

The Effect of Education Program on Registered Nurse Perceptions, Satisfaction and Compliance towards Bedside Handover in a Private Hospital, Malaysia

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ABSTRACT

A nursing handover involves one nurse handing over the responsibility of care for a patient to another nurse. Failure of ineffective nursing handover is associated with medication errors, delayed diagnostic testing, adverse reactions, and sentinel events. Critical information related to patient care must be efficiently communicated among registered nurses during bedside handover. This study examined registered nurses' perception, satisfaction, and compliance with bedside handovers in a private hospital in Malaysia. A quasi-experimental study using one group pre and post was conducted. A purposive sampling of 154 registered nurses who had experienced practising bedside report handover participated in the study. Compliance of registered nurses with clinical bedside handover practices was assessed using the bedside handover audit tool. The researchers used the handover evaluation scale to assess the perception of nurses regarding bedside handover. A researcher self-developed questionnaire with seven items on a 5-point Likert scale was used to assess satisfaction among registered nurses.

Data was collected from 1st July 2020 to 30th December 2020. The researcher organised a bedside handover training program for the participants, and data was collected pre and post-training. The result shows the perception mean score of the pre-intervention phase as $M = 5.68$ ($SD = .58$) and post-intervention phase as $M = 5.71$ ($SD = .38$). Satisfaction level before the intervention was $M = 4.13$ ($SD = .47$) and after $M = 4.31$ ($SD = .41$). This study confirmed that compliance with bedside handover ($M = 66.69$, $SD = 5.95$) was greater than in the post-intervention phase ($M = 99.06$, $SD = 1.96$). Data demonstrated an increase in perception, satisfaction, and compliance after the bedside handover education program. In conclusion, the handover practice of bedside reports and education training promotes positive working conditions, employee satisfaction, and a safe work environment, resulting in significantly increased efficiency, patient outcomes, and preservation of a safe workplace.

Keywords

Bedside handover, Compliance, Nurses, Satisfaction, Perception.

Introduction

Nursing handover is essential to provide high-quality care, and registered nurses disseminate and enforce best practices in

change shifts. In 2006, the Joint Commission identified "handoff coordination" as a National Patient Safety Goal, and a standardised process began to enhance the connection of handoff. Bedside handovers can help minimise errors and improve patient safety by clarifying patient recognition and improvements for incoming nurses in their condition [1].

The outgoing nurse first introduces the incoming nurse to the patient during bedside handover, and then bedside report handover begins. This is followed by assessing both the patient and the environment. Registered nurses are the leading provider of health services, and these professionals are experienced in managing many risks that address hospitalised patients [2]. The bedside handover report allows the patient and family to exchange information and care planning [3]. All pertinent information related to patient diagnosis, hemodynamic stability procedures, plan of care, any intervention or investigation during the physician's round is handed over to the incoming team. The incoming nurse team assesses the patient's well-being and health status, safety issues, including the bed and side rail location, and the existence of any clutter. It also ensures that personal items and call bells are within reach of the patient. The registered nurses can assume responsibility for patient care effectively and securely if they can obtain all relevant information provided by outgoing nurses [4].

Assessing registered nurses' handover practice in the work environment is crucial. There is growing interest and study on how nursing and medical staff pass patient information globally. For successful communication practice under patient safety, nurses use a defined tool format during bedside handover. The method of bedside nurse-to-nurse handover method helps meet patient safety requirements. It is necessary to incorporate a bedside report and maintain the clinical handover solution.

The researcher hopes that assessing registered nurses' perception and satisfaction levels related to bedside reports helps the hospital create a safe passage. Employee happiness is vital for any business's success; unfulfillment has many negative consequences on the corporation [5]. The researcher hopes that conducting a research study on bedside handover perception and satisfaction and compliance monitoring among registered nurses in the private hospital will improve patient safety. Bringing the nursing handover to the bedside improves the accuracy of the nursing handover, as well as the clinical, nurse-related, and patient-related outcomes [6].

Background

According to the Joint Commission (2012), miscommunication of data during handover studies is responsible for approximately 80% of medical errors. Due to inadequate coordination during handover, prescription errors and care delays can occur. The Department of Research and Quality in Healthcare (AHRQ) of the Centers for Medicare and Medicaid Services (DHHS) has requested the IOM to conduct a study to determine the essential aspects of a nurse's work environment that are likely to influence patient safety. Workplace situations that would likely improve patient safety were potential changes in health care.

The Institute of Medicine (IOM) confirmed that up to 98,000 hospitalised Americans die annually not due to their disease or sickness but due to errors in their treatment (IOM, 2000). In this case, the United States acknowledges the proof of the critical nursing role of patient safety. In Australia, 11% of the 25 000 to 30 000 preventable adverse effects that resulted in irreversible injury

were due to contact problems, while 6% were due to professionals' insufficient handover skill levels [7]. Ineffective communication in hospitals is now a very well-recognised contributor to patient harm. Significant adjustments are required to establish a work environment for nurses that is more favourable to patient safety.

In the study settings, the transition from traditional nurse counter handover to bedside handover seems challenging for nurses. Registered nurses could not change the handover site and did not regularly administer the handover at the patient's bedside. Furthermore, registered nurses do not adhere to the bedside report handover practice as written in hospital policy. Non-compliance with this handover procedure can result in patient harm or safety. Over a few months of monitoring, incidental findings showed that the registered nurse reverted to the handover of the nursing station away from the patient and some incidences of failure in communication during handover.

The hospital surveyed all its employees and consultants using an accepted questionnaire from the AHRQ Hospital Study on Patient Safety to determine their organisations' safety principles, values, and behaviours. Statistical data summary report on handoff and transition in 2017 and 2018 indicated a lower rate (2017, 34.1% and 2018, 26.1%). The benchmark was referenced by AHRQ (2018, 48%). Data shows that substantial detail on patient treatment is often lacking during transition changes and patient transition.

Methodology

The researcher used a quasi-experimental design comprising of pre-test and post-test measurements in this study. A one-group pre-test-post-test design is used in behavioural studies to determine an intervention effect on a given sample. Quasi-experimental studies can include pre-and post-intervention evaluations and no randomly selected control groups [8].

Populations and Sampling

The study setting involves a private hospital in the southern region of Malaysia state of Johor. The healthcare care facility has 268 beds with 55 consultant specialists providing quality services in various disciplines. To ensure high-quality services and smooth operation of hospital operations, and quality care for the patient, the hospital has various quality certifications and accreditations from many agencies. Three hundred sixty-five registered nurses are working in various departments in the hospital. This study focuses on nurses as frontline care professionals because their experience with bedside handover may be the most accurate example of the emerging patient safety climate.

In this study, all registered nurses working in the adult hospital setting are the target population and perform bedside reports in the study unit. In a handover, all information is transferred between nurses from one team to another to help ensure the safe continuity of medical treatment. It is a real-time process that ensures the quality and safety of a patient's treatment by passing patient-specific details from one caregiver to another or from one caregiver team to another [9].

Choosing an adequate sample size to draw from a population of interest is essential to design a research project. The size of an accurate survey, the low or large volume, was correlated with the benefits and risks [10]. A total of 154 registered nurses were the target sample size in this study. The research uses Epi Info TM, a free and open-source suite of interoperable software tools designed for a worldwide network of public health workers and scientists. The researcher uses the sample size calculator with a confidence level set at 95% and a power of 80%. The sample size recommended by this tool calculator is 154 samples.

A purposive sample of registered nurses from the hospital working in medical, surgical, and adult care nursing wards participated. Purposive sampling is a non-probability sampling method in which survey subjects are selected based on their experience, relationships, and skills concerning a research topic. The purposive sample of registered nurses from various departments in the hospital is referred to as the target population.

The inclusion criteria were registered nurses who worked in a hospital unit and practised handover of bedside reports. Registered nurses on confinement leave, those pursuing post-basic studies, those working in pediatric units and operating rooms, and those who do not practice bedside reporting are excluded from this study.

Study Instruments

There are four main sections of the questionnaires in this research study that were collected from all participants. The first part of the questionnaire, Section A, has six demographic questions, including gender, age, department of employment, years of nursing experience, number of patients cared for during the shift and highest educational level.

The bedside handover audit tool is used as an observation audit to evaluate the handover at the bedside. The bedside audit instrument is an adopted tool from O'Connell et al. (2008) with 20 elements, divided into five components and subcomponents of 1) preparation, 2) patient involvement, 3) exchange of clinical information, 4) safety control, and 5) transfer of responsibility [11]. The item in the checklist of the bedside audit tool monitors activities during the handover process. The audit aims to identify the gaps between current practice and the norm to determine what improvements are required to improve care quality [12].

The handover evaluation scale is used to determine the perception of registered nurses on bedside handover. The handover evaluation scale is an adopted questionnaire and a reliable and valid way to assess the handover process [13]. The Handover Evaluation Survey also contained 14 statements that workers responded to using a seven-level Likert scale: 1. Strongly Disagree; 2. Disagree; 3. Slightly Disagree; 4. neither disagree nor agree; 5. Slightly Agree; 6. Agree; 7. strongly agree.). It is suggested that it is suitable for use and future deployment, as it is a beneficial tool for monitoring and evaluating handover procedures in health organisations [13].

A researcher self-developed 7-item questionnaire was used to assess the satisfaction of registered nurses with handover practice.

These instruments were adapted from the NYU Hospital for Joint Diseases Bedside Handover Report Staff. The staff satisfaction survey of the nurse bedside handover study was a 5-item Likert scale with ratings ranging from 1 (strongly disagree) to 5 (strongly agree). Likert-type scales are widely used in clinical education and medical education studies as faculty assessments of trainees and after-school results measurements [14].

All instruments were tested for reliability and validity. The reliability test shows that Cronbach's alpha is 0.904 HES tool and Cronbach's alpha for the staff satisfaction instrument is 0.894. Composite dependability (CR) of 0.70 or higher is acceptable, indicating that the measurements are reliable [15].

Data Collection Process

Quasi-experimental designs identify a comparison group similar to the treatment group concerning baseline (pre-intervention) characteristics. The researcher used an educational program at bedside handover as an intervention in this study. One hundred fifty-four registered nurses participated in 308 bedside change handover actions before and after the data collection procedure. Data were collected from 1st July 2020 through 30th December 2020. The data collection process was divided into three phases: the pre-intervention, intervention, and post-intervention phase.

In the pre-intervention phase, the researcher trained six nurses on the use of the handover audit tool. Nurse experts were selected based on their vast experience in the clinical nursing field for more than ten years and their participation in various hospital audits. A clinical audit must include the right people with the right expertise from the beginning to be successful and achieve its goal [12]. The trained personnel used the audit tool for the bedside handover questionnaires to observe and assess the handover process in bedside practice. All registered nurses working the afternoon shift from the targeted wards were audited. The afternoon shift handover was chosen for research because it was the most critical shift handover of the day [16]. The first part of the data collection procedure lasted four weeks and was completed Monday through Friday. Registered nurses had no prior understanding of the content of the education program's guide during the pre-intervention phase. A planned roster with a tagged assignment guided the process flow in auditing registered nurses. The auditor ensured that the same registered nurse was not audited again and that no duplicate samples were taken. All participants received a Google Link survey questionnaire to assess perspectives and satisfaction with bedside handover before attending the study intervention's education program in the pre-intervention phase.

The intervention phase is the implementation education program. For the bedside handover education program activities, the researcher created a lesson plan and validated the program's content. The chief nursing officer, unit managers, and nurse education personnel performed content validation of the program. The researcher organised a one-day education session on bedside handover for all registered nurses working in hospital settings for eight weeks. Even a two-hour training module resulted in a

statistically significant behavioural change [17]. The key message of the training program for all registered nurses was to emphasise reports at bedside shifts to improve quality and safety and information on how to conduct a bedside report in the workplace. The trainers also reinforced current hospital policy and the value of clinical documentation.

Each registered nurse was allowed to perform a return demonstration and role-play using scenario samples during the training session. The training session was planned and scheduled on the hospital's event calendar. Unit managers in their department send all registered nurses to attend the training session according to the hospital's event calendar. The content of the education training program included PowerPoint slides emphasising the importance of bedside handover, patient safety, a few examples of video-related bedside handovers for visualisation, and a return role-play demo on bedside handover instruction. In bedside handover training, videos, instructions, and descriptions of bedside shift reports were shared so that staff could visualise the operation. Role-playing helped develop and enhance listening skills while reducing anxiety and growing confidence in one's ability to deliver a bedside report [18]. The program included other essential elements such as hand hygiene, intravenous drip management, and fall assessment, including improving the clinical handover process, shared, and discussed.

After four weeks of an educational program of bedside handover in the post-intervention phase, the post-intervention process was repeated to assess compliance and evaluate implementation practices. The same team of six nursing experts conducted the observation audit using the same instrument, a bedside handover audit tool, to reassess registered nurses in the working environment. In the post-intervention phase, the researcher repeated the same data collection process identical to the pre-intervention phase.

Data Analysis

The researcher used a Statistical Package of Social Science (SPSS) IBM version 20 to verify data coding, entry, and analysis. As the first step in data collection, a check is performed for incorrect input and incomplete data. Data selection is essential to ensure that data is entered correctly and normal data delivery [19]. The raw demographic data of the participants are first interpreted and outlined in tables, numerical data, then introduced as descriptive demographic data, and finally, statistical (inferential) analysis is performed.

Ethical clearance

The researcher obtained ethical approval from the Ethics and Research Committee, hospital management, and nursing management.

Results

This chapter presents the compliance analysis with bedside handover and perception and satisfaction data among registered

nurses in a private hospital during the pre-and post-education training program. The demographic information was age, gender, department, nursing work experience, education status, and finally, the number of patients in care.

Table 1: Demographic Characteristics.

Demographic Characteristics	Frequency N=154	Percent (%)
Age		
21-30 years	95	61.7
31-40 years	41	26.6
41-60 years	18	11.7
Gender		
Female	154	100.0
Department		
Open Ward	52	33.8
Surgical ward	46	29.8
Medical Ward	28	18.2
General Ward	28	18.2
Nursing experience		
Novice < 5 years	57	37.0
Competent < 10 Years	55	35.7
Expert > 10 Years	42	27.3
Education level		
Diploma in Nursing (DIN).	107	69.5
DIN with Post Basic	43	27.9
Bachelor's degree	4	2.6
No. of patients per shift		
< 20	97	63.0
> 20	57	37.0

*N=154.

Participants in the research study ranged from 20 to 60 years of age. Almost half of the respondents were 21-30 years of age (n=95, 61.7%), followed by 31-40 years of age (n=41, 26.6%) and respondents older than 41-60 years of age (n=18, 11.7%). In the gender category, all the respondents were female (n = 154, 100%). Most of the respondents worked in adult care settings in the hospital. The highest number of patients were in the open ward composed of (n=52, 33.8%), surgical ward, (n=46, 29.9 %), medical ward and general ward, the same number of respondents each (n=28.18.2 %).

The results were tabulated and classified into the novice stage, which is less than five years (n=57, 37%), then followed by the intermediate competent stage group, which is less than ten years (n=55, 35.7%) and the expert stage with more than ten years of work experience (n=42, 27.3 %). Most nurses (n = 107, 69.5 %) earned a nursing diploma as their highest formal education and second on the Post-basic list (n = 43, 27.9 %) and finally possess a bachelor's degree (n =4, 2.6%). The patient under the care of the respondents per shift was also taken, count. The most significant number of patients was less than 20 (n = 97.63%) and more than 20 per shift (n = 57.37%).

Table 2: Paired T-test for pre and post compliance bedside handover.

Pair 1	Mean	N	Std. Deviation	Std. Error Mean
Total Pre-Compliance	66.69	154	5.95	.47922
Total Post- Compliance	99.06	154	1.96	.15804

* N=154

Table 2 shows the essential findings comparing the pre-and post-analysis on the bedside handover education program and compliance practices among registered nurses. The paired t-test displayed inferential statistical analysis for the two groups that compared mean and standard deviation. The compliance mean value of the registered nurse during the pre-intervention phase was 66.69 (SD=5.95), and the compliance of the post-intervention phase among registered nurses showed mean=99.06(SD=1.96). The finding has a statistically significant increase among registered nurses by teaching bedside handover practice approaches.

Table 3: Paired mean pre-and-post RN's perception and satisfaction.

Paired Samples Statistics		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Mean_pre-perception	5.68	154	.58	.04666
	Mean post-perception	5.71	154	.38	.03064
Pair 2	Mean_pre-satisfaction	4.13	154	.47	.03814
	Mean post-satisfaction	4.31	154	.41	.03343

* N=154.

Table 3 indicates that pre-perception (M = 5.68, SD = .58) and post-perception (M = 5.71, SD = .38) and pre-satisfaction (M = 4.13, SD = .47) and post-satisfaction (M = 4.31, SD = .41) among registered nurses in the bedside handover practice at work. Nursing perception and satisfaction with the handover method remained constant throughout the deployment stages and there is no significant difference from pre- to post-implementation.

Discussion

Handover communication is vital for the health industry in the continuity of care, patient safety, and collaboration during hospitalisation. A positive safety culture can result in tremendous organisational success on the job by providing patients with the best service. Registered nurses in the hospital's adult care department were evaluated before and after bedside handover to determine compliance, perception, and satisfaction.

In this study, the researcher's objective was to determine compliance before the intervention with the practice of bedside handover, then followed by an education program as an intervention to educate all registered nurses about how to practice bedside handover. Finally, to reassess compliance with bedside handover practice after implementation before and after compliance evaluation guided by bedside handover tool checklist with an observational audit. Understanding the effects of practice and the current handover process and areas for improvement is a vital component in improving handover at the bedside.

In the pre-intervention phase, the finding shows high compliance (n=2, 1.4%), moderate compliance (n = 151, 98%) and low compliance (n=1, 0.6%). The moderate compliance rate (n = 151, 98%) among registered nurses during bedside handover implies that some critical nursing information can be overlooked, possibly jeopardising patient safety. This study showed 151 registered nurses had substantial misinformation about safety concerns such as not practising hand hygiene, not updating new drugs, and information from monitoring charts not being handed over to the incoming team during bedside handover. Other fundamental care components, such as the Morse fall scale, pain scale, discharge plan, hygiene needs, and communication, were not communicated or documented by the incoming team during bedside handover.

A post-implementation audit was conducted using the same sample size and method to assess compliance with bedside handover practice shows that registered nurses (n=154,100%) followed the bedside handover criterion on the checklist. Data indicate that compliance with the handover of the registered nurse has improved significantly after the educational program. Education plays the most crucial role in society. Assessing an individual's perception of knowledge, skills, and competency is essential in planning education activities [20]. The activities of the educational program have increased knowledge and skills in practice. Previous studies have improved handover practise among registered nurses using a standardised bedside handover tool [21, 22]. However, the lack of knowledge, competence and skills in the 'partnership' at the bedside with patients interrupted the therapeutic relationship [22].

The researcher believes that it is critical to assess registered nurses' perceptions of bedside handover to gain their support in improving the handover process. Nurses indicated greater clinical transparency, better nurse expectations of patient participation in treatment, and better quality of the report [23]. It is vital to assess perceptions of the nursing workforce to plan adequate education preparation.

Although the research finding shows the perception of the registered nurse in the bedside report, indicating that pre perception (M = 5.68, SD = .579) and post perception (M = 5.71, SD = .38). The results do not show significant differences. There was an almost significant difference in the perception score in the pre and post-test. Some other possibilities could be that no change in the findings may also be due to nurses' fear of revealing how they responded to the surveys or a lack of knowledge of best practices in healthcare communication.

The final objective of this research study was to determine the level of satisfaction of registered nurses with the practice of handover at the hospital bedside. The mean statistical significance of the satisfaction of the RN before the intervention (M = 4.13, SD = .47) and after the intervention (M = 4.31, SD = .41) was not significant. Although there were no more significant changes, there was a slight improvement and acceptance of bedside handover among registered nurses after the educational program. It is an excellent place to start looking at the emotional state of registered nurses in

the workplace to improve teamwork and the implementation of the bedside report. The results between the pre-intervention phases revealed more optimistic attitudes of nurses towards the study than the initial post-intervention phase. Evaluating the satisfaction of registered nurses on bedside handover at the hospital can be used for ongoing improvement, increasing staff participation, and providing quality care to patients.

Assessing the level of satisfaction of the registered nurse is very important. Safety in the hospital, the quality of a secure hospital environment, supportive boss and management, better interdisciplinary teamwork, and better monitoring of safety incidents are all factors to consider [24]. Poor handovers can also harm employee well-being, causing 'stress and irritation when relevant information is not accessible, is not shared correctly, or is at the wrong time [25]. The education program intervention has improved the results in the post-intervention results. Holding workers satisfied with their jobs should be a core priority for any employer and vital to success [26].

Implications

The 2009 and 2010 Joint Commission National Patient Safety Targets (Joint Commission, 2012) recommended promoting active participation of patients in their treatment and creating structured handoff communication. Bringing the nursing handover to the bedside improves the accuracy of the nursing handover, as well as the clinical, nurse-related, and patient-related outcomes [6]. Bedside nursing reports have been shown to increase patient satisfaction by keeping patients informed, involving them more in their treatment, and strengthening the nurse-patient relationship [23].

Nurses play an essential role in maintaining patient safety by ensuring patient well-being. The lack of standardisation in this organisation could result in a lack of successful coordination and, as a result, adverse effects, compromising patient safety, prescription errors, treatment delays, and inadequate treatment (Joint Commission, 2012). Therefore, monitoring patients for clinical deterioration, recognising mistakes and near misses, understanding treatment procedures, and ensuring that the patient receives high-quality care. Education strategies used in health care have improved retention and compliance using improved and structured bedside handover practices [27].

Hospitals perceive bedside handover as a superior form of handover. Improving the working environment of nurses can reduce the high turnover among healthcare professionals. Happiness at work leads to dramatically higher productivity levels. An organisation's safety culture is the product of the beliefs, behaviours, expectations, competencies, and behavioural habits of people and communities that define the contribution of an organisation to and the style and proficiency of health and safety management [28].

Limitations of the Study

To better understand implementation strategies and how bedside handover affects nursing practice, different environments should

be examined. One of the weaknesses of the study was that current research on bedside handovers was carried out in adult care settings. Other fields, including critical care, accident and emergency and Paediatrics, may be added in the future.

The current study focused on registered nurse satisfaction; however, more research is needed on patient satisfaction and outcomes in the future.

Conclusion

The complexities of today's healthcare world make it difficult for nurses to collaborate in ways that reliably result in positive quality and safety outcomes. The Joint Commission International emphasises a direct critical component in defending and improving healthcare quality worldwide through its teaching, accrediting, and certification program.

Conducting education and training for all registered nurses create a standard for quality bedside care to reduce unnecessary financial costs, prevent mistakes, and improve patient care safety. Training on bedside handover program supports the registered nurse's mindset and obtains full cooperation for excellent and safe, evidence-based practice in handover.

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