Factors Affecting Safety Performance of Nurses in the Bangladesh Hospitals

Meherun Nesa

The Graduate School

Yonsei University

Department of Nursing

This certifies that Meherun Nesa's dissertation has been approved.

Professor Tae Wha Lee: Dissertation Chair

[Hyeonkyeong Lee: Dissertation Committee Member]

[Seung Eun Lee: Dissertation Committee Member]

[Yeonsoo Jang: Dissertation Committee Member]

[Chang Gi Park: Dissertation Committee Member]

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Yonsei University
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ABSTRACT

Factors Affecting Safety Performance of Nurses in the Bangladesh Hospitals

Meherun Nesa
Ph.D., RN, & RM.
College of Nursing
The Graduate School
Yonsei University

Background: The provision of comprehensive care within the healthcare system is vital for nurses and responsible for patient safety in a hospital setting round the clock. Globally, 64 million years of disability-adjusted life years (DALYs) are lost annually due to unsafe healthcare practices, and preventable harm is considered one of the top ten causes of injury and death in hospitals (World Health Organization [WHO], 2018). In Bangladesh, the current doctor-to-nurse ratio is 1:0.4, indicating a severe shortage of nurses compared to the WHO's recommended 1:3 ratio (Begum & Mahmood, 2023). Nurses in Bangladesh face significant challenges that hinder patient care due to staffing shortages and the lack of a dedicated body for their concerns. Often relegated to support roles, they struggle with a shortage of skilled providers, inadequate training, limited leadership support, few career advancement opportunities, weak hospital policies, and insufficient budget allocations for night shifts and risk management. Addressing these issues is essential to empower nurses and improve healthcare outcomes. This study is to explore the level of the safety performance of nurses in Bangladesh hospitals and analyze the effects of the affecting factors their safety performance.

Method: This study is a descriptive correlational design. The study was conducted in five hospitals in Bangladesh. A random sampling technique was employed to recruit participants for this study. The sample size was determined using the G-power program. The medium effect size was set at 0.10, with a significance level of 0.05 and a power of 0.87. The minimum sample size needed for statistical analysis was 250. To account for a potential 20% dropout rate (Grove et al., 2012), 300 participants were recruited. Data analysis was performed using IBM SPSS 26.0 and the SPSS Process Macro version 3.4. The following analyses were conducted. Descriptive statistics, such as means and standard deviations, were used to describe participants' characteristics. T-tests and one-way ANOVA assessed variable differences, while Pearson's correlation coefficient evaluated the relationships between variables. The internal consistency of the instruments was evaluated using Cronbach's alpha. Multiple regression analysis identified key factors impacting nurses' safety performance in Bangladeshi hospitals. Bivariate and multivariate logistic regression analyses explored the relationship between independent variables and safety performance, offering insights for improving nursing safety standards.

Results: This study highlights the general characteristics of 300 dedicated nurses from five medical college hospitals in Bangladesh, specifically in the divisions of Dhaka, Chittagong, Sylhet, Khulna, and Rangpur. Their insights are crucial for advancing healthcare in the region. The study highlights nurses' safety performance by assessing safety compliance and participation, with mean scores of 4.00 (SD = 0.83) and 4.13 (SD = 0.71) out of 5. The overall safety climate scored a moderate 3.67 (SD = 0.80). Among its sub-dimensions, safety systems led with 3.81 (SD = 0.90), followed by management values (3.70, SD = 0.93), safety training (3.64, SD = 0.95), and safety communication (3.57, SD = 0.99). Additionally, the mean score for safety knowledge was 4.16 (SD = 0.82), while safety motivation reached 4.30 (SD = 0.80). These results emphasize the importance of prioritizing safety initiatives in nursing practice. There were significant differences in safety compliance by marital status (t=-2.548, p<.011), and experience in safety activities (t=-2.713, p<.007). Similarly, the mean scores of safety participation were different by

marital status (t=-2.976, *p*<.003), experience in safety activities (t=-3.525, *p*<.001), and types of safety training program (F=4.578, *p*<.004). This study indicates that, safety climate is significantly correlated with safety knowledge (r=.584, *p*<.001), safety motivation (r=.447, *p*<.001), safety compliance (r=.501, *p*<.001), and safety participation (r=.481, *p*<.001). When assessing the factors affecting safety compliance, the multiple regression model explained 39.0% of the variance in safety compliance (F=23.225, p < .001). And safety climate (β=.255, *p*<.001), safety knowledge (β=.248, *p*<.001), and safety motivation (β=.219, *p*<.001) were the significant predictors of safety compliance. Another multiple regression model explained 41.3% of the variance in the safety participation (F=25.566, *p*<.001). The safety climate (β=.235, *p*<.001), and safety motivation (β=.376, *p*<.001), and the type of safety training experience (β=.105, *p*<.001were the significant predictors of safety participation.

Conclusion: This study highlights essential factors affecting nurses' safety performance in Bangladesh, including safety climate, knowledge, motivation, and participant characteristics. These insights are crucial for developing effective nursing policies that enhance compliance and collaboration between nursing schools and hospitals. By implementing these recommendations, that can improve nursing safety performance and build a stronger safety climate.

Keywords: Safety Climate, Management Value, Safety Communication, Training, Safety System, Knowledge, Safety Motivation, Safety Compliance, Safety Participation, and Safety Performance.

I. INTRODUCTION

1.1 Background

Work-related safety is a critical and challenging issue for organizations, particularly in the healthcare sector, impacting all healthcare workers (Lievens & Vlerick, 2014). The hospital environment is rapidly evolving in response to the growing complexity and instability within the healthcare field (Ko et al., 2018). Injuries, workplace accidents, and hospital-acquired infections continue to be significant safety concerns worldwide, including in Bangladesh.

Safety performance is crucial for nurses, as they are often the primary agents responsible for preventing harmful incidents in hospital settings (Mitchell et al., 2016). Globally, 64 million years of disability-adjusted life years (DALYs) are lost annually due to unsafe healthcare practices, and preventable harm is considered one of the top ten causes of injury and death in hospitals (World Health Organization [WHO], 2018). Nursing is one of the professions most susceptible to work-related physical, chemical, and psychological injuries (Saadeh et al., 2020; Abdi et al., 2023). However, a modern perspective on safety performance emphasizes a proactive approach, focusing on safety-related behaviors rather than merely reporting incidents, injuries, and fatalities (Christian et al., 2009).

Safety performance encompasses all actions taken by employees at work that directly or indirectly influence the organization's safety outcomes. It is "the behaviors employees exhibit to promote and adhere to safety protocols within the workplace" (Griffin & Neal, 2000, p. 101). Previous studies have identified multiple factors influencing the safety performance of nurses, categorized as personal, situational, and safety-related factors. Personal factors include age, gender, marital status, education, religion, and monthly income (Heier et al., 2021; Khader & Al-Mawajdeh, 2016; Neal et al., 2000; Seo & Lee, 2022). Situational factors encompass working experience, current unit, position, and overall years of experience (Seo & Lee, 2022; Ghasemi et al., 2022; Heier et al., 2021; Mohammed et al., 2021; Manapragada et al., 2019; Yang et al., 2018; & Singer, 2009). Safety-related factors include safety guidelines, training, awareness of safety events, participation in safety activities, safety systems, safety climate, safety knowledge, and safety motivation (Yang et al., 2018; Lievens & Vlerick, 2014; Neal & Griffin, 2006; Heier et al., 2021; Ghasemi et al., 2022; Manapragada et al., 2019).

According to the safety performance model proposed by Neal and Griffin (2000), the overall organizational climate impacts the safety climate, which influences safety performance, represented through safety compliance and participation. This relationship is mediated by safety knowledge and safety motivation.

The safety climate directly impacts safety performance (Ghasemi et al., 2022). Griffin and Curcuruto (2016) define safety climate as a collective construct derived from

individuals' shared perceptions of how safety is valued within the workplace. The concept encompasses communication, management values, training, and safety systems (Manapragada et al., 2019; Neal et al., 2000; Custo et al., 2019). Previous studies have shown a positive correlation between safety culture or climate and the safety performance of nurses (Arzahan et al., 2022; Xu et al., 2020; Kasim et al., 2019). Furthermore, studies report enhanced safety compliance and participation linked to a positive safety management system, with a 64% correlation reported in seven of eleven articles (Pei et al., 2021; Arzahan et al., 2022).

Neal et al. (2000) highlights that safety knowledge significantly influences safety performance. Safety knowledge refers to the awareness and understanding of existing safety systems, procedures, guidelines, and organizational standards (Griffin & Neal, 2006). Patient safety knowledge fosters effective safety protocols and performance among nurses, influenced by workload, safety incentives, and nursing hours per patient (Nuntawinit et al., 2009; Sangsrijan et al., 2024). Safety knowledge accounts for 29% of safety compliance and 30% of safety participation, demonstrating a significant relationship between safety knowledge, safety climate, and nurses' safety performance (Nuntawinit et al., 2009).

Safety motivation also significantly impacts safety performance (Fushen & Zendrato, 2019). Motivation is the willingness to exert effort toward enacting safety behaviors (Griffin & Neal, 2000; Farag et al., 2019). Galletta (2016) reported that creating a supportive work environment increases safety, motivation, and performance. Studies show

that 81.25% of nurses exhibited improved safety motivation, significantly associated with enhanced safety performance (Sutarto et al., 2016; Christian et al., 2009).

A robust safety culture promotes employee loyalty and enhances the work environment for nursing staff, thereby encouraging adherence to safety training and improving overall safety performance (Sangsrijan et al., 2024; Jang, 2017; Jarrar et al., 2021). Nurses' participation in safety events is influenced by their roles in safety policies, financial incentives, career growth, resources, and health management, particularly in developing countries such as Thailand, Jordan, Malaysia, and South Korea (Al-Bsheish, 2022; Kim, 2018; Ashour & Hassan, 2019; Clarke & Mahadi, 2017; Mashi, 2014; Willis-Shattuck et al., 2008).

In Bangladesh, the current doctor-to-nurse ratio is 1:0.4, indicating a severe shortage of nurses compared to the WHO's recommended 1:3 ratio (Begum & Mahmood, 2023). The WHO also suggests a ratio of 0.5 nurses per doctor, with a projected need for 97,000 nurses by 2030 in Bangladesh (World Health Organization [WHO], 2016). Additionally, the limited capacity of nurses is a critical issue, hindered by a lack of specialized knowledge, clinical skills, and insufficient teaching resources (Begum & Mahmood, 2023; Mithu et al., 2012). Study findings indicate that 53.83% of nurses reported inadequate equipment access, over 82.59% did not receive awards for commendable work (Roy et al., 2023), and 70.5% required performance improvement (Haque et al., 2021).

The healthcare system in Bangladesh is still developing in error prevention and enhancing workplace safety. A study conducted in Bangladesh (Desta et al., 2018) found that healthcare workers, particularly nurses, often spread hospital-acquired infections due to inadequate infection control knowledge and inconsistent adherence to guidelines. More empirical research is needed on the correlation between nurses' safety performance, safety climate, safety knowledge, and motivation in Bangladeshi hospitals. The findings of this study will provide foundational data for assessing the current state of nurses' safety performance and developing strategies to improve safety outcomes in hospital settings.

1.2 Purpose

This study aims to evaluate the safety performance of nurses in Bangladeshi hospitals and identify the factors influencing their safety performance.

Specific Objectives

1) To assess the level of safety performance of nurses in Bangladeshi hospitals.
2) To explore the relationships among safety climate, safety knowledge, and motivation of nurses.
3) To identify the factors influencing the safety performance of nurses.

1.3. Definitions of terms

1.3.1. Safety performance

Safety performance is defined as “the behavior that employees exhibit to promote and adhere to the safety that individuals perform in the workplace” (Griffin & Neal, 2000). The safety performance scale developed by Griffin and Neal (2008) measured safety performance in the study. A higher score means better safety performance.

1.3.2. Safety climate

Safety climate is defined as “perceptions of policies, procedures, and practices relating to safety in the workplace” (Griffin & Neal, 2000). The safety climate in the study was measured by the safety climate scale developed by Griffin and Neal (2008). A higher score means a positive safety climate.

1.3.3. Safety knowledge

Safety knowledge is defined as “the degree of knowledge about existing safety systems procedures, guidelines, and standards in the organization” (Griffin & Neal, 2000). Safety knowledge was measured by the safety knowledge scale developed by Griffin and Neal (2008). A higher score means higher safety knowledge.

1.3.4. Safety Motivation

Griffin and Neal (2000) define safety motivation as "an individual's direct person-related antecedent of safety performance and reflects an individual's willingness to exert effort to enact safety behaviors." The study measured safety motivation using the safety motivation scale developed by Griffin and Neal (2008). A higher score means higher safety motivation.

II. LITERATURE REVIEW

This chapter presents a summary of the literature on nurse safety performance, focusing on (a) current nursing practices in Bangladesh, (b) the concept of safety performance, and (c) the factors associated with safety performance among nurses.

2.1. Healthcare practice in Bangladesh

Public hospitals in Bangladesh lack competition and do not have built-in incentive systems or a culture of enforcing discipline, implementing conduct rules, or penalizing non-compliance (Mohiuddin, 2020). Furthermore, there is no mechanism to evaluate the performance of individual healthcare workers or entire institutions. Healthcare professionals are often demotivated due to poor working conditions, unfair treatment, and limited career advancement opportunities. In many cases, patients seek care from private and unqualified practitioners to meet their needs, leading to medically inappropriate treatments. Consequently, the quality of healthcare services in Bangladesh is suboptimal, with 75% of preventable incidents and 5-10% of healthcare expenditures attributed to unsafe practices (Akter et al., 2019). The general public perceives the healthcare system as unreliable and rife with corruption, mismanagement, and fraud.

Evidence shows that nurses in Bangladesh face numerous challenges, including heavy workloads, lack of government-provided housing and transportation, poor health, insufficient support from nursing supervisors, limited promotion opportunities, incomplete hospital policies, and the absence of risk compensation for night shifts (Akter et al., 2019; Darkwa et al., 2015).

2.2. Factors associated with the safety performance of nurses

Safety performance refers to the work behaviors that contribute to overall safety outcomes. The performance model distinguishes between performance components, determinants, and antecedents (Campbell et al., 1996). Safety performance is defined as "the behavior that employees exhibit to promote and adhere to safety protocols in the workplace" (Griffin & Neal, 2000). It comprises two main dimensions: task performance and contextual performance (Griffin & Neal, 2000). Task Performance relates to how effectively individuals perform core technical tasks crucial to job roles (Arvey, 1998). Contextual Performance involves individual efforts that are not directly related to core job functions but are essential for shaping the organizational, social, and psychological context in which tasks are performed (Werner, 2000). Contextual performance extends to behaviors that enhance workplace safety and the overall safety culture.

A systematic literature review was conducted to critically evaluate recent literature on factors influencing nurses' safety performance, encompassing 13 articles. The review revealed five critical factors associated with nurses' safety performance.

2.2.1. Identification of research questions

The main research question was: *What factors are associated with the safety performance of nurses?*

2.2.2. Identification of relevant studies

A systematic literature review was conducted using specific search terms such as "patient safety," "performance," "task performance," "contextual performance," "safety compliance," "safety participation," "nurses," "safety climate," "knowledge," "skills," "motivation," and "management." The databases used included PubMed, CINHL, EMBASE, PsycINFO, Web of Science, and Scopus. The search period spanned from January 1, 2000, to October 30, 2022. Only peer-reviewed articles published in English focused on nurses were included, while articles covering other healthcare professionals, adolescents, or students were excluded.

2.2.3. Selection of studies

The initial search yielded 1,353 publications, and 1,018 records were screened after removing duplicates. Of these, 355 records were excluded, 300 by automation tools and 35 manually, along with 20 publications in other languages. A total of 663 records were retained, with 315 reports not retrieved. After assessing 348 reports for eligibility, 287 were excluded, leaving 48 studies in the review. Ultimately, 13 studies were included in the analysis. Figure 1 illustrates the PRISMA flow diagram for the selection process.

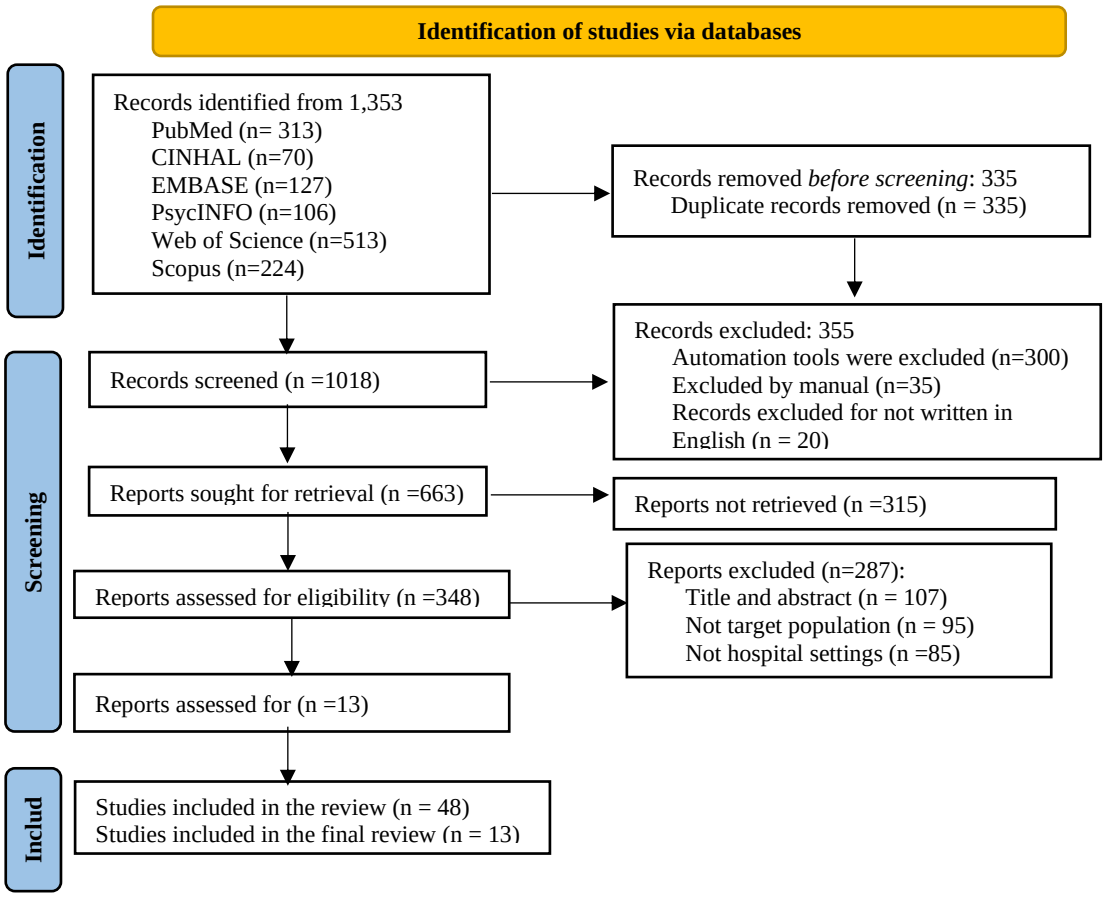

Figure 1. PRISMA flow diagram

2.2.4. Data extraction and analysis

The researcher independently developed a matrix to catalog the authors, publication years, countries, sample sizes, study designs, and findings related to safety performance. The data were synthesized narratively and categorized according to factors influencing nurses' safety performance in each study.

2.2.5. Findings

Table 1 summarizes the general characteristics of the included research. Among the 13 articles, five studies (39%) were conducted in Asia, five in Europe (39%), two in the United States (15%), and one in Africa (7%). In Europe, many studies focused on multiple countries rather than a single nation. Previous studies have identified multiple factors influencing the safety performance of nurses, categorized as personal, situational, and safety-related factors:

1. **Personal Factors**: Personal factors include age, gender, marital status, education, religion, monthly income, educational level in nursing, and safety training (Heier et al., 2021; Khader & Al-Mawajdeh, 2016; Neal et al., 2000; Seo & Lee, 2022).

2. **Situational Factors**: Situational factors include working unit, supervisor-supervisee diversity, promotion systems based on seniority or merit (Seo & Lee, 2022; Ghasemi et al., 2022; Heier et al., 2021; Yang et al., 2018; Neal et al., 2000), years of experience, nurse staffing levels per shift, workload (Manapragada et al., 2019; Soh et al., 2017), and rewards or recognition for performance. Nurses with access to diverse training programs generally exhibited better safety performance (Ghasemi et al., 2022; Mohammed et al., 2021; Yang et al., 2018).

3. **Safety-Related Factors**: Safety-related factors include the availability of safety guidelines or manuals, safety equipment, safety monitoring systems (Ghasemi et al., 2022; Mohammed et al., 2021; Yang et al., 2018), voluntary involvement in safety activities, adherence to safety rules, safety knowledge, safety motivation, compliance, and participation in safety initiatives (Heier et al., 2021; Yang et al., 2018; Lievens & Vlerick, 2014; Neal & Griffin, 2006).

Compliance and participation were found to form distinct dimensions of safety performance. Individual safety knowledge mediated the relationship between safety climate and safety performance (Mwachofi et al., 2011). A strong safety climate, values management, and a non-punitive response are crucial in enhancing safety behaviors (Aghaei et al., 2020; Hu et al., 2021). Significant variations in nursing activities are linked to nurses' education, self-efficacy, experience, and ongoing training (Kim & Kang, 2022; Garrigues et al., 2022).

Safety management, workplace satisfaction, and strong leadership commitment are critical components of a positive safety climate (Castilho et al., 2020; Fischer et al., 2018). Perceptions of patient safety climate vary by specialty, professional position, and experience. Thus, improving leadership communication, addressing safety concerns, and implementing effective patient safety strategies are essential to creating a safer healthcare environment (Bohmann et al., 2021; Glarcher et al., 2022).

Adverse events, nurse burnout, and workgroup identification significantly impact the safety climate in caregiving units. Leaders must foster a strong safety climate to safeguard patient and occupational safety and promote healthcare professionals' well-being in acute care settings (Vogus et al., 2020; Heier et al., 2021). Prioritizing organizational mindfulness, workforce agility, adaptability, and resilience while addressing risk perceptions and work-related disorders is crucial for enhancing nurses' safety performance (Saleem et al., 2021; Aboagye et al., 2022).

Table1. A literature review of the factors affecting safety performance included studies (N=13)

No	Author (Year)	Country	Research Design	Sample size & Sample	Results Summary
1	Aghaei et al. (2020)	Iran	cross-sectional	211 nurses	Occupational safety climate and patient safety climate also showed significant correlations with safety performance.
2	Hu et al. (2021)	China	Correlational	468 nurses	Promoted values directly affected safety performance, and practiced values affected safety performance through safety behavior
3	Kim & Kang, (2022)	Korea	Correlational	211 nurses	Patient safety in nursing, tailored educational programs that emphasize its importance, foster a positive safety culture, and provide essential data for creating such programs for hospital nurses are crucial.
4	Garrigues et al., (2022)	Spain	cross-sectional	458 nurses	Practical education, training, and supportive organizational cultures are crucial for enhancing nurses' competence. Trained staff and nurturing environments are also essential, considering nurses' knowledge, skills, and attitudes about health education competence.
5	Castilho et al., (2020)	Portuguese	cross-sectional	177 nurses	Less experienced nurses and night shift workers perceive a lower safety climate, while employees with formal contracts experience a better safety climate and workplace satisfaction. Identifying predictors of patient safety scores is crucial for improvement.
6	Fischer et al., (2018)	USA, Saudi Arabia, Norway, Sweden, Canada, and UK	Delphi	25 nurses	Developing leadership commitment to safety and fostering a culture of patient safety can achieve consensus on the factors contributing to an organization's safety climate.
7	Ghasemi et al., (2022)	Iran	cross-sectional	211 nurses	Less than half of nurses meet safety standards, with safety participation having the biggest impact on reducing accidents, followed by safety compliance. Training is crucial to improving safety and reducing mishaps. Supervisors' attitudes and safety training have the most influence on nurses' safety performance and chances.
8	Bohmann et al., (2021)	Germany	cross-sectional	164 nurses	Safety attitude differences between experienced physicians and nurses are essential for assessing patient safety and improving the safety climate in acute care.

No	Author (Year)	Country	Research Design	Sample size & Sample	Results Summary
9	Glarcher et al., (2022)	Austria	cross-sectional	713 nurses	Enhanced management, leadership, institutional engagement, and effective communication are crucial for addressing safety concerns and improving patient safety, including physician leadership and handling adverse events.
10	Vogus et al. (2020)	United States	Cross-sectional	603 nurses, nurse managers	Adverse events significantly impact nurse burnout, especially when nurses strongly identify with their workgroup. A positive safety climate can also help mitigate this effect.
11	Heier et al. (2021)	German	Explorative cross-sectional	168 nurses	Safety performance is part of occupational health, highlighting the roles of healthcare organizations and individual responsibility. However, the data are limited in their generalizability. Future research should focus on longitudinal designs to explore time effects and the impact of organizational and situational factors on healthcare professionals' safety performance.
12	Saleem et al., (2021)	Malaysia	Correlational	369 nursing staff	A flexible workforce strongly influences safety performance, and proactivity, adaptability, and resilience significantly enhance safety compliance and participation. This emphasizes the crucial role of workforce agility in improving safety behaviors.
13	Aboagye et al., (2022)	Ghana	Correlational	382 nurses	The nurses' risk perception positively influenced their task and contextual performance, with safety behavior partially mediating and offering a solid theoretical framework and empirical evidence for these associations, highlighting the need for further studies to confirm causality.

2.3. Theoretical Framework

The theoretical framework for this study is based on Griffin and Neal's (2000) model, which outlines the relationship between safety climate and safety performance, mediated by safety knowledge and safety motivation (Figure 2). Griffin and Neal (2000) proposed that a positive safety climate enhances safety performance by improving employees' motivation and knowledge. This framework is valuable for organizations aiming to strengthen their safety climate and minimize workplace accidents and injuries.

Safety climate is defined as a specific organizational climate that reflects individuals' shared perceptions of the value placed on safety in the work environment (Neal et al., 2000). It comprises key components such as management values, safety communication, training, equipment, physical work environment, and safety systems. When a positive safety climate is established, it creates an environment that supports safer work practices and enhances overall safety performance (Griffin & Neal, 2000). Neal and Griffin (1997) proposed a model that distinguishes between task performance and contextual performance, which represent two different types of work behaviors:

- **Task Performance**: This includes core safety activities that employees must follow to maintain safety in the workplace. It is considered a mandatory part of job roles and involves compliance with safety procedures and carrying out tasks in a safe manner.

- **Contextual Performance**: This refers to discretionary behaviors that go beyond formal job requirements and contribute to creating a positive safety culture. Contextual performance includes helping coworkers, promoting safety programs, demonstrating initiative, and putting extra effort into improving workplace safety.

In the safety context, safety compliance represents *task performance*, whereas situational performance is expressed through *safety participation*. Safety compliance involves adhering to safety procedures and protocols, while safety participation encompasses voluntary actions to improve workplace safety and support safety initiatives.

2.3.1. Safety Performance Model by Neal and Griffin (2000)

According to Neal and Griffin's (2000) conceptual model, safety performance is influenced by three main components:

1. **Antecedents** include organizational and safety climates, which set the foundation for safety behavior.
2. **Determinants**: Safety knowledge and motivation are proximal predictors directly influencing safety performance.
3. **Outcomes**: The two primary outcomes are safety compliance and safety participation, which reflect the effectiveness of safety initiatives in the workplace.

This model provides valuable insights into how safety knowledge and motivation interact with safety climate to shape safety behaviors. By enhancing safety knowledge and motivation,

organizations can improve safety compliance and encourage active participation in safety practices.

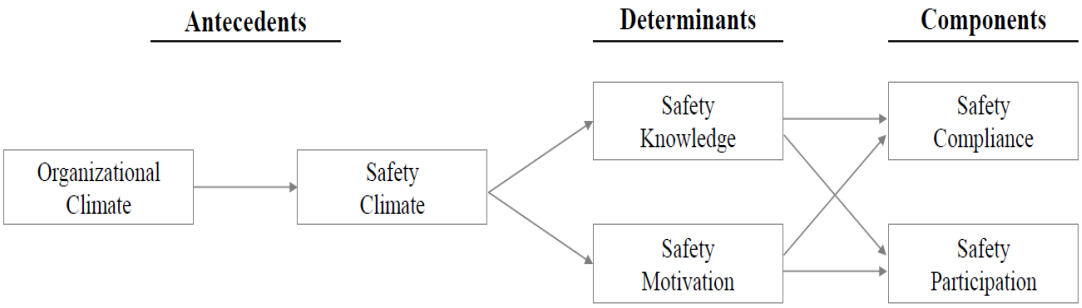

Figure 2. Safety Performance model by Griffin and Neal (2000)

The conceptual framework for this study emphasizes the crucial role of safety climate, knowledge, skills, and motivation in influencing nurses' safety performance (Figure 3). A positive safety climate fosters an environment that promotes better safety performance. At the same time, knowledge, skills, and motivation are key determinants shaping how nurses adhere to safety protocols and engage in safety-related activities. The complex interaction between safety climate, safety knowledge, safety motivation, and safety performance in hospital settings is essential for ensuring patients' and healthcare professionals' safety and well-being.

2.3.2. Theoretical Framework of the Study

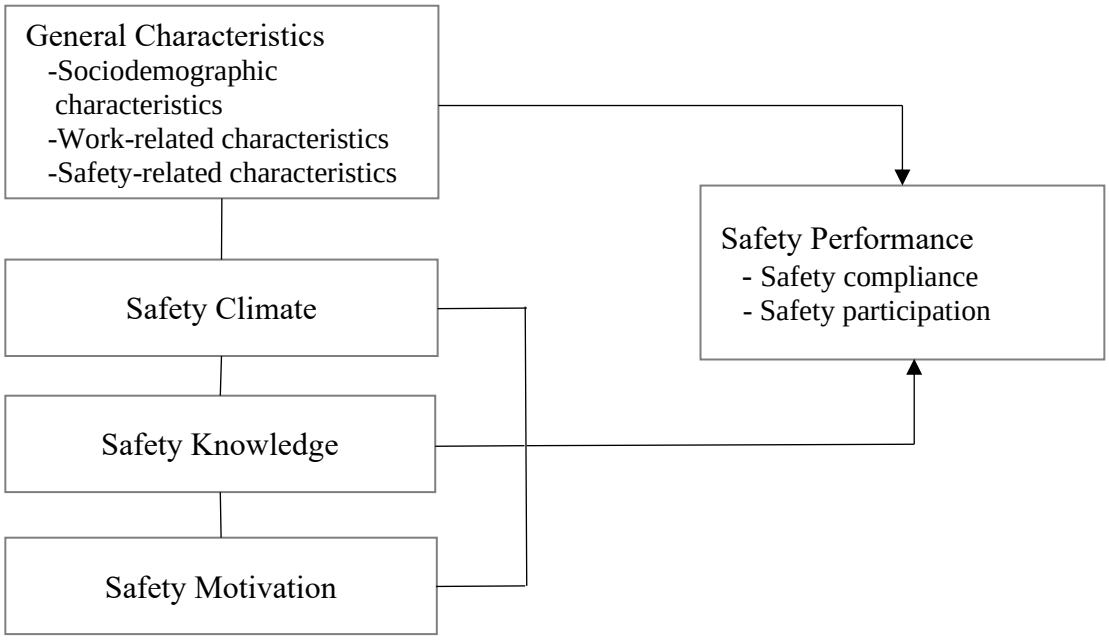

Figure 3. Theoretical Framework of the Study

III. METHOD

3.1. Study Design

This study employs a descriptive correlational design to assess the factors affecting the safety performance of nurses working in hospitals in Bangladesh.

3.2. Study Settings

The research was conducted in five public medical college hospitals in Bangladesh, which serve as referral centers: Dhaka Medical College Hospital, Chattogram Medical College Hospital, Sylhet MAG Osmani Medical College Hospital, Rangpur Medical College Hospital, and Khulna Medical College Hospital. These hospitals were selected because they share characteristics similar to other public tertiary care hospitals in Bangladesh.

3.3. Study Participants

3.3.1 Inclusion Criteria

Participants were nurses working in inpatient, outpatient, and special departments in Bangladesh's five selected medical college hospitals. Three hundred nurses, each with more than six months of experience in their current hospital, were randomly selected. The random sampling method was applied to select staff nurses from each unit's name list until the required sample size was met.

3.3.2 Sample Size Calculation

The sample size was determined using the G-power program. The medium effect size was set at 0.10, with a significance level of 0.05, a power of 0.90, and 15 predictors for multiple regression analysis. The minimum sample size needed for statistical analysis was 250. To account for a potential 20% dropout rate (Grove et al., 2012), 300 participants were recruited.

3.4. Measurements

A self-reported questionnaire was designed to cover five major areas: general characteristics, safety performance, safety climate, safety knowledge, and safety motivation. The original authors granted permission to use and translate these instruments via email (Appendix #6).

3.4.1. Translation of Measurements

The study's measurement instruments, developed by Griffin and Neal (2008), were translated into Bengali using the committee translation method. This approach ensures high-quality output by providing multiple options for selecting the most appropriate wording (Furukawa et al., 2014). The translation process consisted of four steps:

a) **Forward Translation**: Each instrument was independently translated by nursing experts. A bilingual translation expert assisted in the process to ensure cultural relevance and clarity.

b) **Consensus Meeting**: The translators convened to discuss and select the most suitable versions of the translated items for safety climate, safety knowledge, motivation, and safety performance. Changes were made to ensure comprehensibility for the broader population.
c) **Reconciliation Meeting**: This step was optional as the experts had no disagreements.
d) **Reliability Analysis**: The committee confirmed the equivalence of the translated items with the original instruments. All items were considered relevant and precise.

Five bilingual experts, faculty members in nursing education institutions in Bangladesh with an average of 15-20 years of experience, participated in the translation. All had advanced degrees (Master's or PhD) and were familiar with English-medium education and research practices.

3.4.2. Measurement Instruments

1. **General Characteristics**: Based on a literature review, fourteen items were developed to capture sociodemographic, work-related, and safety-related characteristics. Sociodemographic characteristics included age, gender, marital status, religion, and education level. Work-related characteristics included current working unit, position, and years of experience. Safety-related characteristics included safety training program experience, safety guidelines, awareness of safety events, and participation in safety activities.

2. **Safety Performance**: Safety performance was measured using an 8-item scale developed by Griffin and Neal (2008). The scale consists of safety compliance (4 items) and safety participation (4 items). Responses ranged from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating better performance. Cronbach's alpha was 0.56 for safety compliance and 0.73 for safety participation on the scale. In this study, Cronbach's alpha was 0.84 for safety compliance and 0.82 for safety participation.
3. **Safety Climate**: Safety climate was assessed using a 16-item scale developed by Griffin and Neal (2008). The scale includes four subscales: management values (4 items), safety communication (5 items), training (4 items), and safety systems (3 items). The response options ranged from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating a better safety climate. The Cronbach's alpha for this scale was 0.81. In this study, Cronbach's alpha for safety climate .76
4. **Safety Knowledge**: Safety knowledge was measured using a 4-item scale developed by Griffin and Neal (2008). Items included knowledge about performing the job safely, using safety equipment, maintaining a safe environment, and reducing workplace risks. The scale was rated on a five-point Likert scale, and higher scores indicated higher safety knowledge. The Cronbach's alpha for this scale was 0.84. Cronbach's alpha for safety knowledge is .84 in this study.
5. **Safety Motivation**: Safety motivation was measured using a 4-item scale developed by Griffin and Neal (2008). Items included beliefs about the importance of safety, the value of maintaining safety, and the effort required to ensure safety at work. The response

options ranged from 1 (strongly disagree) to 5 (strongly agree). The Cronbach's alpha for this scale was 0.80. In this study, Cronbach's alpha for safety motivation .82

3.5. Data collection

Data were collected through a self-administered structured questionnaire translated into Bengali. Before data collection, the researcher obtained written permission from the hospital administrators and nursing departments of the five medical college hospitals in Dhaka, Chittagong, Sylhet, Khulna, and Rangpur. Approval was also obtained from the Director General of Nursing and Midwifery (DGNM) in Bangladesh. Five research assistants, one for each hospital, were recruited and trained to ensure consistency in data collection.

The data collection procedure was as follows:

i. **Consent**: A cover letter explaining the study's purpose, benefits, and risks was provided to participants. Verbal and written consent was obtained before the questionnaire was administered.
ii. **Questionnaire Distribution**: Research assistants distributed the questionnaires to consenting nurses and assured them that all information would be kept confidential. Participants were informed that they could withdraw at any time without penalty.
iii. **Collection**: Completed questionnaires were placed in a closed box. Research assistants collected the boxes weekly.

3.6. Ethical considerations

This study was approved by the Institutional Review Board (IRB) of Yonsei University Health System and three additional ethical review boards in Bangladesh: the IRB of the National Institute of Advanced Nursing Education and Research (NIANER), the directors of the five medical college hospitals, and the Director General of the Directorate General of Nursing and Midwifery (DGNM). Written and verbal consent was obtained from all participants, who were informed of their right to withdraw without penalty. Confidentiality was strictly maintained, and all data were securely stored for at least three years.

3.7. Data analysis

Data analysis was performed using IBM SPSS 26.0 and the SPSS Process Macro version 3.4. The following analyses were conducted:

1. Descriptive statistics, including means, standard deviations, and proportions, were calculated to describe the participants' general characteristics.
2. Differences in variables according to general characteristics were analyzed using t-tests, one-way ANOVA, and post-hoc tests.
3. Pearson’s correlation coefficient was used to assess the relationships among variables.
4. The internal consistency of the instruments was evaluated using Cronbach's alpha.
5. Multiple Regression Analysis was performed to identify factors affecting the safety performance of nurses in Bangladesh hospitals.

IV. RESULTS

4.1. Characteristics of participants

The participants were 300 nurses in Bangladesh, and their characteristics were presented in three parts in Table 2: sociodemographic characteristics, work-related characteristics, and safety-related characteristics.

4.1.1. Sociodemographic characteristics

The average age of the participants was 36.42 years (SD=8.00), and the majority were females (89.3%). Most of the participants had completed a diploma (61.0%), followed by a bachelor's degree (21.3%) and a Master's/Master of Public Health (17.7%). In terms of marital status, 91.0% were married. The majority of the participants from religion were Muslim (62.0%), followed by Hindu (31.7%), Buddhist (3.3%), and Christian (3.0%).

4.1.2. Work-related characteristics

Most participants (54.1%) worked in the general admission units. Senior staff nurses constitute the majority of the participants (96.7%), with an average of 8 years of experience in their current hospitals. The mean years of experience in the current unit was 4.20 years (SD=3.94), and (44.7%) of the participants have worked in their current unit for less than 2 years. Their total

years of experience was 13 years (SD=8.03), and 47.4% of participants had more than 11 years of experience as a nurse.

4.1.3. Safety-related characteristics

The infection control and prevention program and safe work environment demonstrated the highest percentage, 39.7% and 30.7%, respectively. Approximately half of the participants (52.3%) expressed they had no manual or guideline on patient safety in their unit. About 80% of the participants reported that they were aware of safety events in their unit. Sixty seven percent of the respondents indicated that they occasionally engaged in safety activities.

Table 2. General characteristics of the participants

(N=300)

Variables	Characteristics	Frequency(*n*)	M±SD	Range
Sociodemographic characteristics				
Age (year)			36.42±8.00	24-58
	24-26	20(6.7)		
	27-30	72(24.0)		
	31-40	127(42.3)		
	41<	81(27.0)		
Gender	Male	32(10.7)		
	Female	268(89.3)		
Education	Diploma	183(61.0)		
	Bachelor	64(21.3)		
	Master/MPH	53(17.7)		
Marital Status	Unmarried	23(7.7)		
	Married	273(91.0)		
	Divorced	1(0.3)		
	Widowed	2(0.7)		
	Single/Bereaved	1(0.3)		
Religion	Muslim	186(62.0)		
	Hindu	95(31.7)		
	Buddhist	10(3.3)		
	Christian	9(3.0)		

Variables	Characteristics	Frequency(*n*)	M±SD	Range
Work-related characteristics				
Current working unit	Super Special Unit (ICU+CCU)	46(15.3)		
	Special unit (E+ENT+OTP)	49(16.3)		
	General Admission unit (M+S+OBS+G+P)	162(54.1)		
	Casualty Unit+OPD	43(14.3)		
Working position	Senior Staff Nurse	290(96.7)		
	Nurse In charge	10(3.3)		
Working experience in the current hospital			8.60±6.90	1-31
	>2	54(18.0)		
	2-5	68(22.7)		
	6-10	117(39.0)		
	11<	61(20.3)		
Working experience in the year at the current unit			4.20±3.94	1-31
	>2	134(44.7)		
	2-5	91(30.3)		
	6-10	60(20.0)		
	11<	15(5.0)		
Total years of experience as a nurse			13.00±8.03	1-39
	>2	13(4.3)		
	2-5	40(13.3)		
	6-10	105(35.0)		
	11<	142(47.4)		
Safety-related characteristics				
Types of safety training program experience	Safe work environment	92(30.7)		
	Safety clinical practice	60(20.0)		
	Infection control and prevention	119(39.7)		
	Safe equipment handling	25(8.3)		
	Safety behaviors/Safety support	3(1.0)		
	All	1(0.3)		
Safety program manual/guideline in the unit	No	157(52.3)		
	Yes	143(47.7)		
Awareness of safety events	No	61(20.3)		
	Yes	239(79.7)		
Experience in safety activities	Never	98(32.7)		
	Occasionally	202(67.3)		

Note: M=Mean, SD=Standard Deviation, ICU=Intensive Care Unit, CCU=Coronary Care Unit, E=Eye, ENT=Ear Nose Throat, OTP=Orthopedic Patient Unit, M=Medicine, S=Surgery, OBS=Obstetrics, G=Gynae, and P=Pediatric, CU=Casualty Unit+ Outpatient Department.

4.2. Descriptive statistics of study variables

Table 3 presents the means and standard deviations of safety performance, safety climate, safety knowledge, and safety motivation.

The safety performance of nurses in the study was measured by safety compliance and safety participation. The mean scores were for safety compliance 4.00 (SD=0.83) out of 5 and for safety participation 4.13 (SD=0.71) out of 5, respectively. Overall, the status of the safety performance of Bangladesh nurses seemed high in the study. Specifically, the safety participation level was slightly higher than the safety compliance level. Regarding associating factors, the mean of safety climate was 3.67(SD=0.77) out of 5. When comparing the means of sub-dimensions in safety climate, the safety system was the lowest (Mean=3.81; SD=0.90) out of 5, followed by safety training (Mean=3.64; SD=0.95) out of 5, management value (Mean=3.70; SD=1.05) out of 5, and safety communication (Mean=3.57; SD=.99) out of 5. The mean scores of safety knowledge were at 4.16(SD=0.82) out of 5. Similarly, the mean scores for safety motivation were 4.30(SD=0.80) out of 5 scores.

Table 3. Means and standard deviations of the safety performance and its associated factors variables

(N=300)

Variable	Total Mean ± SD	Total Score Range	Scale Mean	Scale Score Range
Safety performance				
Safety compliance	15.98±3.32	4-20	4.00±0.83	1-5
Safety participation	16.54±2.83	4-20	4.13±0.71	1-5
Safety climate	58.65±12.30	16-80	3.67±0.77	1-5
Management value	14.81±4.20	4-20	3.70±1.05	1-5
Safety communication	17.86±4.95	5-25	3.57±0.99	1-5
Safety training	14.55±3.79	4-20	3.64±0.95	1-5
Safety system	11.43±2.71	3-15	3.81±0.90	1-5
Safety knowledge	16.63±3.26	4-20	4.16±0.82	1-5
Safety Motivation	17.04±3.10	4-20	4.26±0.78	1-5

4.3. Item Description of the Variables

4.3.1. Item description of safety performance

Table 4 shows the item distributions of the safety performance, safety compliance, and safety participation. Among the items of safety compliance, "I use all the necessary safety equipment to do my job" had the lowest mean score of 3.92 (SD=0.98), whereas "I ensure the highest levels of safety when I carry out my job" had the highest mean score of 4.06 (SD=0.92). In safety participation, "I put in extra effort to improve workplace safety" “I promote the safety program within the organization” had the lowest mean scores of 4.01. At the same time, “I voluntarily carry out tasks or activities that help to improve workplace safety” and "I help my coworkers when they are working under risky or hazardous conditions" had the highest mean scores of 4.26, 4.25, respectively.

Table 4. Item description of safety performance

(N=300)

Items	Mean ±SD	Strongly disagree	Disagree	Un-Decided	Agree	Strongly agree
			n (%)			
Safety Compliance						
I carry out my work in a safe manner.	4.00±0.90	6 (2.0)	17 (5.7)	35 (11.7)	154 (51.3)	88 (29.3)
I use all the necessary safety equipment to do my job.	3.92±0.98	7 (2.3)	27 (9.0)	35 (11.7)	146 (48.7)	85 (28.3)
I use the correct safety procedures for carrying out my job.	4.01±0.96	8 (2.7)	17 (5.7)	37 (12.3)	141 (47.0)	97 (32.3)
I ensure the highest levels of safety when I carry out my job.	4.06±0.92	5 (1.7)	19 (6.3)	33 (11.0)	140 (46.7)	103 (34.3)
Safety Participation						
I promote the safety program within the organization.	4.01±1.01	10 (3.3)	20 (6.7)	31 (10.3)	134 (44.7)	105 (35.0)

Items	Mean ±SD	Strongly disagree	Disagree	Un-Decided	Agree	Strongly agree
			n (%)			
I put in extra effort to improve the safety of the workplace.	4.01±0.91	3 (1.0)	23 (7.7)	34 (11.3)	147 (49.0)	93 (31.0)
I help my coworkers when they are working under risky or hazardous conditions.	4.25±0.81	5 (1.7)	5 (1.7)	25 (8.3)	139 (46.3)	126 (42.0)
I voluntarily carry out tasks or activities that help to improve workplace safety.	4.26±0.79	1 (0.3)	12 (4.0)	23 (7.7)	137 (45.7)	127 (42.3)

4.3.2. Item description of safety climate

Table 5 shows the item distributions of the safety climate. The item with the highest Mean throughout the scale was “the safety procedures and practices in this organization are useful and effective" 4.07(SD=1.08). Two items, "management considers safety to be important" and "safety procedures and practices are sufficient to prevent incidents occurring," had higher item mean scores of 3.81 (SD=1.16) compared to the rest of the items. On the other hand, the lowest mean value of the item was “there is sufficient opportunity to discuss and deal with safety issues in meetings” 3.48 (SD=1.13). In addition, two items, "there is frequent communication about safety issues in this workplace” and *“*employees have sufficient access to workplace health and safety training programs," also had low mean scores of 3.54 (SD=1.20).

Table 5. Item description of safety climate

(N=300)

Items	Mean± SD	Strongly disagree	Disagree	Un-Decided	Agree	Strongly agree
Safety Climate						
Management Value						
Management encourages employees here to work in	3.56±1.31	45 (15.0)	16 (5.3)	35 (11.7)	134 (44.7)	70 (23.3)

Items	Mean± SD	Strongly disagree	Disagree	Un-Decided	Agree	Strongly agree
accordance with safety rules even when the work schedule is tight.						
Management places a strong emphasis on workplace health and safety.	3.72±1.21	18 (6.0)	44 (14.7)	34 (11.3)	112 (37.3)	92 (30.7)
Safety is given a high priority by management.	3.72±1.24	27 (9.0)	31 (10.3)	31 (10.3)	122 (40.7)	89 (29.7)
Management considers safety to be important.	3.81±1.16	20 (6.7)	30 (10.0)	25 (8.3)	137 (45.7)	88 (29.3)
Safety Communication						
There is frequent communication about safety issues in this workplace.	3.54±1.20	33 (11.0)	25 (8.3)	39 (13.0)	152 (50.7)	51 (17.0)
Employees are able to discuss their concerns about safety issues with line management.	3.60±1.14	21 (7.0)	35 (11.6)	48 (16.0)	134 (44.7)	62 (20.7)
There is sufficient opportunity to discuss and deal with safety issues in meetings.	3.48±1.13	22 (7.3)	40 (13.3)	57 (19.0)	133 (44.4)	48 (16.0)
There is open communication about safety issues within this workplace.	3.60±1.10	19 (6.3)	37 (12.3)	41 (13.7)	152 (50.7)	51 (17.0)
Employees are regularly consulted about workplace health and safety issues.	3.63±1.15	22 (7.3)	27 (9.0)	61 (20.3)	120 (40.1)	70 (23.3)
Training						
Safety issues are given a high priority in training programs.	3.71±1.20	18 (6.0)	47 (15.7)	23 (7.7)	127 (42.3)	85 (28.3)
Workplace health and safety training covers the types of situations that employees encounter in their jobs.	3.71±1.14	9 (3.0)	52 (17.3)	39 (13.0)	117 (39.0)	83 (27.7)
Employees receive comprehensive training in workplace health and safety issues.	3.59±1.14	14 (4.7)	51 (17.0)	45 (15.0)	124 (41.3)	66 (22.0)
Employees have sufficient access to workplace health and safety training programs.	3.54±1.21	19 (6.3)	56 (18.7)	38 (12.7)	118 (39.3)	69 (23.0)
Safety System						
Safety procedures and practices are sufficient to	3.81±1.15	17 (5.6)	29 (9.7)	42 (14.0)	119 (39.7)	93 (31.0)

Items	Mean± SD	Strongly disagree	Disagree	Un-Decided	Agree	Strongly agree
prevent incidents from occurring.						
There are systematic procedures in place to prevent breakdowns in workplace safety.	3.55±1.06	12 (4.0)	41 (13.7)	68 (22.7)	126 (42.0)	53 (17.6)
The safety procedures and practices in this organization are useful and effective.	4.07±1.08	14 (4.7)	17 (5.7)	31 (10.3)	111 (37.0)	127 (42.3)

4.3.3. Item description of safety knowledge

Table 6 presents the item distributions of safety knowledge. Although there were not much differences in the item mean scores, the item "I know how to perform my job in a safe manner" had the highest mean score of 4.17(SD=0.94). The item, "I know how to reduce the risks of accidents and incidents in the workplace" had the lowest mean score of 4.14 (SD=0.84).

Table 6. Item description of safety knowledge

(N=300)

Items	Mean±SD	Strongly disagree	Disagree	Un-Decided	Agree	Strongly agree
				n (%)		
Safety knowledge						
I know how to perform my job in a safe manner.	4.17±0.94	11 (3.7)	10 (3.3)	15 (5.0)	145 (48.3)	119 (39.7)
I know how to use safety equipment and standard work procedures.	4.16±0.97	11 (3.7)	12 (4.0)	18 (6.0)	136 (45.3)	123 (41.0)
I know how to maintain or improve workplace health and safety.	4.15±0.94	9 (3.0)	14 (4.7)	17 (5.7)	142 (47.3)	118 (39.3)
I know how to reduce the risks of accidents and incidents in the workplace.	4.14±0.84	4 (1.3)	9 (3.0)	36 (12.0)	142 (47.4)	109 (36.3)

4.3.4. Descriptive statistics of safety motivation

Table 7 presents the items' distributions of safety motivation. The item "I believe that it is important to reduce the risk of accidents and incidents in the workplace" had the highest mean score of 4.36(SD=0.84). The item "I feel that it is worthwhile to put in effort to maintain or improve my safety" scored the lowest mean score of 4.14 (SD=0.92).

Table 7. Item description of safety motivation

(N=300)

Items	Mean ± SD	Strongly disagree	Disagree	Un-Decided	Agree	Strongly agree
				n (%)		
Safety Motivation						
I believe that workplace health and safety is an important issue.	4.30±0.99	15 (5.0)	6 (2.0)	9 (3.0)	115 (38.3)	155 (51.7)
I feel it is worthwhile to put in effort to maintain or improve my safety.	4.14±0.92	7 (2.3)	14 (4.7)	25 (8.3)	139 (46.4)	115 (38.3)
I feel that it is important to maintain safety at all times.	4.25±0.97	14 (4.6)	6 (2.0)	12 (4.0)	128 (42.7)	140 (46.7)
I believe it is essential to reduce the risk of accidents and incidents in the workplace.	4.36±0.84	6 (2.0)	3 (1.0)	25 (8.3)	109 (36.3)	157 (52.4)

4.4. Difference in safety performance and its associated factors according to general characteristics of participants

4.4.1. Differential statistics of safety performance according to general characteristics

Differences in safety compliance and safety participation by general characteristics are presented in Table 8. There were significant differences in safety compliance by marital status (t=-2.548, p<.011), and experience in safety activities (t=-2.713, p<.007). Similarly, the mean

scores of safety participation were different by marital status (t=-2.976, p<.003), experience in safety activities (t=-3.525, p<.001), and types of safety training program (F=4.578, p<.004). Nurses who experienced safety training activities occasionally showed more safety performance than nurses who never experienced safety training activities. In terms of type of safety training program, nurses who participated in safe equipment handling program showed higher safety participation performance than infection control and prevention program.

Table 8. Differential statistics of safety performance by general characteristics

(N=300)

Variables	Characteristics	n	Safety compliance		Safety participation	
		(%)	Mean±SD	t or F(p)	Mean±SD	t or F(p)
Age	24-26	20(6.7)	15.90±2.92	.897(.443)	16.45±3.24	.123(.947)
	27-30	72(24.0)	16.38±3.01		16.43±2.56	
	31-40	127(42.3)	16.07±3.36		16.51±2.96	
	41<	81(27.0)	15.52±3.60		16.69±2.80	
Gender	Male	32(10.7)	15.78±3.56	-.364(.716)	15.91±3.10	-1.334(.183)
	Female	268(89.3)	16.01±3.29		16.61±2.79	
Marital Status	Unmarried	23(7.7)	14.30±3.27	-2.548(.011)	14.87±2.99	-2.976(.003)
	Married	277(92.3)	16.12±3.29		16.68±2.78	
Religion	Muslim	186(62.0)	16.18±3.19	1.331(.184)	16.56±2.93	.175(.861)
	Others	114(38.0)	15.66±3.50		16.50±2.67	
Education	Diploma	183(61.0)	15.85±3.49	.552(.577)	16.61±2.92	.210(.810)
	Bachelor	64(21.3)	16.36±2.87		16.52±2.58	
	Master/MPH	53(17.7)	15.98±3.25		16.32±2.87	
Current working unit	Super Special unit	46(15.3)	14.93±3.22	1.942(.123)	16.06±2.78	1.009(.389)
	Special unit	49(16.3)	15.94±3.33		16.86±2.57	
	General Admission unit	162(54.1)	16.20±3.34		16.67±2.88	
	Casualty Unit +OPD	43(14.3)	16.33±3.20		16.16±2.98	
Working experience in the hospital	>2	54(18.0)	15.61±2.91	.385(.764)	16.22±2.29	1.865 (.136)
	2-5	68(22.7)	15.87±3.44		15.97±3.07	
	6-10	117(39.0)	16.14±3.57		16.86±3.01	
	11<	61(20.3)	16.13±3.05		16.82±2.56	
Working experience in the current unit	>2	134(44.7)	16.15±2.99	.580(.628)	16.63±2.65	.184(.907)
	2-5	91(30.3)	16.05±3.56		16.52±3.08	
	6-10	60(20.0)	15.48±3.63		16.32±3.02	
	11<	15(5.0)	16.07±3.53		16.67±2.22	
	>2	13(4.3)	14.77±2.45	.612(.608)	15.61±1.26	.686(.561)

Variables	Characteristics	n (%)	Safety compliance		Safety participation	
			Mean±SD	t or F(*p*)	Mean±SD	t or F(*p*)
Total years of experience as a nurse	2-5	40(13.3)	16.07±3.17		16.60±2.55	
	6-10	105(35.0)	16.00±3.63		16.41±3.03	
	11<	142(47.4)	16.06±3.19		16.70±2.86	
Types of safety training program experience†	Safe work environment [a]	92(30.6)	16.04±3.53	.164(.921)	16.89±3.05	4.578(.004)
	Safety clinical practice [b]	60(20.0)	16.15±3.07		16.88±2.65	d>c
	Infection Control and Prevention [c]	119(39.7)	15.82±3.34		15.84±2.77	
	Safe equipment handling [d]	29(9.7)	16.10±3.14		17.55±2.11	
Safety program manual/guideline in the unit	No	157(52.3)	15.63±3.32	-1.938(.054)	16.40±3.00	-.867(.387)
	Yes	143(47.7)	16.37±3.28		16.68±2.64	
Awareness of safety events	No	61(20.3)	15.79±3.47	-.517(.605)	16.03±3.30	-1.560(.120)
	Yes	239(79.7)	16.03±3.28		16.66±2.69	
Participation experience in safety activities	Never	98(32.7)	15.24±3.77	-2.713(.007)	15.72±3.22	-3.525(.001)
	Occasionally	202(67.3)	16.34±3.02		16.93±2.54	

n= frequency, (%) = percentage, SD = standard deviation, ***p*<Correlation is significant at the .001 level, The Post hoc test was analyzed by †Scheffe test

4.5. Correlations Among the Variables

Pearson's correlation analysis was conducted to identify the correlations between the variables, as shown in Table 9. The result confirmed that safety climate is significantly correlated with safety knowledge (r=.584, *p*<.001), safety motivation (r=.447, *p*<.001), safety compliance (r=.501, *p*<.001), and safety participation (r=.481, *p*<.001). Safety knowledge is significantly correlated with safety motivation (r=.729, *p*<.001), safety compliance (r=.560, *p*<.001), and safety participation (r=.526, *p*<.001). Safety motivation is significantly correlated with safety

compliance (r=.523, *p*<.001) and safety participation (r=.559, *p*<.001). Also, there is a significant correlation between safety compliance and safety participation (r=.576, *p*<.001).

Table 9. Correlation between safety performance and its associated factors

(N=300)

	Safety Climate	Safety Knowledge	Safety Motivation	Safety Compliance
	r(*p*)			
Safety Knowledge	.584 (<.001)			
Safety Motivation	.447 (<.001)	.729 (<.001)		
Safety Compliance	.501 (<.001)	.560 (<.001)	.523 (<.001)	
Safety Participation	.481 (<.001)	.526 (<.001)	.559 (<.001)	.576 (<.001)

4.6. Factors affecting the safety performances of Bangladesh nurses

4.6.1. The factors affecting the safety compliance

The factors affecting safety compliance were analyzed by multiple regression analysis. The variance inflation factor ranged from 1.072 to 2.703, confirming that there was no independent variable to cause multicollinearity in this study. Table 10 shows that safety climate (β=.255, *p*<.001), safety knowledge (β=.248, *p*<.001), and safety motivation (β=.219, *p*<.001) were the significant predictors of safety compliance, and the regression model explained 39.0% variance in safety compliance (F=23.225, p < .001).

Table10. Multiple regression analysis of factors affecting safety compliance

(N=300)

Variable	Model		
	B	***B***	***t***
Marital Status			
(Ref: Unmarried)			
- Married	.577	.046	.977
Type of safety training experience			
(Ref: Infection Control and Prevention)			
- Safe work environment	-.384	-.053	-1.027
- Safety clinical practice	-.177	-.014	-.271
- Safe equipment handling	-.392	-.035	-.706
Participation in safety activities			
(Ref: Never)			
- Occasionally	.159	.023	.464
Safety Climate	.069	.255	4.400**
Safety Knowledge	.252	.248	3.293**
Safety Motivation	.234	.219	3.205**

Note: *β*= Beta standardized coefficient, ***p*<Correlation is significant at the .001 level, LL= lower limit, UL= upper limit.

4.6.2. Factors affecting the safety participation

The factors affecting the safety participation of the part of safety performance by regression analysis. The variance inflation factor ranged from 1.072 to 2.703, confirming that there was no independent variable to cause multicollinearity in this study. Table 11. shows that the type of safety training experience, especially safety clinical practice (β=.106, *p*<.001)and safe equipment handling (β=.128, *p*<.001), safety climate (β=.235, *p*<.001), and safety motivation (β=.376, *p*<.001) were the significant predictors of safety participation, and the model explained the 41.3% of the variance of safety participation (F=25.566, *p*<.001).

Table 11. Multiple regression analysis of factors affecting the safety participation

(N=300)

	Model		
Variable	**B**	***B***	***t***
Marital Status			
(Ref: Unmarried)			
- Married	.592	.056	1.198
Type of safety training experience			
(Ref: Infection Control and Prevention)			
- Safe work environment	.644	.105	2.056*
- Safety clinical practice	.752	.106	2.089*
- Safe equipment handling	1.229	.128	2.645**
Participation in safety activities			
(Ref: Never)			
- Occasionally	.310	.051	1.078
Safety Climate	.054	.235	4.138**
Safety Knowledge	.065	.075	1.020
Safety Motivation	.343	.376	5.613**

Note: *β*= Beta standardized coefficient, **p<Correlation is significant at the .001 level, LL= lower limit, UL= upper limit.

V. DISCUSSION

This study explored the safety performance of nurses in tertiary care hospitals in Bangladesh and identified the factors affecting safety performance of Bangladesh nurses.

This study is the first study assessing safety performance of Bangladesh nurses which was grounded on the conceptual framework of workplace safety by Griffin and Neal (2000). It is a comprehensive framework that highlights the crucial connection between safety climate, safety performance, safety knowledge, and safety motivation. This well-defined conceptual framework outlines safety performance and identifies the key direct and indirect factors associated with it. The findings of the study provided critical comprehension of the safety performance of hospital nurses in Bangladesh, contributing to a deeper understanding of their role in safety performance within the healthcare system.

This study found that the status of the safety performance of nurses seemed high, and remarkably, the safety participation level in Bangladesh was slightly higher than the safety compliance level. The safety performance among nurses is notably high level, as demonstrated by the findings presented in Table 3. This study reports notable mean scores: 4.00) for safety compliance and 4.13 for safety participation, both out of a maximum of 5. These results align with previous research conducted in Iran, which also indicates a high level of safety performance 4.02 in terms of safety compliance and participation (Abdi, 2023). The mean score of safety performance was 3.75 on a scale of 5 in South Korea (Ko, 2018). In Belgium the mean scores

were of safety compliance 3.94 and safety participation 3.71 that shows the higher level of safety performance of nurses (Lievens, 2014). The mean scores for the four factors ranged from 3.5 for safety participation, to 4.83 for safety compliance. The safety performance in accordance with safety compliance and safety participation were high of nurses at hospitals in Germany (Heier, 2022). Also, there is no research related to this study that reflects results for affecting factors of safety performance.

The findings of this study indicate a crucial connection between safety climate, safety knowledge, safety motivation, and safety performance among nurses in Bangladesh. This highlights the importance of raising a positive safety environment to enhance overall performance in healthcare settings.

Similarly, other studies present a positive and statistically significant relationship between safety performance and safety climate (Ozmen, 2023). This study compellingly investigates the critical link between patient safety climate and patient safety behaviors, emphasizing the pivotal roles of patient safety knowledge and motivation in a sample of Korean nurses (Seo, 2022). Understanding these relationships is vital for improving patient care and creating a more effective healthcare environment, ultimately leading to better outcomes for patients and healthcare providers alike. Safety plays an important role in the relationship between top management's safety climate and safety behaviors, as it influences safety motivation. Integrity regarding safety enhances the connection between safety climate, safety motivation, safety compliance, and safety participation, making these relationships stronger (Peker, 2022). Also, a key study by Ko et al.,

(2018) highlighted the links between job autonomy, policy perceptions, and safety performance in Korean inpatient hospitals, emphasizing the need for investment in nursing staff. Moreover, the research demonstrates that knowledge-related job characteristics mediate the significant relationship between transformational leadership safety performance and, that leaders positively influence their followers both directly and indirectly through essential role characteristics (Lievens, 2014). The situations were designed not to repeat, although designed to complement, each other and build a more comprehensive picture of safety performance that was reflected in positive but low correlations, with no significant negative correlations between items (Heier, 2022). When psychosocial hazards are elevated, our findings reveal that the majority of the connections between safety climate perceptions and safety performance turn out to be non-significant (Soh, 2017; & Manapragada, 2019). This highlights the critical importance of addressing these hazards to enhance workplace safety outcomes.

This study highlights the critical role of marital status in shaping safety compliance and participation among nurses in Bangladesh, underscoring its profound impact on their overall safety performance. Understanding this relationship is essential for enhancing safety practices in the nursing profession. One explanation for the findings is that less experienced nurses often have limited knowledge. Additionally, factors such as age and marital status appear to have a subtle yet significant influence on the attitudes of nurses (Salih, 2021). The disagreements often stem from the diverse study environments and the demographic traits of nurses, such as the specific hospital ward, gender, employment status, shift schedules, and engagement in training programs

(Moazez, 2020). These factors can significantly influence perspectives and outcomes in nursing practice.

This study highlights that human-factor approaches are essential for safe nursing practice. Effective communication, strong interpersonal skills, and adequate resources such as staffing, equipment, and time are critical for enhancing the quality of care (Tarling, 2017). Safety guidelines, participation in safety activities, development of safety systems, establishment of a positive safety climate, acquisition of safety knowledge, and enhancement of safety motivation are critical factors in promoting workplace safety (Yang et al., 2018; Heier et al., 2021; & Ghasemi et al., 2022).

Research indicates that knowledge and performance vary significantly when considering socio-demographic factors (Mamdouh et al., 2020). Understanding these differences is crucial for tailoring effective interventions and improving outcomes. The study highlights that conflicts, insufficient support, and overwhelming workloads significantly undermine the safety climate for nurses. It is crucial to tackle these issues to foster a safer workplace, improve safety knowledge, and boost safety motivation (Manapragada, 2019). Addressing these challenges is not just beneficial; it is vital for the well-being of both staff and patients. Implementing ongoing patient safety education programs for inpatients is essential, as is fostering greater motivation to engage in patient safety initiatives (Shin, 2021; Ko et al., 2018). The time to act is now, ensuring a safer environment for everyone involved. Nurses demonstrated a remarkable enhancement in their cognitive attitudes toward adverse event reporting following the training. This improvement reinforces the findings of previous studies (Zhang, 2022; & Hababheh, 2020), highlighting the

critical impact that training can have on fostering a culture of safety in healthcare. While there have been some positive findings, two crucial studies reveal that safe nursing care remains a significant concern. One study identified safety levels as moderate (Kalantari, Sajadi, & Pishgooi, 2019), while the other deemed them undesirable (Babamohamadi et al., 2016). This clearly highlights the urgent necessity for transformative improvements in nursing practices to ensure better care for patients.

Although this study highlights the importance of a healthy workplace by exploring factors affecting safety performance of nurses in Bangladesh, there are some limitations that may influence its findings. First, this was a cross-sectional survey, we cannot infer causality or the long-term effects. Although the instruments used in this study were modified to align with the cultural context of Bangladesh, a committee-based translation approach may only partially capture local participants diverse social and cultural contexts. Second, due to the side effect of the self-administered questionnaire, participants' responses were more likely impacted by social desirability bias. Third, the study did not account for external factors such as changes in healthcare policies that may have occurred during the research period, potentially impacting the results. Clinical nursing competence emerged as a significant factor influencing safety performance. Third, the study was conducted in the government hospitals, so the result may not be generalizable to private hospitals or in any other health care settings in Bangladesh. Finally, this study employed instruments originally developed in Australia. This could have been barrier to exploring factors affecting the safety performance of nurses in Bangladesh.

This study confirmed the significant effects of safety climate, safety knowledge, and motivation on the safety performance of nurses in Bangladesh hospitals. The benefits extend to patients, caregivers, nurse managers, and communities, improving the overall healthcare system. Additionally, the findings will inform necessary revisions to regulations like the Nurses' Standards Act and the Hospital Safety Climate and Health Act. This research will equip nurse managers and hospital administrators with insights needed to enhance safety performance among nurses. By strengthening relationships between nurses and supervisors and improving support, we can elevate care quality and empower nurses with the knowledge, skills, and motivation required for effective safety protocols. This comprehensive approach is vital for fostering a healthier future for all. Moreover, this study asserts that nursing managers and hospital administrators play a crucial role in enhancing nurses' performance by effectively reducing their workloads and allowing them to focus on their essential responsibilities. It is imperative to encourage nurses to participate in voluntary initiatives within the hospital, as this will significantly boost their overall performance.

However, it is essential to recognize some limitations that may influence its findings. First, this was a cross-sectional survey, we cannot infer causality or the long-term effects. Although the instruments used in this study were modified to align with the cultural context of Bangladesh, a committee-based translation approach may only partially capture local participants diverse social and cultural contexts. Second, due to the side effect of the self-administered questionnaire, participants' responses were more likely impacted by social desirability bias. While modifying self-report questionnaires for various settings can be challenging, we acknowledge this limitation

and see it as an opportunity for growth. We assert that further research is essential, focusing on healthcare workers at multiple levels through qualitative research methods. This approach will yield valuable insights and enhance our understanding of the healthcare environment. Third, the study did not account for external factors such as changes in healthcare policies that may have occurred during the research period, potentially impacting the results. Clinical nursing competence emerged as a significant factor influencing safety performance. Fourth, the study was conducted in the government hospitals, so the result may not be generalizable to private hospitals or in any other health care settings in Bangladesh. Finally, this study employed instruments originally developed and validated in Australia. It is vital to highlight that the instrument employed in this study has not undergone validation in Bangladesh. Recognizing this limitation is crucial for preserving the consistency of our research. The absence of validation significantly hampers our ability to fully investigate the factors that affect the safety performance of nurses in Bangladesh, underlining the need for rigor in our study's methodology.

Based on the findings of this study, we recommend several directions for future research and the practical application of nursing interventions. Initially, this research employed a convenience sampling method due to the specific characteristics of nurses. Participants shared their insights on the nurse's safety performance while working in the hospital unit, with data collected individually after their consent was obtained. However, to obtain more accurate and actionable data regarding hospital conditions, it is essential to gather information at both individual and organizational levels. Leveraging objective data from various hospitals will enhance our

understanding and evaluation of safety performance, ultimately contributing to improved outcomes in nursing practice.

Furthermore, this research examined only two domains of Griffin and Neal's (2006) safety climate and performance model in a hospital setting: the physical work environment and the psychosocial work environment. It also measured both safety knowledge and safety motivation. The term "socio-demographic characteristics" refers to general characteristics, work-related characteristics, and safety-related characteristics in various contexts. This study specifically focused on the socio-demographic factors of nurses and the impact of these factors on safety performance.

Most of the nurses in the five medical college hospitals were female. There have been fewer studies examining the factors that influence the safety performance of nurses in South Asia. Specifically, there are no studies in Bangladesh related to this issue. However, research has been conducted in countries like Malaysia, Thailand, and India. Additionally, global studies have highlighted that factors affecting the safety performance of nurses warrant attention, especially in hospital settings where safety climates may be inadequate. These factors include lower levels of knowledge and motivation regarding safety, which impact safety performance relative to sociodemographic characteristics. Therefore, further research should focus on mediating factors such as safety knowledge and safety motivation to better understand the conditions affecting nurses within the context of safety climate and safety performance.

Furthermore, this study asserts the necessity of conducting experimental design studies aimed at developing an impactful program that significantly enhances safety performance, safety

climate, safety knowledge, and motivation among nurses. The government must take decisive action to implement data-driven policies that effectively address the critical factors influencing nurses' safety performance, reflecting the unique culture of our nation's healthcare systems. This study confidently asserts the importance of utilizing comprehensive panel data on nurses and healthcare workers to spearhead rigorous research initiatives. This proactive approach is essential for driving improvements in healthcare outcomes and effectively tackling the significant economic, social, and cultural challenges faced. Furthermore, it is critical to strengthen national demographic policies in response to urgent issues. Enhancing a deeper awareness of essential professional values is crucial for ensuring we are well-prepared for future challenges.

Implication of the study is as follows. First, in nursing research, this study firmly establishes the significant direct and indirect effects of safety climate, safety knowledge, and motivation on the safety performance of nurses in hospitals. It articulates how these factors interact to impact outcomes. These findings create a strong theoretical framework that is vital for future research. By employing this framework, healthcare settings can implement effective intervention programs and develop targeted measurement tools that address various influencing factors, ultimately enhancing nurse safety performance and improving patient care. Second, in nursing practice Bangladesh can greatly benefit from a comprehensive assessment of the factors affecting safety performance among nurses in hospitals. This study aims not only to advance work-related health care through multicultural nursing initiatives but also to cultivate a more knowledgeable nursing community. By enhancing communication channels such as internet access, bulletin boards, newsletters, and group discussions we can empower nurses with essential information regarding

hospital goals and statuses. Improved communication will lead to a safer, more effective work environment, ultimately enhancing healthcare delivery in Bangladesh. Thirdly, the benefits of the study extend to patients, caregivers, nurse managers, and communities, improving the overall healthcare system. Additionally, the findings will inform necessary revisions to regulations like the Nurses' Standards Act and the Hospital Safety Climate and Health Act. This research will equip nurse managers and hospital administrators with insights needed to enhance safety performance among nurses. By strengthening relationships between nurses and supervisors and improving support, we can elevate care quality and empower nurses with the knowledge, skills, and motivation required for effective safety protocols. This comprehensive approach is vital for fostering a healthier future for all. Moreover, this study asserts that nursing managers and hospital administrators play a crucial role in enhancing nurses' performance by effectively reducing their workloads and allowing them to focus on their essential responsibilities. It is imperative to encourage nurses to participate in voluntary initiatives within the hospital, as this will significantly boost their overall performance. Nurses can confidently apply this information to elevate their daily practices and deliver exceptional patient care. Furthermore, nurse administrators must actively involve nurses in patient care and policy development by fostering a culture of innovation and recognizing their invaluable contributions through appropriate rewards.

VI. CONCLUSION

This pioneering study is the first to investigate the factors influencing the safety performance of nurses in Bangladesh hospitals. By combining quantitative insights, it enhances our understanding of this important issue. The findings provide a strong foundation for targeted interventions and improvements in nursing education, essential for developing skilled and resilient nursing professionals. This research will play an important role in creating culturally relevant interventions to elevate the safety performance of nurses in Bangladesh. Additionally, it serves as a vital resource for nursing supervisors, healthcare professionals, and policymakers to address key factors affecting safety performance and implement impactful improvements.

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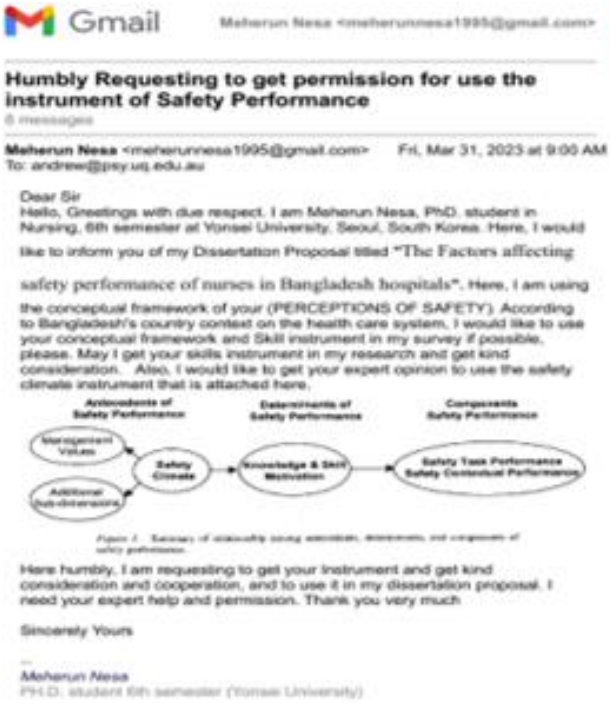
APPENDICES

Appendix 1. List of Article included in Literature Review

No	Article references
1	Aghaei, H., Sadat Asadi, Z., Mirzaei Aliabadi, M., & Ahmadinia, H. (2020). The Relationships Among Occupational Safety Climate, Patient Safety Climate, and Safety Performance Based on Structural Equation Modeling. *J Prev Med Public Health*, *53*(6), 447-454. https://doi.org/10.3961/jpmph.20.350
2	Hu, S. H., Wang, T., Ramalho, N. C., Zhou, D., Hu, X., & Zhao, H. (2021a). Relationship between patient safety culture and safety performance in nursing: The role of safety behaviour. *Int J Nurs Pract*, *27*(4), e12937. https://doi.org/10.1111/ijn.12937
3	Kim, S.-G., & Kang, D.-H.-S. (2022). The Effect of Perception the Importance of Patient safety Management, Professional Autonomy and Safety Climate on Patient Safety Nursing Activity on Hospital Nurses. *Journal of Digital Convergence*, *20*(4), 715-724.
4	Garrigues, M. P., Belio, M. I. P., Armayor, A. C., Esandi, N., Diaz, C. A., & Armayor, N. C. (2022). NURSES' knowledge, skills and personal attributes for providing competent health education practice, and its influencing factors: A cross-sectional study. *Nurse Educ Pract*, *58*, 103277. https://doi.org/10.1016/j.nepr.2021.103277
5	Castilho, D. E. C., Silva, A., Gimenes, F. R. E., Nunes, R. L. S., Pires, A., & Bernardes, C. A. (2020). Factors related to the patient safety climate in an emergency hospital. *Rev Lat Am Enfermagem*, *28*, e3273. https://doi.org/10.1590/1518-8345.3353.3273
6	Fischer, S. A., Jones, J., & Verran, J. A. (2018). Consensus achievement of leadership, organisational and individual factors that influence safety climate: Implications for nursing management. *J Nurs Manag*, *26*(1), 50-58. https://doi.org/10.1111/jonm.12519
7	Ghasemi, F., Aghaei, H., Askaripoor, T., & Ghamari, F. (2022). Analysis of occupational accidents among nurses working in hospitals based on safety climate and safety performance: a Bayesian network analysis. *Int J Occup Saf Ergon*, *28*(1), 440-446. https://doi.org/10.1080/10803548.2020.1768759
8	Bohmann, F. O., Guenther, J., Gruber, K., Manser, T., Steinmetz, H., Pfeilschifter, W., & investigators, S. T. (2021). Simulation-based training improves patient safety climate in acute stroke care (STREAM). *Neurol Res Pract*, *3*(1), 37. https://doi.org/10.1186/s42466-021-00132-1
9	Glarcher, M., Kaiser, K., Kutschar, P., & Nestler, N. (2022). Safety climate in hospitals: A cross-sectional study on the perspectives of nurses and midwives. *J Nurs Manag*, *30*(3), 742-749. https://doi.org/10.1111/jonm.13551
10	Vogus, T. J., Ramanujam, R., Novikov, Z., Venkataramani, V., & Tangirala, S. (2020). Adverse Events and Burnout: The Moderating Effects of Workgroup Identification and

No	Article references
	Safety Climate. *Med Care*, *58*(7), 594-600. https://doi.org/10.1097/MLR.0000000000001341
11	Heier, L., Gambashidze, N., Hammerschmidt, J., Riouchi, D., Weigl, M., Neal, A., Icks, A., Brossart, P., Geiser, F., & Ernstmann, N. (2021). Safety Performance of Healthcare Professionals: Validation and Use of the Adapted Workplace Health and Safety Instrument. *Int J Environ Res Public Health*, *18*(15). https://doi.org/10.3390/ijerph18157816
12	Saleem, M. S., Isha, A. S. N., Mohd Yusop, Y., Awan, M. I., & Naji, G. M. A. (2021). Agility and safety performance among nurses: the mediating role of mindful organizing. *Nursing Reports*, *11*(3), 666-679.
13	Aboagye, A. K., Dai, B., & Bakpa, E. K. (2022). Influence of Risk Perception on Task and Contextual Performance: A Case of Work-Related Musculoskeletal Disorders in Nurses. *Eval Health Prof*, *45*(2), 126-136. https://doi.org/10.1177/0163278720975071

Appendix 2. Permission letter to use the instrument of Safety Performance



Gmail Meherun Nesa <meherunnesa1995@gmail.com>

Humbly Requesting to get permission for use the instrument of Safety Performance

6 messages

Meherun Nesa <meherunnesa1995@gmail.com> Fri, Mar 31, 2023 at 9:00 AM
To: andrew@psy.uq.edu.au

Dear Sir
Hello, Greetings with due respect. I am Meherun Nesa, PhD. student in Nursing, 6th semester at Yonsei University, Seoul, South Korea. Here, I would like to inform you of my Dissertation Proposal titled "The Factors affecting safety performance of nurses in Bangladesh hospitals". Here, I am using the conceptual framework of your (PERCEPTIONS OF SAFETY). According to Bangladesh's country context on the health care system, I would like to use your conceptual framework and Skill instrument in my survey if possible, please. May I get your skills instrument in my research and get kind consideration. Also, I would like to get your expert opinion to use the safety climate instrument that is attached here.

Here humbly, I am requesting to get your instrument and get kind consideration and cooperation, and to use it in my dissertation proposal. I need your expert help and permission. Thank you very much

Sincerely Yours

--
Meherun Nesa
PH.D. student 6th semester (Yonsei University)

Gmail Meherun Nesa <meherunnesa1995@gmail.com

Requesting to get permission for use the instrument of Safety Performance

Andrew Neal <a.neal@psy.uq.edu.au> Mon, Feb 13, 2023 at 5:10 AM
To: Meherun Nesa <meherunnesa1995@gmail.com>

Dear Meherun,
Please find a copy of the measure attached. I hope you find it useful.
Regards,
Andrew

On 11 Feb 2023, at 5:54 pm, Meherun Nesa <meherunnesa1995@gmail.com> wrote:

Dear Sir
Hello, Greetings by time. Good day with due respect. I am Meherun Nesa, PhD. student in Nursing, 6th semester at Yonsei University, Seoul, South Korea. Here I would like to inform you of my Dissertation Proposal titled "The Factors affecting safety performance of nurses in Bangladesh hospitals". Here, I am using the conceptual framework of your (PERCEPTIONS OF SAFETY):
[Quoted text hidden]

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Gmail Meherun Nesa <meherunnesa1995@gmail.com>

Humbly Requesting to get permission for use the instrument of Safety Performance

Andrew Neal <a.neal@psy.uq.edu.au> Tue, Oct 8, 2024 at 6:48 AM
To: Meherun Nesa <meherunnesa1995@gmail.com>

Dear Meherun,

The internal consistencies are reported in the paper (see attached).

[Quoted text hidden]

NealGriffinHart(2000)SafetyScience.pdf
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Appendix 3. Instrument Translation Certificate

প্রফেসর অনুবাদ সার্ভিস
অনুবাদ লাইসেন্স নং ঃ টি.এল. ৪১

PROFESSOR TRANSLATION SERVICE
Translation Licence No.T.L:41

Translated True Copy

15th April 2023

This is to certify that, at the request of MEHERUN NESA, The Professor Translation Service has translated into The English to Bengali and Bengali to English the contents of the page entitled in Australia "WORKPLACE HEALTH & SAFETY 2000 ©Mark Griffin and Andrew Neal scale with 32 items".

The translation has been made into standard Bangla by the following person.

(Md Tajul Islam)
Translated by

Translated by me
15 JUN 2023

Professor Translation Service
Translation Licence no: 41
29, Toyenbee Circular Road, Motijheel, Dhaka-1000

This translation may differ in case of illegible words, blur, comm or missing

N.B. This is a true and correct translation of the document(s), which photocopy/photocopies enclosed here with

29, Toyenbee Circular Road (Ground Floor), Corner Court, Dainik Bangla mor (East of NCC Bank Ltd.), Motijheel C/A, Dhaka-1000, Bangladesh
Phone : 01552414948, 01914602604, E-mail: professoranubad@gmail.com, professoranubadservice@gmail.com, pbcm1971@gmail.com

Appendix 4. Approval Letter of Institutional Review Board

No. Exp.-NIA-OS-2023-10 **Date: 16 July 2023**

Name: Meherun Nesa
Designation: Doctoral Student
Address: Yonsei University College of Nursing, South Korea

Sub: Institutional Review Board (IRB) Clearance

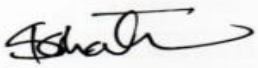
With reference to your application on the above mentioned subject, this is inform you that your Research Proposal entitled **"Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals"** has been reviewed and approved by the Institutional Review Board (IRB) of National Institute of Advanced Nursing Education and Research in its 1st meeting held on 28 June 2023.

You are requested to follow the Institutional Review Board (IRB) guidelines.

Shanzida Khatun, PhD, RN
Chair, Institutional Review Board
Faculty, National Institute of Advanced Nursing
Education and Research
Mugda, Dhaka 1214
Mobile: 01914294230
Email: snazidaadib@yahoo.com

*Responsibilities of the PI include, but are not limited to:

1. Conduct study following the approved proposal.
2. Use consent forms approved by the IRB committee
3. Provided translated consent forms approved by the IRB committee for subjects whose mother language is not Bengali or English.
4. Comply with all requirements for identifying and reporting unanticipated problems, adverse events (ex. Death of a participant), deviations, and any other new or significant information that might affect a subject's safety or willingness to continue in the study.
5. Provide full report on study progress when requested by the IRB committee.
6. Prepare related documents and cooperate when IRB committee requests and conducts a close examination of the study site.
7. Use recruitment flyers or any other materials approved by the IRB committee.
8. Ensure that legally effective informed consent has been obtained, using an adequate and appropriate consent process without any negative influence, and answering all questions participants may have, allowing enough time to make voluntary decisions.
9. Do not misuse the approved proposal for any advertising, or commercial purposes.
10. Conduct study only after all corrective and modification requirements are met and fulfilled as requested by the IRB committee.
11. Submit supplementary, revised, or modified proposals within one month from the date materials are requested by the IRB committee.(Failure to submit the proposal for a year may invalidate the review).
12. Comply with the review dates and approval period (Revised proposal are processed under expedited review and modified proposals are processed under full board review).
13. Provide Continuing Report two months prior to the expiration date if study should continue after the expiration date.
14. Provide Termination Report within three months after the study has been completed.
15. Maintain adequate investigation records for at last three years after the study has been terminated.



(Shanzida Khatun, PhD, RN) 16 July 2023

Signature of the IRB Chair Date

National Institute of Advanced Nursing Education and Research
Hazi Kadam Ali Road, Mugda, Dhaka 1214

Report of Institutional Review Board

Study Number*	10		
Study Title	Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals		
Principal Investigator/s (PI) Name	Meherun Nesa		
Specialty	Nursing	**Year**	2023
E- mail		**Mobile phone**	+8201080628331 (Korea) Bangladesh: 01913074733
Review Type	■ Study Proposal (New) □ Study proposal (Revision) □ Modification □ Continuing Review □ Termination □ Other Review		
Review Date	28 June 2023		
Review Committee	Faculty, NIANER		
Review Type	□ Full Board ■ Expedited		
Review Result	□ Approved ■ Approved after revision □ Expedited review after revision □ Rejected ☐ Stop/Hold		
Date of Approval	16 July 2023	**Study Approval Period**	

Review Comments

IRB Criteria for Approval	Yes	No
Risks to subjects are minimized- sound research design/ procedures	√	
Selection of subjects is equitable	√	
Informed consent will be sought or waived	√	
Privacy protection	√	
Confidentiality provisions	√	
Vulnerable populations protection	√	
Others: Research Design and Instruments	√	

NIANER Student: S/ student ID number

NIANER Faculty: F/serial number

*Outside NIANER: **Exp.-NIA-OS-2023-10**

Appendix 5. Approval Letter from Director General of Nursing and Midwifery to the Hospital Director through Nursing Superintendent and Supervisor

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
নার্সিং ও মিডওয়াইফারি অধিদপ্তর
(শিক্ষা শাখা)
মহাখালী, ঢাকা

স্মারক নং- ৪৫.০৩.০০০০.০০২.০১.০৯৬.২৩- ৩৭০ তারিখঃ ৩০/০৭/২০২৩ খ্রি.

বিষয়: ডাটা সংগ্রহের অনুমতি প্রদান।

উপর্যুক্ত বিষয়ে দৃষ্টি আকর্ষণ করছি। মেহেরুন নেছা, নার্সিং সুপারভাইজার (নিজ বেতনে), মুগদা মেডিকেল কলেজ হাসপাতাল, মুগদা, ঢাকা ইওনসে ইউনিভার্সিটি, দক্ষিণ কোরিয়ায় পিএইচডি প্রোগ্রামে অধ্যয়নরত আছেন। তার পিএইচডি প্রোগ্রামে গবেষণার অংশ হিসেবে ঢাকা মেডিকেল কলেজ হাসপাতাল, ঢাকা, চট্টগ্রাম মেডিকেল কলেজ হাসপাতাল, চট্টগ্রাম, এমএজি ওসমানী মেডিকেল কলেজ হাসপাতাল, সিলেট, খুলনা মেডিকেল কলেজ হাসপাতাল, খুলনা এবং রংপুর মেডিকেল কলেজ হাসপাতাল, রংপুর হতে " The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals" শীর্ষক ডাটা সংগ্রহের অনুমতি নির্দেশক্রমে প্রদান করা হলো।

২। এমতাবস্থায়, সংশ্লিষ্ট স্বাস্থ্য সেবা প্রতিষ্ঠানের প্রধানগণ-কে ডাটা সংগ্রহে সহযোগিতা করার অনুরোধ করা হলো।

৩০/৭/২৩
মো: রশিদুল মাল্লাফ কবীর
(উপসচিব)
পরিচালক (শিক্ষা)

পরিচালক
ঢাকা মেডিকেল কলেজ হাসপাতাল, ঢাকা/ চট্টগ্রাম মেডিকেল কলেজ হাসপাতাল, চট্টগ্রাম/ এমএজি ওসমানী মেডিকেল কলেজ হাসপাতাল, সিলেট/ খুলনা মেডিকেল কলেজ হাসপাতাল, খুলনা/ রংপুর মেডিকেল কলেজ হাসপাতাল, রংপুর।

অনুলিপি: জ্ঞাতার্থে ও কার্যার্থে
১। পরিচালক, মুগদা মেডিকেল কলেজ হাসপাতাল, মুগদা, ঢাকা।
২। সেবা তত্ত্বাবধায়ক, ঢাকা মেডিকেল কলেজ হাসপাতাল, ঢাকা/ চট্টগ্রাম মেডিকেল কলেজ হাসপাতাল, চট্টগ্রাম/ এমএজি ওসমানী মেডিকেল কলেজ হাসপাতাল, সিলেট/ খুলনা মেডিকেল কলেজ হাসপাতাল, খুলনা/ রংপুর মেডিকেল কলেজ হাসপাতাল, রংপুর।
৩। মেহেরুন নেছা, নার্সিং সুপারভাইজার (নিজ বেতনে), মুগদা মেডিকেল কলেজ হাসপাতাল, মুগদা, ঢাকা। (ইওনসে ইউনিভার্সিটি, দক্ষিণ কোরিয়ায় পিএইচডি প্রোগ্রামে অধ্যয়নরত)

Appendix 6. Letter from Associate dean of graduate program and graduate school of Nursing, Yonsei University, Collee of Nursing to Hospital Director DMCH

연세대학교 간호대학
YONSEI UNIVERSITY
COLLEGE OF NURSING
50-1 Yonsei-ro Seodaemun-gu, Seoul 03722, Korea
T.(82-2)2228-3234~7 F.(82-2)364-5027
http://nursingcollege.yonsei.ac.kr

Director
The affiliated Hospital
Dhaka Medical College & Hospital (DMCH), Dhaka -1000
Ministry of Health & Family Welfare
Government of the People's Republic of Bangladesh.

Dear Director of DMCH

For whom it may concern Meherun Nesa (student ID 2020323326) is a student in the Doctoral program in Nursing at Yonsei University College of Nursing, South Korea. Here dissertation proposal entitled "The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals" has been approved by the dissertation Committee (Chair: Professor Tae Wha Lee, Ph.D., RN, FAAN).
Meherun Nesa would like to get permission for data collection from nurses in the affiliated hospital of Dhaka Medical College Hospital, Dhaka-1000. Government of the People's Republic of Bangladesh for 60 nurses from July to August 2023 by using a "Demographic data form, safety climate, knowledge, and safety motivation, and safety performance scale" as her questionnaire. The data will be used for the thesis as aforementioned.
Yonsei University College of Nursing would generally appreciate your cooperation in her collection in your institute.

Thank you in advance for considering the request.

Sincerely,

Jiyeon Lee, RN, NP, Ph.D
Associate Dean of Graduate Program and Graduate School of Nursing
Yonsei University, College of Nursing
College of Nursing, Yonsei University
50-1 Yonsei-ro, Seodaemun-gu, Seoul, 03722, Korea
+82-02-2228-3255

Appendix 7. Permission for data collection from DMCH

Date: 17/08/2023

To

Director,

Dhaka Medical College Hospital,

Dhaka-1000.

Source: DGNM-45.03.0000.002.01.096.23-370

Subject: Permission for data collection.

Dear sir,

With the reference to the above subject matters, I would like to inform you that I am Meherun Nesa, P.hD. student 6th semester of 2023, College of Nursing Yonsei University, Seoul South Korea (Nursing Supervisor own pay, Mugda Medical College Hospital, Mugda, Dhaka-1214, Bangladesh). I am going to conduct research for my study purpose and the title is "The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals". The research proposal has been approved by dissertation committee of Yonsei University, Seoul South Korea and the Institutional Review Board (IRB) of NIANER. Collected data will be used for academic research purpose only.

It will be highly appreciated if you would grant us permission to collect data from your institution.

Sincerely Yours,

Mnesa 17.8.23

MEHERUN NESA

Department of [NURSING SCIENCE]

P.hD. student, 6th semester, 2023

College of Nursing, Yonsei University,

Seoul, South Korea.

C.no: +8801913074733

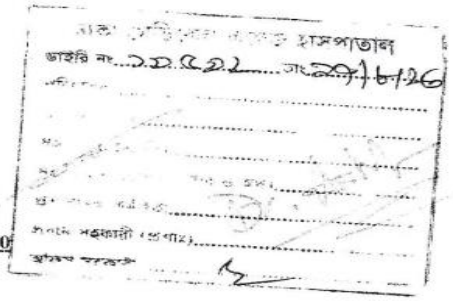
E-mail: meherunnesa1995@gmail.com

Attachment

1. G.O from DGNM
2. Requesting order from Yonsei University, Seoul South Korea
3. Ethical permission from IRB, NIANER.

Copy forwarded for your kind information and attention:

1. Nursing Superintendent, Dhaka Medical College Hospital, Dhaka-1000.



Date: 17/08/2023

To

Director,

Dhaka Medical College Hospital,

Dhaka-1000.

Source: DGNM-45.03.0000.002.01.096.23-370

Subject: Permission for data collection.

Dear sir,

With the reference to the above subject matters, I would like to inform you that I am Meherun Nesa, P.hD. student 6th semester of 2023, College of Nursing Yonsei University, Seoul South Korea (Nursing Supervisor own pay, Mugda Medical College Hospital, Mugda, Dhaka-1214, Bangladesh). I am going to conduct research for my study purpose and the title is "The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals". The research proposal has been approved by dissertation committee of Yonsei University, Seoul South Korea and the Institutional Review Board (IRB) of NIANER. Collected data will be used for academic research purpose only.

It will be highly appreciated if you would grant us permission to collect data from your institution.

Sincerely Yours,

Mnesa 17.8.23

MEHERUN NESA
Department of [NURSING SCIENCE]
P.hD. student, 6th semester, 2023
College of Nursing, Yonsei University,
Seoul, South Korea.
C.no: +8801913074733
E-mail: meherunnesa1995@gmail.com

Attachment

1. G.O from DGNM
2. Requesting order from Yonsei University, Seoul South Korea
3. Ethical permission from IRB, NIANER.

Copy forwarded for your kind information and attention:

1. Nursing Superintendent, Dhaka Medical College Hospital, Dhaka-1000

Appendix 8. Letter from Associate dean of graduate program and graduate school of Nursing, Yonsei University, Collee of Nursing to Hospital Director CTGMCH

연세대학교 간호대학
YONSEI UNIVERSITY
COLLEGE OF NURSING
50-1 Yonsei-ro Seodaemun-gu, Seoul 03722, Korea
T.(82-2)2228-3234~7 F.(82-2)364-5027
http://nursingcollege.yonsei.ac.kr

Director
The affiliated Hospital
Chittagong Medical College Hospital (CTGMCH), Chittagong-4203
Ministry of Health & Family Welfare
Government of the People's Republic of Bangladesh.

Dear Director of CTGMCH

For whom it may concern Meherun Nesa (student ID 2020323326) is a student in the Doctoral program in Nursing at Yonsei University College of Nursing, South Korea. Here dissertation proposal entitled "The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals" has been approved by the dissertation Committee (Chair: Professor Tae Wha Lee, Ph.D., RN, FAAN).
Meherun Nesa would like to get permission for data collection from nurses in the affiliated hospital of Chittagong Medical College Hospital, Chittagong-4203. Government of the People's Republic of Bangladesh for 60 nurses from July to August 2023 by using a "Demographic data form, safety climate, knowledge, and safety motivation, and safety performance scale" as her questionnaire. The data will be used for the thesis as aforementioned.
Yonsei University College of Nursing would generally appreciate your cooperation in her collection in your institute.

Thank you in advance for considering the request.

Sincerely,

Jiyeon Lee, RN, NP, Ph.D
Associate Dean of Graduate Program and Graduate School of Nursing
Yonsei University, College of Nursing
College of Nursing, Yonsei University
50-1 Yonsei-ro, Seodaemun-gu, Seoul, 03722, Korea
+82-02-2228-3255

Appendix 9. Clearance by ethical review committee of CTGMCH

Ethical Review Committee

Chittagong Medical College
Chattogram 4000
Bangladesh

Memo No. 59.27.0000.013.19.PG.2023.009/292 Date: 27-08-2023

To

Meherun Nesa

Student of Ph.D. (Nursing Management),

Yonsei University, Seoul, South Korea.

Subject: Regarding clearance of the study proposal **"THE FACTORS AFFECTING THE SAFETY PERFORMANCE OF NURSES IN BANGLADESH HOSPITALS."** by ethical review committee.

This study protocol titled proposal **" THE FACTORS AFFECTING THE SAFETY PERFORMANCE OF NURSES IN BANGLADESH HOSPITALS**." is cleared by ethical review committee, Chittagong Medical College, Chattogram, Bangladesh.

Yours sincerely,

27/8/2023
Professor (Dr.) Md. Abdus Sattar
Professor & Head
Department of Medicine, CMC.
Chairman
Ethical Review Committee
Chittagong Medical College.

27/8/2023
Professor (Dr.) Ershad Uddin Ahmed
Professor & Head
Department of Gastroenterology, CMC
Member-Secretary
Ethical Review Committee
Chittagong Medical College.

Appendix 10. Approval Letter from Associate dean of graduate program and graduate school of Nursing, Yonsei University, Collee of Nursing to Hospital Director SOMCH

연세대학교 간호대학
YONSEI UNIVERSITY
COLLEGE OF NURSING
50-1 Yonsei-ro Seodaemun-gu, Seoul 03722, Korea
T.(82-2)2228-3234~7 F.(82-2)364-5027
http://nursingcollege.yonsei.ac.kr

Director
The affiliated Hospital
Sylhet MAG Osmani Medical College Hospital (SOMCH), Sylhet – 3100.
Ministry of Health & Family Welfare
Government of the People's Republic of Bangladesh.

Dear Director of SOMCH,

For whom it may concern Meherun Nesa (student ID 2020323326) is a student in the Doctoral program in Nursing at Yonsei University College of Nursing, South Korea. Here dissertation proposal entitled "The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals" has been approved by the dissertation Committee (Chair: Professor Tae Wha Lee, Ph.D., RN, FAAN).
Meherun Nesa would like to get permission for data collection from nurses in the affiliated hospital of Sylhet MAG Osmani Medical College Hospital (SOMCH), Sylhet – 3100. Government of the People's Republic of Bangladesh for 60 nurses from July to August 2023 by using a "Demographic data form, safety climate, knowledge, and safety motivation, and safety performance scale" as her questionnaire. The data will be used for the thesis as aforementioned.
Yonsei University College of Nursing would generally appreciate your cooperation in her collection in your institute.

Thank you in advance for considering the request.

Sincerely,

Jiyeon Lee, RN, NP, Ph.D
Associate Dean of Graduate Program and Graduate School of Nursing
Yonsei University, College of Nursing
College of Nursing, Yonsei University
50-1 Yonsei-ro, Seodaemun-gu, Seoul, 03722, Korea
+82-02-2228-3255

Appendix 11. Clearance by ethical review committee of SOMCH

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পরিচালকের কার্যালয়
সিলেট এমএজি ওসমানী মেডিকেল কলেজ হাসপাতাল, সিলেট

স্মারক নং-ওমেকহাসি/পরিঃ শাখা/২০২৩/ ৪৩৫৩ তারিখঃ ২৬/০৮/২০২৩ইং

অনুমতিপত্র

মেহেরুন নেছা, নার্সিং সুপারভাইজার মুগদা মেডিকেল কলেজ হাসপাতাল মুগদা, ইওনসে ইউনিভার্সিটি দক্ষিণ কোরিয়ায় পিএইচডি প্রোগ্রামে অধ্যয়নরত এর স্মারক নং-৪৫.০৩.০০০০.০০২.০১.০৯৬.২৩.৩৭০তারিখঃ ৩০/০৭/২০২৩/ইং এর মাধ্যমে দাখিলকৃত আবেদন এর প্রেক্ষিতে **"The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals "**শিরোনামে গবেষনা কার্যক্রমে সিলেট এমএজি ওসমানী মেডিকেল কলেজ হাসপাতালে ডাটা সংগ্রহের জন্য অনুমতি প্রদান করা হইল।

২৬/৮/২৩
ডাঃ সৌমিত্র চক্রবর্ত্তী
উপ পরিচালক
পরিচালকের পক্ষে
সিলেট এম এ জি ওসমানী মেডিকেল কলেজ
হাসপাতাল, সিলেট

Appendix 12. Approval Letter from Associate dean of graduate program and graduate school of Nursing, Yonsei University, Collee of Nursing to Hospital Director RMCH

연세대학교 간호대학
YONSEI UNIVERSITY
COLLEGE OF NURSING
50-1 Yonsei-ro Seodaemun-gu, Seoul 03722, Korea
T.(82-2)2228-3234~7 F.(82-2)364-5027
http://nursingcollege.yonsei.ac.kr

Director
The Affiliated Hospital
Rangpur Medical College Hospital (RMCH), Rangpur -5400.
Ministry of Health & Family Welfare
Government of the People's Republic of Bangladesh

Dear Director of RMCH

For whom it may concern Meherun Nesa (student ID 2020323326) is a student in the Doctoral program in Nursing at Yonsei University College of Nursing, South Korea. Here dissertation proposal entitled "The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals" has been approved by the dissertation Committee (Chair: Professor Tae Wha Lee, Ph.D., RN, FAAN).
Meherun Nesa would like to get permission for data collection from nurses in the affiliated hospital of Rangpur Medical College Hospital (RMCH), Rangpur -5400. Government of the People's Republic of Bangladesh for 60 nurses from July to August 2023 by using a "Demographic data form, safety climate, knowledge, and safety motivation, and safety performance scale" as her questionnaire. The data will be used for the thesis as aforementioned.
Yonsei University College of Nursing would generally appreciate your cooperation in her collection in your institute.

Thank you in advance for considering the request.

Sincerely,

Jiyeon Lee, RN, NP, Ph.D
Associate Dean of Graduate Program and Graduate School of Nursing
Yonsei University, College of Nursing
College of Nursing, Yonsei University
50-1 Yonsei-ro, Seodaemun-gu, Seoul, 03722, Korea
+82-02-2228-3255

Appendix 13. Clearance by ethical review committee of RMCH

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পরিচালকের কার্যালয়
রংপুর মেডিকেল কলেজ হাসপাতাল
ফোনঃ ০২৫৮৮৮৭৮৩৫০,
ই-মেইলrangmch@hospi.dghs.gov.bd

স্মারক নং- রচিমহা/রং/প্রশাঃ/২০২৩/----- তারিখ ঃ /০৮/২৩ইং

বিষয় ঃ ডাটা সংগ্রহ প্রসংগে।

উপরিউক্ত বিষয়ের প্রেক্ষিতে, মেহেরুন নেছা, নার্সিং সুপারভাইজার (নিজ বেতনে) মুগদা মেডিকেল কলেজ হাসপাতাল,মুগদা,ঢাকা। (ইওনসে ইউনিভার্টি, দক্ষিণ কোরিয়ায় পিএইচডি প্রোগ্রামে অধ্যয়নরত) কে নার্সিং ও মিডওয়াইফারি অধিদপ্তর (শিক্ষা শাখা) মহাখালী,ঢাকার স্মারক নং-৪৫.০৩.০০০০.০০২.০১.০৯৬.২৩-৩৭০, তারিখঃ ৩০/০৭/২০২৩ ইং মোতাবেক অত্র রংপুর মেডিকেল কলেজ হাসপাতালে **The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals** শীর্ষক ডাটা সংগ্রহের আদেশ প্রদান করা হইয়াছিল। উক্ত আদেশ মোতাবেক তিনি ১৪/০৮/২০২৩ ইং তারিখ হইতে ১৭/০৮/২০২৩ ইং তারিখ পর্যন্ত উক্ত বিষয়ে অত্র হাসপাতালে ডাটা সংগ্রহ করিয়াছেন।

স্বাঃ
(ডাঃ মোঃ মজিদুল ইসলাম)
সহকারী পরিচালক(প্রশাসন)
পরিচালকের পক্ষে
রংপুর মেডিকেল কলেজ হাসপাতাল,
তারিখ ঃ ১৭/৮/২৩ইং

স্মারক নং- রচিমহা/রং/প্রশাঃ/২০২৩/---২৬৭৫/১(৮)
অনুলিপি অবগতি ও প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য প্রেরন করা হইল ঃ
১। মহা-পরিচালক, নার্সিং ও মিডওয়াইফারি অধিদপ্তর,আরপিএইচ স্কুল রোড,মহাখালী,ঢাকা।
২। পরিচালক,রংপুর মেডিকেল কলেজ হাসপাতাল রংপুর।
৩। পরিচালক, মুগদা মেডিকেল কলেজ হাসপাতাল,মুগদা,ঢাকা।
৪। সেবা তত্ত্বাবধায়ক, ----------।
৫। জনাবা ----------
৬। দপ্তর নথি।

17.8.23
সহকারী পরিচালক(প্রশাসন)
রংপুর মেডিকেল কলেজ হাসপাতাল
রংপুর।
১৭/০৮/২৩ইং

Appendix 14. Approval Letter from Associate dean of graduate program and graduate school of Nursing, Yonsei University, Collee of Nursing to Hospital Director KMCH

연세대학교 간호대학
YONSEI UNIVERSITY
COLLEGE OF NURSING
50-1 Yonsei-ro Seodaemun-gu, Seoul 03722, Korea
T.(82-2)2228-3234~7 F.(82-2)364-5027
http://nursingcollege.yonsei.ac.kr

Director
The Affiliated Hospital
Khulna Medical College Hospital (KMCH), Khulna -9000.
Ministry of Health & Family Welfare
Government of the People's Republic of Bangladesh.

Dear Director of KMCH

For whom it may concern Meherun Nesa (student ID 2020323326) is a student in the Doctoral program in Nursing at Yonsei University College of Nursing, South Korea. Here dissertation proposal entitled "The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals" has been approved by the dissertation Committee (Chair: Professor Tae Wha Lee, Ph.D., RN, FAAN).
Meherun Nesa would like to get permission for data collection from nurses in the affiliated hospital of Khulna Medical College Hospital (KMCH), Khulna -9000. Government of the People's Republic of Bangladesh for 60 nurses from July to August 2023 by using a "Demographic data form, safety climate, knowledge, and safety motivation, and safety performance scale" as her questionnaire. The data will be used for the thesis as aforementioned.
Yonsei University College of Nursing would generally appreciate your cooperation in her collection in your institute.

Thank you in advance for considering the request.

Sincerely,

Jiyeon Lee, RN, NP, Ph.D
Associate Dean of Graduate Program and Graduate School of Nursing
Yonsei University, College of Nursing
College of Nursing, Yonsei University
50-1 Yonsei-ro, Seodaemun-gu, Seoul, 03722, Korea
+82-02-2228-3255

Appendix 15. Clearance by ethical review committee of KMCH

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
পরিচালকের কার্যালয়
খুলনা মেডিকেল কলেজ হাসপাতাল, খুলনা।

স্মারক নং-খুমেকহা/শা-১/২৩/ তারিখ ঃ- /০৮/২০২৩ খ্রিঃ

"অনুমতি পত্র"

পরিচালক (শিক্ষা) নার্সিং ও মিডওয়াইফারি অধিদপ্তরের স্মারক নং-৪৫.০৩.০০০০.০০২.০১.০৯৬.২৩.৩৭০ তারিখ-৩০/০৭/২০২৩ ইং মোতাবেক জনাবা মেহেরুন নেছা, নার্সিং সুপারভাইজারকে (নিজ বেতনে) "The Factors Affecting the Safety Performance of Nurses in Bangladesh Hospitals" শীর্ষক ডাটা সংগ্রহের অনুমতি প্রদান করায় তাহাকে খুলনা মেডিকেল কলেজ হাসপাতালে ডাটা সংগ্রহের অনুমতি প্রদান করা হলো।

(ডাঃ মোঃ নিয়াজ মুস্তাফি চৌধুরী)
পরিচালক(ভারপ্রাপ্ত)
খুলনা মেডিকেল কলেজ হাসপাতাল, খুলনা।

স্মারক নং -খুমেকহাসঃ/শা-১/ ২৩/ ৩৫৬৫ (৫) তারিখ ঃ-২৪/০৮/২০২৩ খ্রিঃ

অনুলিপি অবগতি ও প্রয়োজনীয় ব্যবস্থা গ্রহনের জন্য প্রেরিত হইলঃ-
১। বিভগীয় প্রধান ( ) বিভাগ , অত্র হাসপাতাল ।
২। উপ- পরিচালক, অত্র হাসপাতাল ।
৩। জনাবা/জনাব..... ,অত্র হাসপাতাল ।
৪। জনাবা মেহেরুন নেছা, নার্সিং সুপারভাইজারকে (নিজ বেতনে), মুগদা মেডিকেল কলেজ হাসপাতাল, মুগদা,ঢাকা।
৫। নথি।

পরিচালক 14.08.23.
খুলনা মেডিকেল কলেজ হাসপাতাল,খুলনা।

Appendix 16. Instrument (English and Bangla) of this study

Research Instrument

Part I: Socio-Demographics and Work-Safety-Related Characteristics

Instruction: The following agreements describe nurse's socio-demographics and work-related characteristics for safety performance, it consists of 32 items. Please provide information by filling "×" or ✓in the blanks on the responses that best reflect your answer and fill in blanks___

1. Socio-Demographic characteristic

A. Age in years _____

B. Gender

☐ Male ☐ Female ☐ Others_____

C. Marital Status

☐ Unmarried ☐ Married ☐ Divorced
☐ Widowed ☐ Single/ Bereaved ☐ Separated

D. Religion

☐ Muslim ☐ Hindu ☐ Buddhist ☐Christian
☐ Others_____

E. Monthly income

☐ 16000-38640 ☐ 22000-53060 ☐ 23000-55460
☐ 29000-63410 ☐ 35500-67010 ☐ 43000-69850

F. Your education level in nursing

☐ Diploma ☐ Bachelor ☐ Master/MPH
☐ Ph.D. ☐ Others_____

G. Do you have any safety training program experience on

☐ Safe work environment ☐ Safety clinical practice
☐ Infection control and prevention ☐ Safe equipment handling
☐ Safety behaviors/ Safety support

H. Have you participated in an educational/training activity on safety?

☐ No ☐ Yes

If "Yes", please check all those that apply

☐ Report discussion ☐ Attend in conference ☐ Workshop
☐ Grand rounds ☐ Others_____

Cont…….

2. Work Related characteristic

A. Current working unit of you

☐ ICU ☐ CCU ☐ Medical ☐ Surgical ☐ Obstetric
☐ Gynecological ☐ Pediatric ☐ Casualty ☐ Eye ☐ ENT
☐ Orthopedic ☐ Outpatient unit

B. Your working position

☐ Senior staff nurse ☐ Staff nurse ☐ Nurse in charge
☐ Others_____

C. How long have you been working in this hospital?

Year_____Month_____

D. How long have you been working in the current unit?

Year_____Month_____

E. Total years of experience as a nurse (how long have you been working)

Year_____Month_____

F. How many patients/clients in your unit on average a day do you handle

_____

G. How many nurses work in your unit on each shift

_____

H. How often are you involved in the motivational activity in the hospital.

☐ Never ☐ Sometimes ☐ Suddenly
☐ Infrequent times ☐ Always

I. How do you feel about the level of workload.

☐ Low ☐ Somehow low ☐ Medium
☐ Somehow high ☐ High

J. Do you have enough staff to handle the workload in your unit?

☐ Yes ☐ No If no, kindly
☐ Explain……

K. Identify the type of workload to face?

☐ Is the physical load of your work too heavy? ☐ No ☐ Yes
☐ Is your work pace challenging? ☐ No ☐ Yes
☐ Is your psychological workload challenging? ☐ No ☐ Yes

Cont……

L. There is any reward or praise when you perform well?
☐ Never ☐ Rare times ☐ Sometimes ☐ Suddenly
☐ Always

M. How do you feel about your work environment in the unit
☐ Very poor ☐ Poor ☐ Average
☐ Good ☐ Excellent

O. Do you experience a lack of resources such as:
☐ Medicine ☐ Caring apparatus ☐ Documentation materials ☐ Manpowe
☐ Others

3. Safety-related characteristics

A. Any safety program or manual/ guideline on patient safety in the unit
☐ No ☐ Yes

B. Have you ever been aware of safety events?
☐ Yes ☐ No

C. Is the proper equipment for your tasks available at your unit
☐ Never ☐ Most of the lime ☐ Occasionally
☐ Rarely ☐ Always

D. Please indicate the statements you will agree with, regarding your Safety Knowledge.
☐ I have little knowledge about safety equipment handling
☐ I understand necessary safety information and general hazards on site
☐ Besides, I understand all job-specific hazards
☐ I know how to control or avoid all potential hazards according to safety procedures in m
work
☐ I am highly recognized by my immediate boss and colleagues for my work experience and Safety Knowledge

E. Do you have volunteer participation in safety activities
☐ Never ☐ Sometimes ☐ Suddenly
☐ Infrequent times ☐ Always

F. Senior nurse/Nurse managers encourage staff nurses to work in accordance with safety rules even if the work schedule is tight
☐ Not at all ☐ Never ☐ Sometimes
☐ Infrequent times ☐ Always

G. Do you have a safety-related certificate
☐ No ☐ Yes
If yes please indicate
☐Safety care practice certificate ☐ Safety equipment handle certificate
☐ No certificate of safety

Cont……

H. Which point do you have safety skills on

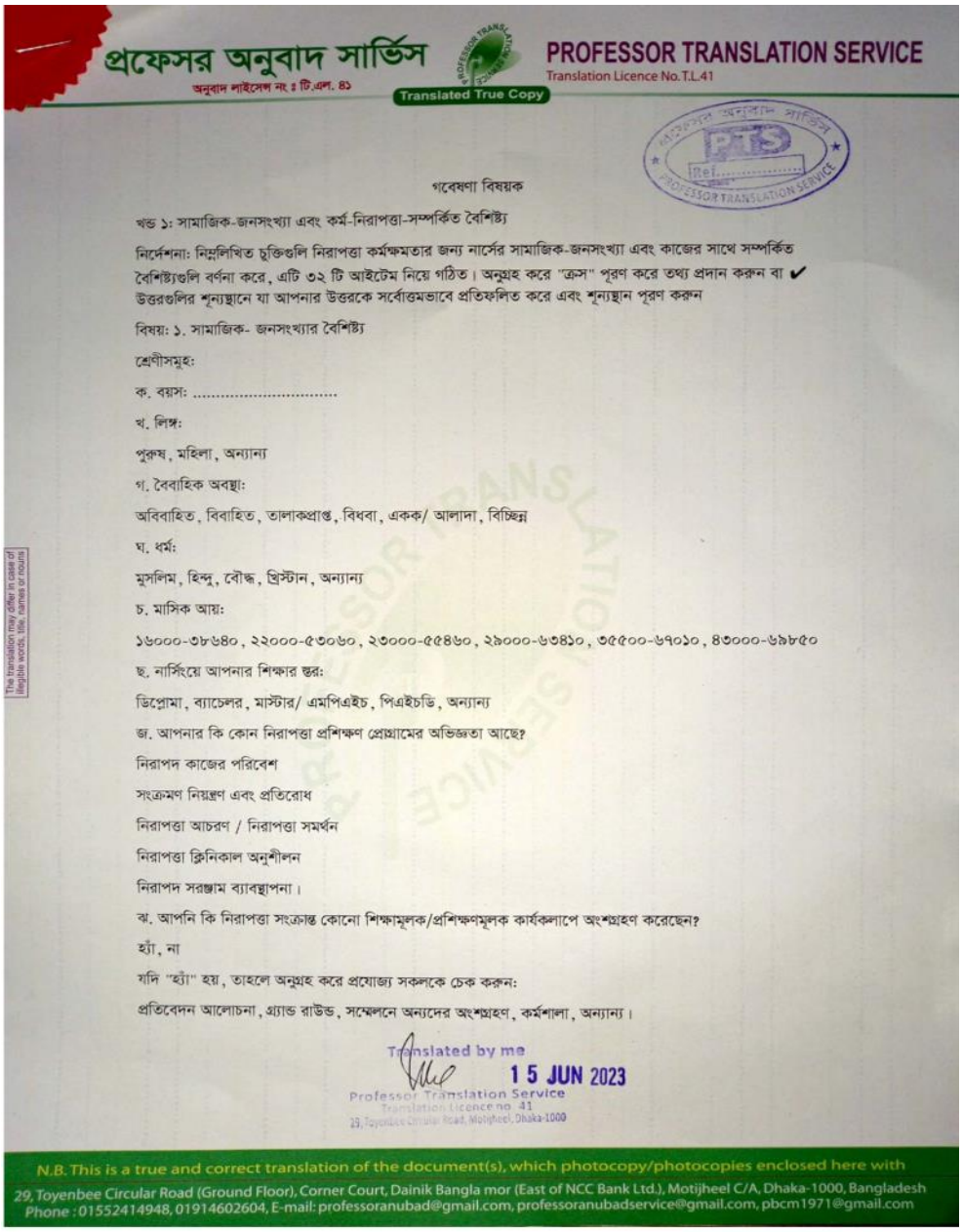
☐ Non-technical skills (NTS)
☐ The cognitive, social, and personal resource handle skills
☐ Complement technical skills
☐ The simulation skill
☐ Complex skills like teamwork

I. Did you communicate with other health care personnel during complex nursing care activity.

☐ Communicates potential exposure(s) to key persons.
☐ Contacts appropriate personnel when faced with difficult questions and/or
☐ Appropriately reports incidents, accidents, and/or illnesses.
☐ Engages in the appropriate methods to notify workers, supervisors.
☐ Appropriately communicates with other healthcare personal

J. Do you think that your supervisors' role practices are

☐ Expresses satisfaction when I perform my job safely
☐ Makes sure to receive appropriate rewards for achieving safety targets on the job
☐ Provides continuous encouragement to do our job safety
☐ Shows determination to maintain a safe work environment
☐ Encourages me to express my ideas and opinions about safety at work



গবেষণা বিষয়ক

খন্ড ১: সামাজিক-জনসংখ্যা এবং কর্ম-নিরাপত্তা-সম্পর্কিত বৈশিষ্ট্য

নির্দেশনা: নিম্নলিখিত চুক্তিগুলি নিরাপত্তা কর্মক্ষমতার জন্য নার্সের সামাজিক-জনসংখ্যা এবং কাজের সাথে সম্পর্কিত বৈশিষ্ট্যগুলি বর্ণনা করে, এটি ৩২ টি আইটেম নিয়ে গঠিত। অনুগ্রহ করে "ক্রস" পূরণ করে তথ্য প্রদান করুন বা ✔ উত্তরগুলির শূন্যস্থানে যা আপনার উত্তরকে সর্বোত্তমভাবে প্রতিফলিত করে এবং শূন্যস্থান পূরণ করুন

বিষয়: ১. সামাজিক- জনসংখ্যার বৈশিষ্ট্য

শ্রেণীসমূহ:

ক. বয়স: .....

খ. লিঙ্গ:

পুরুষ, মহিলা, অন্যান্য

গ. বৈবাহিক অবস্থা:

অবিবাহিত, বিবাহিত, তালাকপ্রাপ্ত, বিধবা, একক/ আলাদা, বিচ্ছিন্ন

ঘ. ধর্ম:

মুসলিম, হিন্দু, বৌদ্ধ, খ্রিস্টান, অন্যান্য

চ. মাসিক আয়:

১৬০০০-৩৮৬৪০, ২২০০০-৫৩০৬০, ২৩০০০-৫৫৪৬০, ২৯০০০-৬৩৪১০, ৩৫৫০০-৬৭০১০, ৪৩০০০-৬৯৮৫০

ছ. নার্সিংয়ে আপনার শিক্ষার স্তর:

ডিপ্লোমা, ব্যাচেলর, মাস্টার/ এমপিএইচ, পিএইচডি, অন্যান্য

জ. আপনার কি কোন নিরাপত্তা প্রশিক্ষণ প্রোগ্রামের অভিজ্ঞতা আছে?

নিরাপদ কাজের পরিবেশ

সংক্রমণ নিয়ন্ত্রণ এবং প্রতিরোধ

নিরাপত্তা আচরণ / নিরাপত্তা সমর্থন

নিরাপত্তা ক্লিনিকাল অনুশীলন

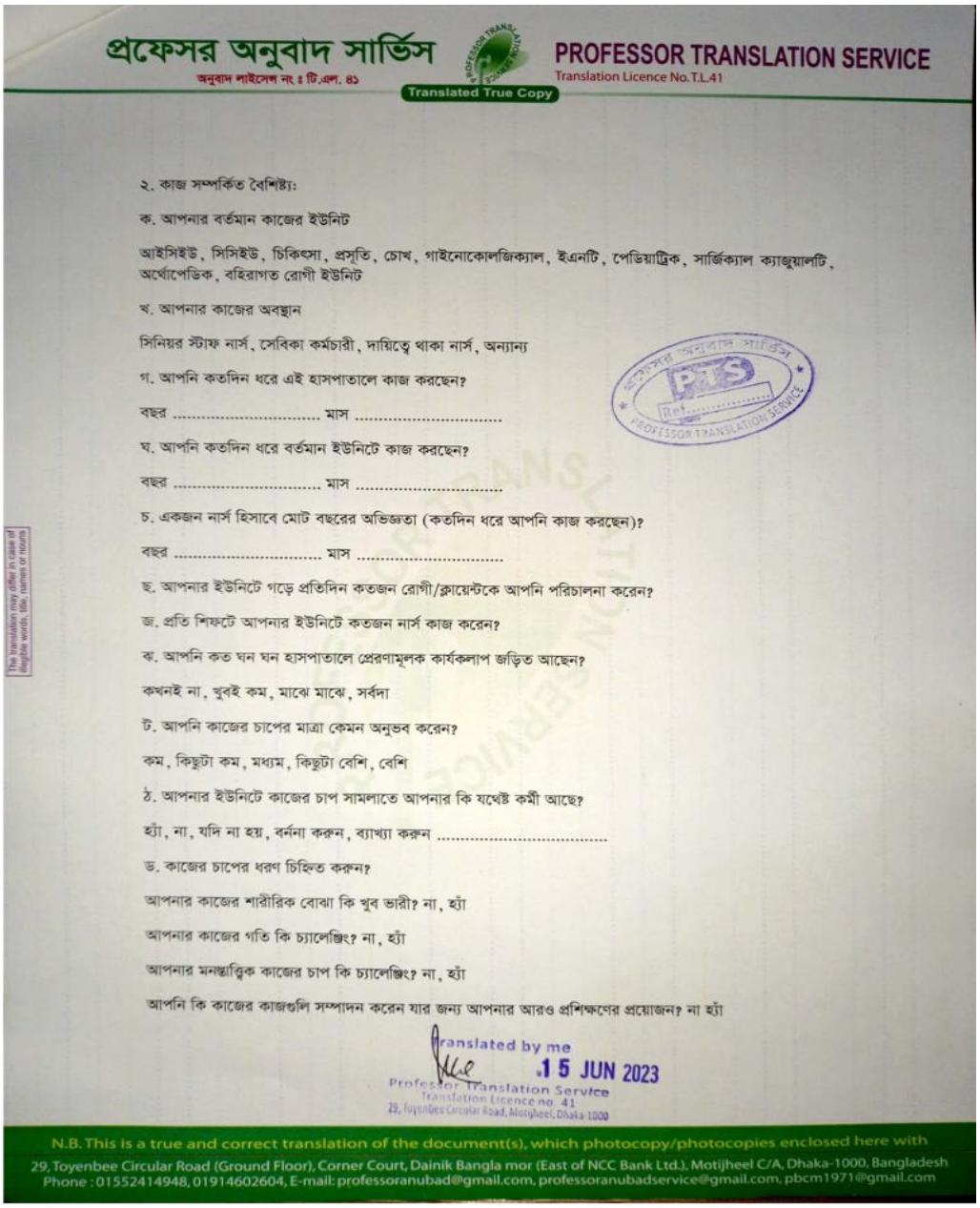
নিরাপদ সরঞ্জাম ব্যাবস্থাপনা।

ঝ. আপনি কি নিরাপত্তা সংক্রান্ত কোনো শিক্ষামূলক/প্রশিক্ষণমূলক কার্যকলাপে অংশগ্রহণ করেছেন?

হ্যাঁ, না

যদি "হ্যাঁ" হয়, তাহলে অনুগ্রহ করে প্রযোজ্য সকলকে চেক করুন:

প্রতিবেদন আলোচনা, গ্র্যান্ড রাউন্ড, সম্মেলনে অন্যদের অংশগ্রহণ, কর্মশালা, অন্যান্য।



২. কাজ সম্পর্কিত বৈশিষ্ট্য:

ক. আপনার বর্তমান কাজের ইউনিট

আইসিইউ, সিসিইউ, চিকিৎসা, প্রসূতি, চোখ, গাইনোকোলজিক্যাল, ইএনটি, পেডিয়াট্রিক, সার্জিক্যাল ক্যাজুয়ালটি, অর্থোপেডিক, বহিরাগত রোগী ইউনিট

খ. আপনার কাজের অবস্থান

সিনিয়র স্টাফ নার্স, সেবিকা কর্মচারী, দায়িত্বে থাকা নার্স, অন্যান্য

গ. আপনি কতদিন ধরে এই হাসপাতালে কাজ করছেন?

বছর ..... মাস .....

ঘ. আপনি কতদিন ধরে বর্তমান ইউনিটে কাজ করছেন?

বছর ..... মাস .....

চ. একজন নার্স হিসাবে মোট বছরের অভিজ্ঞতা (কতদিন ধরে আপনি কাজ করছেন)?

বছর ..... মাস .....

ছ. আপনার ইউনিটে গড়ে প্রতিদিন কতজন রোগী/ক্লায়েন্টকে আপনি পরিচালনা করেন?

জ. প্রতি শিফটে আপনার ইউনিটে কতজন নার্স কাজ করেন?

ঝ. আপনি কত ঘন ঘন হাসপাতালে প্রেরণামূলক কার্যকলাপ জড়িত আছেন?

কখনই না, খুবই কম, মাঝে মাঝে, সর্বদা

ট. আপনি কাজের চাপের মাত্রা কেমন অনুভব করেন?

কম, কিছুটা কম, মধ্যম, কিছুটা বেশি, বেশি

ঠ. আপনার ইউনিটে কাজের চাপ সামলাতে আপনার কি যথেষ্ট কর্মী আছে?

হ্যাঁ, না, যদি না হয়, বর্ননা করুন, ব্যাখ্যা করুন .....

ড. কাজের চাপের ধরণ চিহ্নিত করুন?

আপনার কাজের শারীরিক বোঝা কি খুব ভারী? না, হ্যাঁ

আপনার কাজের গতি কি চ্যালেঞ্জিং? না, হ্যাঁ

আপনার মনস্তাত্ত্বিক কাজের চাপ কি চ্যালেঞ্জিং? না, হ্যাঁ

আপনি কি কাজের কাজগুলি সম্পাদন করেন যার জন্য আপনার আরও প্রশিক্ষণের প্রয়োজন? না হ্যাঁ

Translated by me
15 JUN 2023
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29, Toyenbee Circular Road, Motijheel, Dhaka-1000

ঢ. ভালো পারফর্ম করলে কোনো পুরস্কার বা প্রশংসা পাওয়া যায়?

কখনই না, খুবই কম, মাঝে মাঝে, হঠাৎ করে, সবসময়

ধ. ইউনিটে আপনার কাজের পরিবেশ সম্পর্কে আপনি কেমন অনুভব করেন?

খুব দরিদ্র, দরিদ্র, গড়, ভালো, চমৎকার

ন. আপনি কি সম্পদের অভাব অনুভব করছেন যেমন:

ঔষধ, যন্ত্রশীল যন্ত্রপাতি, ডকুমেন্টেশন উপকরণ, ম্যান পাওয়ার, অন্যান্য

৩. নিরাপত্তা সম্পর্কিত বৈশিষ্ট্যসমূহ:

ক. অত্র ইউনিটে রোগীর নিরাপত্তা সংক্রান্ত কোনো নিরাপত্তা কর্মসূচি বা ম্যানুয়াল/ নির্দেশিকা

না, হ্যাঁ

খ. আপনি কি কখনও নিরাপত্তা ইভেন্ট সম্পর্কে সচেতন ছিলেন?

হ্যাঁ, না

গ. আপনার ইউনিটে আপনার কাজের জন্য উপযুক্ত সরঞ্জাম আছে?

কখনই না, কদাচিৎ, কম, খুবই কম, সব সময়

ঘ. আপনার নিরাপত্তা জ্ঞান সম্পর্কিত যে বিবৃতিগুলির সাথে আপনি একমত হবেন দয়া করে তা বর্ননা করুন।

- নিরাপত্তা সরঞ্জাম পরিচালনা সম্পর্কে আমার জ্ঞান কম।
- আমি সাইটে প্রয়োজনীয় নিরাপত্তা তথ্য এবং সাধারণ বিপদ বুঝি।
- এছাড়া, আমি সব চাকরি-নির্দিষ্ট বিপদ বুঝতে পারি।
- আমি জানি কিভাবে নিরাপত্তা অনুযায়ী সমস্ত সম্ভাব্য বিপদ নিয়ন্ত্রণ বা এড়াতে হয়।
- আমার কাজের অভিজ্ঞতা এবং নিরাপত্তা জ্ঞানের জন্য আমি আমার তাৎক্ষণিক বস এবং সহকর্মীদের দ্বারা অত্যন্ত স্বীকৃত।

চ. নিরাপত্তা কার্যক্রমে আপনার কি স্বেচ্ছাসেবকের অংশগ্রহণ আছে?

কখনই না, মাঝে মাঝে, হঠাৎ, খুবই কম, সব সময়।

ছ. সিনিয়র নার্স/নার্স ম্যানেজাররা স্টাফ নার্সদের নিরাপত্তা বিধি মেনে কাজ করতে উৎসাহিত করেন এমনকি কাজের সময়সূচী কঠোর হলেও

একদমই না, খুবই কম, কখনই না, সর্বদা

জ. আপনার কাছে কি নিরাপত্তা সংক্রান্ত সার্টিফিকেট আছে?

না, হ্যা

যদি হ্যাঁ হয়, অনুগ্রহ করে বর্ননা করুন

নিরাপত্তা যন্ত্র অনুশীলন সার্টিফিকেট, লাইসেন্স নেই, নিরাপত্তা সরঞ্জাম ব্যাবস্থাপনা।

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ঝ. আপনার নিরাপত্তা দক্ষতা কি

- অ-প্রযুক্তিগত দক্ষতা (এনটিএস),
- জ্ঞানীয়, সামাজিক এবং ব্যক্তিগত সম্পদ দক্ষতা
- প্রযুক্তিগত দক্ষতার পরিপূরক
- সিমুলেশন জটিলতা দক্ষতা
- টিমওয়ার্কের মতো জটিল দক্ষতা

ট. নার্সিং কেয়ার কার্যকলাপে আপনার যোগাযোগ কেমন

- গুরুত্বপূর্ণ ব্যক্তিদের সম্ভাব্য এক্সপোজার(গুলি) যোগাযোগ করা।
- প্রশ্নের সম্মুখীন হলে উপযুক্ত কর্মীদের সাথে যোগাযোগ করা এবং/অথবা
- যথাযথভাবে ঘটনা, দুর্ঘটনা এবং/অথবা অসুস্থতার রিপোর্ট করা।
- কর্মীদের এবং সুপারভাইজারদের উপযুক্ত পদ্ধতিতে কাজ করার বিষয়ে অবহিত করা।
- যথাযথভাবে অন্যান্য স্বাস্থ্যসেবা ব্যক্তিগতদের সাথে যোগাযোগ করা।

ঠ. আপনি কি মনে করেন যে আপনার তত্ত্বাবধায়কদের ভূমিকা অনুশীলন করে-

- আমি যখন নিরাপদে আমার কাজ সম্পাদন করি তখন সন্তুষ্টি প্রকাশ করে।
- নিরাপত্তা লক্ষ্যমাত্রা অর্জনের জন্য কাজের উপযুক্ত পুরস্কার পাওয়ার বিষয়টি নিশ্চিত করে।
- আমাদের কাজের নিরাপত্তার জন্য ক্রমাগত উৎসাহ প্রদান করে।
- একটি নিরাপদ কাজের পরিবেশ বজায় রাখার জন্য দৃঢ় সংকল্প দেখায়।
- কর্মক্ষেত্রে নিরাপত্তা সম্পর্কে আমার ধারণা এবং মতামত প্রকাশ করতে আমাকে উৎসাহিত করে।

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প্রশ্নমালা

নিরাপদ কর্মপরিবেশ পরিমাপ সংক্রান্ত প্রশ্ন ঃ

নির্দেশনাবলী ঃ অনুগ্রহপূর্বক নিম্নে প্রদত্ত প্রশ্নটির উত্তর পাশের ঘরে বর্ণিত যে সংখ্যাটি আপনার কাছে সঠিক বলে মনে হবে সেই ঘরে টিক চিহ্ন দিন। নিম্নে বর্ণিত প্রশ্নগুলি নার্সদের নিরাপদ কর্মপরিবেশ পরিমাপ সম্পর্কিত প্রশ্নাবলী। এই প্রশ্নমালায় ৫ পয়েন্ট রেটিং স্কেলের মোট ১৬টি প্রশ্ন রয়েছে। আপনাকে নিরাপদ কর্মপরিবেশ পরিমাপ সম্পর্কে নিম্নেবর্ণিত প্রশ্ন জিজ্ঞাসা করা হবে। যে প্রশ্নের উত্তরে আপনি যতটুকু সম্মত বা অসম্মত বলে নিজেকে মনে করেন সেই প্রশ্নের পাশের ঘরে বর্ণিত রেটিং স্কেলের যে কোন ১টি সংখ্যার ঘরে টিক অথবা ক্রশ চিহ্ন দিন।

ঘরে প্রদত্ত সংখ্যাগুলির অর্থ নিম্নরূপ ঃ
১ = আপনি সম্পূর্ণরূপে অসম্মত, ২ = আপনি মোটামুটি অসম্মত, ৩ = আপনি সম্মত বা অসম্মত কোনটিই নন, ৪ = আপনি মোটামুটি সম্মত, ৫ = আপনি সম্পূর্ণরূপে সম্মত।

ক্রম নং	প্রশ্ন	রেটিং স্কেল				
		১	২	৩	৪	৫
ব্যবস্থাপনার গুরুত্ব ঃ						
১.	কাজের পরিধি ব্যপক থাকা সত্ত্বেও আপনার উর্ধ্বতন কর্মকর্তা কার্যসূচীগুলি ব্যবস্থাপনার ক্ষেত্রে নিরাপদ নিয়ম মেনে সম্পাদন করার জন্য উৎসাহিত করেন।					
২.	কর্মস্থলে রোগীদের স্বাস্থ্য ব্যবস্থাপনায় নিরাপত্তার উপর অধিক গুরুত্ব আরোপ করা হয়।					
৩.	ব্যবস্থাপনা কর্তৃক কর্মপরিবেশে রোগীর নিরাপত্তার বিষয়টিকে বেশী প্রাধান্য দেয়া হয়।					
৪.	ব্যবস্থাপনা রোগীর পারিপার্শিক কর্ম পরিবেশের নিরাপত্তার বিষয়টি অধিক গুরুত্বপূর্ণ বলে মনে করেন।					

নিরাপত্তাজনিত কর্মসম্পাদন পরিমাপ সংক্রান্ত প্রশ্ন

নির্দেশনাবলী ঃ এই পরিমাপটি নার্সদের নিরাপত্তাজনিত কর্মসম্পাদন পরিমাপ মূল্যায়ন করতে ব্যবহার করা হয়েছে। এই অংশে মোট ৮টি প্রশ্ন রয়েছে। অনুগ্রহপূর্বক নিম্নে প্রদত্ত যে প্রশ্নটি আপনার কাছে সঠিক বলে মনে হবে পাশের ঘরে বর্ণিত যে-কোন ১টি সংখ্যার ঘরে টিক চিহ্ন অথবা ক্রশ চিহ্ন দিন। নিম্নে বর্ণিত প্রশ্নগুলি নার্সদের নিরাপত্তাজনিত কর্মসম্পাদন পরিমাপ সংক্রান্ত প্রশ্নাবলী। এই প্রশ্নমালায় ৫ পয়েন্ট রেটিং স্কেলের মোট ০৮টি প্রশ্ন রয়েছে। আপনাকে নিরাপত্তাজনিত কর্মসম্পাদন পরিমাপ সম্পর্কে নিম্নেবর্ণিত প্রশ্ন জিজ্ঞাসা করা হবে। যে প্রশ্নের উত্তরে আপনি যতটুকু সম্মত বা অসম্মত বলে নিজেকে মনে করেন সেই প্রশ্নের পাশের ঘরে বর্ণিত রেটিং স্কেলের যে কোন ১টি সংখ্যার ঘরে টিক অথবা ক্রশ চিহ্ন দিন।

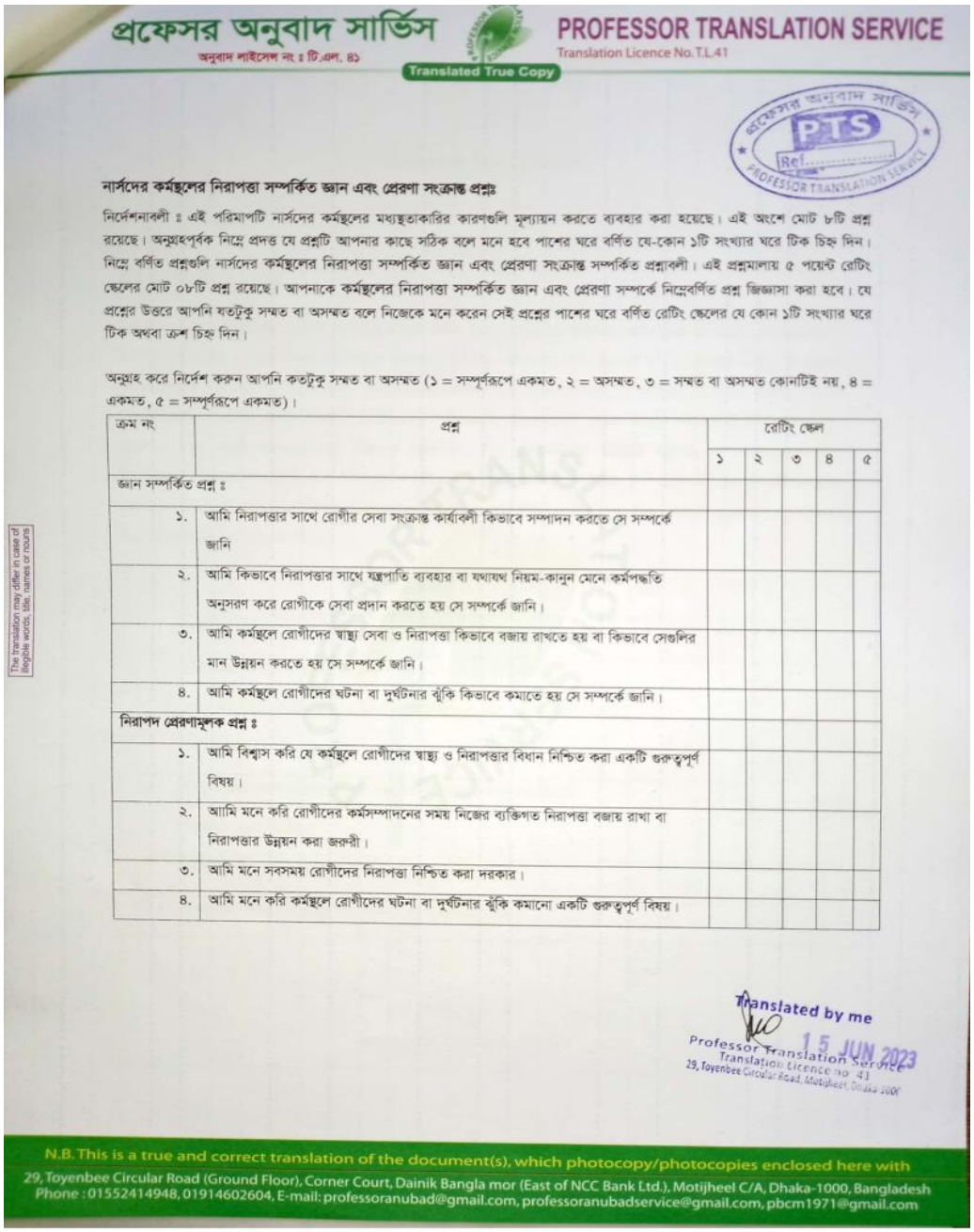
অনুগ্রহ করে নির্দেশ করুন আপনি কতটুকু সম্মত বা অসম্মত (১ = সম্পূর্ণরূপে একমত, ২ = অসম্মত, ৩ = সম্মত বা অসম্মত কোনটিই নয়, ৪ = একমত, ৫ = সম্পূর্ণরূপে একমত)।

ক্রম নং	প্রশ্ন	রেটিং স্কেল				
		১	২	৩	৪	৫
কর্মসম্পাদনে নিরাপত্তার প্রয়োগ ঃ						
১.	আমি নিরাপত্তার সাথে রোগীকে সেবা প্রদান করি।					
২.	আমি রোগীকে সেবা প্রদানের সময় প্রয়োজনীয় যন্ত্রপাতিগুলি নিরাপত্তার সাথে ব্যবহার করি।					
৩.	আমি সঠিক নিরাপত্তার নিয়ম-কানুন মেনে রোগীকে সেবা প্রদান করি।					
৪.	যখন আমি রোগীকে সেবা সংক্রান্ত কার্যসম্পাদন করি তখন সর্বোচ্চ নিরাপত্তার বিষয়টি নিশ্চিত করি।					
নিরাপদ কর্মসম্পাদনে অংশগ্রহন ঃ						
১.	আমি প্রতিষ্ঠানের অভ্যন্তরিন নিরাপত্তা সংক্রান্ত কর্মসূচীগুলি উন্নত করার চেষ্টা করি।					
২.	আমি কর্মস্থলের নিরাপত্তার উন্নয়নে আরও অধিক চেষ্টা করি।					
৩.	আমি আমার সহকর্মীদের সহায়তা করি যখন তারা ঝুঁকিপূর্ণ বা বিপজ্জনক অবস্থায় কাজ করে।					
৪.	আমি কর্মস্থলের পরিবেশ উন্নয়নে স্বেচ্ছায় কর্মসম্পাদন করে থাকি।					

আপনার সার্বিক সহযোগীতা ও গবেষণায় তথ্য দিয়ে অংশগ্রহন করার জন্য অসংখ্য ধন্যবাদ।

নিরাপদ পদ্ধতি ঃ						
১.	নিরাপদ পদ্ধতি- প্রতিষ্ঠানের নিরাপত্তা পদ্ধতি এবং সেবাগুলো অনাকাঙ্ক্ষিত দুর্ঘটনা প্রতিরোধে পর্যাপ্ত এবং যথেষ্ট।					
২.	প্রতিষ্ঠানের নিরাপত্তা পদ্ধতিসমূহ এবং এর সেবাগুলো সঠিক এবং কার্যকর।					
৩.	প্রতিষ্ঠানের বিঘ্নতা রোধে একটি সুসংহত পদ্ধতি রয়েছে।					

নিরাপদ যোগাযোগ ঃ						
১.	নিরাপদ যোগাযোগ- কর্মস্থলের নিরাপত্তা বিষয়ক সমস্যাবলী সমাধানে ঘনঘন যোগাযোগের ব্যবস্থা বিদ্যমান আছে।					
২.	উর্ধ্বতন কর্তৃপক্ষের সাথে কর্মচারীগণ তাদের নিরাপত্তা সম্পর্কিত সমস্যা নিয়ে আলোচনা করার সুযোগ পান।					
৩.	নিরাপত্তা সংক্রান্ত সমস্যাবলী নিয়ে সভাগুলিতে আলোচনা করার পর্যাপ্ত সুযোগ রয়েছে।					
৪.	আমার কর্মস্থলের ভিতরে নিরাপত্তার বিষয়ে উন্মুক্ত আলোচনার সুব্যবস্থা রয়েছে।					
৫.	কর্মস্থলে কর্মচারিগণ নিয়মিত রোগীদের স্বাস্থ্য ও নিরাপত্তা সংক্রান্ত সমস্যাবলী নিয়ে পরামর্শ করে থাকেন।					
প্রশিক্ষনঃ						
১.	প্রশিক্ষন কোর্স গুলোতেও রোগীর কর্মপরিবেশের নিরাপত্তার বিষয়গুলোকে বেশী প্রাধান্য দেয়া হয়।					
২.	কর্মস্থলের স্বাস্থ্য ও নিরাপত্তা বিষয়ক প্রশিক্ষণ গুলোতে কর্মচারীগণ যে ধরনের সমস্যাবলীর সম্মুখীন হন সেই বিষয়গুলি অন্তর্ভুক্ত করা হয়।					
৩.	কর্মচারীগণ কর্মস্থলে রোগীদের স্বাস্থ্য ও নিরাপত্তার বিষয়ে ব্যাপক প্রশিক্ষণ গ্রহণ করে থাকেন					
৪.	কর্মচারীগণের কর্মস্থলে রোগীদের স্বাস্থ্য ও নিরাপত্তা বিষয়ে প্রশিক্ষন গ্রহনের পর্যাপ্ত সুযোগ রয়েছে।					



নার্সদের কর্মস্থলের নিরাপত্তা সম্পর্কিত জ্ঞান এবং প্রেরণা সংক্রান্ত প্রশ্নঃ

নির্দেশনাবলী ঃ এই পরিমাপটি নার্সদের কর্মস্থলের মধ্যস্থতাকারির কারণগুলি মূল্যায়ন করতে ব্যবহার করা হয়েছে। এই অংশে মোট ৮টি প্রশ্ন রয়েছে। অনুগ্রহপূর্বক নিম্নে প্রদত্ত যে প্রশ্নটি আপনার কাছে সঠিক বলে মনে হবে পাশের ঘরে বর্ণিত যে-কোন ১টি সংখ্যার ঘরে টিক চিহ্ন দিন। নিম্নে বর্ণিত প্রশ্নগুলি নার্সদের কর্মস্থলের নিরাপত্তা সম্পর্কিত জ্ঞান এবং প্রেরণা সংক্রান্ত সম্পর্কিত প্রশ্নাবলী। এই প্রশ্নমালায় ৫ পয়েন্ট রেটিং স্কেলের মোট ০৮টি প্রশ্ন রয়েছে। আপনাকে কর্মস্থলের নিরাপত্তা সম্পর্কিত জ্ঞান এবং প্রেরণা সম্পর্কে নিম্নেবর্ণিত প্রশ্ন জিজ্ঞাসা করা হবে। যে প্রশ্নের উত্তরে আপনি যতটুকু সম্মত বা অসম্মত বলে নিজেকে মনে করেন সেই প্রশ্নের পাশের ঘরে বর্ণিত রেটিং স্কেলের যে কোন ১টি সংখ্যার ঘরে টিক অথবা ক্রশ চিহ্ন দিন।

অনুগ্রহ করে নির্দেশ করুন আপনি কতটুকু সম্মত বা অসম্মত (১ = সম্পূর্ণরূপে একমত, ২ = অসম্মত, ৩ = সম্মত বা অসম্মত কোনটিই নয়, ৪ = একমত, ৫ = সম্পূর্ণরূপে একমত)।

ক্রম নং	প্রশ্ন	রেটিং স্কেল				
		১	২	৩	৪	৫
জ্ঞান সম্পর্কিত প্রশ্ন ঃ						
১.	আমি নিরাপত্তার সাথে রোগীর সেবা সংক্রান্ত কার্যাবলী কিভাবে সম্পাদন করতে সে সম্পর্কে জানি					
২.	আমি কিভাবে নিরাপত্তার সাথে যন্ত্রপাতি ব্যবহার বা যথাযথ নিয়ম-কানুন মেনে কর্মপদ্ধতি অনুসরণ করে রোগীকে সেবা প্রদান করতে হয় সে সম্পর্কে জানি।					
৩.	আমি কর্মস্থলে রোগীদের স্বাস্থ্য সেবা ও নিরাপত্তা কিভাবে বজায় রাখতে হয় বা কিভাবে সেগুলির মান উন্নয়ন করতে হয় সে সম্পর্কে জানি।					
৪.	আমি কর্মস্থলে রোগীদের ঘটনা বা দুর্ঘটনার ঝুঁকি কিভাবে কমাতে হয় সে সম্পর্কে জানি।					
নিরাপদ প্রেরণামূলক প্রশ্ন ঃ						
১.	আমি বিশ্বাস করি যে কর্মস্থলে রোগীদের স্বাস্থ্য ও নিরাপত্তার বিধান নিশ্চিত করা একটি গুরুত্বপূর্ণ বিষয়।					
২.	আমি মনে করি রোগীদের কর্মসম্পাদনের সময় নিজের ব্যক্তিগত নিরাপত্তা বজায় রাখা বা নিরাপত্তার উন্নয়ন করা জরুরী।					
৩.	আমি মনে সবসময় রোগীদের নিরাপত্তা নিশ্চিত করা দরকার।					
৪.	আমি মনে করি কর্মস্থলে রোগীদের ঘটনা বা দুর্ঘটনার ঝুঁকি কমানো একটি গুরুত্বপূর্ণ বিষয়।					

Research Instrument

Safety Climate Scale

Instructions: Please place the number that best reflects your response to each statement. The following agreements describe nurses' safety climate, it consists of 16 items scale that are rated on a 5-point rating scale. The items below ask you about the safety climate within your organization. **The scale starts with (1) "strongly disagree" and ends with (5) is "strongly agree. For each statement, please indicate the extent to which agree or disagree (1= Strongly Disagree (SD), 2 = Disagree (D), 3 = Undecided (UND), 4 = Agree (A), 5 =Strongly Agree (SA).** Please provide information by filling in "X" or "✓" in the blanks on the responses that best reflect your answer.

S. No.		Statements	Rating Scale				
			SD	D	UND	A	SA
I.		**Management Values**	1	2	3	4	5
	1.	Management encourages employees here to work in accordance with safety rules even when the work schedule is tigh					
	2.	Management places a strong emphasis on workplace health and safety					
	3.	Safety is given a high priority by management					
	4.	Management considers safety to be important					
			SD	D	UND	A	SA
II.		**Safety Communication**	1	2	3	4	5
	1.	There is frequent communication about safety issues in this workplace					
	2.	Employees are able to discuss their concerns about safety issues with line management					
	3.	There is sufficient opportunity to discuss and deal with safety issues in meetings					
	4.	There is open communication about safety issues within this workplace					
	5.	Employees are regularly consulted about workplace health and safety issues					

Cont....			Rating Scale				
S. No.		Statements	SD	D	UND	A	SA
III.		Training	1	2	3	4	5
	1.	Safety issues are given a high priority in training programs					
	2.	Workplace health and safety training covers the types of situations that employees encounter in their job					
	3.	Employees receive comprehensive training in workplace health and safety issues					
	4.	Employees have sufficient access to workplace health and safety training programs					
			SD	D	UND	A	SA
VI.		Safety Systems	1	2	3	4	5
	1.	Safety procedures and practices are sufficient to prevent incidents occurring					
	2.	There are systematic procedures in place for preventing breakdowns in workplace safety					
	3.	The safety procedures and practices in this organization are useful and effective					

Knowledge and Motivation Scale

Instructions: This measurement is used to assess mediating factors, it consists of 8 items. The following statements describe nurses' "Safety-related Knowledge and Motivation". **For each statement, please indicate the extent to which agree or disagree (1= Strongly Disagree (SD), 2 = Disagree (D), 3 = Undecided (UND), 4 = Agree (A), 5 =Strongly Agree (SA).** The scale starts with (1) "strongly disagree" and ends with (5) is "strongly agree". Please provide information by filling in "X" or "✓" in the blanks on the responses that best reflect your answer.

S. No.	Statements	Rating Scale				
		SD	D	UND	A	SA
I.	**Knowledge**	**1**	**2**	**3**	**4**	**5**
1.	I know how to performance my job in a safe manner					
2.	I know how to use safety equipment and standard work procedures					
3.	I know how to maintain or improve workplace health and safety					
4.	I know how to reduce the risks of accidents and incidents in the workplace					
		SD	**D**	**UND**	**A**	**SA**
II.	**Safety Motivation**	**1**	**2**	**3**	**4**	**5**
1.	I believe that workplace health and safety is an important issue					
2.	I feel that it is worthwhile to put in effort to maintain or improve my personal safety					
3.	I feel that it is important to maintain safety at all times					
4.	I believe that it is important to reduce the risk of accidents and incidents in the workplace					

Safety Performance Scale

Instructions: This measurement is used to assess safety performance, it consists of 8 items. The following statements describe nurses' "Safety performance". For each statement, please indicate the extent to which agree or disagree (1= Strongly Disagree (SD), 2 = Disagree (D), 3 = Undecided (UND), 4 = Agree (A), 5 =Strongly Agree (SA). The scale starts with (1) is "strongly disagree" and ends with (5) is "strongly agree". Please provide information by filling "X" or "✓" in the blanks on the responses that best reflect your answer.

S. No.	Statements	Rating Scale				
		SD	D	UND	A	SA
I.	**Safety Compliance Performance**	1	2	3	4	5
1.	I carry out my work in a safe manner					
2.	I use all the necessary safety equipment to do my job					
3.	I use the correct safety procedures for carrying out my job					
4.	I ensure the highest levels of safety when I carry out my job					
		SD	D	UND	A	SA
II.	**Safety Participation Performance**	1	2	3	4	5
1.	I promote the safety program within the organization					
2.	I put in extra effort to improve the safety of the workplace					
3.	I help my coworkers when they are working under risky or hazardous conditions					
4.	I voluntarily carry out tasks or activities that help to improve workplace safety					

Many thanks for all your cooperation and participation in this research.

Abstract in Korean

방글라데시 병원 간호사의 안전 수행에 영향을 미치는 요인

Meherun Nesa, PhD. RN
연세대학교 대학원 간호학과

연구배경: 의료 시스템 내에서 포괄적 간호를 제공하는 것은 간호사에게 필수적이며, 간호사는 24 시간 병원 내에서 환자 안전을 책임져야 한다. 전 세계적으로 안전하지 못한 의료 관행으로 인해 매년 6,400 만 년의 장애 보정 생명 연수(DALY)가 손실되고 있으며 예방 가능한 손상은 병원에서 발생하는 부상 및 사망의 10 대 원인 중 하나로 간주된다(세계보건기구[WHO], 2018 년). 방글라데시의 현재 의사 대 간호사 비율은 1:0.4 로, WHO 가 권고하는 1:3 비율에 비해 심각한 간호사 부족 현상을 겪고 있다(Begum & Mahmood, 2023). 방글라데시의 간호사들은 인력 전담 기관의 부족으로 인해 환자 간호에 있어 상당한 어려움을 겪고 있다. 종종 지원 역할로 밀려나면서, 그들은 숙련된 제공자 부족, 부적절한 교육, 제한된 리더십 지원, 적은 경력 발전 기회, 취약한 병원 정책, 야간 근무 및 위험 관리를 위한 불충분한 예산 할당으로 어려움을 겪는다. 이러한 문제를 해결하는 것은 간호사에게 권한을 부여하고 의료 결과를 개선하는 데

필수적이다. 본 연구는 방글라데시 병원의 간호사의 안전 수행 수준을 탐구하고 안전 수행에 영향을 미치는 요인의 효과를 분석하는 것이다.

연구방법: 본 연구는 서술적 상관관계 연구로 방글라데시의 5 개 지역(다카, 치타공, 실렛, 쿨나, 랑푸르)소재 국립대학병원에서 수행되었다. 표본은 무작위 표집 기법을 사용하여 추출였으며, 표본 크기는 G-power 프로그램을 사용하여 결정했다. 중간 효과 크기는 0.10 으로 설정되었으며 유의 수준은 0.05, 검정력은 0.87 이었다. 통계 분석에 필요한 최소 표본 크기는 250 명이었으나 잠재적인 20%의 중도탈락률을 고려하여(Grove et al., 2012) 300 명의 대상자를 모집하였다. 데이터 분석은 IBM SPSS 26.0 과 SPSS Process Macro 버전 3.4 를 사용하여 수행되었다. 분석 방법은 다음과 같다. 평균 및 표준 편차와 같은 기술 통계를 통해 대상자의 특성을 설명하였다. t-검정과 일원 분산 분석을 통해 변수 차이를 분석하였으며, 피어슨 상관 계수로 변수 간의 관계를 분석하였다. 도구의 내적 일관성은 크론바흐 알파 계수를 사용하여 평가하였다. 단순상관관계 분석 및 다중 회귀 분석을 통해 방글라데시 병원 간호사의 안전 수행에 영향을 미치는 주요 요인을 파악하였다.

연구결과: 방글라데시 병원 간호사의 안전 수행은 안전 준수와 안전 참여로 측정하였으며, 각 평균 점수는 5 점 만점에 4.00(SD = 0.83)점과 4.13(SD = 0.71)점 이었다. 간호사들이 근무하고 있는 병원의 전반적인 안전 분위기는 5 점 만점에 중간 수준인 3.67(SD = 0.80)점 이었다. 안전 분위기의 하위 개념 중 안전 시스템이 3.81(SD = 0.90)점으로 가장 높았고, 그 다음으로 관리 가치(3.70, SD = 0.93), 안전 교육(3.64, SD

= 0.95), 안전 커뮤니케이션(3.57, SD = 0.99)이 뒤를 이었다. 또한 안전 지식에 대한 평균 점수는 4.16(SD = 0.82)점이었고 안전 동기는 4.30(SD = 0.80) 점 이었다. 이러한 결과는 간호 실무에서 안전 이니셔티브를 우선시하는 것의 중요성을 강조한다. 안전 준수의 평균 점수는 결혼 상태(t = -2.548, p < .011)와 안전 활동 경험(t = -2.713, p < .007)에 따라 유의한 차이가 있었고, 안전 참여의 평균 점수는 결혼 상태(t = -2.976, p < .003), 안전 활동 경험(t = -3.525, p < .001) 및 안전 교육 프로그램 유형(F = 4.578, p < .004)에 따라 차이가 있었다. 단순상관관계분석에서 안전 분위기가 안전 지식(r=.584, p<.001), 안전 동기(r=.447, p<.001), 안전 준수(r=.501, p<.001) 및 안전 참여(r=.481, p<.001)와 유의미하게 상관관계가 있는 것으로 나타났다. 다중회귀분석 결과 안전 준수에 영향을 미치는 요인은 안전 분위기(β=.254, p<.001), 안전 지식(β=.237, p<.001), 안전 동기(β=.226, p<.001)였고, 안전 참여에 영향을 미치는 요인은 안전 훈련 프로그램 유형, 안전 분위기(β=.235, p<.001), 안전 동기(β=.376, p<.001)였다.

결론: 본 연구를 통해 대상자 특성을 포함하여 안전 분위기, 안전 지식, 안전 동기가 방글라데시에서 간호사의 안전 수행에 영향을 미치는 요인임을 파악할 수 있었다. 이러한 통찰력은 간호 대학과 병원 간의 준수와 협업을 강화하는 데 기여할 수 있으며 효과적인 간호 정책 개발을 위한 기초자료로 사용될 수 있을 것이다.

키워드: 안전 분위기, 안전 지식, 안전 동기, 안전 준수, 안전 참여, 안전 수행.