its expectations.

Inappropriate utilization of hospital resources is not a new phenomenon and has been an issue of concern to medical staff, administrators and policy makers worldwide. The utilization of beds in a hospital is influenced by various factors which can be divided into patient related factors, physician related or administration related. Most of the previous studies<sup>[5-11]</sup> attempt to identify the factors associated with inappropriate utilization of hospital beds. Patient-related factors include patient demographic, social, financial status.

Physicians and staff related factors include little autonomy of decision making among resident doctors, fear of law suits, lack of training and job description, heavy duty hours whereas administrative related factors include lengthy admission and discharge procedure, ineffective HIS, non uniform admission policy, lack of quality assurance. To know exactly, where to intervene during any policy decision making or quality initiative, one must ascertain these factors from the perspective of nursing staff. The present study was conducted with the objective to ascertain the perception of Nurses regarding hospital bed utilization of a tertiary medical institute of India.

## MATERIALS AND METHODS

The present cross sectional descriptive study was conducted in a tertiary care medical institution located in a rural area of northern India. The institute caters to approximately 0.5 million outpatients and 0.008 million indoor patients every year. The study was carried over a period of 4 months (August 2013 till November 2013) for in various patient care areas of the institute. All the Nursing staff (Deputy nursing superintendent, Assistant Nursing Superintendent, Sister Grade-I and Grade-II) of all 14 specialties of non-emergency areas of institute was enrolled in the study who was directly involved in direct patient care and in administrative services of the area were also enrolled. A structured questionnaire for Nurses was designed and pretested in 15 respondents of two clinical areas, not a part of the study. The content and consensus validity of the questionnaire was increased by extensive literature search and inviting suggestions by circulating it among experts of the field.

Each unit was visited personally by the principal researcher after taking due appointment from the study participants. Prior consent for conducting of study was obtained from the participants after briefing them the objectives of the study. The self administered questionnaire was distributed to them and filled questionnaire was collected from them at pre-arranged timings. The confidentiality of the data was assured by collection of filled questionnaire directly into a box. The difference in the perception of doctors and nurses were assessed by stratifying the data into various groups and their percentages and mean scores were calculated. The responses were taken on 3 point likert scale where scored 3(maximum) for agree, 2 for can't say and 1(minimum) for disagree. The mean score value (agreeableness score) between 2 and 3 was taken as strongly agree, between 1 and 2 as agree and between 0 to 1 as disagree. The

difference of significance between respondents was calculated by applying chi square test.

The inclusion criteria include Nurses of all 14 specialties in non- emergency areas of the hospital who has been serving the institute for more than 6 months. The emergency areas of the hospital were excluded as health care staffs were too busy in managing critically ill patients. The participants who denied consent or refused to participate were also excluded.

**Table 1: Socio-Demographic Profile of the Respondents in the study.**

Variable	Nurses (n=162)	
	N	%
Male	04	2.4
Female	158	97.6
Less than 25	57	35
25 – 40	50	31
More than 40	55	34
Less than 5	57	35
5 – 15	50	31
More than 15	55	34
Area of Work		
Specialty Ward	162	100

**Table 2: Perception of Nurses regarding various factors affecting hospital bed utilization**

Factors	Nurses(n=162) N (%)	Chi-Square	p value
Satisfaction of every need of patient	48(29.6)	34.1	0.00
Large number of hospital beds	28(17.3)	66.9	0.00
Inability of family members to take care	18(11.1)	22.3	0.00
Patient's uncooperative attitude & Refusal for discharge	62(38.5)	19.3	0.00
Too Serious to discharge	137(84.6)	24.4	0.00
Socio demographic factors of patients	115(71)	15.4	0.00
Expertise of doctors	91(56.2)	26.6	0.00
Being research & teaching Institute	85(52.5)	33.9	0.00
Little autonomy of Junior doctors to discharge patients	69(42.6)	31.7	0.00
Practice of defensive medicine/fear of law suits under CPA	29(17.9)	17.8	0.00
Lack of training/clear cut job description	49(30.2)	85.9	0.00
Long duty hours of doctors	75(46.3)	54.6	0.00
Lengthy admission & discharge procedure	58(35.8)	65.7	0.00
Lack of admission and discharge policy	54(33.3)	89.71	0.00
Non proficient Hospital information system	73(45.1)	25.8	0.00
Lack standard operating procedure (SOP) in ward management	119(73.5)	10.8	0.01
Lack of quality assurance department	131(80.9)	24.8	0.00
Hurdles in mode of payment	78(48.1)	29.6	0.00

**Table 3: Perception of Nurses regarding Hospital Bed Utilization in Different factors viz Patient, Physician, Administrative.**

Factors	Nurses* (n = 162)	
	Mean score (SD)	95% C.I
Patient	1.97 (.40)	1.91 – 2.03
Physician	1.97 (.46)	1.89 – 2.04
Administrative	2.39 (.40)	2.32 – 2.45

\* p value < 0.01, F = 19.43

## RESULTS

A total of 162 Nurses were enrolled in study. The overall response rate was 93%. The socio demographic profile of the participants are given in Table-1.

43.8% Nurses opined (Table-2) that there is a longer stay of patients in hospital ( $p$  value < .05). The associated factors like satisfaction of every need, large number of beds, inability of family members to take care of patients and uncooperative attitude of patients were agreeable to very less number of respondents (11-43.8%). However, the respondents feel that referred patient's with critical condition and age, socioeconomic status were prime reason for overstay of the patients (65-84.6%). The mean S.D, 95%C.I score of patient related factors among nurses related to overstay was 1.97(.40, 1.91-2.03) (Table-3). There was significant difference ( $p$  < 0.05) in the perception of nurses in patient, physician administrative related factors.

The physician related factors are shown in (Table-2) which depicts that agreeableness of nurses varies was comparatively less (17.9 to 52.5%). The mean (S.D, 95% CI) of nurses were 1.97 (.47, 1.89-2.04) (Table-3).

Majority of Nurses agreed that admission and discharge policy of institute plays a role in bed utilization. The mean score (S.D, 95% CI) of administrative related factors among nurses were 2.39 (.47, 2.32-2.45) (Table-3).

The agreeableness score of nurses with regard to patient, physician and administrative factors ranging from 1.97-2.39 with maximum agreeableness in administrative factor.

## DISCUSSION

The result of present study shows that a substantial percentage of Nurses perceived that hospital beds are inappropriately utilized. It could be argued that the perception regarding causes of inappropriate utilization of hospital beds would have been different if it had solely been based only on the patient's perception. The justification for our approach was based on the fact that Nurses decisions play a crucial role in patient's stay in the hospital and any policy decision of any organization.<sup>[2,12,13]</sup> In the present study, most of the respondents were in young age group who will serve the organization for a longer time, hence their perceptions and viewpoints are important for implementation and policy decision of any patient care related activity. Most of the respondents did not agree that satisfaction of every need of patients, uncooperative attitude of the family members and availability of large number of the beds are the causes for overstay. These results were in line with the previous research<sup>[14-19]</sup> which reported that the patient or the patient's family can contribute to unnecessary bed utilization by insisting the physician to admit or by delaying discharge.<sup>[20,21]</sup> In addition, although not examined in this study, patient characteristics such as lack of family support, age and lack of health check up after discharge influence inappropriate

hospital utilization.<sup>[22]</sup> Other studies, however, indicate that the patient and the patient's family are relatively insignificant contributors to inappropriate bed utilization. Most of the respondents in the study perceived public perception of better services, high status of public doctors, reputation of research institution and little autonomy to resident doctors are the causes for overstay .The existing literature also indicates that the overutilization of hospital resources may be influenced by training of doctors on utilizing hospital resource. The doctors may sometimes practice defensive medicine where they order investigations (e.g. lab tests and x-rays, more procedures) to protect themselves in case of law suits or to satisfy the patient, thus leading to overstay in a hospital The present study did not highlight practice of defensive medicine as reason for overstay which can be explained as ignorance of laws among Nurses. It was also observed in the study that nurses didn't consider lack of training ,clear cut job description in ward management and heavy workload and long duty hours of doctors as reasons for inappropriate bed utilization. It could be explained by the fact that duty hours of the nurses are usually for six hours in shifts. Most of the nurses in study agreed that lack of admission and discharge policy and lengthy procedures of admission and discharge of the hospital influence the hospital stay. The overall response rate advocates strongly about the standardizing of all admissions and discharges in the hospital. This study also provides an insight to redesign patients' pathways and improve patient flow system, ward management for better hospital bed utilization. Respondents in this study also reported that frequent technical errors, absence of guidelines and procedures, poor health computing systems and the absence of quality management department were among the important

factors influencing the utilization of hospital resources, these findings were in congruence with previous research. This study depicts that majority of the nurses perceived that ineffective hospital information system, absence of standard operating procedures and quality assurance mechanisms in ward management could influence hospital stay. Similar findings were also observed in various studies where it was interpreted that modern healthcare is technology driven and if we use technology it will smoothen various processes and thus improve efficiency of any organization. Among all factors, patient, physician and administrative factors, nurses perceived most of the administrative factors as the causes for overstay and considered them important.

## CONCLUSION

With changing healthcare trends in recent past (innovations in policy decisions, technological advances, business sustainability aspect, quality initiatives etc.), policy makers and administrators have to consider the perception of Nurses (human resource) regarding bed utilization as an important component of healthcare delivery system.

Further, it is pertinent to mention here that the understanding and intervention at these factors can be used for effective change management or reengineering of today's healthcare institutions and helps health decision makers to optimize the appropriateness of the hospital bed utilization and improve quality of care.

**Limitations of the study:** This study was conducted in one institution, hence the results cannot be generalized, the results may vary in different set up. The study was limited to perception of nursing staff only the range could be widened by including other staff members (doctors, paramedics) of the hospital. This study did not include emergency areas of the institution. The

perception of nurses in these areas may differ and could be a topic of further research.

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**Author's contributions:** DVK has made substantial contribution in conceiving idea, designing, acquisition of data, analysis and interpretation of the data. DPK has contributed with his valuable suggestions and research acumen in every stage of the study. DNS made a contribution in drafting the manuscript and gave her vital inputs in critical-interpretations. Also, she supervised this study during the preliminary stages.

**Competing Interests:** The authors declared that they have no conflict and any competing interests.

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