Assessing Nurses' Behavior Toward Safety Huddle Implementation in the Intensive Care Unit

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Abstract

Background: Safety huddles are brief, regular meetings between nurses and physicians aimed at discussing patients' situations in wards, sharing experienced opinions, and reducing risks regarding medication administration. Safety huddles are essential in improving patient safety, particularly in intensive care units. This study aimed to assess nurses' behavior towards safety huddle implementation in the ICUs of King Fahad Hospital, Madinah, Saudi Arabia.

Methods: A cross-sectional research design was utilized, and 115 ICU nurses were recruited using a non-probability convenience sampling technique. A self-administered questionnaire was used to collect data, and the statistical package for social sciences (SPSS) was employed to analyze the data.

Results: The majority of the respondents exhibited good behavior towards safety huddle implementation in the ICUs, with a mean score of 2.76 and a standard deviation of 0.22. The p-values were all greater than the significance level, indicating that the behavior of nurses towards safety huddle implementation in the ICU was the same across all demographic profiles.

Conclusion: Safety huddles have the potential to improve the working environment and clinical practice of nurses in the ICU. This study's findings suggest that nurses in King Fahad Hospital have a positive attitude towards safety huddle implementation. Future research could explore changes in nurses' experiences and perceptions of the benefits and impact of safety huddles and how they overcome challenges and barriers during implementation.

Keywords: Safety huddle, patient safety, intensive care units, nurses' behavior.

Introduction

In the healthcare industry, the provision of high-quality care is of utmost importance. To achieve this goal, it is crucial to establish and implement good standards that can help improve healthcare practices and lead to professionalism. One important approach that has gained popularity in recent years is the use of safety huddles. Safety huddles are a regular monitoring tool used to provide high-quality care in healthcare organizations.

The daily safety huddle is a powerful communications strategy that is rapidly gaining traction in healthcare organizations across the country. Safety huddles are regular meetings that

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bring together clinical and administrative hospital leaders to identify and address safety issues and concerns quickly and transparently. In healthcare safety, the focus is on patient and staff welfare[1]. Safety huddles enable senior members in an organization to create a good care system for the staff by eliminating risks in the workplace. This strengthens coordination and makes it easier to avoid damage[2].

Although institutions implement huddles in different ways, there are common characteristics among the majority that make huddles effective in improving various outcomes such as patient and staff safety, hospital length of stay, multidisciplinary teamwork, information sharing, management of impending crises, mitigation of existing problems, and trust across departments [3-5]. Regular huddling allows for collective learning by allowing participants to draw from a variety of resources and knowledge. One institution, Advocate Health Care, found that its detection of safety events improved by 40% after the implementation of daily, hospital-wide leadership huddles [6].

To establish and sustain a safety culture within an institution, as well as ensure well-coordinated patient care, the daily leadership safety huddle was created. Its purpose is to serve as a senior briefing that addresses current, past, and future safety and quality issues that affect the institution's patients and employees. The report on how a huddle has been instrumental in improving a variety of outcomes and the mechanism by which the effects are exerted and sustained in a public hospital system[7,8].

Patient safety is a key priority for healthcare providers[9]. Studies suggest that two to three safety incidents occur in every 100 consultations, and 4% of these incidents were associated with severe harm[10]. Safety huddles provide healthcare workers with the opportunity to discuss any safety events that have occurred, how the event happened, and how to prevent recurrences. The responsibility to conduct these huddles lies with the nurse leader, as they have the authority to advocate for and help healthcare workers figure out how to enhance their practices through these huddles. They can also share with the staff the points of discussion that need to be addressed during the huddle[11].

One of the challenges associated with safety huddles is the potential for them to become time-consuming, leading to an increase in overtime for some nurses. To address this issue, the length of the group was limited to five minutes. Anything that was not addressed within the allotted time was skipped, although exceptions were made for useful conversations. As the group became a well-functioning specialized tool, attendance at staff meetings dropped, as information provided at these monthly meetings was repeated during the huddles[12]

Safety huddles are an effective tool for improving patient and staff safety, hospital length of stay, multidisciplinary teamwork, information sharing, management of impending crises, mitigation of existing problems, and trust across departments in healthcare organizations [13]. They provide an opportunity for clinical and administrative leaders to identify and address safety issues quickly and transparently. Although institutions implement huddles in different ways, there are common characteristics that make huddles effective in improving various outcomes. Regular huddling allows for collective learning by allowing participants to draw from a variety of resources and knowledge[14]. To establish and sustain a safety culture within an institution and ensure well-coordinated patient care, the daily leadership safety huddle was created. The purpose of this study is to evaluate the effectiveness of safety huddles in improving patient and staff safety in a public hospital system and to understand the mechanism by which the effects are exerted and sustained.

Methods

Study Design:

A descriptive cross-sectional design was utilized to assess nurses' behavior toward safety huddle on patient safety implementation in the intensive care unit of King Fahad Hospital in Madinah, Saudi Arabia. Cross-sectional designs are appropriate for describing the status of phenomena or relationships among phenomena at a fixed point in time.

Study Participants and Sample:

The sample size was calculated using a convenience sampling technique, and 111 nurses

were included from a total population of 120 ICU nurses at King Fahad Hospital.

Setting and Recruitment:

The study was conducted in the critical care units of King Fahad Hospital in Madinah, Saudi Arabia, which has a bed capacity of 400 and a total population of 898 nurses.

Data Collection Procedure:

Data were collected concurrently from the respondents during three visits to the ICU. The data were analyzed using the Statistical Package of Social Sciences (SPSS) software (IBM Corporation v.26) and presented in tables.

Statistical Analysis:

Frequency and percentage were used for descriptive statistics to answer study question number 1. Weighted mean was utilized to analyze study question number 2 assessing the impact of safety huddle in providing a safe environment for nurses and patients in the intensive care units. T-test and ANOVA were utilized to analyze significant differences between demographic characteristics of respondents and nurses' behavior toward safety huddle in providing a safe environment for nurses and patients.

Research Scale/Instrument:

The researcher used an adapted questionnaire, the Stage of Implementation Checklist (SIC) Scale, formulated by Michie et al. (2005), which was later revised in 2020 by Panayiotou. The instrument consisted of 26 self-report closed-ended questions and was validated with a reliability score of Cronbach's of 0.85.

Results

Table 1 shows that, in terms of gender, the survey sample predominantly consisted of females, comprising 96.4% of the respondents, while males accounted for a smaller proportion of 3.6%. When examining the age distribution, the majority of participants fell within the age range of 25 to 30 years old, representing 42.3% of the sample, followed closely by the age group of 31 to 35 years old, with 44.1%. The remaining age groups had smaller representation, with 6.3% of respondents aged 36 to 40 years old, 3.6% aged 41 to 45 years old, and 0.9% aged 46 to 50 years old. A small portion of respondents, 2.7%, reported being above 50 years old. Regarding educational attainment, the vast majority (99.1%) of participants held a bachelor's degree, while only 0.9% reported having a diploma. Finally, in terms of length of experience, the distribution was relatively balanced, with 31.5% of respondents having 1 to 3 years of experience, 36% having 4 to 6 years, and 16.2% each reporting 7 to 9 years and 10 years and more of experience.

Table 2 provides an overview of the mean values, standard deviations (SD), verbal interpretations, and ranks of statements related to nurses' behavior towards safety huddle implementation in the intensive care unit (ICU). The table presents 26 statements numbered from 1 to 26, along with corresponding mean scores, SD values, verbal interpretations, and ranks.

The mean score represents the average response of the participants to each statement, indicating the degree of agreement or disagreement. The SD value reflects the extent of variability in responses for each statement, providing insights into the level of consensus or divergence among the participants.

The verbal interpretation column categorizes the responses into three categories: "Agree," "Disagree," or "Neither" based on the mean scores. These interpretations provide a concise summary of the participants' overall sentiments towards each statement.

The rank column denotes the relative position of each statement based on the mean scores. A lower rank indicates a higher agreement or disagreement among the participants towards a particular statement.

This table offers a comprehensive overview of the participants' perspectives on various aspects related to safety huddle implementation in the ICU, allowing for a detailed analysis of their attitudes and perceptions.

Table 3 presents the analysis of the significance between nurses' behavior toward safety huddle and their demographic characteristics. The table includes demographic variables such as Gender, Age, Educational Attainment, and Length of Experience.

For each demographic category, the table provides the mean scores, standard deviations (SD), test statistics, degrees of freedom (df), p-values, and interpretation of the results.

Regarding Gender, the mean score for males was 2.63 with an SD of 0.318, while for females, the mean score was 2.77 with an SD of 0.212. The t-test was conducted, resulting in a test statistic of -1.3139 with a p-value of 0.9042. The p-value indicates that the difference in behavior toward safety huddle between males and females is not statistically significant.

For Age, the table presents mean scores and SD values for different age groups. An ANOVA test was performed to assess the significance of differences among these groups. The results showed a test statistic of 0.8 with a p-value of 0.5546, indicating that there is no significant difference in behavior toward safety huddle across different age groups.

Educational Attainment compares the behavior of nurses with different educational backgrounds, specifically Diploma and Bachelors. However, a t-test could not be conducted for Diploma due to one of the groups having only one observation. For Bachelors, the mean score was 2.77 with an SD of 0.22.

The Length of Experience category explores the behavior of nurses based on their years of experience. ANOVA was used to evaluate the significance among different experience groups. The test statistic was 1.94 with a p-value of 0.128, suggesting that there is no significant difference in behavior toward safety huddle based on years of experience.

The null hypothesis states that there is no significant difference in the level of knowledge of the respondents when they are grouped according to demographics. The rejection of the null hypothesis occurs if the p-value is less than 0.05, indicating a statistically significant difference. However, based on the p-values presented in the table, the results suggest that there are no significant differences in behavior toward safety huddle across the examined demographic characteristics.

Table 1: Demographic Characteristics of Survey Respondents: Gender, Age, Education, and Experience

Demographic	Frequency	Percent
Gender		
Male	4	3.6%
Female	107	96.4%
Total	111	100%
Age		
25 to 30 years old	47	42.3%
31 to 35 years old	49	44.1%
36 to 40 years old	7	6.3%
41 to 45 years old	4	3.6%
46 to 50 years old	1	0.9%
More than 50 years old	3	2.7%
Total	111	100%
Educational Attainment		
Diploma	1	0.9%
Bachelor	110	99.1%
Total	111	100%
Length of Experience		
1 to 3 years	35	31.5%
4 to 6 years	40	36%
7 to 9 years	18	16.2%
10 years and more	18	16.2%
Total	111	100%

Table 2: Mean, Verbal Interpretation, and Rank of Statements on Nurses' Behavior towards Safety Huddle Implementation in the ICU

Statement	Mean	SD	Verbal Interpretation	Rank
1. Lack of knowledge about huddle content	3.89	0.80	Disagree	1
2. Huddles are similar to other activities	2.83	1.14	Neither	10
3. Uncertainty about expectations in huddles	2.50	0.76	Agree	15
4. Huddles seen as another initiative	3.32	0.92	Neither	5
5. Perceived lower importance of views in huddles	2.35	0.86	Agree	21
6. Not responsibility to express concerns in huddles	2.17	0.77	Agree	26

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7. Lack of resources to address identified issues in huddles	2.32	0.82	Agree	23
8. Huddles restricted to medically trained staff	2.49	0.99	Agree	16
9. Confidence in attending/leading huddles	3.05	1.09	Neither	8
10. Communication skills deficiency for huddle participation	2.28	0.80	Agree	25
11. Belief that harm reduction efforts have reached their limits	2.40	0.95	Agree	20
12. Expectation of harm reduction through huddles	3.21	1.09	Neither	6
13. Perceived lack of benefits for staff attending huddles	2.41	0.91	Agree	19
14. Concerns about appearing incompetent or lacking knowledge	3.78	0.67	Disagree	2
15. Time constraints hindering huddle implementation	2.77	0.88	Neither	11
16. Huddles potentially diverting staff from essential care duties	2.56	0.90	Neither	13
17. Perception of more important tasks than attending huddles	2.46	0.76	Agree	17
18. Apprehension about saying something inappropriate in huddles	3.51	0.83	Disagree	3
19. Forgetfulness in attending huddles	2.43	0.85	Agree	18
20. Routine inclusion of huddles in work practice	3.11	1.02	Neither	7
21. Discomfort in contributing to huddles	2.34	0.85	Agree	22
22. Perceived as the only or one of the few contributing to huddles	2.29	0.69	Agree	24
23. Quick patient turnover limits the usefulness of huddles	2.85	0.94	Neither	9
24. Difficulty in gathering staff for huddles	2.54	0.96	Neither	14
25. Staff enthusiasm towards holding huddles	3.34	0.87	Neither	4
26. Lack of suitable space for huddles	2.68	0.98	Neither	12
Composite Mean	2.76	0.22	Good	

Table 3: Significance of Nurses' Behavior towards Safety Huddle Based on Demographic Characteristics

Demographic	Mean	SD	Test Statistic	Value	df	p-value	Interpretation
Gender			t-test		109	0.9042	Not Significant
Male	2.63	0.318		-1.3139			
Female	2.77	0.212					
Age			ANOVA		110	0.5546	Not Significant
25-30 years old	2.76	0.23		0.8			
31-35 years old	2.78	0.19					
36-40 years old	2.63	0.36					
41-45 years old	2.87	0.15					
46-50 years old	2.69	0.00					
More than 51 years old	2.79	0.08					
Educational Attainment							
Diploma	2.69	-	t-test				Test not performed
Bachelors	2.77	0.22					
Length of Experience			ANOVA		110	0.128	Not Significant
1 - 3 years	2.75	0.18		1.94			
4-6 years	2.73	0.21					
7 - 9 years	2.87	0.20					
10 years and more	2.77	0.29					

Discussion

Safety huddles play a crucial role in addressing critical issues related to patient safety and medication, with the aim of preventing errors and hospital-acquired infections [15]. In the intensive care units, safety huddles are particularly important for ensuring patient safety, improving their condition, and facilitating their transfer to the step-down unit [16].Previous research has highlighted the effectiveness of pre-organized safety huddles in preventing sudden errors and enhancing patient safety in critical care units [17].

In this study, we examined the behavior of nurses in implementing safety huddles in the intensive care unit at King Fahd Hospital. Our findings revealed a higher response rate among respondents aged between 31 and 35, compared to those above 46 years of age. These results are consistent with a study conducted by Lord et al. (2021) [18], which focused on the effectiveness of communication among nurses working in intensive care units during the COVID-19 pandemic. Additionally, nurses with a bachelor's degree showed higher scores in their response to safety huddles compared to those with a diploma. This finding aligns with a study by Goh et al. (2020) [19], which reported that highly educated nurses tend to work independently, while less educated candidates prefer teamwork.

The relationship between length of experience and participation in safety huddles has been examined in previous studies. Khater et al. (2015) and Alquwez et al. (2018) found that nurses with shorter lengths of experience in Jordanian and Saudi Arabian hospitals, respectively, exhibited a greater appreciation for patient safety culture compared to those with longer lengths of experience [20,21]. Conversely, Bae et al. (2017) reported that less-experienced nurses tended to work collaboratively and contribute more, while more-experienced nurses preferred working independently based on their extensive experience [22]. Moreover, El-Jardali et al. (2014) discovered that nurses with more years of experience made more positive contributions to patient safety issues than those with fewer years of experience [23]. In our study, we observed higher participation rates among nurses with shorter lengths of experience (1-6 years) compared to those with longer lengths of experience (>7 years). This finding could be attributed to the influence of critical thinking skills on nurses' perception of patient safety issues.

Regarding knowledge and attitude, we found no significant difference in ICU nurses' responses to safety huddles. This lack of difference can be attributed to the awareness among nurses working in the intensive care units regarding the importance of their knowledge, attitude, and safety practices in preventing errors and risk factors. This finding is consistent with studies by Tigari et al. (2018) and Giannetta et al. (2020), which explored the knowledge, attitude, and practices of intensive care nurses regarding pressure injury prevention and medication management to avoid errors during drug preparation and administration to ICU patients, respectively [24,25]. Additionally, Perri et al. (2018) reported that nurses' scores in knowledge and attitude related to patients' pain on admission to the palliative care unit were not influenced by their demographic characteristics [26].

The high scores obtained for statement number 1, which assessed participants' awareness of the issues discussed during safety huddles, can be explained by Stapley et al. (2018), who demonstrated that nurses' awareness of patients' situations could lead to a 50% reduction in patient transfers to the intensive care unit, as observed in a study conducted at a children's medical hospital in Cincinnati [27]. Furthermore, participants' awareness of the importance of conversations and discussions during quick huddles may have contributed to nurses' confidence in actively participating in safety huddles, as indicated by the high response rate for statement.

Ethical approval: Ethical approval was obtained from the FCMS Fakeeh Collage Medical Sciences FCMS Institutional Review Board and King Fahd Hospital. The respondents were assured that all collected data would be kept confidential and anonymous, and used only for the intended purpose of the study. They were also informed that participation was voluntary and that they could withdraw from the study at any time.

Conflicts of interest: The authors declare that they have no conflicts of interest that could have influenced the research design, data analysis, or interpretation of results.

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Author contributions: STA conceptualized and designed the study. STA collected the data. HAF performed the data analysis. ATA and HAF contributed to the interpretation of results. All authors were involved in writing the manuscript and approved the final version for submission.

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