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Patient Safety Problems, Procedures, and Systems Associated with Safety Reporting and Turnover

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Walden University
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Abstract

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MSN, MBA, University of Phoenix, 2016

BSN, California State University Fullerton, 2013

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Research has shown that 400,000 people die every year due to preventable medical errors. Medical error reporting and safety is a responsibility of all members of a health care organization. Creating an environment that addresses and prevents potential or actual safety problems can help reduce the incidence of medical errors made by nurses in the workplace. The purpose of this quantitative research study was to determine if nurses' perceptions of safety problems and error-preventing procedures and systems affected their comfort in reporting safety problems and intent to leave. High-reliability theory was the theoretical foundation for this study. Data were obtained from 1,171 surveys completed by newly licensed registered nurses located in 51 different metropolitan statistical areas and 9 counties. SPSS Version 25 was used to conduct a secondary data analysis including descriptive statistics, bivariate analysis, and multiple logistic regression for each variable. Themes that emerged from the data analysis included the importance of education on safety protocols and improving nurse satisfaction and nurse retention. The findings of the study might contribute to social change by creating an increased awareness for nurse leaders, managers, and newly licensed registered nurses in ensuring that there is improved comfort of reporting and appropriate error-preventing procedures and system in the health care environment. Increased awareness will allow for action and improved protocols to enhance the overall safety and quality of care for nurses and their patients.

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Dedication

This doctoral study is dedicated to my parents for their continuous support, hard work, and dedication to our family. Thank you to my family and loved ones for your understanding and encouragement throughout the entire dissertation process.

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Section 1: Foundation of the Study and Literature Review

The incidence rates for deaths attributed to medical errors have increased significantly over the past 10 years. Preventable medical errors are the third leading cause of death in the United States, claiming more than 400,000 patients every year (Goolsarran, Hamo, Lane, Frawley, & Lu, 2018). Medical errors present in various forms, such as medication errors, healthcare-associated infections, incorrect physician orders, or a delay in the reporting of adverse events. In the United States, drug administration errors are estimated to occur 1.5 million times annually, making it the most common and costly source of preventable harm to patients (Weant, Bailey, & Baker, 2014). The reporting of medical errors and patient safety is an important responsibility of all members of the health care system. Preventable medical errors by nurses make up 42% of life-threatening events and 28% of medication adverse events (Delamont, 2013). It is vital to create an environment that addresses nurse safety issues and concerns to help reduce the incidence of medical errors made by nurses in the workplace.

In 2010, the Institute of Medicine (IOM) released a report called *To Err is Human: Building a Safer Health System*, which estimated that 98,000 people die annually from preventable medical errors (as cited in Chassin & Loeb, 2013). Preventable medical errors are a public health crisis that need to be addressed through collective work. Preventable medical harm should involve a number of areas of assessment to determine the underlying contributing factors and to more effectively address the issue. Assessing the work environment, including its staff members for potential safety issues, would

allow for improvement in reporting safety concerns and issues. Common medical errors reported by nurses include ineffective infection control, charting or documentation errors, patient falls in the hospital, and failure to report safety events (Rodziewicz & Hipland, 2019). Another factor that is critical to patient safety is sentinel events, which include higher risk medical errors such as blood transfusion reactions, invasive procedures involving the wrong patient, wrong surgery site on a patient, wrong procedure conducted on a patient, or unwanted retention of a surgical object in a patient after surgery (Joint Commission, 2018). Results of a cross-sectional study, however, indicated that the incidence of medical errors, including sentinel events that can have life-threatening and life-changing consequence to patients, that were intercepted by nurses was alarmingly high at 61% (Korhan, Dilemek, Mercan, & Yilmax, 2017). This result supports nurses' critical role in the prevention of medical errors. Thus, an assessment of the nurses' practices and medication administration procedures would be beneficial to address the issue of patient safety.

Nurses who do not perceive physical and emotional safety in the workplace may not report patient safety problems for fear of retribution (Blair, Kable, Courtney-Pratt, & Doran, 2015). Perception of patient problems involves the assessment and critical analysis of a patient's health involving the type of quality and service rendered to the patient. The patient's experiences, values, and preferences are important in determining the factors involved in health care decision-making, as well as in identifying, planning, and implementing individualized high-quality care. To ensure proper patient care and thus patient safety by avoiding medical errors, nurses should perceive their work

environment as physically and emotionally safe and without fear of retribution when they report patient safety related issues. For example, reasonable and appropriate patient care assignments, ensuring meal breaks per policy, and appropriate shift duration are common areas of safety that need to be monitored on a regular basis.

One way to help prevent medical errors in the workplace is to enforce an appropriate system or procedure necessary to address the safety concerns of the newly licensed registered nurses (NLRNs). In this study, I focused on NLRNs because working in a new environment entails learning new safety processes in the workplace environment. NLRNs may struggle with several aspects of clinical care that could compromise potential patient safety (Murray, Sundin, & Cope, 2017). NLRNs were assessed due to the lack of development of robust critical thinking skills or situational awareness in patient care. There are decreases in reporting patient safety problems because of the negative stigma that is often associated with the reporting of incidents or feared repercussions that go along with reporting (Haw, Stubbs, & Dickens, 2014). There is an employee fear of potential repercussions provided by management and leadership personnel, such as nurse directors and nurse executives (Vrbnjak, Denieffe, O'Gorman, & Pajnkihar, 2016). Repercussions include negative reports listed on the employee record, potential loss of job, poor reputation among peers, and creating a blame frame or tattletale frame for peer reporting (Hewitt, Chreim, & Forster, 2017). If there is a lack of reporting, the problems in the work environment will continue to cause harm to the patients. An unsafe working environment can cause tension in the workplace, leading to increased stress, poor decision-making, absenteeism, and overall dissatisfaction for

nurses in the work environment. Increases in stress for nurses can cause a higher incidence of medical errors and on-the-job injuries (Sharma et al., 2014). Nurses and their patients are significantly affected, leading to an alarmingly high rate of adverse and life-threatening outcomes. Reporting errors will allow for further assessment in conducting a root cause analysis of safety events to help determine improved patient safety practices.

Patient safety reporting processes can include information technology available in electronic health records (EHRs), which are being integrated with interoperable requirements to alert the health care staff member when an abnormal data finding is present (Graber, 2016). System improvements can create an electronic notification if an incorrect medication is scanned using the barcode status or if a patient's armband does not match the specified barcode indicator (Truitt, Thompson, Blazey-Martin, NiSai, & Salem, 2016). The EHR makes it difficult for nurses to make mistakes in the workplace because there is a continuous alert notification to the nurse and supervisor when abnormal findings are present. EHRs help nurses in particular with their concerns because the technological safeguards are able to support them in their decision-making (Slovis, Nahass, Salmasian, Kuperman, & Vawdrey, 2017). Medical references can be used to assist nurses in providing safe and competent care based on the generation of reports and alert notifications. Leadership and management can also take an active role in generating safety reports and receive reports to determine nurses' critical thinking processes based on appropriate EHR documentation.

The fear of retribution in reporting is a barrier to patient safety; however, educating nurses on the appropriate reporting procedures and policies allows them to

advocate for safe practices. Psychological fears of a punitive work environment, confidentiality or legality concerns, or disrupting the ideals of maintaining perfectionism are present in the work setting. Psychological fears of reporting include blame, liability, and poor reputation or ostracism from peers (Castel, Ginsburg, Zaheer, & Tamim, 2015). Education on the escalation method during times of patient safety issues or patient health deterioration is paramount. For example, if a nurse feels unsafe due to the delayed receipt of physician orders for a patient, a structured and organized response could be demonstrated with the escalation method, ensuring the appropriate personnel is notified of a patient's health status (Massey, Chaboyer, & Anderson, 2017). Patient safety reporting systems (PSRS) allow for the identification of safety hazards involved in the health system. There is an evaluation of interventions to help mitigate risks and harm. Reporting methods should be available for the nurses; otherwise, nurses may feel unsupported and unsafe in the work environment.

Problem Statement

Preventable medical errors continue to occur on a regular basis. Addressing the causation, safety processes, and reporting procedures can help determine the potential action for change. Medical errors create an increased risk in morbidity and mortality for patients, and there has not been a significant change in the past few years since the IOM published their findings on preventable medical harm (Bates & Singh, 2018). The Institute for Healthcare Improvement (2017) reported largely unchanged statistics of 21% of Americans experiencing a medical error in their own care at some point in their lives, and 31% reporting a medical error of someone else whose care they were involved.

Moreover, reverting back to the source and those surveyed, psychological aspects and job satisfaction of nurses and staff need to be reviewed. Aiken, Sloane, Bruyneel, Van den Heese, & Sermeus (2013) noted that if nurses are dissatisfied with their work environment, there is a significant relationship to patient safety and nurse intentions to turnover. The IOM (2016) published findings that the healthcare environment needs safer working conditions so that the staff can provide better quality care for their patients and thus minimize, if not avoid, medical errors. Healthcare organizations are encouraged to provide a self-assessment of their current work environment to determine the potential plan of action for improvement in ensuring patient safety (Lan et al., 2014). Personal and peer- evaluations can provide further insight into areas for improvement.

Nurses' perceptions of patient safety problems in the workplace are critical to protect patients from medical errors, injuries, accidents, or infections. Specifically, in this study, I addressed nurses' perceptions of patient safety problems and having appropriate error-preventing procedures and systems correlating to the nurses' comfort of reporting problems and intentions to turnover. Barriers to reporting may include a lack of safety education, lack of information technology education, or fear of retribution from supervisors and hospital administration. The role of health care administrators is to ensure that the appropriate systems and procedures are effective in preventing potential or actual errors with policies in place so that the entire hospital staff, including nurses, can be trained and follow the policies with fidelity.

Purpose of the Study

The overall purpose of this quantitative research study was to address the research gap in determining if an NLRN's perceptions of patient safety problems and having appropriate error-preventing procedures and systems is associated with their perceptions of the comfort of reporting safety problems and intentions to turnover. The gap in the literature is the lack of information on the perceptions aspect of safety among nursing staff. Several covariables may influence perceptions, such as age, gender, or education. An in-depth analysis was conducted based on the survey data obtained by the Inter-University Consortium for Political and Social Research. The specified covariables are important because there is a gray area in terms of the perceptions and level of comfort of NLRNs in reporting safety concerns. An analysis of the barriers for reporting as well as the perceptions of safety reporting systems can provide critical information that can be addressed and considered in programmatic and policy design and changes to increase patient safety and avoid medical errors.

The intent of the study was to determine if the independent variables of nurses' perceptions of patient safety problems and having appropriate error-preventing procedures and systems cause a change in the dependent variables of nurses' comfort of reporting patient safety problems and nurse intentions to turnover. The covariates of age, gender, and education were also included in the study. The demographics were relevant to include in the study because older females who have a bachelor level of education have an increased rate in reporting patient safety issues when compared to other demographics (Alonazi, Alonazi, Saeed, & Mohamed, 2016). Age was assessed to

determine if physical maturity affects reporting processes. Gender was assessed to determine if females have greater reporting incidences than males. Degree-level education was also assessed to determine if more education allows for greater insight into reporting processes and instances.

Research Questions and Hypotheses

Research Question 1: Is there an association between perceived patient safety problems along with having appropriate error-preventing procedures and systems and nurses' perceptions of the comfort of reporting patient safety problems while controlling for the role of age, gender, and education as covariates?

H_a1: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are associated with the nurses' perceptions of the comfort of reporting patient safety problems while controlling for the role of age, gender, and education as covariates.

H_01: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are not associated with the nurses' perceptions of the comfort of reporting patient safety problems while controlling for the role of age, gender, and education as covariates.

Research Question 2: Is there an association between perceived patient safety problems along with error-preventing procedures and systems and nurse intention to turnover while controlling for the role of age, gender, and education as covariates?

H_a2: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are associated with the nurse intentions to turnover while controlling for the role of age, gender, and education as covariates.

$H_0 2$: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are not associated with the nurse intentions to turnover while controlling for the role of age, gender, and education as covariates.

Theoretical Foundation for the Study

The theoretical base or conceptual framework in the scholarly literature that grounded the study was the high-reliability organization (HRO) theory (see Weick & Sutcliffe, 2007). HRO is based on the premise that by establishing a culture of safety, there is a high potential for preventing accidents in the workplace (Stock & McFadden, 2017). The five principles of HROs are a preoccupation with failure, resistance to the temptation to simplify, sensitivity to operations, commitment to resilience, and deference to expertise (Chassin & Loeb, 2013). The first principle is a preoccupation with failure, which involves ensuring continuous attention to detail involving problems in a system (Chassin & Loeb, 2013). Small issues or concerns need to be addressed so that the problem does not grow exponentially. Chassin and Loeb (2013) continue to describe the the second principle of refusing to simplify explanations but allows for increased growth in knowledge of current beliefs. The third principle is sensitivity to operations in bringing awareness of the intricacies of the business and determining which areas are working efficiently and which areas need improvement (Chassin & Loeb, 2013). The fourth principle is a commitment to resilience, ensuring leaders respond to potential issues and

solve the problem before it becomes a failure (Chassin & Loeb, 2013). Chassin and Loeb (2013) describe the fifth and last principle defers to expertise, which is soliciting and coordinating with the subject matter experts to provide the most current and developed knowledge of the issue or concern.

The HRO principles allow for the development of the processes and procedures to be put in place for a safe and efficient work environment (Ausserhofer, Schubert, Blegen, DeGeest, & Schwendimann, 2013). The goal is to increase comfort for nurses to report potential accidents or safety concerns. Management and supervisors should communicate openly about potential errors and encourage a nonpunitive response to reporting errors. Education and learning-oriented interventions are beneficial in creating improved processes, systems, and outcomes.

Nature of the Study

A quantitative retrospective review of data was used for an archival dataset to provide description analyses of the relationship of the independent and dependent variables. The independent variables included the nurses' perceptions of patient safety problems and nurses' perceptions of having appropriate error-preventing procedures and systems. The dependent variables included of nurses' comfort of reporting safety problems and intentions to turnover. I used a regression analysis to determine the relationship between the independent variables and dependent variables while controlling for the covariates of age, gender, and education as modifying factors.

The approach aligned with the problem statement because the data provided information to address gaps in the literature identified relevant to the study, such as

assessing the NLRNs' perceived patient safety problems, knowledge of the error-preventing systems, policies, and procedures, as well as the influence on the comfort of reporting and nurse intentions to turnover. High vigilance for safety and reporting of safety problems is essential in the healthcare work environment. Health care leaders have a significant role in determining appropriate process improvement initiatives that include patient safety to allow for improved staff satisfaction and staff retention. Leaders need to develop safer work practices, evident in error-preventing systems and processes. Reporting patient safety concerns, solving problems, and creating a shared sense of purpose among the nurses increases ethical and moral standards. With improved reporting statistics on patient safety problems, there is an increased awareness of the issue to initiate process improvement strategies. Improved reliability on the health care system can lead to improved safety and quality of health care outcomes (McFadden, Stock, & Gowen, 2015). Creating a purposeful and systematic approach to patient safety reporting will be greatly beneficial.

Literature Review

The literature search was conducted using various databases available in the Walden University library. Google Scholar was also used to research various scholarly articles to help address the research questions. Keywords were used in the search from various health sciences databases such as ProQuest, EBSCO, CINAHL, MEDLINE, and PubMed, Science Direct, including *age, blame culture, gender, patient safety, patient safety workplace, patient safety culture, patient safety reporting systems, culture of safety, nurse medication error, new grad registered nurse, high reliability organization,*

reliability, and *IOM.* The literature search included articles from the past 5 years. If a study was used that was older than 5 years, the article was used based on the sustenance or lack of availability of information on the topic.

The literature review highlights various studies regarding the turnover of NLRNs, including working conditions, work satisfaction, and the safety of the work environment. The literature review is based on the key variables of perceptions of patient safety problems and having appropriate error-preventing procedures and systems, with the effect on the comfort of reporting safety problems and nurse intentions to turnover. The key variables were relevant because there continue to be medical errors and turnover due to safety concerns in the workplace. The literature review also provides information on gaps in the literature including the covariates of age, gender, and education in correlation to the key variables.

Patient Safety Problems

Patient safety problems are incidences in which an event or situation results in unnecessary harm or adverse outcomes to patients (Hee-Eun, Song, & Kang, 2017). Near misses are occurrences that did not occur, but if they did occur could have resulted in patient harm. The risk of patient safety problems may be caused by deviation from protocols or guidelines, such as workaround practices or shortcuts (Chassin & Loeb, 2013). Nurses must refrain from using workarounds because there is an increased likelihood that error will occur (Vogus & Singer, 2016). Patient safety is compromised when workarounds are used to help speed processes; however, the safety processes are intended to help reduce risk and errors (Berlinger, 2017). Safety hazards can vary based

on deviation from processes or protocols. Contributors to the demonstration of workarounds may include lack of appropriate staffing ratios, lack of resources, or lack of education (Blijleven, Koelemeijer, Wetzles, & Jaspers, 2017). Patient safety is the top priority in the health care work environment. Nurses need to remain cognizant of their vigilance with patients. Leaders need to be committed to patient safety, upholding standards, and motivating safe patient handling.

Comfort of Reporting Safety Concerns

The comfort of reporting safety concerns depends on various factors. If an individual feels comfortable with him or herself in the work environment, there is an increased likelihood that reporting safety concerns will occur. Qin, Jiang, and Ding (2015) revealed that job satisfaction, the safety of the work environment, and teamwork influence the likelihood of reporting safety concerns by 28.9%. The Society for Human Resource Management (2015) also reported that the perception of safety at work, such as physical safety, can help prevent violence affects job satisfaction by 50%. Barriers to reporting include involving fear of repercussion and further consequences, such as legal proceedings or job termination (Toruner and Uysel, 2012). Toruner and Uysel (2012) reported that 42% of nurses had fear of disciplinary actions and 50.45% had a loss of trust in the workplace system and procedures. Therefore, there was decreased comfort in reporting patient safety, which is consequential to patient outcomes. Nurses have a fear of punishment and obtaining a poor reputation from peers (Hewitt et al., 2017). Nantsupawat (2015) reported that 32% of nurses expressed high emotional exhaustion, 16% of nurses rated poor quality work in their work environment, and 11% reported

medication errors. Nantsupawat (2015) shows a correlation between comfort of reporting to poor nurse satisfaction, burnout, and negative patient outcomes.

Another example of potential safety workplace issues is horizontal violence, which is a potentially debilitating factor in which rude behavior and maleficence occur between coworkers. With horizontal violence, there may be decreased safety and comfort in the workplace, creating a challenging work setting. Bullying, even physical or emotional abuse, in the forms of criticism, intimidation, sarcasm, are examples of violent behaviors (Vrbnjak et al., 2016). The working environment may become negative in terms of teamwork and collaboration.

Safety issues should require an appropriate reporting process and systems. In terms of safety reporting, there was a higher reporting rate with a lower patient to nurse ratio, such as the intensive care unit, in comparison to a higher patient to nurse ratio, such as medical-surgical units (Toruner & Uysel, 2012). In areas of higher acuity, there may be an increased likelihood of harm or adverse events. Higher acuity of patients or high nurse to patient ratios can affect the time and quality that each nurse spends with each patient. For example, in a medical-surgical unit in California, the nurse-to-patient ratio is 5 patients to 1 nurse. The nurse may have several patients calling for various reasons, such as administration of pain medications, assistance to the bathroom, and inquiries of the patient's plan of care. However, the complexity of the nurse's patient load may cause inefficient amounts of time with each patient. There is a significant relationship between low nurse staffing levels and increased mortality rates (Griffiths et al., 2016). Safe staffing ratios are necessary to help improve patient outcomes.

To help address workplace issues, nurses need to learn to speak up for patient safety concerns. Potential errors and concerns about their work environment that may affect the quality of care and patient safety should be voiced. One way to accomplish safety advocacy is to increase surveillance-of nurse actions and procedures to ensure there are no near-miss events. The PSRS is an example of an ideal system that can be used for potential near misses or close calls related to patient safety. To help promote reporting safety problems, Johns Hopkins has a reporting system, called Hopkins Event Reporting Online, which helps with identifying, reporting, analyzing, mitigating, rewarding, and following up with potential problems (Johns Hopkins University, 2018). There is positive connotation with reporting incidences, ensuring transparency in the delivery of care. For example, if the staff is aware of the safety reporting processes, they are aware that if potential safety issues occur, the issues will be discussed. The leader and members of the unit can jointly discuss patient safety incidents to help improve teamwork and communication and encourage patient safety reporting (Yoo & Kim, 2017). Creating a culture of safety can help improve the comfort level of reporting because the behavior is becoming the norm.

Fear of Retribution

Nurses' fear of retribution when they report patient safety concerns include a sense of the "blame culture." There have been instances of the blame culture in which the individual is blamed for errors rather than review the processes in place to determine causation (Qin et al., 2015). Fear of retribution may cause potential admittance of mistakes or safety errors. Fear of repercussions for reporting medical errors in nurses is

an important area to explore. Castel et al. (2015) conducted a cross-sectional analysis using exploratory multiple linear regression of 2,319 nurses, with an assessment of independent variables of age, gender, experience, and location. Results showed that mental health nurses have poorer fear responses than nurses from other departments (Castel et al., 2015). Poorer fear responses mean that there is a greater fear of repercussions that may result from resistance to reporting errors or unsafe practices. It is important to further examine factors related to fear of reporting as well as develop safety initiatives developed by leaders. An organization with strong leadership support for safety may explain the most variance among the results.

Error-Preventing Systems and Procedures

Patient safety problems need a common, effective, and efficient process or system for nurses to report. When there is a lack of error-preventing systems and procedures, there is increased stress among nurses in the workplace. There is greater potential for errors because of a lack of error-preventing systems and procedures. If errors are made, a person may be blamed, resulting in fear of retribution instead of assessing the entire process or system that may have caused or prevented the error. Edwards (2018) asserted that 45% of staff report a nonpunitive response to reporting, where they feel that they will be punished for reporting safety errors. The report includes other responses, such as feeling like their mistakes are held against them or that they are being written up instead of the problem, and staff worries that their mistakes are being kept in a personnel file (Edwards, 2018).

Human error can occur anytime in the system, and thus effort should be made to prevent, minimize, or report immediately to decrease potential risks on patient safety. Another potential for errors is “handoffs” or “transfers” of care because there is a transition of responsibility for a patient to another health care provider. This can pose a potential for communication breakdowns, resulting in information gaps and increasing potential for errors. The Joint Commission reported that in 2014, there were more than 8,876 patients affected by sentinel events, of which 5,177 (58.3%) resulted in patient death (The Joint Commission, 2015). Primary factors affecting the sentinel events include human factors, lack of communication, and leadership. Adverse events are often analyzed by conducting root cause analyses (RCAs), which provide insight into each case. RCAs attempt to offer solutions to help effect change and study the process rather than blame someone. Kellogg et al. (2016) reviewed 302 RCAs, and the solutions proposed by the staff were training (20%), process changes (19.6%), and policy reinforcement (15.2%). Proposed solutions from the team approach helped the staff to take ownership of the errors for improvement.

Accountability is important for health care providers in that they need to be held accountable for their actions and behavior. Failure to report errors often subject providers to disciplinary action and liable for legal action. Assessment of the current system for improvements to decrease negative consequences and encourage increased reporting. Error-reporting systems and procedures help address problems and serve patients better. Assessing the root cause of an issue will help determine the deficiencies in a process to help eliminate undesirable consequences (Kellogg et al., 2016). Checklists can help with

the appropriate safety reporting documentation system. Handover protocols can also help to decrease the rates of errors associated with them. Malfait et al. (2018) conducted a study after utilizing a standardized nurse-to-nurse shift handover, and compliance rates showed high rates of 83.63% when utilizing a standardized protocol.

Leaders need to create a culture of safety of nursing units. Development of error-preventing systems and procedures involves initiating appropriate practices to show desire or intention to promote safety in the work environment. Leadership needs to ensure there is appropriate and clear communication of safety training for their personnel. Personnel should also be trained and policies should be implemented with fidelity and compliance. Staff can send patient safety reports to alert leadership of areas of concern. There should be unobstructed reporting of errors to help identify potential contributors to errors (Castel et al., 2015). If a safety event occurs, leadership should review the incident and determine areas for improvement to help prevent potential errors. Safety issues should be communicated to all staff members to be on the lookout for potential high-risk errors. Educating nurses about being vigilant and having technological safeguards in the system will allow for increased communication and prevention of errors (Graham, Nussdorfer, & Beal, 2018). Clearly documented patient handover reports can be reviewed in patients' electronic medical records in order for improved accuracy of patient information. There will be a decreased likelihood of error if the information is delineated from one source. Information technology support systems can help enhance the type of care provided. The systems have an ability to reduce errors by alerting the nurse drug interactions and providing access to clinical guidelines for staff. Electronic medical

records have been shown to aid in nurses' documentation helping prevent errors and reducing incorrect ordering of laboratory and radiology testing.

Engagement and Intentions to Turnover

An engaged nursing workforce allows for improved activity and meaningful work. Engagement involves gathering personnel's experiences to develop and enhance the patient experience and improve organizational efficiency. Nurse's work engagement is linked to clinical indicators such as nurse job satisfaction and work environment satisfaction (Dempsey & Assi, 2018). A cross-domain advanced analytic assessment using the Consumer Assessment of Healthcare Providers and System was analyzed to determine staff support and engagement for 195 nurses. The study reported that disengagement is a turnover threat, as a disengaged nurse costs an organization $22,000 per incidence, which can be costly if numerous nurses continue to leave as a loss of revenue. Results show that approximately 37% of nurses interviewed were planning on leaving their current organization within the next 2 years, and 68.6% planning on leaving within the next 5 years (Dempsey & Assi, 2018). It was noted that 15 out of 100 nurses are disengaged and lack commitment to their current organization (Dempsey & Assi, 2018). Therefore, the disengaged nurses will perform at minimal standards to provide patient care, and retention will be significantly low. Nurses may lack productivity such as complaining to others, failure to help others, calling in sick, and failing to go beyond what is needed for the patients.

A common theme among nurses interviewed reported long work hours, disengagement, and burnout as reasons for leaving work. Creating a more engaged

nursing experience of care will reduce compassion fatigue, burnout, and turnover (Dempsey & Assi, 2018). Managers will need to engage the workforce and develop more meaningful connections with the staff leading to improved nurse and patient outcomes. Engaging employees may involve allowing for increased autonomy, foster professional development, teaching leadership, and improving resources and staffing. Press Ganey reported that improving staffing ratios had a significant and positive association with nurses' overall job satisfaction and patients' perceptions of quality of care of high score of 9 or 10 (Dempsey & Reilly, 2016). Nurses should be supported with emotional, material, and human resources. A review of work life and balance should be done to ensure compassion fatigue is not present.

Turnover Due to Safety Reasons

The safety of a work environment is paramount for employees due to its effect on employee attitudes and behaviors. Safety of the environment includes the physical, mental, psychological aspects. The physical work environment for safety should be assessed, such as environmental hazards, as well as personal physical limitations. The safety of the environment in correlation with the physical demands needs to be assessed to improve functionality and prevent further risk of injury. The number of hours worked per week is also correlated with a negative correlation in safety climate (Liang, Tang, Wang, Lin, & Yu, 2016). For example, nurses often work long eight and twelve-hour shifts, and over an extended period of time. Long hours may cause disruption of sleep, leading to fatigue, poorer concentration, and the effect of quality on job performance (Rheaume, 2017). Creating a safe climate has a direct effect on a nurse's intent to stay in

his or her current job (Liang et al., 2016). Nurses want to work in a safe working environment that is safe for themselves and their patients.

Safety concerns have a psychological impact, which in turn affect attitudes and behavior. In one study, it was reported that team psychological safety affected team performance and reporting (Leroy et al., 2013). Burnout is another area of psychological safety in the workplace in which there are excessive demands on energy and current resources (Evans et al., 2006). Nurses feel burnout when the demands of the job cause physical, mental, or emotional exhaustion, which may be caused by chronic overwork. Burnout syndrome may include a sense of depersonalization, accompanied with a lack of self-accomplishment. Canadas-De la Fuente et al. (2018) discussed the high incidence of males, single and divorced, and the highest levels of burnout in nurses, leading to high turnover. Emotional exhaustion was also observed in another study in 28% of the nurses, especially prevalent in the oncology departments (Monsalve-Reyes et al., 2018). The researchers describe that the primary reason for burnout in the studies was a low personal accomplishment with a prevalence of 31%, high emotional exhaustion at 28%, and high depersonalization at 15%. Safety involves conflict management in teams perceiving high levels of stress. There can be effects on the overall morale of the climate, efficiency, teamwork, and trust in the organization.

Emotional exhaustion, job stress, and burnout show a high explanatory power regarding nurses' intentions to turnover at 37.2% (Hong & Lee, 2016). Evans et al. (2006) reported from a quantitative questionnaire conducted on 237 nurses, 47% had symptoms of high levels of stress, distress, overworked, and felt undervalued at work.

Job satisfaction was measured in accordance with the study to correlate the environment, health, and well-being of the nurses. Job satisfaction showed 35% ambivalence to the current job, and 19% were dissatisfied with their employer (Evans et al., 2006). Staff satisfaction and mental health show considerable effects on turnover.

Covariates

Age. The age of nurses has shown to have an effect on the reporting of patient safety incidences. Hee-Eun et al., (2017) discussed a cross-sectional study design and showed that nurses over 40 years old engaged in more safety management activities in comparison to other age groups (Hee-Eun et al., 2017). In another study, the average age of patient safety reports was submitted by a mean age of 54 years (Michel et al., 2017). Because older nurses report safety issues, younger nurses may not have the opportunity to voice safety concerns. Because of the lack of perceptions of safety, younger NLRNs were reported to have higher odds of leaving their hospital than older NLRNs (Unruh & Zhang, 2014).

In another cross-sectional study results indicated that the older the nurse, the higher the risk of safety issues due to musculoskeletal disorders (Heiden, Weigl, Angerer, & Muller, 2013). It has been reported that work performed in the level of functioning, begins to decline at age 45 years. For example, musculoskeletal disorders may cause limitations for nurses based on age and work demands. The combination of normal aging effects accompanied with strenuous work and occupational exposures may present potentially more safety concerns. It is reported that older health care workers may have increased fatigue, risks of incidences, and potential injury on evening shifts than on

morning shifts (Phillips & Miltner, 2015). Older health care workers may also endure injuries, which are more debilitating which require longer recovery times (Phillips & Miltner, 2015). Furthermore, noise in the workplace can also cause an increase in fatigue, decreased concentration, and increased mental mistakes especially for older workers whose cognition may be affected by physiological changes (Phillips & Miltner, 2015). Visions changed can affect an older worker's ability to detect potential hazards such as wet floors and other physical safety hazards. Eye strain may be present with reading medication labels, small print sizing, and font on computers. Older nurses may experience physical or cognitive declines with aging, which may cause challenges related to a long period of work (Ryan, Bergin, & Wells, 2017). For example, there may be increases in demands of keeping pace with medication administration, interpreting patient results, analyzing patient symptoms, and keeping up with chart documentation. Management must be aware of the aging nursing workforce and determine the appropriate shift related work and appropriate safety reporting methods.

Gender. Blegen, Spector, Lynn, Barnsteiner, and Ulrich (2017) reported that age, education, gender, and experience of nurses affected their job attitudes and willingness to stay in the organization. According to the U.S. Department of Health and Human Services, it is estimated that of the nursing population, 9.1% are male in comparison to the 90.1% female (U.S. Department of Health and Human Services, 2017). Females tend to outnumber males in nursing nationwide. According to the U.S. Department of Labor (2016), approximately 90% of females share the occupation of a registered nurse, in comparison to males 10%.

In terms of reporting safety concerns, female employees were also noted to engage in more safety practices than male employees. In a study involving 31,627 respondents working on an adult medical-surgical ward, 92% of the reporters of safety problems were female, and 8% male (Griffiths et al. 2014). Various safety concerns involved shift communication, handovers, quality, and length of shift. The gender of reporting status may have a significant effect on the current statistics because the occupation is predominantly comprised of females.

Education. Nurses with high levels of education such as a baccalaureate of science in nursing (BSN) have higher interactions and improved relationships with other nurses to report safety concerns and quality measures (Weinberg, Cooney-Miner, & Perloff, 2012). Promoting higher education and training will allow for improved empowerment, communication, and high-quality safe care. Nurses with a BSN degree are higher engaged in more safety improving activities than those with associate degrees (Hee-Eun et al., 2017). Assessing the education level of nurses will provide insight into the occurrences of safety reporting.

Though the nurses with higher education report more occurrences of safety concerns, it is noted that the nurses with baccalaureate degrees were also more likely to turnover than those with associate degrees (Weathers & Raleigh, 2013). Personal perceptions of control for outcomes may affect further outcomes likelihood to start within the organization, intention to turnover, and nurse engagement. Further assessment and analysis of the nurses' procedures should be conducted. For example, when employees decide to leave the organization, nurses can be provided with an exit interview to provide

reasons why they have decided to leave the organization. Based on the feedback, the healthcare facility can determine ways to improve nurse retention for future and current employees.

Education of appropriate safety processes and systems will allow for improved support and safety for the nurses. There should be training done for all employees to be meticulous in detail, such as what should be reported, how to report incidents, who should report, and how to prevent future harm to patients. Nurses can further their education to obtain a BSN to become more marketable, earning higher salaries in higher positions. Health care providers have a desire for information to help improve their health care knowledge, confidence, and stress when errors do occur. Regular training of personnel on new databases, systems, or processes are necessary to ensure overall compliance. Evidence-based interventions are necessary to help improve the safety of hospital units.

Culture of Safety Framework

Developing an environment with a culture of safety involves the coordination and collaboration of a team. Based on evidence-based protocols, leaders should work together with their staff members to communicate the needs of the organization. A study by Hee-Eun et al., (2017) showed that the patient safety management activities were reviewed with positive correlations with improving overall attitude, communication, the frequency of reporting, hospital environment quality, and patient safety grade. Patient safety activities combined with culture allowed for increased staff involvement. Providing an interdisciplinary approach in communication and collaboration will allow for improved

camaraderie and working relationships. Leadership is integral for creating a culture of patient safety because there is the initiation, creation, and role model to report potential safety issues (Joint Commission, 2017). Potential event reports will allow for review of current protocols and procedures and improvement of the methodology. Evidence-based care will allow for improved best practices which are designed to help prevent potential errors.

Just Culture

The concept of just culture, attributable to James Reason, was first applied to health care by David Marx (Edwards, 2018). Just culture helps promote the reporting of potential safety issues, adverse events, or near misses. The potential risks or adverse events are investigated, preventing punishment in reporting. There is a blame-free culture with just culture, because the process and system failures are reviewed, rather than punishing the individual. Various aspects of the healthcare system are assessed to determine substandard processes, policies, and potential risk factors. Human behavior will be analyzed to determine the specific aspect of error that is violated such as human error, potential risk behavior, or reckless behavior. Just culture works to address the areas of concern, having zero tolerance for the behavior.

Reporting processes in just culture address the process and areas for improvement such as near misses, adverse events, or sentinel events. With just culture, there is less focus on the blame culture, but addressing the system failures. There is an encouragement for employees to speak up when safety concerns are present, leading to employee empowerment. Open communication of potential safety errors is paramount to address

the concerns. A sense of teamwork is created across and within hospital units when there is a nonpunitive response to an error.

Values and principles are beneficial in helping establish a just culture. Ethics play a significant role in the work environment based on the established principle of 'First do no harm' as a basic foundation of nursing care (Hee-Eun et al., 2017). In a study yielding 268 responses on the impact of just culture on their organization, 16% rated a strongly positive impact, 37% rated positive, 33% rated somewhat positive, 13% rated no apparent effect, and 1% somewhat negative (Edwards, 2018). Leadership played a significant role in determining the widespread adoption of the just culture concept.

Reliability of the Correctness of the Health Care System

Correct health care processes and systems that reduce defects, improve efficiency, improve patient outcomes, and allow for more failure-free operations over time (Institute for Healthcare Improvement, 2018). Potential safety errors or risk factors needs to be reported. Patient safety events are unwanted events which include a near-miss, yet no harm adverse event. Qin et al. (2015) stated that underreporting in health care organizations occur at a rate of 50% to 96% annually. Older and more senior nurses reported higher barriers to reporting scores than junior nurses (Qin et al., 2015). Under-reporting reduces the ability for correct measures and interventions to occur. Further assessment of barriers to reporting needs to be reviewed to create a more reliable organization.

High-Reliability Organization Theory

HRO theory describes an organization that operates under critical and careful conditions but has a high-risk for potential danger. However, based on strict and thorough processes and guidelines, there are very few instances of accidents. HROs strive to uphold the highest patient safety indicators, create a culture of patient safety, improve the process design, and help improve the accuracy of organizational outcomes (Mousavi, Dargahi, & Mohammadi, 2016). Developing a safe and effective process in patient safety reporting will help improve reporting rates. Utilizing tools and resources from subject matter experts who are highly trained and qualified will allow for verification of processes and mechanisms in the system. There is a significant relationship between acceptance of the HRO model and correlation to age, work experience, management experience, and job position (Mousavi, Dargahi, & Mohammadi, 2016).

Furthermore, HROs enhance a sense of mindfulness and organizational awareness, attributed to obtaining information and continuously training (Vogus & Singer, 2016). There is a sense of improving patient safety as new systems emerge and improvement of patient outcomes. During times of potentially extremely hazardous conditions, an HRO is operating under meticulously safe protocols and procedures. There are often low incidences of errors or accidents over extended periods of time. Vogus and Singer (2016) report that an HRO will operate under evidence-based, high-quality care. with various checks and balances. Healthcare organizations can work on improving the scrutiny of their procedures. The human condition and human factor are involved, therefore, there is a high potential for error. Ensuring appropriate training and education

will involve refraining for shortcuts or workarounds in the work environment (Edwards, 2018). Workarounds may include not assessing a patient's vitals when providing medications, not scanning patient identification bands, not reviewing laboratory results when providing electrolytes or high-risk medications, or not wasting narcotics with nurses as indicated. Developing a policy that can be strictly adhered to will improve patient safety and compliance. Examples of adherence to protocols would be to develop safety checklists, as well as proactive prevention of hospital-acquired infections.

Patient Safety and Organizational Culture

Organizational culture involves the manner in which an organization demonstrates its underlying beliefs, assumptions, values, and how they conduct their business (Fink, Yogev, & Even, 2017). A culture that communicates in decision-making, reporting systems should be put in place for personnel to utilize. The organizational culture includes the perceptions of the environment, cooperation, communication, work satisfaction, efficiency, and safety (Hee-Eun et al., 2017). Nurses need to feel that they work in a safe organization.

Patient safety culture is a reliable measure of individual and group knowledge, beliefs, values, attitudes and behaviors in an organization (Brborovic & Brborovic, 2017). Patient safety reporting involves adopting an appropriate error reporting mechanism that allows employees the freedom to report potential safety concerns without fear of consequences (e.g. fear of retribution or blame). Under-reporting is an issue that stems from a deeper issue in that there is a fear of being reprimanded. Reporting processes should be reviewed for increased compliance and process improvement suggestions.

AHRQ reported that the Patient Safety and Quality Improvement Act involves a voluntary, confidential, reporting systems for hospitals if employees feel there is a safety concern. In a cross-sectional study by Brborovic and Brborovic (2017), the Stanford Presenteeism Scale and Hospital Survey on Patient Safety Culture were used to determine the perceptions of safety. The results showed negative responses concerning nonpunitive responses to error. Results also indicated higher instances of reporting of females of 97 reports in comparison to males with 13 reports (Brborovic & Brborovic, 2017). The personnel with greater experiences in nurses also showed higher instances of reporting than those fewer years of nursing experience. People with higher patient safety culture were associated with increased presenteeism at work (Brborovic & Brborovic, 2017). Weaknesses of the study include little information on the area of work and correlation to reporting.

Healthcare leaders have an important role in ensuring open and honest communication between employees. There should be a culture created to help identify potential safety issues. Employees should be encouraged to speak up. Appropriate reporting systems should be put in place to document, measure, and analyze patient safety perceptions of employees (The Joint Commission, 2017). Regular patient safety climate surveys should be conducted to determine areas for improvement such as job satisfaction, reporting methods, communication effectiveness, teamwork, and follow-up on reporting issues. Safety perceptions of the employee will provide health care leaders insight into the area for improvement.

Literature Review Summary

The number of safety reports in the hospital systems and procedures is greatly affected by the perceptions of patient safety problems. The IOM report showed that human cause of errors is still occurring after the report from 1999, which discusses that there approximately 44,000 and 98,000 patients dying every year by medical errors, which could have otherwise been prevented (Schreiber, Klingelhofer, Groneberg, & Bruggman, 2016). Recommendations from the study underlined the importance of healthcare organizations adopting a nonpunitive response to reporting and culture that values feedback and discussion of performance (Larson et al., 2016). The literature review is based on key variables of perceptions of safety problems along with the level of comfort of nurses for reporting patient safety concerns, as well as the perceptions of a lack of appropriate procedures and systems to help prevent errors. There is also the relationship of intentions to turnover in regards to perceptions of patient safety problems in the workplace.

The literature review reports that the nurses who have a mean age of 54 years of age have a higher number of reporting safety concerns and issues than other age groups (Michel et al., 2017). The female gender had a higher incidence of reporting safety incidences as well (Griffiths et al., 2014). The authors also describe that nurses who have a bachelor's degree in nursing have a higher incidence of perceiving and reporting patient safety problems than nurses with associate degrees. The most common characteristics of nurses who perceive and report patient safety problems are reported as the nurses who

have a lower patient to nurse ratio. For example, patients in the intensive care unit have higher reporting rates than those in the medical-surgical units.

Gaps in the Literature

The literature review is based on the gap in the literature in regards to the key variables of perceptions of patient safety problems. The key variables identified of perceptions of patient safety problems will be assessed in terms of the comfort of reporting. The IOM reported medical errors as the leading cause of death in the U.S. despite the recommendations made in 2000 (Makary & Daniel, 2016). Further causation of the medical errors will be reviewed based on the doctoral study of assessing perceptions and reporting of patient safety errors. Furthermore, there is no current literature that assesses potential barriers to reporting of the nurses based on their comfort levels and perceptions of safety problems. Current data reports the numbers of patient safety reporting, the reason for reporting, and safety issue. Lack of data is evident in the preemptive stage of reporting patient safety issues.

There is also another gap in the literature in determining the viability and reliability of the patient safety reporting system. An organization may have a reporting system, however, determining the trust and efficiency of the current reporting procedures and systems is necessary to analyze. Further analysis can be done to determine if error-preventing tools, surveys, or safety communication mechanisms can help decrease technical failures by accident through human factors (Jia, Zhang, Mao, & Zhang, 2014). Contributing factors to fail will be also assessed to determine barriers to working with current reports and system changes.

There are gaps in the assessment of the employee and their comfort of safety in the environment, which may include various factors such as the nurse-to-patient ratio, lack of resources, or demands of the job. Little is known about the reasons for nurses' decision to leave the workforce; therefore, further analysis will be done on the perceptions of safety in the work environment. Further correlation between the variables will be reviewed in the study.

Definitions

Blame culture: A culture where an individual is blamed for errors, rather than review the processes in place to determine causation (Morsiani, Bagnasco, & Sasso, 2017). A barrier for reporting includes fear of retribution which may cause potential admittance of mistakes or safety errors (Brborovic & Brborovic, 2017).

Comfort of reporting: The ease an individual perceives of reporting when discovering safety event errors or near misses (Yung et al., 2016).

Culture of safety framework: Concept in which there is an acknowledgment of potentially high-risk nature of activities, involving just culture with reporting, interdisciplinary collaboration, improving procedure and processes in safety concerns (U.S. Department of Health & Human Services, 2018).

Engagement: The level or extent in which an employee is engaged or committed with work, evident in energy or immersion involvement (Steffens, Jetten, Haslam, Yang, & Lipponen, 2018).

Error-preventing procedures and systems: A system design which involves the prevention of potential errors or risk in health care such as verbal reports, paper mechanism, or an electronic documentation system (Song & Guo, 2019).

Good-catch: When an individual identifies and reports potential safety issues or concerns, there is positive recognition to help address corrective action or timely intervention to prevent further safety issues (Reiter-Palmon, Kennel, Allen, & Jones, 2018).

High-reliability organization (HRO): Organization which operates under complex and hazardous conditions, which have a high-risk for potential danger. However, based on strict and thorough processes and guidelines, there are very few instances of accidents (Mousavi et al., 2016).

Just culture: A culture that assesses and identifies the potential process or system issues that are present in an organization and having zero tolerance for reckless behavior (U.S. Department of Health & Human Services, 2018).

Near-miss: Also called a close call, is an event that may have harmed a patient by means of accident, injury, or potential death, but did not occur due to chance or interventions (Qin et al., 2015).

Newly licensed registered nurse (NLRN): Those in the first 18 months following their first or basic licensure as a registered nurse (Kovner, 2016).

Organizational culture: The way that the organization holds underlying beliefs, assumptions, values, and the manner in which they conduct their business (Fink et al., 2017).

Patient safety culture: The shared beliefs, values, norms, that an organization may share in regards safety in the demonstration of practice (Weaver et al., 2013).

Patient safety problems: Incidence where there is potential harm or risk for patients (Hartnell, MacKinnon, Sketris, & Fleming, 2012).

Perception: The ability to become aware of something through understanding or knowledge (Hartnell et al., 2012).

Reliability: Processes and systems which reduce defects, improve efficiency, and patient outcomes, remaining failure-free in operations over time (Institute for Healthcare Improvement, 2018).

Safety: Being protected from potential harm, danger, risk, or injury (Jackson, Wilson, & Hutchinson, 2016).

Safety problem: A medical item, process, or event that has the potential to cause staff or patient physiological, psychological, or adverse outcomes (Jackson et al, 2016).

Turnover intention: The inclination or plan to leave a health care organization for various determinants such as the work environment, characteristics of the individual, location, job satisfaction, and engagement in the workplace (Pecci, 2014).

Assumptions

For this doctoral study, assumptions are that the Newly Licensed RN Survey provides a general representation of new graduates nurses in the United States. I assumed that age, gender, and education are associated with reporting of safety issues or concerns (see Griffiths et al., 2014). It can also be assumed that the 2015 Newly Licensed RN Survey involved 1706 participants who were eligible, from 51 metropolitan statistical

areas (MSAs) and 9 counties in 35 states across the country. It can be assumed that the participants provided accurate information to the survey, which was a representative sample of the visits were willing to engage in the assessment and intervention process. The participants are assumed to be able to provide honest and accurate answers to the questionnaire as well. Assumptions are that the participants engaged in their own free will and with support from management in ensuring the accuracy of feedback. The assumptions that were necessary for the context of the study to allow for open and honest responses for research, so that the perceptions of safety reporting were studied for the sample.

Scope and Delimitations

The scope of this doctoral study was a descriptive evaluation with information obtained from a report including 1,706 completed surveys from NLRNs located in 51 different MSAs and nine counties. There were six waves of the survey, however, the sixth wave will be the primary study of areas which was conducted January-May 2015. The sample for Wave 6 included 1706 eligible nurses. The focus of the study was that the perceptions of patient safety problems and having appropriate error-preventing systems and procedures with its correlation to the comfort of reporting safety problems and intentions to turnover. The study involved populations of NLRNs who obtained their first license to practice between August 1, 2004, and July 3, 2005.

Limitations include lack data coming from the NLRNs, such as experience, which is a critical factor to ensure patient safety. Other limitations involve the presence of an existing patient reporting system, and the type of unit the nurses work. Departments such

as the emergency room, ICU, medical units, and outpatient clinics serve as confounding variables which affects internal validity.

External validity involved the type of facility that the nurse worked for such as an acute care hospital, outpatient clinic, rehabilitation center, or home setting. There may have been a fear of repercussion if negative feedback was obtained towards supervisory personnel or management. The boundaries of the study includes certain populations from the city hospitals, and not generalizable to other urban locations or suburban and rural hospitals. However, potential generalizability is appropriate due to data obtained throughout the nation.

Significance of the Study and Relevance to Practice

Patient safety is a fundamental cornerstone to health care. Potential safety concerns, adverse events, or sentinel events need to be reported and addressed in a health care organization. The study has a contribution to the discipline by having the potential to decrease medical errors. There is improved patient safety reporting to help decrease medical errors. The contribution to policy is that there is an in-depth analysis of the perceptions levels of safety of the NLRNs and its correlation to the safety of the environment and intention to turnover. Addressing the perceptions of nurses on patient safety reporting delves into areas of concerns or potential barriers for reporting. The potential contributions of the study that advance knowledge in the discipline are that further analysis will be conducted to review the physical, mental, and psychological aspects of safety reporting. The problem addresses the underreporting of potential safety concerns and developing a process for improvement. The potential contributions of the

study advances practice to develop a more highly reliable system that will track potential safety errors for correction. Nurses are able to report safety issues and concerns creating a safer work environment and improve intentions to turnover.

Implications for Social Change

Potential implications for positive social change are to use the conceptual framework and data to implement into the working conditions of the health care environment. Assessing the present study helps to fill the gap in practical knowledge in the discipline because nurse perceptions are integral to the attitude and behavior. Perceptions of nurses will help determine their psychological assessment of the work environment and the determination of the safety of the work environment. Perceptions and safety are correlated with the effect of job satisfaction and intentions to turnover. If nurses have an inclination or intention to turnover, then an organization is at a loss in staff. The turnover rate in the healthcare industry went from 17.7 percent in 2014 to 20.6 percent in 2017 (Hegwer, 2019). Hegwer (2019) also discusses new hire turnover can also be more costly to an organization than losing long-tenured employees because recouping costs can take a significant amount of time. Implementing the framework of a highly reliable organization will help improve safety reporting, nurse satisfaction, and nurse turnover.

Section 2: Research Design and Data Collection

The current literature has addressed various aspects of the independent variables of nurses' perceptions of patient safety problems and the perceptions of having appropriate error-preventing procedures and systems, along with dependent variables of nurses' perceptions of the comfort of reporting safety problems and nurse intentions to turnover. This was a quantitative study using a retrospective review of the data from the New Cohort-3 Survey conducted using the Newly Licensed RN Survey 2015 using the American Association of Public Opinion Research (AAPOR) Standards. The data were collected from the sixth wave of nurses conducted January to May 2015. Many researchers have reviewed various other patient safety reporting systems; however, there is a research gap with little information on the perceptions of safety issues or concerns among NLRNs.

The purpose of the study was to conduct a quantitative retrospective review of data to determine if perceived patient safety problems and error-preventing procedures and systems cause improved comfort of reporting and intentions to turnover. The perceptions of patient safety problems is a significant issue to address because there are still many medical errors despite the reports from the IOM regarding human errors (Schreiber et al, 2016). The IOM reported that most people will experience a medical error in their lifetime, contributing 10% of patient deaths, which is 6% to 17% of adverse events in hospitals (as cited in Larson et al., 2016). The lack of safety reporting leads to a perception of an unsafe environment, and furthermore, intentions for nurse turnover. In

this section, I discuss the research design, methodology, and instrumentation tools to address the gap in the literature.

Research Design

In this doctoral study, I assessed the relationship of the independent variables of the nurses' perceptions of patient safety problems and having appropriate error-preventing procedures and systems with the dependent variables of the comfort of reporting and nurse intentions to turnover. The covariates of age, gender, and education served as moderating factors. A quantitative design was used with the IBM Statistical Packages for Social Sciences (SPSS) Version 25. The data were reviewed using a cross-sectional archived data set from the Inter-University Consortium for Political and Social Research. The AAPOR Standards were also used for the study. The research design included multiple logistic regression analysis because it helped distinguish the relationship between the independent and dependent variables.

The research design selected was most effective because there are several studies addressing patient safety reporting. Previous researchers have explored patient safety reporting, especially in high-risk industries, to help promote safety and promote high-reliability organizations. Sellers et al. (2018) reported that over the past 2 decades, there have been many limitations and unintended consequences of patient safety reporting systems that have been increasingly recognized for improved processes for follow-up. However, there is little research on the rates of reporting as a measure of safety in the work environment. There were no specific time and resource constraints in the study. The research design methodology choice and analytical tools helped address the gap in the

research literature. The research design choice was consistent with research design needed to advance knowledge in the discipline. Sellers et al. (2018) also noted that patient safety reports were reviewed showing 26.3% of reports entered used blame language anonymously, and 14% reported blame language with corresponding names. Trainees showed a lack of understanding and awareness of how patient safety reports contribute to overall patient safety.

Methodology

Population

The target population for the research was NRLNs who have been nurses less than 18 months after receiving their first of basic licensure as an RN. The New Cohort study samples new RNs residing in 51 MSAs, nine rural counties, and 35 states across the United States. The AAPOR Standards were used to develop a survey involving the sixth wave of NLRNs conducted January to May 2015. The data showed that more than 84% of the respondents worked in hospital or inpatient settings.

Sampling and Sampling Procedures

A secondary data analysis was utilized from the project study by principal investigators, Christine Kovner and Carol Brewer. Based on their collaboration with Princeton Survey Research Associates International, location sites were determined to help reach the intended goal of completed surveys. The sampling strategy the investigators used was designed to help represent NLRNs, with a compilation of responses from six different waves, with Wave 1 NLRNs starting from September 1, 2004 to August 31, 2005. The most recent Wave 6 was collected from NLRNs who

received their license between January 2015 to May 2015. During data analysis, some nurses were removed from the initial sample based on eligibility factors, such as incomplete surveys, lack of tenure status, request for removal, or death. A continued random sampling of the survey data from the nurses was collected following the 51 location sites in the United States. The goal in the sampling method was to help make all sampling probabilities equal across different location sites. The survey collected data that included patient demographics, patient hospital setting, job title, and other background information. Different sampling intervals, or second-stage probabilities, were chosen for each site.

The survey lists various patient data, such as work satisfaction, nurse intentions to turnover, organizational support, the perceptions of the work environment, and various perceptions of the workforce. There were 1,706 surveys sent out, with 1,166 completed, 10 refused, and one ineligible. However, a limitation of the original data collection was that the response rate for the surveys was 68%. There were specific procedures for how the sample was drawn from 51 different sites, or clusters, across the country. The specific procedures include calculated response rates according to the AAPOR. The completed surveys number was calculated based on the total number of eligible estimates of 100%. The overall response rate for fully completed surveys was 78%. The principal researchers entered, verified, and cleaned data entry errors. The 51 location sites were drawn randomly across the nation to include major cities such as Boston, Cleveland, Miami, Phoenix, Denver, and Los Angeles. The researchers' goal was to attempt equal probabilities across the different sites.

There were a total of six waves of survey data included in the original study; however, in this study, I only reviewed the sixth wave, the last wave, of the NLRN Survey that was conducted from January to May 2015. Procedures for recruitment, participation, and data collection were associated with the secondary data set. The procedure for gaining access to the data set was obtained through the fair use application of the request data. Necessary permissions to gain access to the data are available for only private study, scholarship, or research.

Power Analysis

I used G* Power analysis to calculate the sample size analysis. The statistical analysis used was multiple logistic regression. A Likert scale was used in the independent variables with responses of *strongly disagree, disagree, neither agree nor disagree, agree,* or *strongly agree*. The scales were coded into dummy variables. For the first research question addressing comfort in reporting, the dependent variable was ordinal and was recoded as comfortable versus not comfortable. For the second research question addressing nurse intentions to turnover, the dependent variable was recoded for nurse intentions to turnover. The responses of *agree* and *strongly agree* were combined as a score of 1. All other scores were listed as 0. The dependent variable was recoded and was dichotomous. The unit of analysis listed a score of 1 or 0.

Based on the calculations of the power analysis, the listed sample size using logistic regression was 1,133, with a power of 0.80, alpha 0.05, and an odds ratio of 2. The effect size of the logistic power *b* was calculated using the A priori power analysis

function. The test family was *z* tests and statistical test of logistic regression. Table 1 shows the multiple logistic regression power analysis using G* power.

Table 1

Multiple Logistic Regression Power Analysis Using G Power*

Input:	Tail(s)	Two
	Odds Ratio	2
	Pr (Y=1|X=1)H0	0.2
	Effect Size	2.0
	Power (1-β err prob)	0.80
	R squared other X	0.2
	X distribution	Binomial
	X parm pi	0.1
Output:	Critical z	1.9599640
	Total Sample Size	1133
	Actual Power	0.8002061

Operationalization of Constructs

The survey instrument was obtained from the Inter-University Consortium for Political and Social Research. The study includes appropriate data variables tested for reliability and validity, which were tested by the AAPOR standards. AAPOR uses exemplary practice in survey research and holds high standards for ethical conduct and survey research publication. The procedures allowed for improved accuracy and verification of the data inputted to ensure data quality. The data were cleaned to correct for any data entry errors or other logical consistencies.

The data showed two independent variables and two dependent variables in this doctoral study. The independent variables were the perceptions of patient safety problems and the perceptions of having appropriate error-preventing procedures and systems. The

dependent variables were the nurses' perceptions of the comfort of reporting safety problems and nurse intentions to turnover.

The independent variables were measured by a Likert scale ranging from 1 to 5 from *strongly disagree, disagree, neither agree nor disagree, agree*, or *strongly agree*. The independent variables measured the nurses' perceptions of patient safety problems and having appropriate error-preventing procedures and systems. Appropriate systems may involve an electronic reporting system, written reporting systems, or the process of the chain of command and others. The dependent variables of the comfort of nurses' reporting patient safety problems and nurse intentions to turnover were based on the Likert scale. The second dependent variable, nurse intentions to turnover, involved the likelihood that the nurse plans to leave the organization. The variable was measured by a Likert scale of 1 to 5 ranging from *yes, have left, yes, will leave within the next 12 months, yes, will leave in 1 year to 3 years, no plans to leave within next 3 years,* and *undecided*. I used the covariates of age, gender, and education. Gender was measured in male or female. Age was measured by groups 1 through 4, *less than 29 years, 30 to 39 years, 40 to 49 years,* and *50 or more years*. Education was listed as *Nursing Associate Degree or Less, Nursing Bachelor's Degree*, and *Nursing Master's Degree.*

Data Analysis Plan

The data and statistics from the NLRN Survey, 2015, was obtained from the Inter-University Consortium Political and Social Research. The software used for analyses is SPSS, SAS, or Stata. The design variables used STRATA and CLUSTER, which help with the computation of accurate standard errors involved in the data files. The data

cleaning and screening procedures involved data edits that were 100% verified, cleaned, and corrected for data entry errors, and reviewing potential logical consistencies.

The current study is appropriate because of the various nursing shortages occurring over the nation since in 1998. Turnover is becoming an increasingly important factor in determining the supply and demand of nurses. The study delved into various aspects of demographics and perceptions of the work environment. The data use agreement for public use files was set in a way that the data only permitted for use for statistical reporting and analysis. The sampling probabilities had a goal to ensure equality among the different sites. Samples can be drawn from frames that are kept in the state level.

Research Questions and Hypotheses

Research Question 1: Is there an association between perceived patient safety problems along with having appropriate error-preventing procedures and systems and nurses' perceptions of the comfort of reporting patient safety problems while controlling for the role of age, gender, and education as covariates?

H_a1: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are associated with the nurses' perceptions of the comfort of reporting patient safety problems while controlling for the role of age, gender, and education as covariates.

H_01: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are not associated with the nurses' perceptions

of the comfort of reporting patient safety problems while controlling for the role of age, gender, and education as covariates.

Research Question 2: Is there an association between perceived patient safety problems along with error-preventing procedures and systems and nurse intention to turnover while controlling for the role of age, gender, and education as covariates?

H_a2: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are associated with the nurse intentions to turnover while controlling for the role of age, gender, and education as covariates.

$H_0 2$: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are not associated with the nurse intentions to turnover while controlling for the role of age, gender, and education as covariates.

Detailed Analysis Plan

The statistical analysis plan utilized to test the hypotheses is multiple logistic regression to help assess the relationships between perceptions of safety problems and nurses' perceptions of having appropriate error-preventing procedures and systems, with correlation to the comfort of reporting and intentions to turnover. Multiple logistic regression is used to address the categorical variables addressing reporting level of safety concerns as well as the perceptions of safety systems and procedures. Logistic regression analysis is used in addressing categorical variables for turnover intentions. For all the listed independent and dependent variables that have Likert scales, they are converted into dummy variables. It was necessary to recode the dependent variable comfort of reporting as comfortable "1" versus not comfortable "0". Recoding the responses of

“Agree” and ‘Strongly Agree” was coded as “1” for yes comfortable reporting, while “Strongly disagree” and “Disagree” will be coded as “0” not comfortable. The second dependent variable intention to turnover was recoded as intent to leave “1” versus no intent to leave “1”. The responses “Yes, have left,” “Yes, will leave within the next 12 months,” “Yes, will leave in 1 year to 3 years,” are coded as yes “1.” While the answer “No plans to leave within next 3 years” was left as no “0.”The threshold held testing of 0.05 for the p-value. The analysis provided the ability to assess and predict the value of a variable of two or more other variables. Variance between the specific variables was determined by the statistical model.

Studies reviewed from the literature assessed various covariates of age, gender, and education. The overall retention rate at 1 year was 83%, and younger nurses were more likely to turnover in comparison to older nurses (Blegen et al., 2017). It was also reported that another covariate of education was significant in that nurses with baccalaureate degrees were more likely to turnover (Blegen et al., 2017). In the same study, gender did not show significant differences in retention. The studies show the significance of the covariates with relationship to the dependent and independent variables.

Threats to Validity

External Validity

The doctoral study included secondary data which is based on a cross-sectional, two-stage sample of registered nurses in 51 metropolitan statistical areas (MSAs) and 9 rural counties in 35 states across the country. Threats to internal and external validity

may compromise the confidence in the existing relationship between the independent and dependent variables. A threat to external validity includes a lack of generalizability across populations. The group studied is very specific based on the population of NRLNs, and there is a lower limitation or application to other populations. To be generalizable, the population at large would need to be considered for validity.

Another threat to external validity includes significant technological advances in information technology and reporting methods. For example, in 2005, the World Health Organization established specific guidelines for adverse event reporting and learning systems to develop appropriate patient safety reporting systems (Larizgoitia, Bouesseau, & Kelly, 2013). Guidelines include open-ended or free-text reporting, by various methods including transitioning from written reports to web-based systems. Advances and improvements in general safety reporting systems could have affected the external validity.

Another threat to external validity would be the type of facility that the nurse is working such as location or acuity of patients. The nurse might be working at an acute care hospital, emergency room, outpatient clinic, or long-term facility. The differences in location of the department and facility will factor in the perceptions of safety in their environment. Patients are placed in certain departments based on their level of acuity or disease prognosis. Specifications or results from certain patients may not be generalizable across the populations.

Internal Validity

Internal validity helped determine whether the scientific process were followed and makes logical sense. Threats to internal validity affects the compromise confidence in determining the relationship between the independent variables and dependent variables. A threat to internal validity includes the transgressions and variations in nurses interviewed during different waves. Maturation effects were present based on the difference between the participants from wave one in comparison to waves two through six. The data of the subjects based on certain criteria may also cause a bias, which may obscure the treatment effects of interest. Wave one included 4001 nurses, in comparison to wave six which included 1706 nurses. Based on the characteristics and qualifications on the sixth wave of the NLRN Survey, there were various reasons listed why nurses were removed from the sample over the years. Various factors for ineligibility included lack of qualification of new graduate status based on license data, nurses who requested to be removed from the survey, nurses who did not complete the entire survey, and nurses who died prior to the end of the survey periods. Experimental mortality was considered, with a differential loss of participants in the group from wave one to wave six.

Construct Validity

The constructs in the survey seem to be valid because data were obtained from many Metropolitan Statistical Areas which have highly populated areas. The AAPOR holds survey standards that are they review various aspects for Total Survey Error paradigm to ensure appropriate considerations for sampling, nonresponse, and measurement (Baker, Keeter, Kennedy, & Mercer, 2016). Threats to construct statistical

conclusion validity would be the areas where there is missing data or non-responses from nurses. Areas of responses that were left blank would leave the data to be cleaned and not utilized in the data system. Based on the information, there would be ways of improving the measurement techniques and increasing randomization to reduce sampling bias. Measurement techniques can be improved by taking multiple people with measurements and compare their answers. Randomization will also improve sample bias.

Ethical Procedures

Institutional Review Board approval was obtained from Walden University. The Walden IRB approval number for the study was 03-08-19-0672559. The data in the NLRN Survey, 2015, provides data that has no identifiable information. Under the Health Insurance Portability and Accountability Act (HIPAA), there is data privacy and security to help safeguard medical information. There are protections for confidential data such as downloading the information on a personal computer, and then all records deleted after the study is concluded. The dataset analysis and reports were used for research purposes only.

Summary

In Section 2, I discussed using the dataset from the NLRN Survey, 2015 from Inter-University Consortium for Political and Social Research. Obtaining the secondary dataset would yield an analysis of the data using cross tabulation, chi-square, logistic regression, and linear regression analyses. The study will help provide insight into the variables of perceptions of patient safety problems and having appropriate error-preventing procedures and systems and correlation to the comfort of reporting patient

safety problems and nurse intentions to turnover. Section two provides insight into the research design and data collection. Section three will provide a presentation of the results and findings based on the research questions presented.

Section 3: Presentation of the Results and Findings

The overall purpose of this quantitative research study was to address the research gap in regards to determining if NLRNs' perceptions of patient safety problems and having appropriate error-preventing procedures and systems is associated with their perceptions of the comfort of reporting safety problems and intentions to turnover. The study included descriptive statistics, bivariate analysis, and multiple logistic regression. In this section, I describe the data set, specified variables, descriptive variables, data analysis, and results of the findings. The dependent variables studies were nurse's perceptions of the comfort of reporting safety problems and nurse intentions to turnover. The independent variables studied were the perceptions of safety problems and having appropriate error-preventing procedures and systems. Results may be used to assess areas for improvement in the safety of the workplace for NLRNs. The study included covariates of age, gender, and education in the data analysis. The research questions were as follows:

Research Question 1: Is there an association between perceived patient safety problems along with having appropriate error-preventing procedures and systems and nurses' perceptions of the comfort of reporting patient safety problems while controlling for the role of age, gender, and education as covariates?

H_a1: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are associated with the nurses' perceptions of the comfort of reporting patient safety problems while controlling for the role of age, gender, and education as covariates.

$H_0$1: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are not associated with the nurses' perceptions of the comfort of reporting patient safety problems while controlling for the role of age, gender, and education as covariates.

Research Question 2: Is there an association between perceived patient safety problems along with error-preventing procedures and systems and nurse intention to turnover while controlling for the role of age, gender, and education as covariates?

H_a2: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are associated with the nurse intentions to turnover while controlling for the role of age, gender, and education as covariates.

$H_0$2: The perceptions of patient safety problems along with having appropriate error-preventing procedures and systems are not associated with the nurse intentions to turnover while controlling for the role of age, gender, and education as covariates.

Data Collection of Secondary Data Set

The 2015 NLRN Survey sample included 1,706 eligible nurses; however, based on 68% survey responsiveness and completeness, there were several reasons why some nurses were removed from the sample. For example, nurses who did not list work history, had missing identification numbers, requested removal from the sample, or had incomplete answers were removed from the data analysis. The final sample after data cleaning consisted of 1,171 valid participants in the secondary data set. The data were obtained and filtered with the inclusion of the research question independent variables and dependent variables. The data were filtered along with inclusion variables in the

study. Potential discrepancies in the secondary data set included a few missing responses to certain questions; however, completeness of the specified variables were mainly considered. The sample was representative of the sample and population of interest, including covariates of age, gender, and education background further described.

Descriptive Statistics

The secondary data set represents the complete responses from 1,171 NLRNs during a 4-month period between January and March 2015. The statistical data output for the research included NLRNs from 51 MSAs and nine counties. The NLRNs worked in various inpatient and outpatient clinical settings. Table 2 shows the frequency distribution of the demographic variables, including age, gender, education, and independent and dependent variables.

Table 2

Frequency Distribution of Demographic Variables

Demographic characteristics	All nurses *N* = 1,171	% [95% CI]
Age:		
Less than 29 years	637	55 [52.1, 57.9%]
30 to 39 years	318	27.4 [24.9, 30.1%]
40 to 49 years	153	13.2 [11.2, 15.1%]
50 or more years	51	4.4 [3.3, 5.7%]
Gender:		
Male	158	13.6 [11.6, 15.5%]
Female	1001	86.4 [84.5, 88.4%]
Nursing Degree:		
Associate or less	528	45.3 [43.8, 49.6%]
Bachelor	603	51.7 [50.4, 56.2%]
Masters or PhD	35	3.0 [2.1, 4.1%]
Comfort of reporting:		
No	227	20.5 [18.2, 23.1%]
Yes	881	79.5 [76.9, 81.8%]
Intentions to turnover:		
No	522	47.2 [44.1, 50.1%]
Yes	584	52.8 [49.9, 55.9%]
Procedures and systems:		
No	325	29.3 [26.9, 32.1%]
Yes	784	70.7 [67.9, 73.1%]
Safety problems:		
No	846	76.6 [73.8, 79.0%]
Yes	259	23.4 [21.0, 26.2%]

Table 2 showed that NLRNs have covariate categories of “less than 29 years,” “30 to 39 years,” “40 to 49 years,” and “50 or more years.” The study revealed that a majority of nurses (55%) are in the “less than 29 years” category. Gender was listed as predominantly as female (86.4%) in comparison to males (13.6%). Education was recoded and listed in categorical groups Associate or less, Bachelor, and Masters or PhD. The data show the highest frequency in education as Bachelor’s degrees (51.7%), in comparison to associate degree or less (45.3%), and a small percentage of Master’s degree or PhD (3%).

The dependent variables and independent variables were also recoded in the study. The coding process included a dichotomous variable for linear regression analysis. The variables of comfort of reporting safety, nurse intentions to turnover, perceptions of safety problems, and appropriate error-preventing procedures and systems were recoded with 1 if the respondent answered yes and 0 if the respondent answered no. Table 2 shows that the first dependent variable, comfort of reporting safety problems, was scored with yes or no responses. The majority of nurses reported yes (79.5%) they felt comfortable reporting safety problems or no (20.5%) they felt uncomfortable reporting safety problems. Nurses responded to the second dependent variable intentions to turnover as yes (52.8%) if they had intention to turnover in comparison to no (47.2%) if they did not have an intention to leave the organization.

Table 2 shows the first independent variable reported yes (70.7%) to appropriate error-preventing procedures and systems in the workplace. Nurses also reported a smaller percentage with no (29.3%) to not having appropriate procedures and systems in the

workplace. The second independent variable nurses answered yes (76.6%) to perceived safety problems in the workplace in comparison to nurses who reported no (23.4%) to having safety problems in the workplace.

Chi-Square Analysis

There are different variables that have an effect on the comfort of reporting safety problems and nurse intentions to turnover. Table 3 shows the independent variables and dependent variables in a cross-tabulation, chi-square analysis. The table showed the percentage of nurses (N = 1,171) who reported comfort of reporting safety problems and nurse intentions to turnover with the p-value and two-way tests. The results showed age, gender, nor nursing degree are not significantly associated with comfort of reporting.

Table 3

Chi-Square Tests of Comfort of Reporting Safety Problems, Procedures and Systems, Intentions to Turnover

Independent variable	Row or column	Comfort of reporting no	Comfort of reporting yes	*P*-value	Intentions to turnover no	Intentions to turnover yes	*P*-value
Age							
<29 yrs	Row	20.1	79.9	0.869	43.2	56.8	**0.014**
	Column	54.7	56.3		51.5	60.1	
30 to 39 yrs	Row	21.8	78.2		49.5	50.5	
	Column	28.4	26.4		28.0	25.4	
40 to 49 yrs	Row	19.2	80.8		57.1	42.9	
	Column	12.4	13.5		16.3	10.9	
>50 yrs	Row	23.3	76.7		51.2	48.8	
	Column	4.4	3.8		4.3	3.6	
Gender:							
Male	Row	17.6	82.4	0.337	43.5	56.5	0.368
	Column	11.6	14.0		12.5	14.3	
Female	Row	21.0	79.0		47.5	52.5	
	Column	88.4	86.0		87.5	85.7	
Degree:							0.635
Associate or less	Row	22.4	77.6	0.319	47.7	52.3	
	Column	49.3	44.2		45.6	44.7	
Bachelor	Row	19.3	80.7		47.2	52.8	
	Column	48.9	52.8		52.1	52.1	
Masters or PhD	Row	12.9	87.1		38.7	61.3	
	Column	1.8	3.1		2.3	3.3	
Problems:							**0.000**
No	Row		84.4	**0.000**		47.3	
	Column						
Yes	Row		63.3			70.5	
	Column						
Procedures:							**0.000**
No	Row		63.6	**0.000**		68.9	
	Column						
Yes	Row		86.1			46.3	
	Column						

Table 3 shows that age is significantly associated (p= 0.014) to the dependent variable nurse intentions to turnover. In comparing the row percentages among each age group, the age group of “less than 29 years” (56.8%, p= 0.014) has a higher intention to turnover in comparison to the ages of “40 to 49 years” (42.9%, p= 0.014). In comparing column percentages, the age group “less than 29 years” (60.1%, p= 0.014) has the highest percentage of intentions to turnover in comparison to the lowest percentage among the age group of "50 or more years" (3.6%, p = 0.014). Neither gender nor degree showed statistical significance.

Table 3 shows that the nurses who reported who responded “no” to patient safety problems (84.4%, p= 0.000), reported comfort in reporting. The nurses who responded “yes” to patient safety problems (63.3%, p= 0.000), reported comfort in reporting. The difference is statistically significant. The result indicates that nurses are more comfortable in reporting safety problems if they do not perceive there is a problem with patient safety.

The results in Table 3 also show that the nurses who responded “yes” to having appropriate error-preventing procedures and systems (86.1%, p= 0.000), also reported comfort in reporting. The nurses who reported “no” to having appropriate error-preventing procedures and systems (63.6%, p= 0.000), reported comfort in reporting. The difference is statistically significant. The result indicates that nurses are more comfortable in reporting if they perceive that there are appropriate error-preventing procedures and systems.

Table 3 showed that the nurses who reported "yes" to problems in patient safety (70.5%, p= 0.000) also reported an intention to leave. The nurses who reported "no" to problems in patient safety (47.3%, p= 0.000), reported intention to leave. The difference is statistically significant indicating that nurses are more likely to intend to leave if they perceive problems with patient safety.

The results in Table 3 showed that the nurses who reported "no" to having appropriate error-preventing procedures and systems (68.9%, p= 0.000), reported intention to leave. The nurses who reported "yes" to having appropriate error-preventing procedures and systems (46.3%, p= 0.000), also reported intention to leave. The results are statistically significant. The result indicated that nurses are more likely to intend to leave if there are not appropriate error-preventing procedures and systems.

Multiple Logistic Regression Analysis

Based on the multiple logistic regression analysis in Table 4, the first column listed the first dependent variable comfort of reporting correlated with the covariates and independent variables. The data showed that neither age, gender, nor nursing degree are statistically significant with comfort of reporting. However, data showed that having appropriate error-preventing procedures was statistically significant with comfort of reporting. The nurses who perceived appropriate error-preventing procedures in the workplace had double the odds of being comfortable reporting safety problems (OR= 2.735, p= 0.000). The independent variable perceptions of safety problems was also statistically significant. Nurses who said that there were safety problems had lower odds of being comfortable reporting (OR= 0.428, p= 0.000).

The second column in Table 4 showed nurse intentions to turnover. None of the age group categories were significantly different age less than 29. Gender and education also did not show statistical significance in nurse intentions to turnover. Having appropriate error-preventing procedures and systems showed statistical significance (OR= 0.449, p= 0.000). Nurses who reported appropriate error-preventing procedures and systems in the workplace had lower odds of intent to turnover. Nurses who perceived safety problems had more than double the odds of intent to turnover (OR= 2.144, p= 0.000)

Table 4

Multiple Logistic Regression Analysis for Safety Problems, Procedures and Systems, and Intentions to Turnover

	Comfort of reporting			Intentions to turnover		
Independent variable	*OR*	95% CI	*P*	*OR*	95% CI	*P*
Age:						
< 29 yrs			0.808			0.008
30 to 39 yrs	1.081	0.496, 2.354	0.845	1.551	0.809, 2.97	0.185
40 to 49 yrs	1.004	0.452, 2.234	0.992	1.138	0.583, 2.220	0.705
50 or more yrs	1.303	0.550, 3.089	0.548	0.818	0.401, 1.666	0.579
Gender:						
Male	0.831	0.517, 1.337	0.446	0.773	0.535, 1.118	0.172
Female						
Degree:						
Associate or less	0.554	0.181, 1.693	0.577	0.667	0.301, 1.474	0.418
Bachelor	0.586	0.193, 1.780	0.300	0.610	0.278, 1.340	0.317
Masters or PhD			0.346			0.218
Problems:						
No	0.428	0.305, 0.601	**0.000**	2.144	1.554, 2.957	**0.000**
Yes						
Procedures:						
No	2.735	1.971, 3.795	**0.000**	0.449	0.334, 0.604	**0.000**
Yes						

Summary

The study addressed the two research questions and hypotheses. The first research question addressed, "Is there an association between perceived patient safety problems and appropriate error-preventing procedures and systems with nurses' perception of the comfort of reporting patient safety problems while controlling for the role of age, gender, and education as covariates?" The multiple logistic regression data analysis showed that the null hypothesis can be rejected due to the association between comfort of reporting patient safety problems and having appropriate error-preventing procedures and systems to the magnitude of twice the odds (OR= 2.735, p= 0.000). The data showed that the nurses who perceived that there are appropriate error-preventing procedures and systems had more than double the odds of feeling comfortable reporting patient safety problems. Perceptions of safety problems was also statistically significant showing that nurses who said there were safety problems had lower odds of being comfortable reporting (OR= 0.428, p= 0.000). The covariates of age, gender, and education did not show a significant relationship with the dependent variable comfort of reporting.

The second question addressed, "Is there an association between perceived patient safety problems and appropriate error-preventing procedures and systems with nurse intentions to turnover while controlling for the role of age, gender, and education as covariates?" The multiple logistic regression analysis showed that the null hypothesis can be rejected. The data showed that nurses who reported having appropriate error-preventing procedures and systems had lower odds of intent to turnover (OR= 0.449, p= 0.000). Also, the nurses who perceived safety problems in the workplace had more than

double the odds of intent to turnover (OR= 2.144, p= 0.000). The covariates of age, gender, or education did not show statistical significance.

Section 4: Application to Professional Practice and Implications for Social Change

In this doctoral study, I used secondary data from the Inter-University Consortium for Political and Social Research with a NLRN Survey from January to May 2015. The population included NLRNs residing in 51 MSAs, nine rural counties. and 35 states across the United States. The data showed that more than 84% of the respondents work in hospital or inpatient settings, with the rest in outpatient, long-term, or other settings. A total of 1,706 surveys were sent out; however, after data cleaning, 1,171 responses were acceptable and verified for the study. All personally identifiable information was not included in the study. The covariates of age, gender, and education listed were included to show a correlation to the specified independent and dependent variables.

Purpose and Nature of the Study

Medical error prevention is an important responsibility for all team members in a health care organization in terms of safety reporting. Researchers have shown that there are 98,000 people who die every year due to preventable medical errors (Chassin & Loeb, 2013). The purpose of the study was to determine if nurses' perceptions of safety problems and error-preventing procedures and systems affect the comfort in reporting safety problems and intentions to turnover. The secondary data analysis included descriptive statistics for each variable, bivariate analysis, and multiple logistic regression for each of the dependent variables and independent variables. The independent variables included nurses' perceptions of patient safety problems and having appropriate error-preventing procedures and systems. The dependent variables included nurses' perceptions

of the comfort of reporting safety problems and nurse intentions to turnover. The results from the study can help determine if the research hypotheses can be accepted or rejected.

Interpretation of Findings

The intent of the study was to determine the association between perceptions of patient safety problems and having appropriate error-preventing procedures and systems along with the comfort of reporting and nurse intentions to turnover. A significant association was found between perceptions of patient safety problems and having appropriate error-preventing procedures and systems with the comfort of reporting. Nurses who perceived that there are appropriate error-preventing procedures and systems have more than double the odds of feeling comfortable reporting patient safety problems. Perceptions of safety problems are also significant in that the nurses who report safety problems have lower odds of being comfortable reporting.

The findings also showed an association between nurses' perceptions of safety problems and having appropriate error-preventing procedures and systems with the intentions to turnover. Nurses who perceive safety problems have more than double the odds of intending to turnover. Nurses who reported appropriate error-preventing procedures and systems had lower odds of intentions to turnover. Covariates of age, gender, and education showed no association or significance in the dataset findings.

Perceptions of Patient Safety Problems

The findings confirmed and extend further knowledge in the discipline because there is greater emphasis on demonstrating patient safety in a highly reliable organization. The findings showed that the importance of providing an assessment of the

perceptions of patient safety problems in the workplace is paramount. Assessing a nurse's perceptions of safety problems involves analyzing the nurses' critical thinking to determine if they are able to report issues appropriately. Perceptions of problems may have varying levels of urgency; however, concrete guidelines allow the nurse to report more correctly. For example, if a patient's vital signs reach certain numerical parameters, then the nurse will know there is an issue to report. The type and quality of care rendered to each patient will determine if there are safety problems in the workplace. Liang et al. (2016) discussed that decreased safety in the workplace can lead to tension, increased stress, poor-decision making, and overall dissatisfaction.

Error-Preventing Procedures and Systems

Prevention of medical errors and harm should also be considered. By having appropriate error-preventing procedures and systems and education of the safety reporting processes, there will be an increased awareness of protocols to follow. Examples of error-preventing procedures and systems include information technology resources and improvements in electronic health records. Developing electronic notifications or alerts for the nurses will allow for increased focus on areas of concerns (Graber, 2016). For example, the diagnosis of sepsis has certain vital sign requirements and laboratory diagnostic findings. When the data are entered into the system and fall under criteria, then the sepsis alert will sound. Bar code scanning is another implementation to ensure mistakes are not made on patient identification. Medication dosages are also monitored to prevent overdoses or underdoses. The nurse is not allowed to bypass any aspects of the electronic screening process unless the nurse acknowledges

certain parameters. Each step is put in place to help prevent errors in the health care system. If the nurses perceive they have appropriate error-preventing procedures and systems, they will feel more comfortable reporting safety problems. With increased reporting, there can be improved process improvement to develop more refined procedures and systems.

Comfort of Reporting

Leaders and managers will be able to conduct root cause analyses if there is increased reporting of patient safety problems. There should be an increased emphasis on the importance of reporting without fear of retribution or blaming of the employees (Castel et al., 2015). After a nurse reports a safety issue, leadership and managers should express appreciation because the nurse is able to communicate the issue and address the problem. By addressing the process rather than the individual, there will be decreased stress for the nurses in reporting potential patient safety concerns. Individuals will be more comfortable reporting problems if they know that they will not be blamed for the safety issue. Creating that sense of comfort will allow for more transparency of issues in the workplace.

Intentions to Turnover

Nurse intentions to turnover are affected by the perceptions of safety problems in the workplace. For example, if nurses do not receive reasonable patient care assignments, receive meal breaks, perceive workplace violence, or have inappropriate shift duration, there will be an effect on the perceptions of safety problems. An unsafe work environment can cause increased stress, poor decision making, absenteeism, and overall

dissatisfaction (Silva et al., 2018). Nurses who are dissatisfied with their work environment have an increased likelihood of intentions to turnover (Aiken et al., 2013).

Analysis of Findings

The findings relate to the theoretical or conceptual framework for ensuring a HRO. The HRO theory strives to uphold the highest patient care safety and quality standards, embodying various necessary aspects. Principles of HRO are upheld with a preoccupation with failure, lack of simplification, sensitivity to operations, resilience, and deference to expertise (Chassin & Loeb, 2013). Preoccupation with failure, lack of simplification, and sensitivity to operations involves having appropriate tools, resources, checklists, and error-preventing procedures and systems in order to improve accuracy and demonstration of safety behaviors (Larson et al., 2017). There is a sense of mindfulness and organizational awareness that allows for lower incidences of errors or accidents over an extended period of time. Adherence to protocols would allow for the development of safety specifications and proactive prevention of potential safety errors. Resilience includes involving leaders and managers to respond to safety problems and improve the processes before they fail. Deference to expertise involves coordinating with the specific subject matter expert to ensure the error-preventing procedures and systems are in compliance and of the highest standards. For example, creating medication compliance can involve the pharmacy committee to ensure appropriate medication administration to prevent errors.

In contrast to the literature review, the findings from this study showed that the covariates of age, gender, and education are not statistically significant to the comfort of

reporting and intentions to turnover. However, in comparison with the literature review, age is listed as having an effect on reporting patient safety incidences, in particular nurses aged 40 years and older (see Hee-Eun et al., 2017). Younger nurses are also reported to have higher odds of leaving the hospital than older nurses (Unruh & Zhang, 2014).

Gender also contrasted with the study findings in that the literature review found significance while I did not find statistical significance. The literature review revealed that female nurses are involved in more safety reporting than male nurses (Griffiths et al., 2014). However, it is important to note that the nursing population consists of a majority with 90.1% female in comparison to 9.1% male (U.S. Department of Health and Human Services, 2017). The majority of the sample are females and, therefore, gender does not show significance in the overall study.

Education was also noted to be important with the literature review, showing higher education with at least a baccalaureate degree revealing higher reporting occurrences of safety problems (Hee-Eun et al., 2017). However, in contrast with the study findings, education did not show statistical significance. The literature review showed that nurses with baccalaureate degrees have higher odds of leaving the workplace than those with associate degrees. However, in my study, I found no statistical significance with education and safety.

Limitations of the Study

The limitations to the study include lack of generalizability in the specified population. I reviewed the study based on perception versus actual behavior. Perception of the environment based on previous values, needs, or emotions is involved. For

example, the perception of the comfort of reporting and intentions to turnover are studied. The study does not provide data of nurses' behavior of those who actually left the organization. Behavior or action of leaving the organization is what causes the turnover of employees.

External validity is also present in that the type of location that the nurse works in varies per nurse. There is a lack of generalizability throughout the various work locations. The demands and stresses of each department may cause differences in reporting safety occurrences. For example, in departments with higher patient to nurse ratios such as medical-surgical wards, there was higher patient safety reporting in comparison to departments such as intensive care units and obstetrics (Hee-Eun et al., 2017). Reporting instances may vary and may be understood differently in each department and can be further explored.

Another limitation is that the study uses cross-sectional data versus longitudinal data. Cross-sectional data allows for a review of the variables at a specified time. The limitation is that study does not show cause-and-effect relationship, as it would in a longitudinal study. Data following the nurses after they have surpassed the newly licensed registered nurse phase of 18 months may cause changes in the responses of comfort of reporting and intentions to turnover. Further studies would need to be conducted to determine the effects of specified interventions to the population.

Another limitation is that the existing patient reporting system and its features likely vary among the health care systems and departments. Advances with information technology systems in different locations may vary with reporting and error-preventing

procedures and systems. The nurse participants from MSAs may have more technologically advanced reporting systems than the urban or suburban rural hospitals. To be generalizable, the population at large should be considered.

Recommendations

Recommendations for further research on the current study are to assess age-based differences into sub-groups. Flinkman and Salantera (2014) described that young registered nurses may have increased stress during the first five years and may need more social support from nurse managers to successfully transition into the nursing practice. The descriptive analysis from the study shows a large percentage 56.8% of nurses "less than 29 years" who make up a majority of the specified population. Based on the chi-square tests, the data shows 56.8% of the specific age group showed intentions to turnover, in comparison to 42.9% of the "40 to 49 years" group. Age is a recommendation to consider for further studies.

Another recommendation is to analyze specific patient safety errors in the workplace. With the perceptions of patient safety problems, there should be further details into what constitutes a problem for the nurses to determine insight into the areas of concern. An in-depth analysis should be conducted to provide the perception levels of safety of the NLRNs and its correlation to the safety of the environment and intentions to turnover. Leaders and managers will be able to pinpoint issues or concerns to create an action plan for improvement.

Further assessment of the NRLNs would provide insight into the perceptions of the comfort of reporting patient safety errors and intentions to turnover. Gaining insight

into the perceptions of the current error-preventing procedures and systems can involve further details in the survey question such as improvements in information technology, medication administration, reporting processes, or other areas. Obtaining feedback from the nurses will allow leaders and managers to gain insight into process improvement techniques. Open discussion is often valued to provide feedback on the ineffectiveness of traditional approaches on medical errors (Larson et al., 2017). From the feedback, there will be improved learning, teamwork, communication and increased safety in the health care system.

Implications for Professional Practice and Social Change

Recommendations for professional practice include education for nursing leaders and managers about the importance of ensuring there are appropriate error-preventing procedures and systems put in place. They need to ensure that the entire hospital staff is educated on the appropriate reporting procedures. The methodological change would include that the NLRNs are provided a checklist and education of the procedures and systems upon orientation to the unit or area of employment. upon orientation to the unit or area of employment, the NLRNs are provided a checklist and education of the procedures and systems. If there are new information technology systems and procedures, there should be an expectation that the nurses are provided education in both written and verbal communication. Management needs to verify that the nurses understand the reporting systems appropriately.

Positive social change includes filling the gap in practical knowledge in the discipline because nurse perception is important to assess in attitude and behavior. The

perceptions of nurses will help determine their psychological assessment of the safety of the work environment. Perceptions can correlate with comfort of reporting, job satisfaction, and nurse intentions to turnover. The potential impact at the individual level is that there is further analysis of the individual from a physical, mental, and psychological aspect in reporting patient safety concerns. The problem is addressed because of underreporting of potential safety concerns and determining a process for improvement.

Nurses will be able to develop a more highly reliable system to appropriately track for potential safety issues or concerns. Organizationally, there will be a creation of a just culture that helps promote reporting potential safety issues. Safety culture will greatly depend on leadership and management behaviors to help ensure safety systems are in place so the nurses can perceive safety of utmost importance (Jia et al., 2014). With a lack of blame in the culture, there is a focus on the procedures and systems. Creating an organizational culture of safety will improve communication of potential errors, risky or reckless behavior (Edwards, 2018). The culture will have zero tolerance for safety issues, leading to creating a more highly reliable organization. Implications for social change do not exceed study boundaries and are realistic to be met.

Conclusion

Patient safety is a fundamental need in health care, where there is a high potential for medical errors with close to 400,000 patients dying every year due to medical errors (Goolsarran et al., 2018). Assessing and analyzing potential safety concerns in the workplace will help determine areas for improvement. There is a contribution to policy

changes specific to patient safety which helps to advance knowledge in the discipline. The study has a potential to decrease medical errors by improving the assessment of the perceptions of safety problems, having appropriate error-preventing procedures and systems, comfort of reporting and nurse intentions to turnover. Nurses will be able to communicate their potential safety errors for correction, leading to an improved and safer work environment. Creating a just culture and highly reliable organization are important concepts to adopt in a health care organization to help safety reporting and overall quality of care. Improved quality of care will allow for improved satisfaction of nurses and nurse intentions to turnover.

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