

A STUDY ON TURN AROUND TIME OF NURSING CALL BELL RESPONSE SYSTEM AT A MULTISPECIALITY HOSPITAL

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

By

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Under the Supervision and Guidance of

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To Whomsoever it may concern

This is to certify that **Dr. Shivani Harish Dhamgaye** from Indian Institute of Health Management Research, Jaipur has satisfactorily completed her internship/ dissertation in the Department of **Marketing** at **Godrej Memorial Hospital**, from **01-Apr-2024** to **30-Jun-2024**.

The study on **Nursing Call Bell Response System and TAT in Response Time** a Descriptive study was undertaken as a part of her academic fulfillment.

Yours Truly

For Godrej Memorial Hospital

Lt. Col. Dr. L C Verma (Retd.)
Chief Executive Officer



DECLARATION BY STUDENT

I hereby declare that this dissertation titled “A Study On Turn Around Time of Nursing Call Bell Response System at a multispeciality hospital ” is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.



(Signature)

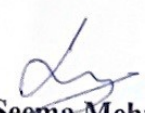
Name of Student:

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Date: 05/07/24

CERTIFICATE

This is to certify that dissertation titled **"A STUDY ON TURN AROUND TIME OF NURSING CALL BELL RESPONSE SYSTEM AT A MULTISPECIALITY HOSPITAL"** is a record of the research work undertaken by **Dr. Shivani Dhamgaye** in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and ~~his~~/her approach to the research study has been sincere, scientific, and analytical.

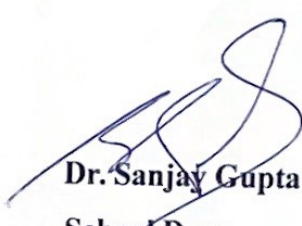


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Sincerely,

Dr Shivani H Dhamgaye

Table of content

S.No.	Contents	Page No.
1.	About Organisation	8
2.	Abstract	10
3.	Chapter 1 : Introduction	13
4.	Chapter 2 : Literature review	15
5.	Chapter 3 : Methodology	21
6.	Chapter 4 : Results	25
7.	Chapter 5 : Discussion	30
8.	Chapter 6 : Conclusion	32
9.	Recommendations	33
10.	References	34

ABOUT ORGANISATION

Godrej Memorial Hospital in Mumbai is a testimony to the dream of the Godrej Memorial Trust, working since 1984 for the community with its clinic in Okhla, New Delhi, to make world-class healthcare services available at extremely competitive prices. This modern, multi-specialty 110-bedded hospital acts as a beacon of brilliance in healthcare, working to address diversified medical needs of the community with rigid standards of care and compassion.

Godrej Memorial Hospital was commissioned with the mission of delivering compassionate healthcare in a rational, ethical manner and adhering to the trust's ethos of ensuring that quality healthcare remained within reach of all people in society. The charity model of the hospital does not compromise on quality with the idea of giving to the masses by serving their health needs.

Vision:

To be a Center of Excellence in Medicine with a focus on Emergency Medical Care.

Mission:

Provision of Compassionate Health care to all at an affordable cost in a Rational and Ethical manner with a focus on quality.

Accreditation: Godrej Memorial Hospital is accredited by NABH in 2009 by the National Accreditation Board for Hospitals & Healthcare Providers and NABL in 2008 under the National Accreditation Board for Testing and Calibration Laboratories. Therefore, it adheres very strictly to the guidelines of quality. These accreditations insinuate that the hospital indeed strives toward excellence with respect to patient care, clinical excellence, and operational efficiency. Adherence to such high standards reassures patients about the reliability and safety of the healthcare services being provided to them.

The vision is not just to run a basic setup of medicine but to become a hub of excellence in medicine, particularly in emergency medical care. This means that the institute strives

relentlessly in terms of improvement in medical practices, technological integrations, and patient-centered health care. Godrej Memorial Hospital has a vision to set benchmarks in terms of emergency care response time, critical care management, and overall patient satisfaction.

Godrej Memorial Hospital has won many accolades for its service towards healthcare and social welfare. Some of the prestigious awards won by this Group include the Big Impact Award, 2023, for making a big difference in transforming Healthcare. The group has also been awarded for business practice with ethics and social infrastructure-building initiatives. Some of them are the D. L. Shah National Award for Economics of Quality and the BMC Award in 2018.

Apart from clinical developments, Godrej Memorial Hospital has remained well-grounded in community service. The Godrej Memorial Trust, formulated way back in 1984 by the Hospital, still contrives and supports health care-related activities for the welfare of less-privileged groups of society. It is this philanthropic spirit through which an atmosphere is maintained in the working of the hospital, thus enabling people to have easy access to health facilities at an affordable cost. The professionals and staff at Godrej Memorial Hospital are part of the whole; the workers laboring day in and out to keep its mission and vision alive. Be it a medical specialist or support staff, each one of this hospital has an equally important role in ensuring empathetic care and continuing towards high standards of professionalism.

Moreover, the leadership of Godrej Memorial Hospital, including the CEO Lt Col (Retd) Dr L.C. Verma , deserves special acknowledgment for their continuous support and guidance. Their insights and strategic direction have been instrumental in shaping the hospital's growth and enhancing its capabilities to meet evolving healthcare challenges.

Godrej Memorial Hospital stands as a testament to the transformative power of dedicated healthcare and philanthropic endeavors. Through its unwavering commitment to quality, affordability, and community service, the hospital continues to redefine standards of excellence in healthcare delivery while positively impacting the lives of countless individuals and families in Mumbai.

Specialities:

Godrej Memorial Hospital in Mumbai offers a wide array of specialized medical services to cater to diverse healthcare needs

The hospital features departments in Internal Medicine & Chest Medicine, Cardiology & Cardiovascular Thoracic Surgery (CVTS), Orthopaedics & Joint Replacement, Rheumatology & Immunology, Medical & Surgical Oncology, Neurology & Neurosurgery, Endocrinology, Nephrology & Urology (including Organ Transplant), Gastroenterology & Surgery, Plastic & Bariatric Surgery, General & Laparoscopy Surgery, Diabetic Foot Medicine & Surgery, Gynaecology & Obstetrics, Paediatrics (including sub-specialties), Sleep Medicine, Haematology, Ophthalmology & Vitro-Retinal Surgery, Dentistry & Maxillofacial Surgery, Dermatology & Venereology, ENT and Audiology, Occupational & Speech Therapy, and Psychiatry & Counselling.

It has NABH and NABL accreditations, justifying the standard of care across all specialties and ensuring the delivery of quality healthcare. Specialized teams of doctors and surgeons provide compassionate, comprehensive, and thorough treatment. Godrej Memorial Hospital has genuinely emerged as the hub of medical excellence, showing an unflinching commitment to serving the community's healthcare needs effectively and affordably.

Allied Services

Other than several specialized medical departments, Godrej Memorial Hospital in Mumbai offers multiple allied services to aid patient care and recovery. This includes physiotherapy & rehabilitation services to invoke mobility and functionality after surgery or an injury. Also, it has home health care services for patients who need continued medical attention in their homes. Dietary & Nutrition services centralize individual nutrition plans that permit appropriate healing and management of chronic conditions. It offers hyperbaric oxygen therapy to many conditions, including poorly healing wounds and selected infections. The Ambulance Service rushes any critically ill patient to the hospital safely and quickly. Pathology & Laboratory provide appropriate testing and diagnosis accurately, while Radiology Imaging provides advanced techniques for accurate diagnosis. A well-equipped Pharmacy will make medicines available to the patient in time for added convenience. Allied services such as these go on to complement the mainstays of medical specialties in the hospital and ensure comprehensive and integrated healthcare solutions for all patients.

ABSTRACT

Title: A Study On Turn Around Time of Nursing Call Bell Response System at a multispeciality hospital.

Background:

This study discusses a solution with regard to the Nursing Call Bell Response System, which bridges all gaps in service excellence by facilitating timely responses to such needs of patients. By evaluating this technology, it will ensure that this hospital is better positioned to help in streamlining communication between patients and healthcare providers, thereby improving service delivery in general, and improving patient satisfaction within the IPD. This measure evaluates effective communication, clinical care quality, service accessibility, interdisciplinary coordination within the hospital, and the broader impact on overall patient well-being and healing outcomes.

Objectives

This study will evaluate how the Nursing Call Bell Response System, may improve patient satisfaction and can deliver better healthcare in Godrej Memorial Hospital's IPD, Mumbai. These include the evaluation of effectiveness in terms of system performance toward time reduction in response to patient needs, improvements made in the efficient interactions between patients and healthcare providers, its influence on overall patient satisfaction, the role it plays in maintaining or elevating quality clinical care and interdisciplinary coordination, and, lastly, how this technology integration will result in an enabling environment for healing and holistic wellness within the context of a hospital IPD department.

Methodology

This study was carried out in the In-Patient Department of Godrej Memorial Hospital, Mumbai, spread over the entire 2nd floor comprising the General Ward, Twin Sharing, Economy Ward, and Suite Room. The present study chiefly aimed at assessing the wellness of patients toward medical services, with primary concentration on nursing care and service quality as a whole. The Nursing Bell Response System produced data

for 1,400 response entries, each with a date and time of the call, correspondingly with the time of response. The TAT has been computed by calculating the difference between the time of call and the time of response in every entry. The study was done over a period of one month, covering different shifts, to know the factors influencing response delay time and also to increase satisfaction among patients.

Results

In the present study, 1,400 calls conducted within one month from the 2nd floor of the In-Patient Department at Godrej Memorial Hospital were considered, which housed twin sharing, economy ward, general ward, and suite rooms. The dataset contained 24-hr call system activity that included day, night, morning, and evening shifts. There were three important factors identified that were main determinants of delays in nurses' response: higher patient-to-nurse ratio, inefficient shift transitions, and the acuity or level of care required. These three elements led to inefficiencies in the call response system. The data showed that the night shift had the shortest average response time of 4 minutes, attributed to the relatively lower level of activity of patients compared to the morning and afternoon shifts, which had 6-minute average response times due to a higher number of patients and administrative tasks. The evening shift had an average response time of 5 minutes, influenced by preparation time for the next shift and the rise in patient activities. Improvement in these areas can enhance the overall quality of care and satisfaction of patients.

Conclusion:

Critical areas of improvement in the Nursing Call Bell Response System at Godrej Memorial Hospital have been identified. During a period of one month, responses to 1,400 calls on the 2nd floor of the In-Patient Department were analyzed, with results indicating an unacceptably high response time by the nurse due to high patient-to-nurse ratio, inefficient shift transition, and acuity of patient care needs. As stated, the average response time was shortest for the night shift, which establishes that lower patient activity levels do bear faster responses. In marked contrast, the morning and afternoon shifts had the highest delays, further exacerbated by high volume and administrative tasks. This communicates a serious need to improve ratios for staffing, ease transition between shifts, and to address patient care level management strategies effectively. These are, therefore, some of the factors that need to be worked on in order

to achieve enhanced response times, better patient satisfaction, and higher standards of care in the hospital.

Keywords for the abstract

Nursing Call Bell Response System, Turnaround Time (TAT), Patient Satisfaction, Hospital In-Patient Department (IPD), Nursing Care, Shift Efficiency, Patient-to-Nurse Ratio, Acuity of Care, Response Time,

CHAPTER 1 : INTRODUCTION

Assessment of patient satisfaction is one of the very important parameters toward ensuring quality healthcare delivery in any setup, including in the in-patient department of Godrej Memorial Hospital, Mumbai. The Godrej Memorial Hospital is among the premier institutes that seeks to deliver compassionate, evidence-based care to each patient who seeks admission to its IPD. The current study would help in identification of the lacunae or gaps in patient care, communication, and service delivery about the hospital's IPD.

It is essential to have a nursing call bell response system in order to provide better care to the patients and render immediate attention to their requirements. It is the direct channel of communication between them and the nursing staff. The system provides a means through which patients can request service for everything from urgent medical help to simple comforts. The system should be effective and responsive to the patients' needs so as to provide safety, comfort, and satisfaction, together with operational efficiency, within any hospital.

Such reduction is very important for a number of reasons. Quick responses facilitate timely medical interventions, hence improving patient outcomes and recovery rates. This makes the patient feel attended to promptly, hence a better experience that translates into higher levels of satisfaction. Faster response times optimize resource usage and reduce bottlenecks in cdelivery, hence improving staff productivity and morale by reducing their workload and stress.

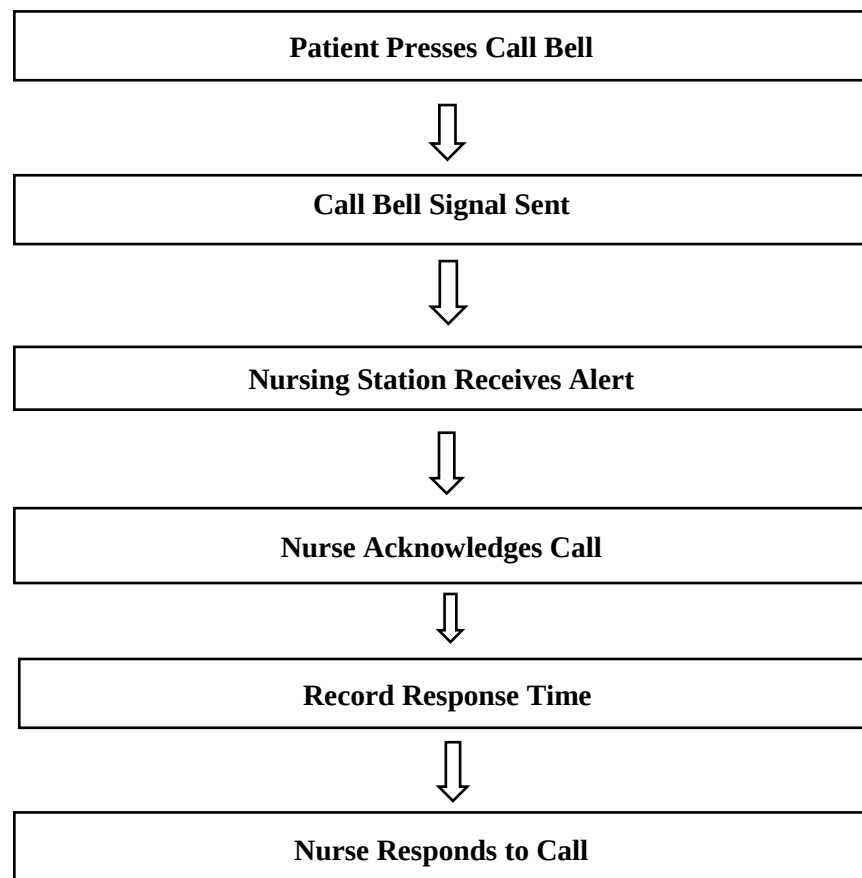
In regard to this, streamline the processes for nursing call bell response and reduce response times. This has a huge impact on both hospitals and patients. It brings about an increase in safety and satisfaction among patients, boosting recovery rates, while the same goes for enhanced reputation and trust, optimized resources, reduced costs, and aided regulatory compliance and hospital accreditation.

This will be an important study in identifying gaps in the current nursing call bell response system at Godrej Memorial Hospital, comprehension of those factors that influence patient satisfaction, and it provides data for evidence-based improvements. The study, in its establishment of benchmarks and standards for response times and

nursing care, supports this very hospital's commitment to delivering high-quality, compassionate, evidence-based healthcare.

How Nursing Bell Responds System Works?

The flow chart of the nursing bell response system would start when the patient presses the call bell, indicating a call for assistance. The signal reaches the nursing station, where a call bell signals to the nurses the demand of their patient, after the call bell has been pressed. The nurse responds to the call upon receiving the alert, giving assurance that the request has been noted. The nurse will then assess the priority of the call to establish urgency based on the patient's needs. Assessment is followed by the nurse's very rapid response to the call, and he/she offers whatever form of assistance that the patient may require at that particular time. Record the response time, to keep records and assess efficiency in the nursing response system. It is this kind of structured process, therefore, that would help attend to patient needs promptly and efficiently, hence contributing to better patient care and satisfaction..



CHAPTER 2 :LITERATURE REVIEW

Sr. no.	Author	Title	Study Location	Sample Size
1.	Binu Gigimon Varghese, Pankaj Punjot	A study to assess nurse call response monitoring - proximity a contributing factor	India	566
The research study aims to explore and identify the reasons that result in delays in response time within the nursing call bell system. The literature selection was done based on collecting articles, research studies, or reports on the nursing bell response system from various bibliographic databases, journals, and other credible websites. Literature that was selected was critically analyzed in order to determine common themes and factors related to the nursing bell response system. Varghese et al. (2019) conducted a detailed evaluation of the nurse call response monitoring system at Dr. L.H. Hiranandani Hospital in Mumbai. Specifically, their objectives were to assess how much time a nurse takes to respond to call bells and whether the infrastructure of the hospital has been a determinant of the timing of the response. The study monitored 16,543 activations of the call bell for a period of three months. Accordingly, their findings revealed that responses to 94.88 percent of calls were dispatched within one minute. Such a high level of responsiveness was attributed to the strategic hospital design and proximity of nursing stations to the patients' rooms. These findings relate to the efficacy of hospital layouts, directly applicable to my current research to evaluate and improve the loopholes at Godrej Memorial Hospital. Another important aspect that literature identifies is the role of technology in enhancing the call bell response system. Advanced call bell systems alerting				

nurses in multiple channels, such as mobile devices and pagers, have been shown to improve response times and patient satisfaction. The same technological solutions, if implemented at Godrej Memorial Hospital, will streamline communication and ensure that the nurse is promptly brought to the awareness of the patient's needs, thereby cutting down on response time and increasing patient satisfaction.

Another critical factor that emerged as being of importance to the effectiveness of call bell response systems in this study is staff training. Training programs on quick responses and use of monitoring systems can bring about a huge impact in nurse responsiveness. We will, therefore, conduct extensive trainings for the nursing staff at Godrej Memorial Hospital so that the nurses are better equipped to prioritize and quickly respond to patients' calls.

There are also key strategies in the literature that involve process optimization and decreased administrative burdens to nurses. By workflow streamlining and non-essential task removal, this will allow time for nurses to attend to the direct care of patients, including response to call bells. Such process improvements can therefore be effected in Godrej Memorial Hospital to achieve improved efficiency and better care quality.

Comparative studies have shown that the best-practice hospitals with high call bell response rates always implement a combination of technology, staff training, and process optimization. The integration of these strategies demonstrated improved patient satisfaction and a reduced adverse event rate. My study aims to adopt these best practices in order to come up with a comprehensive plan to improve the call bell response system at Godrej Memorial Hospital.

This literature review therefore underscores the need for an effective nursing call bell response system to achieve high levels of patient satisfaction and safety. Guided by the study of Varghese et al. (2019) and other identified relevant studies, evidence-based applicable strategies at Godrej Memorial Hospital will be implemented with advanced technology, comprehensive staff training, and process optimization for quick, appropriate nurse responses to patient calls.

2.	Robin Digby, Melissa Bloomer, & T. Howard	Improving call bell response times. Nursing older people	500	Australia
This study was designed to examine and compare call bell response times in two wards of a geriatric evaluation and management facility before and after the introduction of a suite of interventions that would help decrease patient falls. The information considered in this study regarding the response times to the call bells was collected over two periods: one prior to the falls prevention initiatives, and the other six months after the implementation date. Data obtained from the call bell system specified the time to address each belling. The findings indicated that concentrating on call bell response and raising staff awareness significantly improved the response to patient calls. Although there was actually a slight decrease in the number of falls, the number of activations of a call bell did not decrease. The researchers concluded that strong leadership by the nurse manager is needed to emphasize the necessity for prompt call bell response. Furthermore, visual supervision of high-risk fallers has become important in that patients are usually not able to ring for assistance when required. This study is of direct relevance to my current thesis on the Nursing Call Bell Response System & TAT in Response Time at Godrej Memorial Hospital. The intervention and findings from the geriatric evaluation and management facility will inform strategies to be implemented in my research. Luckily, emphasizing prompt call bell responses by highlighting staff awareness has been the key components of my study. This study further highlights the issue of good leadership and visual observation, mainly with regards to high-risk patients, which I can integrate into my assessment framework. This study brings out a number of outcomes and actionable insights. First, improving call bell response times by bringing more prioritization to it and increasing staff awareness can result in better patient outcomes and satisfaction.				

	Second, the number of call bell activations may not necessarily decrease with this strategy; however, it is the quality and timeliness of responses that are the metrics for improvement. Last, very strong leadership plus enhanced monitoring of high-risk patients can bring down adverse events like falls perceptions very measurably. By integrating these findings in the current research at Godrej Memorial Hospital, I shall be able to come up with a more robust and effective call bell response system. These entail training the staff to prioritize call bell responses, leadership initiatives that shall drive home the message of the importance of timely responses, and visual surveillance techniques on high-risk patients. Optimized response times are expected to result in increased patient satisfaction and a reduced number of falls by patients, thereby improving patient safety and care quality.			
3.	Isaac Austin & Dayana Angel	Patients Call Bell Response	NA	Madurai, India
	This literature suggests that one of the key elements of quality care is patient satisfaction, which often is not met due to delays in response time to call bells. Basically, a call bell system is a very fundamental tool for communication between nursing staff and their patients. By pushing a simple button, the patient's request is transmitted to the nurse's station for unit staff to respond to the call bell. This study was undertaken to assess the actual response time to call bells at Apollo Specialty Hospital, Madurai, with a focus on units E1, E2, E3, D2, D3, C1, and C2. The study was conducted at the room-side units, examining response times during three different shift timings for about 30 random calls. This was to determine the period for response to call bells, the reasons for deviations in times of response, and how shift timings influence these responses. The results had variability across different units and shifts, modulated by factors such as staff-to-patient ratio, workload, time of day, and others that delay responses. The response times were highly influenced by the shift timings, where some shifts had longer delays due to demands of patients and			

	lower levels of staffing. This study is highly relevant to my current thesis on the Nursing Call Bell Response System & TAT in Response Time at Godrej Memorial Hospital. It brings out the need to review the response times in association with various units and shifts so that a holistic idea of factors influencing call bell responses can be obtained. By incorporating these insights into my study, I hope to be able to assess response times across different units, analyze the variation caused by various shift timings, and attempt to explain why response times vary. These results will provide information targeting interventions for these problems, including staff scheduling and resource optimization with detective continuous monitoring. All this will achieve a more efficient and responsive call bell system at Godrej Memorial Hospital with resultant patient satisfaction and quality of care.
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RESEARCH QUESTION:

How Nursing Call Bell Response System set up the service excellence and reduce response time in inpatient care?

OBJECTIVES:

1. To evaluate the TAT of Nursing Call Bell Response System
2. To identify its affect on patient satisfaction.

This cross-sectional descriptive study aims to assess and evaluate the TAT in response to patient calls using the Nursing Call Bell Response System at Godrej Memorial Hospital, Mumbai. A total of 1,400 calls were recorded from 30 beds on the 2nd floor, encompassing General Ward, Economy Ward, Suite Room, and Twin Sharing. The ultimate goal is to pinpoint areas for improvement in the nursing call response system to help in the enhancement of patient satisfaction and the overall quality of care. This study will be carried out on the 2nd floor of the IPD with a

view to studying the comprehensive assessment of patient wellness in relation to medical services availed.

CHAPTER 3 : METHODOLOGY

This study was undertaken to evaluate the Nursing Call Bell Response System by measuring the TAT in response to patient calls at Godrej Memorial Hospital, Mumbai, in the IPD. This study will be directed toward working out the factors that delay the response and improving patient waiting time for better satisfaction.

1. Study Design

This research presents a cross sectional descriptive study of data collected from the nursing call bell system over one month where key parameters are analyzed, including

1. Floor number
2. Bed number
3. Number of times a patient has called
4. Time of the call
5. The time the call was responded to by the nurse..

2. Study Setting

The study will be conducted in the IPD of Godrej Memorial Hospital, Mumbai, encompassing only 2nd floor (General ward, Twin sharing, Economy ward and Suite room) . The study will encompass 2nd floor IPD of hospital. Patient wellness regarding medical services, with a specific focus on nurses and overall service quality during hospital stays, will be assessed

3. Study Tool : The primary tools for data collection of TAT will include

- Nursing Call Bell System Logs: To record the time of the call and the response time.
- Patient Satisfaction Questionnaires: To gather patient feedback on the responsiveness and quality of nursing care.
- Staff Interviews: To gain insights into the challenges faced by nursing staff in responding to call bells promptly.

4. Study Duration: For TAT, the data collection period will span one month (30 days)
5. Study Population: The study population includes all patients admitted to the IPD in 2nd floor at Godrej Memorial Hospital during the data collection period.
6. Sample Size : 1400 calls from 30 beds of 2nd floor including suite room, twin sharing, economy ward and general ward which is monitored for 24 x 7 for 30 days.

- Inclusion Criteria :

- A. Patients admitted to the IPD who have used the nursing call bell system at least once during their stay.
- B. Patients willing to participate in the study.

- Exclusion Criteria:

- A. Patients admitted to units where the nursing call bell system is not operational.
- B. Patients unable to provide feedback due to medical or cognitive reason.

Ethical Considerations

- Privacy and Confidentiality: Participant confidentiality will be preserved, with all data securely stored and accessed solely by the study team.
- Risk of Harm: The study will ensure that all procedures are conducted in a manner that does not cause undue stress or harm to participants.
- Data Sharing and Reporting: We would make sure that data that is collected is used properly with responsible and transparent reporting, excluding personal details about participants.

The research aims to offer exclusive insights into factors that have a tendency to influence nursing response times to call bells at Godrej Memorial Hospital. In this respect, the design and procedures will ensure rigorous methodologies for the research study, ethical responsibility in data collection, thorough analysis, and cautious interpretation. The results will further provide information valuable in using the response times to enhance overall patient care within the hospital.

Steps for calculation of TAT:

1. The data for response entries 1400 was collected to calculate TAT of response time from the Nursing bell response system software.
2. This has software data from the time and date of calling and the date & time of the response.
3. The TAT is determined by calculating the difference between the time of getting a call and the time of responding for each entry from 1 to 1400.

What this essentially amounts to is the formula itself that will actually define the Turnaround Time (TAT) and compare it to the Standard Operating Procedure (SOP) for the hospital:

Formula for Calculating TAT

$$TAT = \sum_{i=1}^N (T_{\text{response}} - T_{\text{call}}) / N$$

Where:

- T_{call} = time when the call was made.
- T_{response} = time when the call was responded to
- N is the total number of calls.

Calculating TAT for 30 Beds on the 2nd Floor

1. Collect Data:

- Record the time of each call (T_{call})
- Record the response time for each call (T_{response})

2. Calculate Individual TATs:

- For each call, calculate the individual TAT

$$T_1 = (T_{1\text{response}} - T_{1\text{call}})$$

Similarly, find out $T_2, T_3, T_4, \dots$

3. Sum of TATs: Sum the individual TATs for all 1,400 calls.

$$(T_1 + T_2 + T_3 + T_4 + \dots)$$

1. Average TAT: The total of all TATs is divided by the number of Calls, which is 1,400.
2. Summation of TATs of 1,400 Calls = Summation of TATs of all individuals
3. Average TAT = Sum of TATs / 1,400

CHAPTER 4 : RESULTS

The study has been undertaken to calculate the TAT, thereby to probe the root cause of delay in nursing response. This was done with 1,400 calls that were beeping for a period of one month on the 2nd floor of IPD at Godrej Memorial Hospital. The data comprised different room types: twin sharing, economy ward, general ward, and suite rooms.

This was a complete data set capturing the record of activity of the 24-hour call system for a whole month, including calls made during the day, night, morning, and evening shifts. It also recorded how frequently patients place calls.

The average TAT, upon analysis of the data collected, worked out to be **4.9 minutes**, much more than the SOP TAT of **3 minutes** prescribed by the hospital, thus reflecting substantial delays in response times.

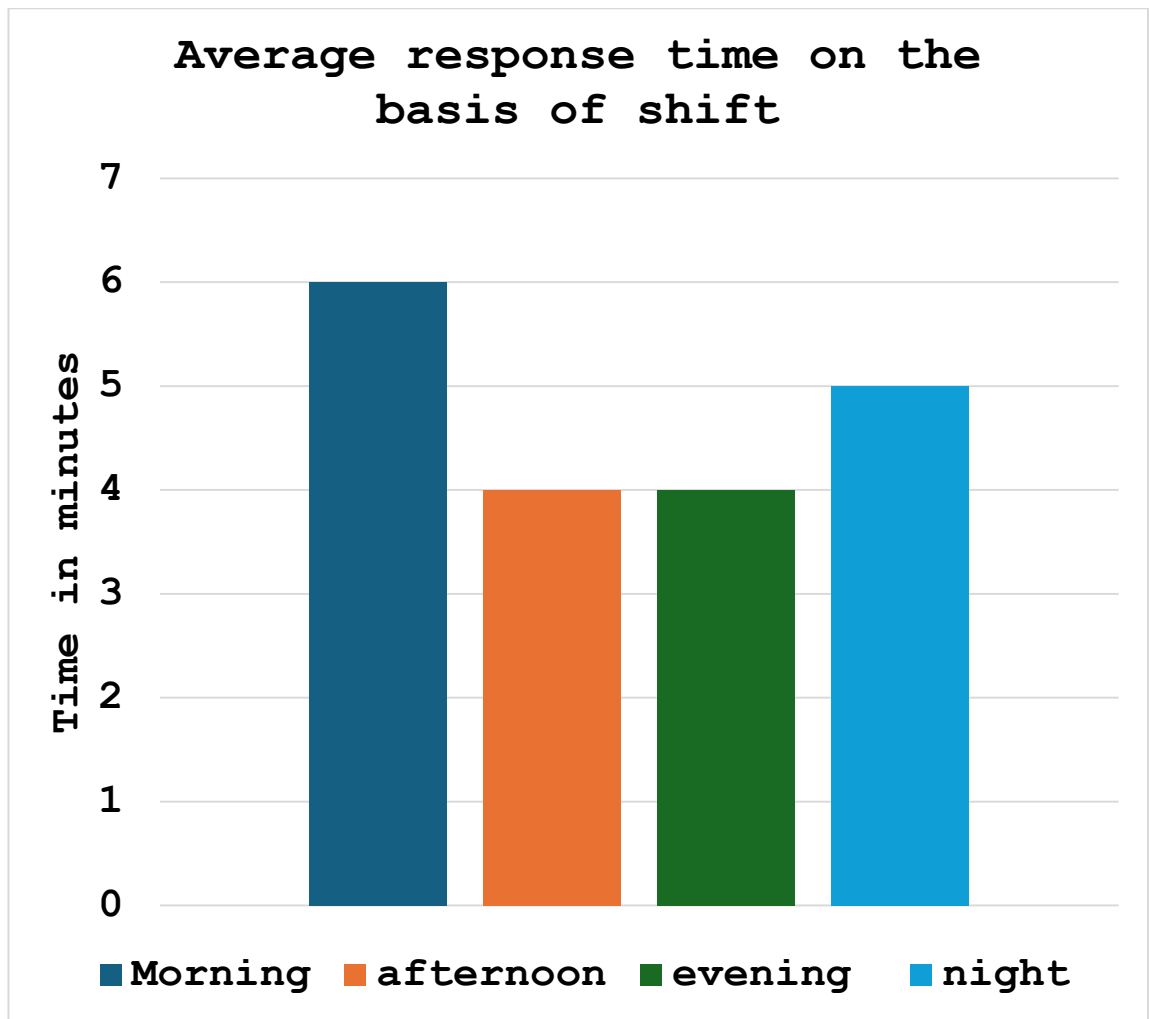


Fig.4 Average response time on the basis of shift

Table 1

Shift	Total Calls	Average time
Morning	532	6
Afternoon	294	4
Evening	210	4
Night	364	5

1. Morning: High patient activity levels, numerous administrative tasks, doctors rounds
2. Afternoon: High patient-to-nurse ratio, frequent shift changes, increased number of emergencies, cumulative fatigue.

3. Evening: Increased patient activity, medium administrative task load, preparations for the next shift transition.
4. Night: Reduced staffing levels, decreased alertness due to natural circadian rhythms.

The analysis reveals that the evening shift exhibited the shortest average response time of 4 minutes, indicating it as the most efficient shift in terms of timely responses.

On the other hand, the morning shift had the longest average response time of 6 minutes. This shift faces challenges such as a high patient-to-nurse ratio, frequent doctors round , increased number of emergencies, and cumulative fatigue, all contributing to longer delays in responding to patient calls.

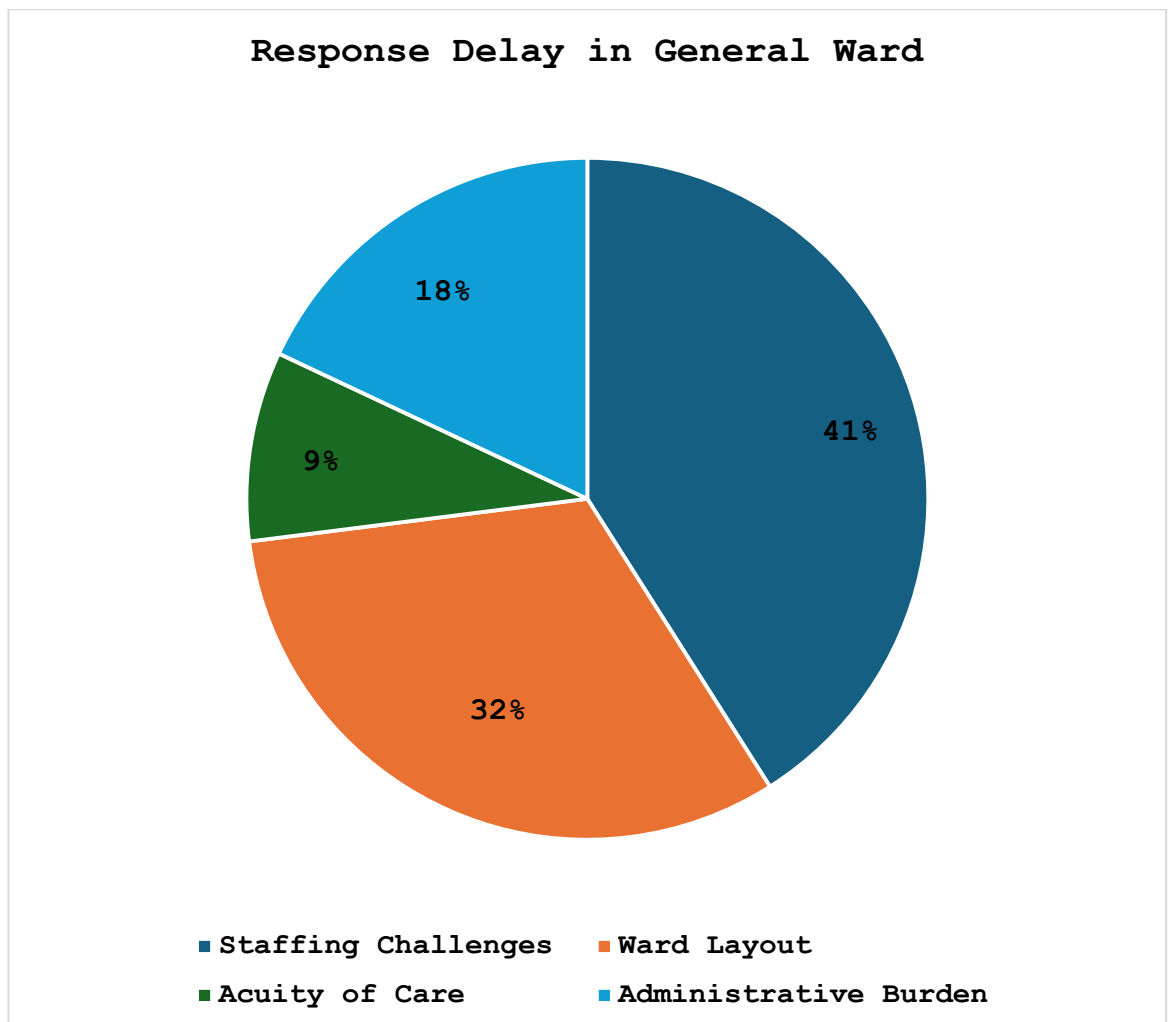


Fig.4.2 Response Delay in General Ward

- **Staffing Challenges:** Nearly half (41%) of delays stem from a higher patient-to-nurse ratio. With a heavier workload, nurses must prioritize critical needs, leading to longer response times for non-urgent calls.
- **Ward Layout:** Another significant contributor (32%) is the physical distance between the nursing station and patient wards. This distance adds travel time after a nurse acknowledges a call bell.
- **Acuity of Care:** Approximately 9% of delays occur due to the complexity of care required by certain patients. When a nurse is providing critical care to one patient, they may be unable to respond immediately to other call bells. Implementing acuity-adaptable staffing models could help ensure appropriate nurse-to-patient ratios based on patient needs.
- **Administrative Burden:** The remaining 18% of delays are attributed to administrative tasks such as progress reports. Streamlining documentation processes and utilizing technology for data entry could free up valuable nurse time for direct patient care.

Patient Satisfaction related to nursing staff response time

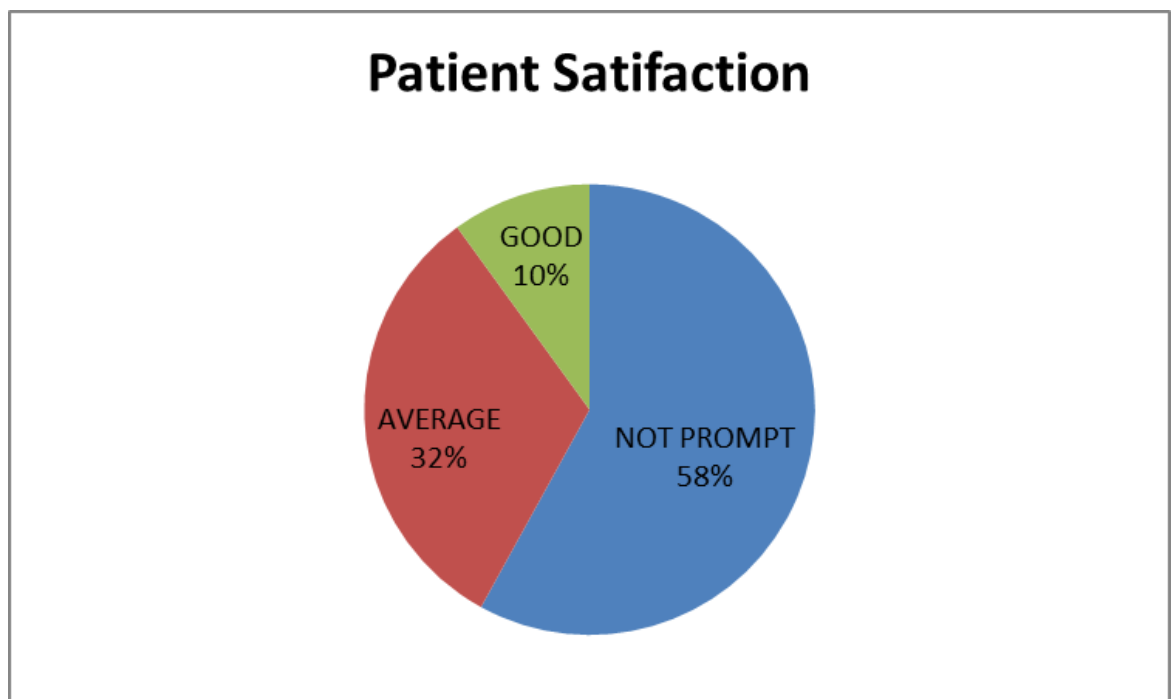


FIG.4.3 Patient Satisfaction on Nursing bell call response.

- To find out the satisfaction of the patients, the nursing staff took a survey.
- All the patients of the IPD on the second floor (including twin sharing, economy, Suite and general ward) were included in this survey.

According to the survey, it was found that most of the patients were not satisfied with the responsive time of the nursing staff.

All the patients who were involved in this service said that they are not happy with the response time taken by the nursing staff, but they also stated that they had no problem with the quality of service being provided to them.

Three primary factors contributing to delays in nurse responses were identified.

- Firstly, a higher patient-to-nurse ratio was found to significantly impact response times.
- Secondly, the transition between shifts was not handled efficiently, leading to delays in attending to patient calls.
- Lastly, the acuity or level of care required by patients also played a crucial role in response delays.

These factors collectively contributed to the inefficiencies observed in the patient call response system, highlighting areas that require attention to improve overall patient care and satisfaction

The analysis focused on identifying delays in response times across these shifts and determining which shift performed better in terms of timely responses.

The study suggests that Godrej Memorial Hospital could improve response times by adjusting staffing levels based on patient needs, streamlining shift handovers, improving ward layout to reduce travel time, and using technology to reduce paperwork for nurses.

Chapter 5 : DISCUSSIONS

This study at Godrej Memorial Hospital revealed significant delays in nursing call bell response times on the 2nd floor IPD. The average response time (TAT) was found to be 4.9 minutes, which is significantly higher than the hospital's SOP TAT of 3 minutes. This discrepancy highlights systemic inefficiencies that must be addressed to enhance patient care and satisfaction.

Strengths of the Study

- **Comprehensive Data Collection:** The study captured a complete record of call bell activities over one month, providing a robust dataset for analysis.
- **Shift Analysis:** By examining response times across different shifts, the study identified specific periods with higher delays, offering targeted insights for intervention.
- **Multifaceted Approach:** The use of logs, questionnaires, and staff interviews provided a well-rounded understanding of the factors affecting response times.

Limitations of the Study

- **Single Hospital Setting:** The study was conducted only at Godrej Memorial Hospital, limiting the generalizability of the findings to other settings.
- **Focus on One Floor:** The analysis was restricted to the 2nd floor IPD, which may not represent the entire hospital's response times and challenges.
- **Patient Feedback:** The study relied on patient feedback, which can be subjective and influenced by individual experiences and expectations.

CHAPTER 6 : CONCLUSION

A study at Godrej Memorial Hospital examined why nurses sometimes take a long time to respond to patient call bells. We have monitored call activity over a month on a hospital floor with various room types and across all shifts. We found three main reasons for delays: understaffing with too many patients per nurse (41% of delays), inefficient shift changes (unspecified %), and the complexity of care some patients require (9% of delays). The evening shift had the fastest response time at 4 minutes, while the morning shift was slowest at 6 minutes due to high activity, paperwork, doctor visits, and possible fatigue. Other contributors to delays were the distance between nurses and patients (32% of delays) and administrative tasks (18% of delays). The study suggests that Godrej Memorial Hospital could improve response times by adjusting staffing levels based on patient needs, streamlining shift handovers, improving ward layout to reduce travel time, and using technology to reduce paperwork for nurses.

This study at Godrej Memorial Hospital in Mumbai aims to assess how well nurses respond to patient call bells in the In-Patient Department (IPD). We want to identify reasons for delays and improve patient satisfaction by making response times faster.

We looked at data from the nursing call bell system, including the floor and bed number where the call originated, the number of times a patient called, the time of the call, and the time a nurse responded.

The findings indicated that there are significant delays in nursing call bell response times, primarily due to systemic and operational inefficiencies. The results underscore the importance of addressing these factors to improve response times, thereby enhancing patient care and satisfaction. The study suggests that improving the patient-to-nurse ratio, streamlining shift transitions, and addressing the specific needs of high-acuity patients could reduce the TAT and align it more closely with the hospital's SOP of 3 minutes.

This research provides valuable insights that can be utilized to implement targeted interventions, ultimately leading to better patient outcomes and more efficient nursing operations within the hospital.

RECOMMENDATION

- **Increase Staffing Levels:** Allocate more nursing staff during the morning shift to balance the high patient-to-nurse ratio. This can help distribute the workload more evenly and reduce response times.
- **Continuous Monitoring and Feedback :** Establish a monitoring system for response time, complemented by continuous feedback sessions with the nursing staff ,to identify ongoing trends and concerns.
- **Improve Shift Handovers:** Streamline processes to ensure smooth transitions and avoid delays
- **Streamline Administrative Tasks:** Implement strategies to minimize the time spent on administrative tasks during the morning shift. This could include the use of more efficient electronic health record systems or assigning specific administrative roles to support staff

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