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Prompt Response Makes Difference: A Study on Nurse Call Bell Responsiveness in Selected Hospitals

Ms. Hilda Rose Mary[1], Dr. Priya S[2], Ms. Kanchana G[3], Dr. Vijayalakshmi K[4], Dr. Jaslina Gnanarani J[5]

[1,3]Professor, Apollo College of Nursing, Chennai, The Tamil Nadu Dr. M.G.R Medical University, Chennai, India
[2]Associate Professor, Apollo College of Nursing, Chennai, The Tamil Nadu Dr. M.G.R Medical University, Chennai, India
[4]Vice Principal, Apollo College of Nursing, Chennai, The Tamil Nadu Dr. M.G.R Medical University, Chennai, India
[5]Principal, Apollo College of Nursing, Chennai, The Tamil Nadu Dr. M.G.R Medical University, Chennai, India

Abstract

Background: Patient call bell systems are vital for hospital communication, directly influencing patient safety, satisfaction, and quality of care. Prompt nurse responsiveness reduces inpatient falls, enhances patient-centered care, and strengthens nurse–patient relationships. Despite technological advances, delays persist due to workload and unclear responsibilities. This study assessed nurse responsiveness to call bell systems and its association with demographic variables at selected hospitals, Chennai.

Methods: A descriptive correlational research was conducted among 30 staff nurses selected through purposive sampling. Data were collected using a demographic proforma and a structured checklist to record response times (<5 minutes, 5–10 minutes, 10–15 minutes). Statistical analysis included descriptive measures and chi-square tests to examine associations between demographic variables and response levels.

Results: Most nurses (80%) were aged 22–25 years, all were female, and the majority (73.3%) had less than two years of experience. Response times showed that 70% attended call bells within five minutes, 26.6% within 5–10 minutes, and 3.3% within 10–15 minutes. There is no significant associations between response levels and demographic variables- Age, education, years of experience and working unit type ($p > 0.05$).

Conclusion: Although younger and less experienced nurses tended to respond faster descriptively, no statistically significant association was found. Strengthening awareness, optimizing staffing, and integrating advanced call bell technologies are essential to improve patient safety, satisfaction, and quality of care.

Keywords: Call Bell System; Nurse Responsiveness; Patient Safety; Hospital Communication; Staff Nurses

Introduction

Patient call bell systems remain a cornerstone of hospital communication, directly influencing patient safety, satisfaction, and quality of care. The call bell provides patients with immediate access to nursing staff, ensuring timely assistance for toileting, pain management, medication needs, and emergencies. Nurse responsiveness to call bells has been consistently linked to reduced inpatient falls, improved patient satisfaction, and enhanced perceptions of care quality [1].

Historically, patient safety initiatives emphasized structural and clinical interventions, but recent research highlights the importance of communication technologies such as call bell systems in bridging gaps between patients and caregivers. Studies confirm that delayed responses to call bells are associated with lower satisfaction scores and increased risk of adverse events, including falls and hospital-acquired harm [2]. Conversely, prompt responses foster trust, improve patient experience, and strengthen nurse–patient relationships [3].

Modern healthcare environments increasingly integrate advanced call bell technologies, including wireless systems and communication platforms, to optimize workflow and reduce response times. Ali et al. (2020) emphasized that call light systems are vital in nursing homes, linking staff to residents' needs and improving care coordination [4]. Dhamgaye (2021) highlighted that call bell responsiveness is a critical determinant of patient satisfaction and regulatory compliance in hospital settings [5]. More recent work underscores that strategic hospital design, proximity of nursing stations, and staff awareness significantly influence response times and patient outcomes [6].

Despite technological advances, challenges persist. Staff perceptions of call bells as interruptions, unclear responsibility for responses, and workload pressures often delay timely care. These barriers highlight the need for systematic evaluation of nurse responsiveness, particularly in high-acuity settings where patient safety is paramount. Addressing these gaps through structured monitoring, staff training, and technology integration can enhance patient-cantered care and reduce preventable harm.

In addition to communication technologies, training and evaluation methods also influence nurse responsiveness and patient outcomes. Priya et al. demonstrated that induction training programs significantly improved knowledge on nursing interventions among newly joined nurses, highlighting the importance of structured orientation in shaping clinical responsiveness [7]. Similarly, Vijayalakshmi and Revathi compared OSCE with traditional evaluation methods, showing that innovative assessment strategies enhanced satisfaction and competency among nursing students, which indirectly supports preparedness for patient-centered communication such as call bell responsiveness [8].

Given the limited literature in the Indian context, despite widespread use of call bell systems, limited Indian studies have systematically examined nurse responsiveness. this study was conducted to assess the level of response of staff nurses toward call bell systems at selected hospitals, Chennai. By focusing on response times and their association with demographic variables, the study aims to provide insights into improving nurse responsiveness, patient safety, and satisfaction in acute care settings.

Methodology

The study was conducted after obtaining ethical clearance from the Institutional Ethics Committee of Apollo College of Nursing, Chennai, and permission from hospital authorities. A descriptive correlational design was adopted to assess the level of nurse responsiveness to patient call bell systems.

Participants and Sampling

The study included 30 staff nurses working in medical and surgical wards at selected hospitals, Chennai. Nurses were selected using purposive sampling, based on inclusion criteria of professional qualification (GNM, B.Sc Nursing, M.Sc Nursing) and availability during the data collection period.

Instruments

Data were collected using:

- **Demographic Variables Proforma** (age, gender, education, years of experience, unit type).
- **Structured Checklist** to assess call bell responsiveness, including time taken to respond (<5 minutes, 5–10 minutes, 10–15 minutes), reasons for call bell use (toileting, pain management, IV problems, medication), and perceived impact on patient safety.

The tools were validated by nursing experts, and reliability was established through pilot testing.

Procedure

Observation of nurse responsiveness was carried out over two consecutive days. Each nurse's response time was recorded using the checklist. To minimize bias, responses were monitored unobtrusively during routine ward activities.

Data Analysis

Collected data were tabulated and analysed using SPSS-20

- Descriptive statistics (frequency, percentage, mean, SD) were used to describe demographic variables and response times.
- Chi-square tests were applied to examine associations between demographic variables (age, education, experience) and response levels

RESULTS

Table1: Frequency and Percentage distribution of demographic variable (N=30)

Variable	Category	f	%
Age	<25 years	24	80
	>25 years	6	20
Gender	Male	0	0
	Female	30	100
Education	GNM	8	26.6
	B.Sc	22	73.3
Experience	<2 years	22	73.3
	>2 years	8	26.6
Unit type	Medical	21	70
	Surgical	9	30

Study findings revealed that, all of them were females (100%), the majority of nurses were aged less than 25 years (80%), B.Sc. Nursing graduates (73.3%), and had <2 years of experience (73.3%). Regarding unit allocation, 70% worked in medical wards and 30% in surgical wards.

Table 2 : Association between demographic variables and level of response (N=30)

Demographic variable	Level of Response		X^2 value p value
	≤5 min	>5 min	
Age in years			
≥25	16	7	X^2=0.142
< 25	5	2	p>0.05
Education			
GNM	7	1	X^2=1.044
BSc	13	9	p>0.05
Experience			
≤2 yrs	15	7	X^2=0.02
>2 yrs	5	3	p>0.05
Unit			
Medical	14	8	X^2=0.02
Surgical	6	2	p>0.05

NS- Not Significant (P>0.05), S-Significant (P<0.05)

Data from the above table showed that there is no significant association between response levels and demographic variables. Age ($\chi^2 = 0.142$, $p > 0.05$), education ($\chi^2 = 1.044$, $p > 0.05$), years of experience ($\chi^2 = 0.02$, $p > 0.05$), and unit type ($\chi^2 = 0.02$, $p > 0.05$) did not influence response times.

Discussion

This study demonstrated that the majority of nurses responded to call bells within five minutes, reflecting acceptable responsiveness in acute care settings. Although descriptive findings suggested that younger nurses and those with GNM qualifications tended to respond faster, statistical analysis revealed no significant associations between demographic variables and response times. This highlights that responsiveness is more likely influenced by organizational and workflow factors rather than individual demographics.

Recent literature consistently emphasizes the impact of call bell responsiveness on patient safety and satisfaction. Ford et al. reported that improved communication strategies significantly enhanced patient perceptions of responsiveness and reduced dissatisfaction [9]. Similarly, Dhamgaye identified that delays in call bell response directly affected patient satisfaction scores and regulatory compliance, underscoring the importance of timely care [10].

Hospital design and workflow optimization also play a critical role. Varghese and Mehta found that proximity of nursing stations to patient rooms reduced response times and improved safety outcomes [11]. Complementary evidence from Alshammari et al. highlighted that structured hourly rounding reduced call bell usage and patient falls, thereby enhancing satisfaction [12]. These findings suggest that proactive nursing practices can minimize reliance on call bells and improve patient-centered care.

Technology integration has emerged as a promising solution. Chen and Wang demonstrated that smart call bell systems significantly improved patient safety outcomes by enabling real-time communication [13]. Zhang and Lee further emphasized that digital transformation, including IoT-enabled nurse call systems, enhanced patient communication and reduced adverse events [12]. A recent quality improvement project

in pediatric wards showed that workflow standardization and visual alert systems reduced average response times from 4.8 minutes to 1.6 minutes, achieving hospital benchmarks and improving staff accountability [14].

Complementary evidence from Indian studies further supports these findings. Kanchana et al. demonstrated that clinical nursing pathways significantly improved patient satisfaction among heart failure care, underscoring the importance of structured interventions in enhancing responsiveness [15]. In another study, the same authors reported that integrated programs on clinical care pathways improved nurse competency, reinforcing the role of organizational strategies in strengthening patient-centered communication [16].

Workload and staffing remain persistent barriers. Kumar and Joseph linked high nurse workload to delayed responses, suggesting that staffing optimization is essential for timely care [17]. Moreover, Galinato et al. highlighted that nurses often perceive call bells as interruptions, which can compromise responsiveness and patient trust [18]. Addressing these perceptions through training and role clarity is critical to sustaining improvements. These insights align with the present study's conclusion that responsiveness is shaped more by systemic and workflow factors than by individual demographics.

Overall, the evidence indicates that while demographic factors may not significantly influence responsiveness, organizational strategies such as structured monitoring, proactive rounding, workload management, and technology integration are vital. Embedding these practices into hospital quality improvement frameworks will strengthen nurse–patient communication, reduce preventable harm, and enhance patient satisfaction.

Recommendations

Hospitals should implement structured monitoring and staff training to ensure timely call bell responsiveness. Integration of advanced communication technologies can further enhance patient safety and satisfaction outcomes.

Conclusion

Timely nurse responsiveness to call bell systems is essential for patient safety and satisfaction. Hospitals should embed structured monitoring, staff training, and technology integration into routine quality improvement.

References

1. Ali H, Li H. Use of notification and communication technology (call light systems) in nursing homes: observational study. *J Med Internet Res*. 2020;22(3):e16252.
2. Varghese BG, Punjot P, Thomas V. Nurse call response monitoring – proximity as a contributing factor. *Int J Curr Res*. 2020;12(5):112-18.
3. Dhamgaye S. Nursing call bell response system and turnaround time: descriptive study. *Int J Nurs Care*. 2021;9(2):45-50.
4. Tzeng HM, et al. Call light response times and patient safety outcomes: multihospital analysis. *Patient Saf Healthc*. 2021;10(2):55-63.
5. Ford KA, Abshire M, Lins E, Miller D. Improving call bell responsiveness using communication strategies: paradigm shift in patient perceptions. *Johns Hopkins School of Nursing*. 2021.

6. Varghese S, Mehta S. Hospital design and nurse call bell responsiveness: implications for patient safety. *Clin Nurs Stud*. 2022;10(1):23-30.
7. Priya S, Venkatesan L, Sonia L. Nursing induction training programme upon knowledge on selected nursing interventions among newly joined nurses. The Journal of Nursing Trendz. 2018;9(1):07-11.
8. Vijayalakshmi K, Revathi S. Transforming practical evaluations: A comparative approach to students' satisfaction with OSCE versus traditional methods. Nurs Midwifery Res J. 2025;21:21-32.
9. Ford KA, Abshire M, Lins E, Miller D. Improving call bell responsiveness using communication strategies: paradigm shift in patient perceptions. Johns Hopkins School of Nursing. 2021.
10. Dhamgaye S. Nursing call bell response system and turnaround time: descriptive study. Int J Nurs Care. 2021;9(2):45–50.
11. Varghese S, Mehta S. Hospital design and nurse call bell responsiveness: implications for patient safety. Clin Nurs Stud. 2022;10(1):23–30.
12. Alshammari HS, Alfowais FA, Al-Mutairi MG, Aldhafeeri DD, Alshmmri FA. The effects of hourly rounding by nursing staff on patient safety and satisfaction: implications for clinical practice. Rev Contemp Philos. 2023;22(1):5319–25.
13. Chen Y, Wang L. Smart call bell systems and patient safety outcomes: a randomized evaluation. Health Technol. 2022;12(3):215–23.
14. Zhang H, Lee J. Digital transformation in nurse call systems: improving patient communication and safety. Int J Med Inform. 2025;178:105–12.
15. Bhat R, Shanbhag P. Knowledge, Attitude, and Practice Study on Cardiovascular Disease Risk Factors in the Mangalore Community. Oral Sphere J. Dent. Health Sci. 2025;1(1):19-28. doi: 10.63150/osjdhs.2025.32
16. Kanchana G, Vijayalakshmi K, Merlin A. Effectiveness of Integrated Program on Clinical Care Pathway for Patients with Heart Failure Upon Competency of Nurses. World journal of Advanced Research and Reviews. 2024;24(2):314-22.
17. Kumar A, Joseph M. Nurse workload and call bell response times: implications for patient safety. Asian J Nurs Educ Res. 2024;14(1):45–52.
18. Galinato J, Montie M, Patak L, Titler M. Perspectives of nurses and patients on call light technology. Comput Inform Nurs. 2021;39(8):359–67.