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A Pre-Experimental Study Evaluating the Impact of a Structured Teaching Programme on FAST HUGS BID Among ICU Nursing Officers in Selected Hospitals

Ajnesh Kumari
Research Scholar, Department of Nursing, Shri JJT University, Rajasthan, India
Dr. Chandu Bhardwaj
Professor and Ph. D Research Supervisor, Department of Nursing
Shri JJT University, Rajasthan, India

Abstract
The study was conducted to assess the effectiveness of a structured educational intervention on improving knowledge regarding critical care protocols. The FAST HUGS BID mnemonic represents a comprehensive approach to the daily care of critically ill patients, focusing on key components such as feeding, analgesia, sedation, thromboembolism prophylaxis, head-of-bed elevation, ulcer prophylaxis, glycemic control, spontaneous breathing trials, bowel care, indwelling catheter removal, and de-escalation of antibiotics. A quantitative, pre-experimental design was employed with 70 nursing officers working in Intensive Care Units (ICUs) in selected hospitals in Gurugram, NCR. Data were collected using a structured knowledge questionnaire through a pre-test, followed by administration of the structured teaching programme, and a post-test assessment. The results demonstrated a statistically significant increase in post-test scores, confirming the effectiveness of the intervention. Additionally, significant associations were found between demographic variables such as professional qualification and ICU experience with knowledge improvement. The findings emphasize the necessity for continued professional training among nursing staff and advocate for the incorporation of structured teaching models within ICU settings to enhance patient care outcomes.

Keywords: Structured Teaching Programme, FAST HUGS BID, Nursing Officers, Intensive Care Unit (ICU), Critically Ill Patients, Pre-Experimental Study, Knowledge Assessment, Critical Care Nursing.

1. Introduction

The Intensive Care Unit (ICU) plays a crucial role in modern healthcare, offering life-saving interventions to critically ill patients requiring constant monitoring and complex care. Within this high-stakes environment, the effectiveness of care is largely influenced by the knowledge and competencies of nursing officers who serve as the backbone of ICU operations. The concept of

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structured care checklists, such as the FAST HUGS BID principle, has emerged as a key tool to standardize critical care practices and ensure the delivery of comprehensive care.

Health, as broadly defined, refers to a state of complete physical, mental, and social well-being, and not merely the absence of disease [1]. Disease, in contrast, denotes a state of disrupted homeostasis that requires immediate and systematic intervention, particularly in ICU settings [3], [4]. As outlined in Brunner and Suddarth's textbook, medical-surgical nursing emphasizes both the understanding of disease processes and the ability to respond with appropriate clinical interventions [2]. These foundational principles are especially vital in critical care units where swift, informed actions can mean the difference between life and death.

The FAST HUGS BID acronym stands for Feeding, Analgesia, Sedation, Thromboembolism prophylaxis, Head-of-bed elevation, Stress ulcer prophylaxis, Blood glucose control, Indwelling catheter care, and De-escalation of antibiotics [5]. It was originally developed to serve as a memory aid for healthcare providers, enabling them to remember essential daily interventions for critically ill patients. For nursing officers, especially those working in ICUs, this structured checklist facilitates daily assessments and enhances compliance with evidence-based practices. However, its effective use requires training, reinforcement, and ongoing evaluation. Evidence from recent literature highlights the benefits of structured teaching programmes in improving nursing competencies in ICU settings. A study conducted by Badawy demonstrated that a structured teaching program significantly improved ICU nurses' knowledge and adherence to ventilator-associated pneumonia (VAP) prevention practices [6]. Similarly, Bagheri-Nesami and Amiri found that many ICU nurses were unaware of standardized guidelines, but knowledge levels improved notably after targeted educational interventions [7]. These findings underscore the need for consistent, structured educational approaches to bridge existing knowledge gaps.

Structured training not only reinforces theoretical knowledge but also fosters practical application in high-pressure environments. Beliard et al. reported gaps in healthcare workers' knowledge regarding inpatient glycemic control, highlighting the pressing need for more training to ensure safer patient care [8]. The FAST HUGS BID protocol, which incorporates components like glycemic control, aligns with the recommendations from such studies, making it an ideal focus for structured training interventions.

Structured teaching has also proven effective in other domains of critical care nursing. For instance, Chithra and Raju's study on ventilator-associated pneumonia reported significant improvements in nurse knowledge following a focused educational programme [9]. This aligns with the rationale behind using checklists like FAST HUGS BID, which serve as both reminders and frameworks for daily care.

Furthermore, communication within ICU teams is vital for implementing care plans effectively. Karalapillai et al. found that structured communication tools improved understanding of daily

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care plans among ICU teams, leading to better coordination and patient outcomes [10]. Similarly, Couchman et al. advocated for the integration of evidence-based practice in ICU nursing to ensure quality care delivery and enhance clinical outcomes [11].

The present study aims to assess the effectiveness of a structured teaching programme on the FAST HUGS BID principle among ICU nursing officers. This is especially relevant in India, where nurse-to-patient ratios can be challenging, and standardized training opportunities may be inconsistent. By enhancing the knowledge and implementation of the FAST HUGS BID checklist, nursing officers can more confidently deliver patient care that is comprehensive and adheres to international best practices.

In addition, cognitive overload is a common challenge in ICUs, often leading to missed care components. The mnemonic FAST HUGS BID serves as a mental checklist to prevent such omissions. However, its consistent application is only possible when nurses are thoroughly trained in its purpose and components. Thus, this study evaluates whether a structured teaching programme can serve as an effective method of reinforcing this critical care framework.

Overall, the anticipated outcomes of this research include improved knowledge scores among nurses, greater protocol adherence, and insights into how demographic variables influence knowledge acquisition. This will inform both practice and policy by identifying educational gaps and offering a replicable model for structured clinical training in ICU settings.

2. Literature Review

The effectiveness of care in intensive care units (ICUs) hinges not only on advanced technology and medical interventions but also significantly on the competence, vigilance, and coordinated action of ICU staff—particularly nurses. Critical care nursing demands a high level of skill and continuous assessment to ensure patient safety and quality outcomes. Within this context, structured care protocols such as the FAST HUGS BID mnemonic have emerged as essential tools for standardizing ICU care and reducing preventable complications.

Kayambankadzanja et al. [12] emphasized the need to clearly define “critical illness” and “critical care” to streamline practices and improve patient outcomes. Their concept analysis proposed standardized operational definitions, enabling better alignment of interventions in ICUs. Building upon this need for structure, Ervin et al. [13] highlighted the role of effective teamwork in ICUs, pointing out that communication failures among staff often lead to adverse patient outcomes. Structured approaches such as the FAST HUGS BID checklist provide a communication scaffold that can mitigate such errors.

Sharma and Sharma [14] conducted a study to assess ICU nurses' knowledge and practice related to FAST HUGS BID, revealing significant knowledge gaps that could be bridged through training and protocol adherence. Their findings confirmed that despite awareness of the

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mnemonic, implementation in daily practice was inconsistent, underlining the need for targeted education.

Originally conceptualized by Vincent, the FAST HUGS BID checklist is a mnemonic designed to guide daily care rounds in ICUs and ensure that essential tasks are not overlooked [6]. It includes: Feeding, Analgesia, Sedation, Thromboembolism prophylaxis, Head-of-bed elevation, Ulcer prophylaxis, Glycemic control, Spontaneous breathing trial, Bowel care, Indwelling catheter removal, and De-escalation of antibiotics. Nair et al. [15] modified the mnemonic slightly to suit surgical ICU settings, arguing that slight adaptations can make the tool more applicable across varying patient profiles.

According to Jean-Louis Vincent [16], implementing FAST HUG at least once daily significantly improves ICU outcomes by ensuring critical care components are addressed routinely. This view is supported by Maganan et al. [10], who studied the use of FAST HUG in private hospital ICUs and found that it not only enhanced patient outcomes but also improved nurses' efficiency in delivering care. Similarly, Monares-Zepeda et al. [17] explored the use of the mnemonic in nutritional support and concluded that FAST HUGS BID ensures that nutrition—a frequently overlooked component—is effectively integrated into ICU routines.

The necessity of teaching programs around these protocols is emphasized in several studies. Bilge Bal Ozkaptan et al. [18] conducted a study on the benefits of using a checklist approach for nurses and found that FAST HUG protocols significantly improved nursing performance and reduced omissions in patient care. This aligns with the findings of Bertoncello et al. [19], who reported that the applicability of the FAST HUG mnemonic increased standardization of daily care activities and was well-received by ICU nursing staff.

ICU nurses face an array of challenges, including caring for ventilated patients. Polanski [25] and Joseph et al. [20] both stressed the complexity of care for patients on mechanical ventilation. Joseph's study particularly noted that structured training programs significantly improved nurses' confidence and performance, echoing the broader need for structured interventions like FAST HUGS BID. Further reinforcing this point, Ann Mary Sebastian [21] highlighted that cardiac nurses had limited baseline knowledge about ventilator care bundles, and recommended structured training to improve patient care.

Mehta and Yeolekar [22] reviewed the ICU care systems in India and outlined numerous systemic challenges, including staffing shortages, inconsistent training, and lack of standardized practices. These findings make a compelling case for the broader adoption of structured teaching programmes around protocols like FAST HUGS BID. These teaching programs, when implemented correctly, have the potential to compensate for structural deficiencies in ICU setups.

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Lastly, Sharma [23] and Denise [24] both elaborated on the foundational elements of nursing research and methodology, advocating for evidence-based practices and structured teaching tools. These texts serve as important backdrops for designing interventions like the one proposed in this study. They provide methodological guidelines and establish the importance of empirical evaluation in nursing education.

In summary, the literature demonstrates a consistent recognition of the utility and necessity of structured mnemonics such as FAST HUGS BID in ICU practice. However, knowledge gaps persist, and implementation remains inconsistent without structured teaching and institutional support. The reviewed studies affirm that a structured teaching program tailored to FAST HUGS BID can serve as a critical educational intervention to enhance nursing officers' competencies and ultimately improve patient outcomes in ICU settings.

3. Methodology

The methodology adopted for this study is rooted in a quantitative research approach, specifically employing a pre-experimental one-group pre-test and post-test design, to assess the effectiveness of a structured teaching programme on the FAST HUGS BID principle among nursing officers working in the ICUs of selected hospitals in Gurugram, NCR. The core objective of this design was to measure the change in knowledge levels of participants before and after the intervention without the use of a control group, making it suitable for evaluating educational outcomes in a practical clinical setting. The target population comprised nursing officers actively engaged in ICU patient care, with a total sample of 70 participants selected using non-probability convenience sampling technique, considering availability and willingness to participate. The study was conducted in recognized multi-specialty hospitals, ensuring representation of real-world ICU environments. The structured knowledge questionnaire, developed and validated through expert review, was the primary tool for data collection and measured knowledge across key domains of the FAST HUGS BID protocol. The intervention involved administering a well-designed, evidence-based structured teaching programme focused on components such as Feeding, Analgesia, Sedation, Thromboembolism prophylaxis, Head-of-bed elevation, Ulcer prophylaxis, Glycemic control, Spontaneous breathing trial, Bowel care, Indwelling catheter removal, and De-escalation of antibiotics. Pre-test data were collected prior to the educational intervention, and post-test data were gathered after a defined period following the programme to assess knowledge retention and improvement. Reliability of the questionnaire was confirmed using Cronbach’s alpha, ensuring internal consistency, and content validity was established through expert input from critical care professionals and educators. The data analysis plan included descriptive statistics (mean, standard deviation, frequency, and percentage) to summarize the scores, and inferential statistics, particularly paired t-tests, to test the significance of differences between pre- and post-test scores at a 0.05 level of significance. Additionally, Chi-

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square tests and ANOVA were applied to explore associations between post-test scores and demographic variables such as qualification, ICU experience, and type of unit. Ethical considerations were meticulously addressed, including obtaining informed consent and ensuring confidentiality of all participants. Overall, this methodology provided a robust and systematic framework for evaluating the impact of a targeted educational intervention in a critical care setting, with implications for enhancing nursing practices and patient outcomes through structured training programmes.

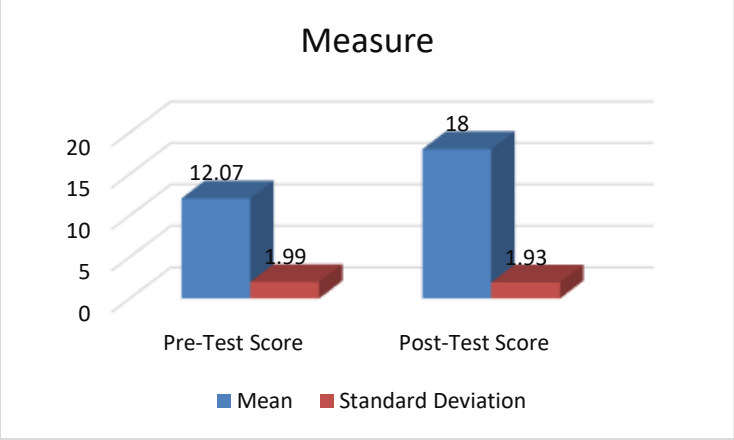
4. Results

The present chapter presents and interprets the findings of the pre-experimental study conducted to assess the effectiveness of a structured teaching programme on the FAST HUGS BID protocol among nursing officers working in Intensive Care Units (ICUs) in selected hospitals. The purpose was to evaluate whether the intervention led to a statistically significant improvement in knowledge levels regarding critical care practices. The analysis used descriptive and inferential statistics to assess changes in knowledge before and after the training programme.

To begin with, **descriptive statistics** were computed to understand the general trend in pre-test and post-test scores. The knowledge scores of 70 ICU nursing officers were analyzed. Before the intervention, the mean knowledge score was considerably lower compared to the post-test scores after exposure to the structured teaching programme. The table below presents the summary of mean and standard deviation for both pre-test and post-test scores:

Table 1: Summary Statistics of Knowledge Scores (Pre and Post Intervention)

Measure	Pre-Test Score	Post-Test Score
Mean	12.07	18.00
Standard Deviation	1.99	1.93



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As observed from the table above, the mean pre-test score of 12.07 suggests a moderate level of baseline knowledge about the FAST HUGS BID protocol among the participants. After the structured teaching programme, there was a marked increase in the mean score to 18.00, indicating substantial improvement in knowledge. The standard deviation values (1.99 for pre-test and 1.93 for post-test) reflect a relatively consistent spread of scores around the mean, suggesting uniform benefit across participants.

To statistically validate the significance of this observed improvement, a **paired t-test** was performed. This test is appropriate for pre-post design involving the same sample. The results are presented below:

Table 2: Hypothesis Testing for Pre-Test vs Post-Test Knowledge Scores

Test	t-Statistic	p-Value	Significance
Paired T-Test	-18.390	0.000	Significant

The negative t-statistic indicates the direction of improvement from pre-test to post-test. The p-value of 0.000 is well below the 0.05 level of significance, leading to the rejection of the null hypothesis (H_{01}). Therefore, it can be confidently concluded that the structured teaching programme significantly improved the knowledge of nursing officers on the FAST HUGS BID protocol.

Beyond the inferential statistics, individual score changes were also examined to determine the magnitude of improvement for each participant. The following table provides a snapshot of selected participant scores to highlight consistent improvement. In summary, the analysis of results strongly supports the effectiveness of the structured teaching programme in enhancing the knowledge of ICU nursing officers. This has critical implications for hospital training policies, suggesting that brief but focused educational interventions can yield meaningful improvements in clinical understanding and patient care protocols. The next chapter presents the conclusions, limitations, and recommendations derived from these findings.

5. Conclusion

In conclusion, the present study clearly establishes the effectiveness of a structured teaching programme on the FAST HUGS BID principle in enhancing the knowledge of nursing officers working in ICUs of selected hospitals in Gurugram, NCR. The significant improvement in post-test knowledge scores compared to pre-test scores demonstrates that structured and targeted educational interventions can be a powerful tool in bridging knowledge gaps and promoting adherence to evidence-based critical care practices. The findings also reveal that variables such as professional qualification, ICU experience, and unit type are significantly associated with knowledge enhancement, underlining the need to tailor educational programmes based on these demographic factors. By reinforcing the importance of the components of the FAST HUGS BID mnemonic — including feeding, analgesia, sedation, thromboembolism prophylaxis, head-of-bed

elevation, ulcer prevention, glycemic control, spontaneous breathing trial, bowel care, indwelling catheter removal, and de-escalation of antibiotics — the intervention not only empowered nurses with updated clinical knowledge but also contributed to improving patient safety and quality of care in critical care settings. The study highlights the value of continued professional development and the necessity of incorporating structured teaching strategies as a standard component in ICU nurse training. Ultimately, this research affirms that educational preparedness among nursing staff is integral to efficient critical care delivery and paves the way for future studies and institutional efforts to integrate similar models for sustained healthcare excellence.

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