Nursing Handover Quality and Safety Behaviors of Nurses in the Tertiary Hospital, the Democratic Republic of Timor-Leste*

คุณภาพการรับส่งเวรทางการพยาบาลและพฤติกรรมความปลอดภัยของพยาบาล ในโรงพยาบาลระดับตติยภูมิ สาธารณรัฐประชาธิปไตยติมอร์-เลสเต*

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Abstract

Nursing handover is one of the essential communication processes for transferring patients' health conditions and information to another group of healthcare professionals. This descriptive correlation study aimed to examine the quality of nursing handover and safety behaviors, and the relationship between nursing handover quality and safety behaviors of nurses in the National Guido Valadares Hospital, Timor-Leste. Two hundred and ten participants were randomly selected from 12 units at the National Guido Valadares Hospital. The research instruments included a demographic data form developed by the researcher, the Handover Evaluation Scale (HES), and the Safety Behavior Scale (SBS), which were translated into the Timor- Leste language by the researcher following Brislin's guidelines. The Cronbach's alpha coefficient of the HES and SBS were .80 and .94, respectively. Descriptive statistics and Spearman's rank correlation were used to analyze the data.

The results revealed that nurses perceived nursing handover quality at a high level (M = 75.08, SD = 4.35) and perceived safety behaviors at a high level (M = 52.42, SD = 5.86). Nursing handover quality was significantly moderately correlated with safety behaviors (r_s = .36, $p < 0.01$).

The findings of this study could be beneficial for nursing leaders and managers in maintaining nursing handover quality and nurses' safety behaviors in the National Guido Valadares Hospital, Timor-Leste, and protect patients from harm and injuries.

Keywords: Nurses; Nursing handover quality; Safety behaviors; Tertiary hospital

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บทคัดย่อ

การรับส่งเวรทางการพยาบาล เป็นกระบวนการสำคัญประการหนึ่งในการสื่อสารสถานะด้านสุขภาพและข้อมูลผู้ป่วยไปยังบุคลากรด้านสุขภาพอีกกลุ่มหนึ่ง การศึกษาเชิงพรรณนาหาความสัมพันธ์นี้ มีวัตถุประสงค์เพื่อศึกษาคุณภาพของการรับส่งเวรทางการพยาบาลและพฤติกรรมความปลอดภัย และศึกษาความสัมพันธ์ระหว่างคุณภาพของการรับส่งเวรทางการพยาบาลและพฤติกรรมความปลอดภัยในโรงพยาบาลแห่งชาติกีดู วาลาดาเรส ติมอร์-เลสเต กลุ่มตัวอย่างจำนวน 210 ราย เลือกโดยการสุ่มตัวอย่างจาก 12 แผนก ในโรงพยาบาลแห่งชาติกีดู วาลาดาเรส ติมอร์-เลสเต เครื่องมือที่ใช้ในการศึกษา ได้แก่ แบบบันทึกข้อมูลทั่วไปซึ่งพัฒนาโดยผู้วิจัย แบบประเมินการรับส่งเวร และแบบวัดพฤติกรรมความปลอดภัย โดยผู้วิจัยได้แปลแบบประเมินการรับส่งเวรและแบบวัดพฤติกรรมความปลอดภัยเป็นภาษาติมอร์-เลสเต ตามแนวทางของบริสลิน ค่า Cronbach's alpha coefficient ของแบบประเมินการรับส่งเวร และแบบวัดพฤติกรรมความปลอดภัย เท่ากับ .80 และ .94 ตามลำดับ วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา และสถิติ Spearman's rank correlation

ผลการวิจัยพบว่า พยาบาลรับรู้คุณภาพในการรับส่งเวรทางการพยาบาลโดยรวมอยู่ในระดับสูง (M = 75.08, SD = 4.35) และรับรู้พฤติกรรมความปลอดภัยโดยรวมอยู่ในระดับสูง (M = 52.42, SD = 5.86) คุณภาพการรับส่งเวรทางการพยาบาลมีความสัมพันธ์ในระดับปานกลางกับพฤติกรรมความปลอดภัยอย่างมีนัยสำคัญทางสถิติ (r_s = .36, $p < .01$)

ผลการวิจัยนี้ สามารถใช้เป็นประโยชน์สำหรับผู้นำและผู้บริหารทางการพยาบาลในการรักษาคุณภาพการรับส่งเวรทางการพยาบาลและพฤติกรรมความปลอดภัยของพยาบาล ในโรงพยาบาลแห่งชาติกีดู วาลาดาเรส ติมอร์-เลสเต ซึ่งสามารถป้องกันผู้ป่วยจากอันตรายและการบาดเจ็บได้

คำสำคัญ: พยาบาล คุณภาพการรับส่งเวรทางการพยาบาล พฤติกรรมความปลอดภัย โรงพยาบาลระดับตติยภูมิ

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Background and significance

Patient safety is a critical component of healthcare quality, and all healthcare practitioners are responsible for ensuring patient safety and preventing adverse events in healthcare settings. According to previous studies, risky staff behavior accounts for approximately 66.7-85% of patient safety (Mirzaei Aliabadi et al., 2020). Moreover, unsafe behavior impacts patient safety and can lead to adverse outcomes in hospitals in low-and middle-income nations, resulting in 2.6 million deaths each year (World Health Organization [WHO], 2019). In addition, nurses' negative behavior contributes significantly to work accidents and human errors, such as an increase in the patient burden of care in the form of increased medication errors, delays in treatment, increased patient falls (Roche et al., 2010; Wilson, 2016), and increased mortality (Houck & Colbert, 2017).

Nurses are essential connectors between patients and other healthcare providers, and their behaviors are vital to patient safety and improving patient outcomes (Sim et al., 2019). Nurses' safety behaviors refer to a range of performances nurses take on to safeguard patients from harm or to promote patient safety (Shih et al., 2008). Safety behavior is part of a culture that reflects the shared beliefs, attitudes, and values regarding the workplace's goals (Utami, 2020). However, the results of research on nurses' safety behavior across units and organizations using various research instruments has reported different levels of perceptions.

The benefits of nursing handover quality for the patient include safe patient care, due to reduced errors and patient harm, and improved continuity of care (Burgess et al., 2020). According to Liu et al. (2022), high-quality handover is integral to cultivating a nursing safety culture and enhancing nurses' safety awareness and participation in modern healthcare. On the other hand, low quality of handover implies risky nursing behavior. Handover quality directly influences nurses' safety behavior and indirectly influences it via risk perception. Therefore, healthcare professionals should endeavor to improve the handover quality of nurses and decrease their risk perception, thereby promoting safety behaviors (Rusyda & Aziz, 2021). A nursing research study by Liu et al. (2022) examined the relationship between nursing handover quality and safety behavior in China. The result showed a positive relationship between the nurses' perception of handover quality and safety behaviors ($r = 0.38$, $p < 0.01$).

Nurses' perception of nursing handover quality has been studied in various countries since 2017. In Qatar, Nagammal et al. (2016) assessed nurses' perceptions using the SBAR tool among 117 nurses. The result was an 87% positive perception of the handover process. A year later, in North Carolina, USA, Coleman (2018) studied nurses' perceptions of the handover process using SBAR among 72 nurses. Losfeld et al. (2021) investigated the effect of the implemented SBAR on nurses' perception of handover quality among 87 nurses, and the results showed that it improved significantly after implementing the SBAR. Wang et al. (2022) conducted a study examining the nursing handover quality among 186 psychiatric nurses in China. The results showed that the average score for quality of nursing handover was 5.85 (SD = 1.14). The results of nurses' perceptions of handover quality have been reported differently even though similar instruments

were used.

The National Guido Valadares Hospital (HNGV) has 343 beds and implemented the nurse's handover tool, ISIAR (Identification, Situation, History, Assessment, and Recommendations), in 2020. Moreover, the HNGV has policies for ISIAR implementation in all clinical departments and units (HNGV, 2020). The hospital regularly offers in-house training for nurses, in areas such as patient assessment, medication safety, basic life support (BLS), aseptic non-touch technique (ANTT), wound care, communication, and handover training, which aims to increase nurses' knowledge and their ability to improve patient safety. Although nurses cautiously provide safe care, the incidence of patient harm, such as infections and medication error, still exists.

Based on the inconsistencies between the research findings and the patient safety situation in the HNGV, it is necessary to examine nurses' perceptions of nursing handover quality and safety behaviors and examine the relationship between nursing handover quality and safety behavior among nurses in tertiary hospitals in Timor-Leste. The results of this study will raise awareness of nursing handover and provide baseline data for nurse administrators to develop practice guidelines or strategies for improving the quality of nursing handover, which will affect safety behaviors in the HNGV in Timor-Leste.

Research objectives

This study aimed to examine nursing handover quality, nurses' safety behaviors, and the relationship between nursing handover quality and nurses' safety behaviors in the HNGV, Timor-Leste.

Conceptual framework

Nursing handover quality includes a process of communicating patient information to another group of nurses responsible for patient care (O'Connell et al., 2013). It includes three dimensions: 1) quality of information, 2) interaction and support, and 3) efficiency. Safety behaviors are the range of performances that nurses take on at work to safeguard patients from harm or to promote patient safety (Shih et al., 2008). According to Liu et al.'s mediation model of risk perception toward handover quality and nurse safety behaviors (2022), handover quality directly influences nurse safety behaviors and indirectly influences nurses' safety behaviors via risk perception. High-quality handover is integral to cultivating a nursing safety culture and enhancing nurses' safety awareness and participation in modern healthcare. In contrast, poor handover quality reflects inconsistencies or interruptions in nurses' behavior. The relationship between nursing handover quality and the safety behaviors of nurses in the HNGV, Timor-Leste, was examined in this study (Figure 1).

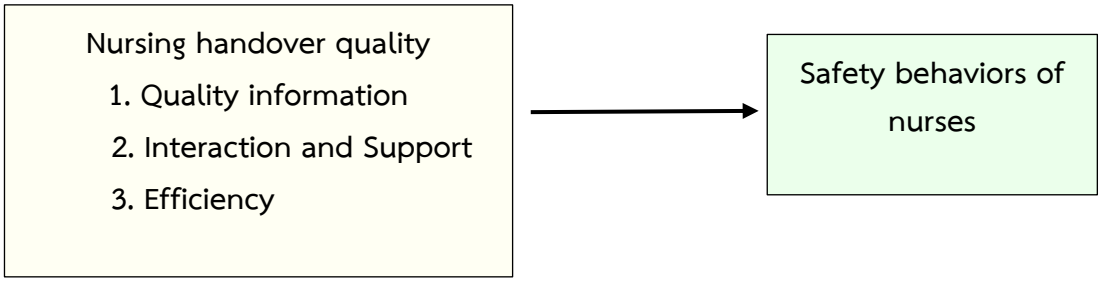

Figure 1: Conceptual framework of the study

Methodology

Population and sample

The target population for this study was 310 nurses who had been working for at least a year in a tertiary hospital in the HNGV, Democratic Republic of Timor-Leste.

The sample size of this study was determined based on Yamane's formula with a 95% confidence level and a p-value of 0.05, resulting in 175 participants. According to Grove et al. (2005), 20% was added for possible loss of participants (35 cases). Therefore, the total sample size was 210 participants' cases from 12 units. The sample was recruited using a proportional stratified random sampling method.

The inclusion criteria were registered nurses who provide direct nursing care to patients (staff nurses) and nurses who worked for at least one year at the HNGV because they have attended training and have experience in the practice of nursing handover. The exclusion criteria included 1) registered nurses on maternity leave or sick leave, or those participating in continuing education, and 2) nurse administrators or nurse educators. The participant selection process followed a structured approach. Initially, all registered nurses at the HNGV were listed. Then, the number of nurses required from each of the 12 units was determined proportionally. Finally, the researcher randomly selected the participants from the name list of each unit using stratified random sampling according to the calculated number at the HNGV.

Research instruments

The research instrument included three parts:

1. Demographic data included participants' personal information, such as gender, age, marital status, education level, type of unit work, years of employment, years working in the current unit, employment status, attendance at any training/continuing education sessions, or coaching in the last two years.

2. The Handover Evaluation Scale (HES) was developed by O'Connell et al. (2013) and translated into the Timor-Leste language. This scale included 14 items with three subscales: 1) quality of information (6 items), 2) interaction and support (5 items), and 3) efficiency (3 items). Each item was rated on a 7-point Likert-type scale, with 1 meaning strongly disagree, and 7 meaning strongly agree. Overall scores ranged from 14 to 98 with higher ratings indicating a stronger perception of nursing

handover quality.

3. The Safety Behavior Scale (SBS) was developed by Shih et al. (2008) and translated into the Timor-Leste language. The safety behavior dimension comprised of 10 items, each rated on a 6-point Likert scale, with 1 representing disagree very strongly and 6 representing agree very strongly. Total scores ranged from 10 to 60, with higher scores indicating a higher level of nurses' safety behaviors. The score levels are classified as follows: high (43.35-60.00), moderate (26.68-43.34), and low (10.00-26.67) (Polit & Beck, 2017)

With permission from the original developers, the researcher translated both instruments into a Timor-Leste version without any modification, following Brislin's guidelines (1986). The reliability of both instruments was tested with 10 participants randomly selected, including two nurses each from five HNGV units; nurses who participated in the reliability test were excluded from the study. The Cronbach's alpha reliabilities of the HES and SBS were .80 and .94, respectively.

Ethical considerations

The researcher obtained approval from the Research Ethics Committee, Faculty of Nursing, Chiang Mai University (110/2023) and administrative approval from the Timor-Leste Human Research Ethics Committee (No.ref. 54/INSP-TUUEPD/X/2023). Every participant was informed about the purpose of the study. The research coordinators requested all participants to sign the consent form after reading the information and agreeing to participate. Moreover, participants were reassured that their responses would be kept confidential. The questionnaires will be destroyed two years after the study is completed and the findings have been published in the journal.

Data collection

After obtaining permission from the Human Research Ethics Committee, Timor-Leste, the researcher explained the research's' purpose and the data collection process to two research coordinators and provided them with the participant name lists together with the research packages which included an explanation letter about the study, a consent form, a questionnaire, and an information sheet. Then, the coordinators distributed the research package in an open envelope to all participants and requested that they return the questionnaires within two weeks in a box placed in the meeting room of each unit. When the researcher returned to the hospital and collected the questionnaires from the coordinators, 130 (62%) questionnaires had been completed. Therefore, the researcher distributed 80 (38%) questionnaires. Finally, 100% of the questionnaires were completed and used for data analysis.

Data analysis

Data was analyzed using the SPSS statistical software package. Both descriptive and inferential statistics were used. For this study, the significance alpha was set at 0.05. Demographic data was analyzed using frequency, percentage, mean, and standard deviations. Nursing handover quality scores and nurses' safety behaviors were analyzed using mean, SD, and median. The data

for both variables was not normally distributed. Therefore, Spearman's rank-order correlation was used.

Results

1. Half of the nurses (52.38%) had been working for one to five years, and 59.05% had worked in their current unit for at least 5 years. Most participants (56.19%) held bachelor's degrees in nursing. More than half of the participants (59.52%) were permanent staff, and only 20% of the participants had received handover training.

2. The results showed that nurses perceived the overall nursing handover quality at a high level (M = 75.08, SD = 4.35). The quality information dimension and interaction and support dimension of nursing handover quality were high while the efficiency dimension was perceived as moderate (Table 1).

Table 1 Nursing handover quality (n = 210)

Nursing handover quality	Range	Median	Mean	SD	Level
Overall nursing handover quality	59-86	75.00	75.08	4.35	High
1. Quality information	23-37	31.00	30.85	2.41	High
2. Interaction and support	20-35	31.00	31.56	2.49	High
3. Efficiency	9-21	12.00	12.69	3.12	Moderate

Nurses perceptions of overall safety behaviors were at a high level (M = 52.42, SD = 5.86) (Table 2).

Table 2 The safety behaviors of nurses (n = 210)

Safety Behaviors	Range	Median	Mean	SD	Level
Safety behaviors	39-60	52.00	52.42	5.86	High

3. Nursing handover quality was moderately significantly related to safety behaviors (r_s = 0.36, p = 0.01). The dimensions of quality information were weak and significantly related to safety behaviors (r_s = 0.20, p = 0.03), and the dimension of interaction and support was moderately significantly related to safety behaviors (r_s = 0.37, p = 0.01). Only the dimension of efficiency was not significantly related to safety behaviors (r_s = 0.04, p = 0.61) (Table 3).

Table 3 Relationship between nursing handover quality and safety behaviors (n = 210)

Variables	Safety Behavior		
	Correlation coefficient	p-value	Level
Overall nursing handover quality	0.36	0.01	Moderate
Quality information	0.20	0.03	Weak
Interaction and support	0.37	0.01	Moderate
Efficiency	0.04	0.61	No correlation

Discussion

1. The findings showed that nurses perceived a high level of overall nursing handover quality (M = 75.08, SD = 4.35), as shown in Table 1. The result is consistent with Losfeld et al.'s study (2021) done in Belgian general hospitals, which revealed that nurses' overall handover quality was high after an intervention (M = 61.03, p = 0.04). Reasons supporting the high level of nursing handover quality are that nurses in Timor-Leste had a clear policy and had used tools for nursing handover (ISIAR) in the HNGV since 2020. The ISIAR is a guideline for communication with a formal structure. Clear establishment of policies and procedures are essential, so using a standard handover protocol for communicating patients' needs and information improves nurses' safe practice in basic nursing care. A clear communication structure during nurse handover is crucial for clinicians to cover all important information (Chiew et al., 2019).

Ruhomauly et al. (2019) also supported the idea that after implementing SBAR handover tools, nurses' awareness of quality handover improved by 100% from baseline. Another reason supporting the high level of nursing handover quality is that nurses at the HNGV conducted nursing handovers at bedside for approximately 10-15 minutes per patient in every shift, which facilitates direct communication and information about the patient's condition. This reduces the risk of miscommunication or errors related to incomplete or inaccurate information, leading to higher levels of handover quality. Chung et al. (2011) found that bedside handover enhances shift reporting efficiency, reduces information gaps, enhances patient safety, and saves time and money.

2. The findings also demonstrated that nurses perceived a high level of overall safety behaviors (M = 52.42, SD = 5.86), as shown in Table 2. The results of this study were incongruent with previous studies by Yang et al. (2017) and Liu et al. (2022) in China which found that nurses perceived safety behaviors at moderate levels. These different results regarding safety behaviors might be due to differences in work conditions, safety environment, availability of safety equipment, and supporting systems for nurses in different countries. The reasons supporting high safety behaviors in Timor-Leste can be explained by the fact that nurses in the HNGV conform to safety guidelines, work instructions, and standard procedures such as medication safety and handover policy using the ISIAR. The result of monitoring and evaluation during ISIAR imple-

mentation was 97%, showing that almost all nurses complied and cooperated with the policy and procedures of the handover (WHO, 2009).

The head nurse in every unit continuously monitors and supports nurses in performing nursing care to patients and delivering feedback in every meeting, such as monthly meetings, and morning reports. The head nurse provided handover training to new units implementing nursing handovers, and the training included theory/handover policy, simulation, and practice in the wards. The total number of nurses who joined training was reported earlier in this study. Vatankhah (2021) also stated that effective leadership encourages nurses to prioritize safety and operate safely. Previous research has supported the usefulness of establishing clear guidelines for task completion; motivating and coaching staff; and observation, feedback, and encouragement to staff to provide safe nursing and to protect patients from harm and injuries (Rani et al., 2008).

3. The results of this study revealed a significant moderately positive relationship between nursing handover quality and the safety behaviors of nurses ($r = 0.36$, $p = 0.01$), as indicated in Table 3. This result was consistent with a study by Liu et al. (2022) in China, which discovered that the quality of nursing handover was statistically related to nurses' safety behaviors ($r = 0.38$, $P < 0.01$). The present result indicates that when nurses in Timor-Leste perform quality handover in the hospital, they demonstrate safety in their behaviors towards patients. Liu et al. (2022) explained the linkage between handover quality and safety behaviors in that nurses who conduct high-quality handovers are integral to cultivating a nursing safety culture and enhancing nurses' safety awareness and participation in modern healthcare.

This study did not find any significant relationship between efficiency and safety behaviors ($r = 0.04$, $p = 0.61$) (Table 3). According to O'Connell et al. (2008), efficiency of handover refers to patient information being provided in a timely fashion, uninterrupted by patients or their significant others during handover, without taking too much time, and without information which is irrelevant to patient care. Providing information about patient conditions takes time. Nurses at the HNGV spend approximately 10-15 minutes per patient for nursing handover, as they are concerned about the quality of information (HNGV, 2020). They believed that if vital information is passed to the next group of nurses, they would be able to perform safe care to patients. Thus, the subject did not pay attention to the time, but rather the quality of information.

Applications of research findings

Hospital and nurse administrators should continuously support nurses' knowledge and communication skills in terms of nursing handover to maintain safety behavior awareness and practices by monitoring and evaluating nurse and patient safety. Additionally, periodically providing opportunities for professional growth and skills training in nursing handover and nurse safety behavior at the National Guido Valadares Hospital is needed. Hospital administrators should leverage the findings of this study to encourage hospital professionals to enhance guidelines.

Nurse administrators must prioritize quality information and efficiency to create a nursing environment that mitigates the effects of prolonged duration of nursing handover reports, minimizes time-consuming handovers, and eliminates irrelevant information during handovers.

Suggestions for further research

This study should be replicated among nurses in other types of hospitals, such as referral hospitals. Moreover, qualitative research can be conducted to explore more details about nurses' perceptions of safety behaviors. Additional studies should investigate the relationship between nursing handover quality and other variables, such as safety culture, patient safety, risk management, work environment, and nursing outcomes. By comprehensively analyzing how these factors interact and influence each other, healthcare organizations can develop strategic approaches aimed at enhancing handover quality, elevating patient safety standards, optimizing risk management strategies, cultivating a positive work environment, and fostering positive nursing outcomes. This systematic approach ensures that resources and efforts are effectively directed towards areas of greatest impact, ultimately leading to improved quality of care delivery and enhanced overall organizational performance.

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