

Patient Safety Culture and Attitudes and The Interprofessional Collaboration Among Healthcare Workers in A Government Hospital

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ABSTRACT

The study assessed the correlation between attitude on patient safety and interprofessional collaboration. It further assessed whether the facets of patient safety culture predict interprofessional collaboration in a government hospital in Isulan, Sultan Kudarat during the first quarter of 2019. Findings served as bases for a proposed action plan. The study utilized mixed method; that is, a combination of qualitative and quantitative methods. Under the quantitative method, the researcher used descriptive-correlational and predictive designs. It described the following: patient safety culture, attitudes on patient safety culture among healthcare workers, and interprofessional collaboration. Thematic content analysis was used for the qualitative part, which is to answer the challenges encountered by the healthcare professionals in the attainment of interprofessional collaboration. The patient safety culture among healthcare workers in the hospital is less evident in the following areas: teamwork within units; supervisor/manager expectations and actions promoting patient safety; organizational learning – continuous improvement; management support for patient safety; feedback and communication about error; frequency of events reported; overall perceptions of patient safety; communication openness; teamwork across units; staffing; handoffs and transitions; and, nonpunitive response to error. The attitude on patient safety culture among healthcare professionals is neither present nor absent in the following areas: leadership structure; confidence-assertion; information-sharing; teamwork; stress and fatigue; work values; organizational climate; error/procedural compliance; and, error management. Interprofessional collaboration is manifested most of the time in the following areas: communication, accommodation, and isolation. There is a significant relationship between attitudes on patient safety and interprofessional collaboration in terms of stress and fatigue. Staffing predicts interprofessional collaboration. The top challenges encountered by the healthcare workers in the attainment of interprofessional collaboration are as follows: overload of responsibilities, need of each profession for another to provide, motivational resources, and role ambiguity and role conflict.

Keywords: patient safety culture, attitudes towards patient safety culture, interprofessional collaboration

INTRODUCTION

In addition to medical knowledge and technical skills, the importance of human factors is being increasingly emphasized for safe and high-quality medical care and for decreasing medical error incidents (Helmrich & Davies, 2016; Fletcher et al., 2002). Such human factors include non-technical skills such as respectful leadership, information-sharing, communication, teamwork and good decision-making. Inadequate management of stress and workload causes medical errors due to poor inter-collaboration of the various healthcare workers and staff in a hospital (Suresh et al., 2014). There is a rigid culture which does not encourage open discussion and feedback on different opinions with other colleagues, high value on the technical skill and competence and high dependency on the decisions of the senior staff members relatively. In addition, hospital and national culture and management systems towards human factors and patient safety were still insufficient (Kim et al., 2007). The interprofessional collaboration between physicians and nurses is crucial and has been highlighted in different contexts (Solami et al., 2015). Collaboration, between physicians and nurses, means cooperation in work, sharing responsibilities for solving problems, and making decisions to formulate and carry out plans for patient care (Boev & Xia, 2015). Although the provision of healthcare is

becoming more complex, collaboration among healthcare workers can be a path to improve the quality of healthcare services especially in hospitals in which environment is characterized by ongoing interaction among professionals. Nurse-physician collaboration and teamwork can improve patient outcomes and lower healthcare cost (Tjia et al., 2009), increase job satisfaction (Rosentein, 2002), and maintain patients' safety (El Sayed & Sleem, 2011). The communication among healthcare professionals in the hospital is considered a principal part of the information flow in healthcare; meanwhile the growing evidences show that improper or poor communication can create a chronic state of conflict among healthcare professionals leading to increase in the medical errors and poor outcomes (Tjia et al., 2009; Cypress, 2011). Furthermore, it has been shown that unsatisfactory interprofessional relationships among healthcare professionals partially contributed to shortage of nurses and enforced nurses to leave their professions (Steinbrook, 2012).

Healthcare professionals extremely contribute to the patient care but often do not appreciate the role of each other (Anderson, 2016). In previous studies, doctors and nurses viewed collaboration differently; doctors view collaboration as following the instructions and the orders, while nurses view it as a complementary role more significantly than physicians do (Baggs et al., 2017). Bujak and Bartholomew (2011) suggest that presently “the two most important people responsible for patient care are the nurses and the physicians, but they often do not talk to each other properly, and when they do, the interchange is often dysfunctional.” Traditionally, relationship between the physicians and the nurses is hierarchical and is characterized by doctors' dominance and nurses are viewed as assistant rather than a partner of holistic patient care (Vazirani et al., 2015).

Many patient safety incidents are related to lack of attention to human factors and safety in the design and implementation of technologies, processes, workflows, jobs, teams and sociotechnical systems. Human factors and patient safety are now recognized as a key discipline to help reduce or mitigate medication errors (Leape et al., 2015; Institute of Medicine, 2016) to improve the design and implementation of health IT (Institute of Medicine, 2012) and to eliminate hazards that contribute to patient falls (Hignett & Masud, 2016). According to the International Ergonomics Association (2014), ‘Ergonomics or human factors) is the scientific discipline concerned with the understanding of the interactions among humans and other elements of a system, and the profession that applies theoretical principles, data and methods to design in order to optimize human well-being and overall system performance.’ The objective of human factors and patient safety-based system design is to improve well-being (e.g., clinician and patient satisfaction) and overall system performance that includes patient safety (Dul et al., 2012). From human factors and patient safety viewpoint, patient safety activities should not only reduce and mitigate medical errors and improve patient safety, but also improve human wellbeing, such as job satisfaction, motivation and technology acceptance. For instance, patient safety programs that increase the workload of already busy clinicians would not be considered well designed from the that perspective. The interprofessional collaboration between physicians and nurses is crucial and has been highlighted in different contexts (Sollami et al., 2015; Ward et al., 2008). Collaboration, between physicians and nurses, means cooperation in work, sharing responsibilities for solving problems, and making decisions to formulate and carry out plans for patient care (Boev & Xia, 2015). Although the provision of healthcare is becoming more complex, collaboration among healthcare workers can be a path to improve the quality of healthcare services especially in hospitals in which environment is characterized by ongoing interaction among professionals. Nurse-physician collaboration and teamwork can improve patient outcomes and lower healthcare cost (Tjia et al., 2009), increase job satisfaction (Rosenstein, 2002), and maintain patients' safety (Sayed & Sleem, 2011). The communication between nurses and physicians is considered a principal part of the information flow in healthcare; meanwhile the growing evidences show that improper or poor communication can create a chronic state of conflict between nurses and physician leading to increase in the medical errors and poor outcomes (Tjia et al., 2009; Cypress, 2011). Furthermore, it has been shown that unsatisfactory interprofessional relationships between physicians and nurses partially contributed to shortage of nurses and enforced nurses to leave their professions (Steinbrook, 2002). Nurses and physicians extremely contribute to the patient care but often do not appreciate the role of each other (Anderson, 1996). In previous studies, doctors and nurses viewed collaboration differently; doctors view collaboration as following the instructions and the orders, while nurses view it as a complementary role more significantly than physicians do (Baggs et al., 1997). Bujak and Bartholomew (2011) suggest that presently “the two most important people responsible for patient care are the nurses and the physicians, but they often do not talk to each other properly, and when they do, the interchange is often dysfunctional.” Traditionally, relationship between the physicians and the nurses is hierarchical and is characterized by doctors' dominance and nurses are viewed as assistant

rather than a partner of holistic patient care (Vazirani et al., 2005).

In Sultan Kudarat Provincial Hospital, medical dominance of health care has traditionally been the organizing principle in health care delivery and is observed on a daily basis. Medical power is manifested through the professional autonomy of doctors through their pivotal role in the economics of health services, through dominance over allied health occupational groups, through administrative influence, and through the collective influence of medical associations. This perceived autonomy is brought about by the years of education and the difficulty of the physician's board examination compared to other healthcare workers. As such, decision-making on the patient's well-being is handled by the physician considering he spent the number of years prior to acquiring the license as compared by the other healthcare workers. A nurse as well as the other healthcare professionals is expected to follow orders from the physician and not the other way around. With this kind of attitude and conflict, interprofessional collaboration is not achieved. The researcher is a nurse for 11 years in a secondary hospital. The researcher has worked with various healthcare professionals particularly doctors holding various specializations and has experienced numerous conflicts due to attitudes dealing with human factors and hence, patient safety and interprofessional collaboration are no longer in place. The researcher wants to create better understanding, take into account the planning on the treatment of the patients, share ideas, organize medical care, and develop correct organizational practices to put all healthcare professionals on one common ground in order to collaborate for the betterment of the patient. An action plan will be created so that better problems dealt by the healthcare professionals will be solved and will not happen again; hence, this study

RESEARCH OBJECTIVES

The study assessed the correlation between attitudes on patient safety and interprofessional collaboration among Health Care Workers. It further assessed whether the facets of patient safety culture predict interprofessional collaboration in a government hospital in Isulan, Sultan Kudarat during the first quarter of 2019. Findings served as bases for a proposed model.

Specifically, it answered the following questions:

1. What is the patient safety attitudes among health care workers in terms of leadership structure; confidence-assertion; information-sharing; teamwork; stress and fatigue; work values; organizational climate; error/procedural compliance; and error management?
2. What is the patient safety culture among health care workers in terms of teamwork within units; supervisor/manager expectations and actions promoting patient safety; organizational learning – continuous improvement; management support for patient safety; feedback and communication about error; frequency of events reported; overall perceptions of patient safety; communication openness; teamwork across units; staffing; handoffs and transitions; and nonpunitive response to error?
3. What is the interprofessional collaboration of the health care workers in terms of communication; accommodation; and isolation?
4. Is there a significant relationship between attitude on patient safety and the interprofessional collaboration?
5. Which facets of patient safety culture predict interprofessional collaboration?
6. What are the challenges encountered by the health care workers in attaining interprofessional collaboration?
7. What patient safety model can be proposed based on the findings of the study?

Statement of Null Hypotheses

H₀₁: There is no significant relationship between the attitude on patient safety and the interprofessional collaboration.

Ho₂: The facets of patient safety culture do not predict interprofessional collaboration.

REVIEW OF RELATED LITERATURE AND STUDIES

Patient Safety Culture. Patient safety is a global challenge that requires knowledge and skills in multiple areas, including human factors and systems engineering. In this chapter, numerous conceptual approaches and methods for analyzing, preventing and mitigating medical errors are described. Given the complexity of healthcare work systems and processes, we emphasize the need for increasing partnerships between the health sciences and human factors and systems engineering to improve patient safety. Those partnerships will be able to develop and implement the system redesigns that are necessary to improve healthcare work systems and processes for patient safety. A 1999 Institute of Medicine report brought medical errors to the forefront of healthcare and the American public (Kohn, Corrigan, & Donaldson, 1999). Based on studies conducted in Colorado, Utah and New York, the IOM estimated that between 44,000 and 98,000 Americans die each year as a result of medical errors, which by definition can be prevented or mitigated. The Colorado and Utah study shows that adverse events occurred in 2.9 percent of the hospitalizations (Thomas, et al., 2000). In the New York study, adverse events occurred in 3.7 percent of the hospitalizations (Brennan, et al., 1991). The 2001 report by the Institute of Medicine on “Crossing the Quality Chasm” emphasizes the need to improve the design of healthcare systems and processes for patient safety. The report proposes six aims for improvement in the healthcare system: (1) safe, (2) effective, (3) patient-centered, (4) timely, (5) efficient, and (6) equitable (Institute of Medicine Committee on Quality of Health Care in America, 2001). This chapter focuses on the safety aim, i.e. how to avoid injuries to patients from the care that is intended to help them. However, the improvement aims can be related to each other. For instance, safety, timeliness and efficient can be related: inefficient processes can create delays in care and, therefore, injuries to patients that could have been prevented.

Knowledge that healthcare systems and processes may be unreliable and produce medical errors and harm patients is not new. Using the critical incident technique, Safren and Chapanis (1960a, 1960b) collected information from nurses and identified 178 medication errors over 7 months in one hospital. The most common medication errors were: drug to wrong patient, wrong dose of medication, drug overdose, omitted drug, wrong drug and wrong administration time. The most commonly reported causes for these errors were: failure to follow checking procedures, written miscommunication, transcription errors, prescriptions misfiled and calculation errors. We have known for a long time that preventable errors occur in health care; however, it is only recently that patient safety has received adequate attention. This increased attention has been fueled by tragic medical errors.

Teamwork Within Units. Research suggests that interprofessional teamwork and collaboration improve patient outcomes and access to health care. In addition, those health care workers who serve as part of a team are more effective and have higher job satisfaction than those who do not (Raab et al., 2013). The concept of “interprofessionality,” coined by D’Amour and Oandasan as a response to fragmented health care practices, is defined as “the development of a cohesive practice between professionals from different disciplines. It is the process by which professionals reflect on and develop ways of practicing that provides an integrated and cohesive answer to the needs of the client/family/population” (D’Amour & Oandasan, 2005). Interprofessionality is distinguished from multidisciplinary, which refers to a process whereby multiple disciplines work on the same project in an independent and parallel fashion, reflecting a lower degree of collaboration on the spectrum. The concept of “collaboration,” identified as critical to ensure quality health care is important to understand within the context of interprofessional teams. Collaboration is described as conveying “the idea of sharing and implies collective action oriented toward a common goal, in a spirit of harmony and trust, particularly in the context of health professionals” (D’Amour et al., 2005). Interprofessional collaboration is a “negotiated agreement between professionals which values the expertise and contributions that various healthcare professionals bring to patient care” and is most effective when there is good communication and a value for diverse opinions among team members. In a review of the literature on collaborative practice, D’Amour et al (2005) identified the following four concepts related to collaboration: sharing, partnership, interdependency, and power. A team is defined as “a group of people working together to achieve common purpose for which they hold themselves mutually accountable.” The establishment of teams assumes that teams can outperform individuals when the task is complex, members have a stake in the

outcome, and where efficient use of resources is necessary. Key elements of teamwork include members having a shared work product, interdependent tasks, shared responsibility for producing results, commitment to a common approach, and collective management of relationships across organizational boundaries (Scholtes et al., 2003). Successful teamwork is necessary for collaboration to occur. Teamwork creates the environment to support the work that has the potential to result in collaboration. Collaboration is most closely related to the synergy created by those on the team. Collaboration requires two constant and key elements, namely, (1) construction of collective action that addresses the complexity of client needs and (2) the construction of a team life that integrates the perspectives of each professional where each member experiences respect and trust (D'Amour & Oandasan, 2005).

Supervisor/Manager Expectations and Actions Promoting Patient Safety. There is some evidence that managers' time spent and work can influence quality and safety clinical outcomes, processes and performance. However, there is a dearth of empirical studies, further weakened by a lack of objective outcome measures and little examination of actual actions undertaken. We present a model to summarize the conditions and activities that affect quality performance (Parand et al., 2014). Underreporting has been linked to perceived lack of management responsiveness (Clarke, 2018) and organizational safety climate (Zohar, 2013). Yet, little research explores other factors that could be related to underreporting of medical errors/events. Learning about the factors that impact reporting can help us better to understand how to mitigate organizational training design and promote patient safety climate within the medical setting. One relatively neglected area within the literature involves the impact that supervisor expectations have on staff's patient safety perceptions, and ultimately, event reporting. Although literature has repeatedly shown that leaders can play a large role in the development of culture, and have often been identified as a key factor in organizational effectiveness (Hackman, 2010), further exploration regarding how leaders impact subordinate safety perceptions and reporting outcomes is vital.

Organizational Learning – Continuous Improvement. Harm to patients is often the result of system-level failures as well as individual error (Kohn et al., 2018). Improving patient safety therefore requires learning by groups and organizations as well as by individuals. We argue in this paper that, in order for adoption of safety performance measures and indicators such as the PSIs to lead to safety improvement, these measures must contribute to patient safety learning at the organizational level, and not merely to the evaluation of providers. Patient safety improvement requires organizational learning at the system level, which entails changes in organizational routines that cut across divisions, professions, and levels of hierarchy (Rivard et al., 2016). This learning depends on data that are varied along a number of dimensions, including structure-process-outcome and from granular to high-level; and it depends on integration of those varied data. PSIs are inexpensive, easy to use, less subject to bias than some other sources of patient safety data, and they provide reliable estimates of rates of preventable adverse events. From an organizational learning perspective, PSIs have both limitations and potential contributions as sources of patient safety data. While they are not detailed or timely enough when used alone, their simplicity and reliability make them valuable as a higher-level safety performance measure. They offer one means for coordination and integration of patient safety data and activity within and across organizations.

Management Support for Patient Safety. Managers in healthcare have a legal and moral obligation to ensure a high quality of patient care and to strive to improve care. These managers are in a prime position to mandate policy, systems, procedures and organizational climates. Accordingly, many have argued that it is evident that healthcare managers possess an important and obvious role in quality of care and patient safety and that it is one of the highest priorities of healthcare managers (Kizer, 2011). In line with this, there have been calls for Boards to take responsibility for quality and safety outcomes (Institute of Medicine, 2011; Gosfield & Reinertsen, 2015). One article warned hospital leaders of the dangers of following in the path of bankers falling into recession, constrained by their lack of risk awareness and reluctance to take responsibility. To add to the momentum are some high-profile publicities of hospital management failures affecting quality and safety, eliciting strong instruction for managerial leadership for quality at the national level in some countries. Beyond healthcare, there is clear evidence of managerial impact on workplace safety (O'Dea & Flin, 2011). Within the literature on healthcare, there are non-empirical articles providing propositions and descriptions on managerial attitudes and efforts to improve safety and quality. This literature, made up of opinion articles, editorials and single participant experiences, present an array of insightful suggestions and recommendations

for actions that hospital managers should take to improve the quality of patient care delivery in their organization. However, researchers have indicated that there is a limited evidence base on this topic. Others highlight the literature focus on the difficulties of the managers' role and the negative results of poor leadership on quality improvement (QI) rather than considering actions that managers presently undertake on quality and safety (Gaucher & Kratochwill, 2013). Consequently, little is known about what healthcare managers are doing in practice to ensure and improve quality of care and patient safety, how much time they spend on this, and what research-based guidance is available for managers in order for them to decide on appropriate areas to become involved. Due perhaps to the broad nature of the topic, scientific studies exploring these acts and their impact are likely to be a methodological challenge, although a systematic review of the evidence on this subject is notably absent. This present systematic literature review aims to identify empirical studies pertaining to the role of hospital managers in quality of care and patient safety.

Feedback and Communication about Error. Patient safety is an important indicator of quality of healthcare (Berwick et al., 2013). Therefore, enhancing and guaranteeing patient safety is a high priority for healthcare providers. Today, promoting a positive patient safety culture has become one of the pillars for improving patient safety (Nieva & Sorra, 2013). Patient safety culture can be described as: the product of individual- and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization's health and safety management (Nieva & Sorra, 2013; Wagner et al., 2013). Enhancing an open culture in which errors and adverse events can be discussed may help reduce medical errors, and thereby improve patient safety (Wagner et al., 2013). An important precondition to improve patient safety culture is that outcomes of patient safety culture assessments are relevant and are presented clearly for the intended users, i.e. healthcare providers. Until now, several studies have been performed on how quality reports - containing information on quality of care of healthcare providers - can be best presented to consumers. Only a few studies have focused on how quality reports can be best presented to healthcare professionals. For example, a study of Allwood et al. (2013) explored clinicians' comprehension of and preferences for format and content in displaying provider outcomes. It showed that healthcare professionals prefer formats they are familiar with (such as bar charts or numeric tables) and want to have data in more than one format. Since evidence is still scarce in this field, and quality measurement comprises many dimensions (e.g. measuring patient experiences, mortality rates, patient safety culture), more insight into how healthcare professionals appraise outcomes of quality performance assessments is desirable.

Frequency of Events Reported. Educational interventions that increase knowledge of what patient safety events to report, demonstrate use of the reporting system, and encourage and educate physicians on their responsibility for patient safety have shown to increase patient safety event reporting (Louis et al, 2016). In 2017, Children's Hospital of Pittsburgh of University of Pittsburgh Medical Center increased the mean rate of monthly event reporting from 3.6 to 37.8 in a program with 113 graduate trainees by implementing a longitudinal multi-year curriculum to increase safety event reporting (Fox et al., 2017). Dunbar et al. (2017) increased the physician event reporting rate through didactics, feedback on institutional responses to reported events, and Institute for Healthcare Improvement online training modules. Though it is not certain what constitutes a target safety event reporting rate, a relatively small percentage of reports are submitted by physicians. A study of over 90,000 event reports from 26 hospitals found that only 1.4% of event reports were submitted by physicians and further efforts should be made to increase physician roles in quality efforts. Although reporting frequency increases initially following educational interventions, event reporting sustainability is difficult to maintain. Continued education and timely feedback of events reported and resulting system changes help maintain a culture that is committed to ongoing patient safety event reporting (Boike et al., 2013).

Overall Perceptions of Patient Safety. Patient safety in health care includes safety of both patients (clients) and health-care providers (HCP). It is clinical, economical, managerial, and organizational concern in the health-care system. Patient safety culture is a key driver of health-care quality. Patient safety emphasizes reporting, analysis and prevention of medical errors that often lead to adverse health events (Longest, 2016). Most of the adverse events are preventable and occur due to defect in design of system or organization rather than poor performance of HCP. Clients are not only harmed by misuse of technology but also could be harmed by poor communication between different HCP or in rendering treatment (Assefa et al., 2012). The advancement of patient safety requires a fundamental change in the healthcare culture. Reducing harm through an improved

safety culture is a global priority.⁴ Policymakers, payers and groups such as the Agency for Healthcare Research and Quality, National Patient Safety Agency and WHO have developed numerous safety initiatives at the national and institutional levels (Liao et al., 2014). However, most of these initiatives targeted doctors, managers and other healthcare professionals and rather less attention has been paid to medical students, who are the next generation of medical workers (Kirch & Boysen, 2010). It is essential for medical students to have a good understanding of the patient safety culture because it will doubtlessly influence their attitude towards patient safety issues throughout their working lives.

Communication Openness. A culture of openness in the hospital is critical to improving the quality and safety of healthcare. The overwhelming majority of patients receive safe and effective care (Medical Protection Society, 2018). However, when things do go wrong, it can be catastrophic for all involved. Effective communication after an adverse outcome lies at the core of rebuilding trust and supporting healing for the patient, their loved ones and the healthcare team involved. Poor or no communication compounds the harm and distress that has already been experienced. Ninety-two per cent of its members surveyed state that they are open and honest with patients and recognize that good communication drives down patient complaints. It has long supported and advised members to be open with patients when something has gone wrong. Despite the reassuring support reflected in the survey of members about the importance of open communication, many doctors have concerns about the process relating to the legal consequences and their lack of training in the skills required to be open and do it well.

Teamwork Across Units. Interdisciplinary teamwork is an important model for delivering health care to patients. Teamwork in health is defined as two or more people who interact interdependently with a common purpose, working toward measurable goals that benefit from leadership that maintains stability while encouraging honest discussion and problem solving (Salas, 2012). Researchers have found that integrating services among many health providers is a key component to better treat un-deserved populations and communities with limited access to health care (Pinto et al., 2012). As the name implies, teamwork in health care employs the practices of collaboration and enhanced communication to expand the traditional roles of health workers and to make decisions as a unit that works toward a common goal (Manser, 2009). The Canadian Health Services Research Foundation (2016) found that team's function better when they have a clear purpose and implement protocols and procedures. Also important is the use of meetings and other communication methods to discuss patient results, share information, and debate suggestions to improve performance (Kalisch et al., 2017). Teamwork and collaboration are especially essential to care of patients in a decentralized health system with many levels of health workers (Pinto et al., 2012). Health care, by definition, is a multidisciplinary profession in which doctors, nurses, health professionals from different specialties must work together, communicate often, and share resources (Manser, 2009). Health teams are often made up of a variety of professionals – called cadres in health care – each with specialized knowledge and responsible for different tasks. These multidisciplinary teams are made up to solve health problems (Canadian Health Services Research Foundation, 2016). Successful health teams strive to understand the patient's situation, ask probing questions about the problem, make an initial assessment and, after discussion, provide a recommendation. Teams can also work together to develop health promotion for diverse communities and instill disease prevention behaviors amongst patients (Pinto et al., 2012).

Staffing. Staffing formulas and guidelines have been driven by the need to ensure all patient populations receive the highest level of safe, quality care. However, nurse-related staffing formulas and guidelines assume that all nurses practice with the same level of vigilance and expertise. They also assume that all nurses exhibit the same level of critical thinking and clinical judgment and are able to access vital resources in a timely fashion when a patient's condition deteriorates or his or her safety and well-being are at risk. Several professional nurse practice models acknowledge the importance of appropriate nurse staffing as it relates to patient safety and care outcomes (Benner, 2014). They do so, however, within a complex framework of interrelated and dynamic nursing and patient variables, not the least of which include nurse characteristics, such as nursing practice, role development, competencies, shared learning, and mentoring, and patient characteristics, such as level of stability, participation in decision making, and vulnerability. It is imperative for nurse leaders, especially directors, managers, and educators, to partner with their staff to evaluate each nurse's competency level relative to critical thinking and clinical judgment skills. This information can then be used as the basis for constructing adequate, safe staffing while continuing to provide educational opportunities,

including mentoring. It can also be used to encourage periodic self-evaluations and peer review to advance practice and expedite proficiency in deficit areas or areas in need of attention (O'Rourke, 2016).

Nurse leaders and educators should require staff to submit such exemplars as part of ongoing competency assessments and yearly evaluations. In addition, nursing leadership should reward more expert nurses who are stepping up to the plate to mentor their colleagues with creative and meaningful incentive programs while challenging them to advance their own professional practice through career advancement opportunities.

Last, but not least, patient safety and quality care are not just about nursing practice and nurse staffing. A model for safe patient care that represents the bigger picture is crucial. It must consider the availability, accessibility, and appropriate utilization of other healthcare providers and resources, particularly physicians, including anesthesiologists, pharmacists, and lab technicians, as well as ancillary personnel, such as unit secretaries/coordinators, unlicensed assistive personnel, surgical technicians, and equipment and resource materials managers. The model must also consider the availability and immediate accessibility of "must have" onsite equipment; supplies; and technologies, including telemetry, electronic documentation, and an integrated electronic medical record system (Kerfoot et al., 2016). Each professional group and ancillary support team involved in the delivery of healthcare services must be responsible for determining their own staffing needs based on their respective care models for practice, including respectful collaboration, and identifying resources they must have onsite to keep patients safe and prevent adverse outcomes. In addition, all hospitals and outpatient facilities must be committed to comprehensive and thorough systems integration, with departmental accountability, ongoing monitoring for purposes of sustainability, and, when indicated, the flexibility to make timely course corrections based on the emerging needs of the population served and healthcare resources available (Butler et al., 2011).

Handoffs and Transitions. Clinical handoffs, also known as sign-outs, shift reports, or handovers, occur in many places along the healthcare value chain. It involves the 'transfer of professional responsibility and accountability for some or all aspects of care for a patient, or groups of patients, to another person or professional group on a temporary or permanent basis' (BMA, 2014). For example, nursing handovers occur very frequently, not only between shifts and among part-time nurses, but also because nurses serve as the communication partner and informal coordinator for all healthcare professionals to ensure the continuity of care in a 24-hour seven-days-a-week environment (Institute of Medicine, 2016). The transfer of professional responsibility became salient for residents due to increased work-hour restrictions in U.S. residency programs, which shortened the continuity of care and increased the number of shift changes (Borowitz et al., 2018). Concern for the transfer of unit accountability heightened with the fragmentation in the healthcare to the proliferation of sub-specialties; creating more transitions and handoffs with the increase in number of providers for a single patient. Consequently, handoffs are a target for quality improvements because they represent high-risk events. The Joint Commission's 2016 evaluation of accredited healthcare organizations attributed at least 35 % of sentinel events to handoff errors. Recent estimates implicate handoff errors in nearly 80 % of serious events between 2004 and 2014. Patient safety culture, which consists of shared norms, values, behavioral patterns, rituals, and traditions (Agency for Healthcare Research and Quality, 2010) that guide the discretionary behaviors of healthcare professionals that matter in handoffs. According to the theory of planned behavior, staff observations of their institution's practices and coworkers' behavioral patterns in handoffs will influence their perceptions of overall level of patient safety, and their behavioral responses to such issues. Therefore, employees who perceive that their do institutions not emphasize patient safety may not pay attention to such concerns (Ajzen, 2011). To make improvements in handoffs, healthcare policymakers must first understand how employees perceive their organizations' patient safety culture (Boan et al., 2012; Nieva & Sorra, 2013).

Nonpunitive Response to Error. Effective response to errors requires clear communication that the primary goal of error investigation is to identify system issues rather than criticize individuals (National Association for Healthcare Quality, 2015). Blaming individual nurses for errors detracts from the patient safety goal of identifying systems in need of improvement. Implementing a just culture-one without inappropriate punishment for individual errors-promotes valuable comprehensive incident reporting and avoids nurse hostility and resentment (Harrington & Smith, 2015). Approaching nursing errors from a nonpunitive perspective also influences nurses to be motivated to engage in safe behaviors in their daily practice (Weaver

et al., 2013).

Managing patient safety culture change requires nurse leaders to serve as change agents, demonstrate openness to change, and reward creative and innovative thinking (American Organization for Nurse Executives, 2014). Fostering teamwork and open communication while minimizing organizational hierarchy is fundamental to developing and nurturing a just culture (National Association for Healthcare Quality, 2015). Nurse leaders who evaluate staff performance using nonpunitive and impartial standards experience transparency in error reporting (Harrington & Smith, 2015). Intervention, such as training, can improve nurse perceptions of safety culture (Weaver et al., 2013). Nonpunitive environment implementation training can help establish a strong, protective infrastructure in which nurses feel safe when engaging in responsible, accurate reporting of patient safety concerns. Nurse training is a key component of building a successful program that ultimately improves healthcare safety by eliminating nurses' fears of retaliation for accurate and trustworthy error reporting (National Association for Healthcare Quality, 2015).

The study is also related to the work of Carayon (2010) entitled, "Human Factors in Patient Safety as an Innovation." Patient safety is a global challenge that requires knowledge and skills in multiple areas, including human factors and systems engineering. In this chapter, numerous conceptual approaches and methods for analyzing, preventing and mitigating medical errors are described. Given the complexity of healthcare work systems and processes, we emphasize the need for increasing partnerships between the health sciences and human factors and systems engineering to improve patient safety. Those partnerships will be able to develop and implement the system redesigns that are necessary to improve healthcare work systems and processes for patient safety. The use of Human Factors and Ergonomics (HFE) tools, methods, concepts and theories has been advocated by many experts and organizations to improve patient safety. To facilitate and support the spread of HFE knowledge and skills in health care and patient safety, it was proposed to conceptualize HFE as innovations whose diffusion, dissemination, implementation and sustainability need to be understood and specified. Using Greenhalgh et al. (2004) model of innovation, it identified various factors that can either hinder or facilitate the spread of HFE innovations in healthcare organizations. Barriers include lack of systems thinking, complexity of HFE innovations and lack of understanding about the benefits of HFE innovations. Positive impact of HFE interventions on task performance and the presence of local champions can facilitate the adoption, implementation and sustainability of HFE innovations.

The study is also related to the work of Ribaric (2016) entitled, "The Importance of Human Factors in Patient Safety." Just two decades ago, in the late '90s, the Institute of Medicine presented shocking statistics, comparing the death occurring from medical errors to the equivalent of a jumbo jet crashing every day. As a result, patient safety came into sharper focus and was recognized as a global challenge that requires skills and knowledge in many areas, including human factors. In Europe, the statistics are similarly worrying and fueled by cases where surgeons implant wrong organs into the patient, or even worse – bring the wrong patient into surgery.

Recognizing the significant risk to surgical patients, the topic has received attention from international organizations, such as the World Health Organization (WHO), which published guidelines to improve patient safety in the operating theatre. A 19-item checklist was designed with the goal of reducing the rate of major surgical complications during three time-critical checkpoints: sign-in, timeout, and sign-out. Briefings carried out by operating theatre teams provide an opportunity to identify and resolve issues before a case starts. Debriefings at the end of the theatre list support reflective learning on what went well and what could be done better tomorrow. The checklist also helps to improve the reliability of essential surgical processes by prompting the surgical team to anticipate and prepare for potential problems. It forces a brief period of reflection (the 'time out') in which the theatre team works through a series of questions aimed at highlighting potential problems.

Attitudes towards Patient Safety Culture. The health care system structure is prone to human error. Medical errors remain one of the major challenges health systems worldwide face, with efforts focused on minimizing and reducing their impact. Studies have shown that 3–17% of patients admitted to hospitals experience injury or conditions resulting from medical errors or adverse events (Sari et al., 2007). According to the Institute of Medicine (1999), approximately 44,000 to 98,000 people have died due to medical errors. In the United States,

an estimated 400,000 deaths annually are attributed to medical errors, making them the third leading cause of death (James, 2013). Patients are entitled to safe care from healthcare providers. To reduce medical errors, systemic changes in healthcare policies and procedures are necessary. Although evidence suggests that recurrence of errors can be prevented through reporting systems, errors persist largely due to underreporting. Research shows that 50–96% of medical errors are not reported.

Furthermore, 96% of errors are not evaluated or prevented in the future (Wu, 2011). Numerous studies have explored the use of medical error reporting systems and the barriers nurses face in using them. Identified barriers include the time required to complete reports, lack of awareness about the error, beliefs about the necessity of reporting, denial of the error, embarrassment, or fear of punishment (Mayo, 2004; Uribe et al., 2002). A lack of knowledge about reporting protocols is commonly cited. The U.S. Department of Health and Human Services (2012) found that 86% of medical errors go unreported, partly due to limited understanding of the consequences of unreported errors (Levinson, 2012). Error reporting systems should be prioritized through proper training and evaluation. Identifying and addressing barriers can help improve reporting rates. Positive behavioral change can result from regular, reinforced education (Woodward et al., 2010). Nursing education programs should integrate medical error reporting into the curriculum. Cooper (2012) emphasized that introducing reporting systems early in nursing education can reduce barriers and improve compliance. Effective use of these systems by healthcare providers can significantly reduce preventable errors (Koczmara et al., 2006). It is estimated that more than three million preventable adverse events occur in hospitals annually (U.S. Department of Health and Human Services, 2010). Understanding the root causes of these errors is critical to preventing their recurrence. However, errors often need to be reported before root causes can be analyzed. Given the potentially harmful nature of medical errors, their continued prevalence is unacceptable. Reducing their incidence must be a priority to ensure patient safety (Leapfrog Group, 2013).

Evaluating barriers in error reporting systems is essential to reducing medical errors and improving safety. Nursing students are vital stakeholders in promoting effective error reporting. Promoting clear understanding of errors and related barriers is crucial to increasing reporting system usage. Thus, this study aims to identify the barriers to reporting medical errors among nursing students. Hospitals and healthcare providers must take action to enhance error reporting and improve quality of care by learning from mistakes. Reporting errors should become an embedded culture within healthcare institutions to encourage transparency and reduce fear of punishment. While many studies have examined error reporting from physicians' and nurses' perspectives, few focus on nursing students. Therefore, awareness of the importance of error reporting must begin during nursing education. All healthcare professionals, including students, are expected to report errors. In a study by Balas et al. (2004), only 30% of 393 nurses reported at least one error. Nursing students may hesitate to report errors due to various concerns, but appropriate education and a supportive reporting culture can influence their attitudes positively.

Understanding the barriers to using error reporting systems among students highlights the importance of nursing education in promoting safety culture (Vaismoradi et al., 2015). Yaghoobi et al. (2015), in their study titled "The Incidence of Medication Errors in Nursing Students and Their Views on Not Reporting Errors," found that reporting factors scored highest among the barriers. Forgetting to report errors was the most cited reason. Fear of news spreading among peers and faculty was the most prominent deterrent within the domain of fear. In the management domain, disproportionate reactions by instructors and forgetting to report were major factors. Other significant barriers included unclear definitions of errors, fear of being blamed by physicians, legal consequences, and perceived unimportance of reporting.

Another study (Movahednia et al., 2014) explored the reasons nursing managers, supervisors, and head nurses across clinical wards do not report errors. Key factors included fear of punishment, heavy workload, the burden of reporting, and potential job loss. Interestingly, the perceived cost of ineffective reporting was more important to head nurses than supervisors, while employment contract termination was a greater concern for supervisors. Uribe et al. (2002) also examined reporting barriers among nurses and doctors. The findings emphasized structural and knowledge-related barriers. Their questionnaire helped identify the most modifiable factors, highlighting the need for further focus on knowledge. The Agency for Healthcare Research and Quality proposed two assessments in 2012 to evaluate safety culture: the Patient Safety Culture Survey and the Safety Attitudes Questionnaire (Petter et al., 2011). While these tools assess perceptions of safety, they do not

evaluate knowledge. Many studies have cited lack of knowledge as a significant barrier to reporting (Dolansky et al., 2013; Espin & Mickle, 2014).

Therefore, existing studies should be revised to incorporate knowledge assessment tools. One such tool is the test by Schnall et al. (2008), which evaluates patient safety knowledge, skills, and attitudes. Based on the above literature, the aim of this study is to assess nursing students' patient safety attitudes, skills, knowledge, and perceived barriers to reporting medical errors in Ilam, Iran

Interprofessional Collaboration. Even in industrialized countries, health care is not as safe as it should be. However, this problem has only been identified in recent years as a problem that is inherent in modern healthcare systems. In the 1970 and 1980s, a drastic rise in court actions for treatment errors in the United States forced health care providers to tackle the problem (Cooper et al., 2017). Collaboration in health care can be described as the capability of every health care worker, to effectively embrace complementary roles within a team, work cooperatively, share the responsibilities for problem-solving, and make the decisions needed to formulate and carry out plans for patient care (Fagin, 2012). It has been observed that the interprofessional collaboration between physicians, nurses, and other members of the health care team increases the collective awareness of each other's knowledge and skills. Furthermore, this contributes to the quality of care through the continued improvement in decision-making (Baggs & Schmitt, 2018). The Harvard Medical Practice Study (Brennan et al., 2011; Leape et al., 2011) and a study conducted in Colorado and Utah (Gawande et al., 2012) investigated systematically how often patients were harmed by medical treatment in hospitals. Both studies form the basis of the report on the quality of US health care that was commissioned by the Institute of Medicine (Kohn et al., 2018). For the first time, the public was made aware that modern health care can have negative as well as positive effects. Many industrialized countries subsequently conducted similar studies (McWilson et al., 2015; Vincent et al., 2011) and set up institutions whose objective it is to improve patient safety—among others, the National Patient Safety Agency (NPSA) in the United Kingdom and the German Coalition for Patient Safety (Aktionsbündnis Patientensicherheit, APS) in Germany.

The public is interested in the subject. A 2005 survey conducted by the European Union showed that 72% of Germans and 78% of EU citizens regard medical errors as an important problem. 29% of Germans included in the survey expressed concern that they themselves might be affected by a medical error (Eurobarometer Spezial, 2016). This review article provides an explanatory introduction into the topic of patient safety, focusing on the causes and contributing factors of medical errors, and introducing measures to prevent such errors. The authors assessed relevant scientific articles published since 1990 and discuss national and international activities.

Patient safety is defined as the “absence of adverse events” (Kohn et al., 2018). In the international context, this definition of patient safety is often extended and, in addition to the non-occurrence of adverse events and the activities involved in preventing these, it includes adherence to quality standards and access to healthcare services. Adverse events are all harms occurring in the patient care setting that are not due to the underlying illness itself. They include unavoidable side effects associated with diagnostic or therapeutic approaches—such as hair loss after chemotherapy—and preventable adverse events (PAE) that are caused by erroneous actions—for example, allergic exanthema after administration of penicillin in spite of a patient's known penicillin allergy.

Hospitals are complex working organizations. Different professional groups and skilled employees are - involved in the direct and indirect care of patients. Patients receive treatment simultaneously from representatives from different disciplines or organizational areas. In many areas, work can be organized only as shift work so as to be able to provide services 24/7. These activities require numerous planning and communication processes in order to guarantee rapid and safe service delivery across numerous interfaces. Diagnosis and treatment are often associated with a high risk for complications that may give rise to severe sequelae, especially in vulnerable patients such as neonates, infants, and very old or critically ill patients.

Hand hygiene and medication safety have been identified as important problem areas (Schrappe et al., 2017). Complex hospital structures in particular may negatively affect medication therapy. Errors occur mostly during the prescription, preparation, and administration of medical drugs (Barker et al., 2010). Errors are often due to

mistaking patient or procedures, miscalculation, writing mistakes, reading mistakes, mishearing, or reaching for the wrong substance. There are also other problematic areas including patient information may go missing at the interface of one treating department to the next; necessary treatments may thus be disrupted or continued in an erroneous manner. Patients and/or procedures are mixed up; one patient may be given another's medication or undergo an inappropriate examination (Chassin & Becher, 2012). Patients are often passive "consumers" of health care; they do not participate actively or cannot react because of their illness. The studies from New York (Brennan et al., 2011; Leape et al., 2011) and Utah/Colorado (Gawande et al., 2012) found after retrospective patient chart review that 3.7% of patients (New York) and 2.9% of patients (Utah/Colorado) had experienced adverse events in hospital. 58% and 53% of these events were categorized as avoidable. For Germany, a study such as the Harvard Medical Practice Study is thus far lacking. However, the order of magnitude of the data collected in the US was confirmed in Australia and the United Kingdom (McWilson et al., 2015). A systematic review of 151 international studies of the German Coalition for Patient Safety (APS) showed rates of preventable adverse events of 0.1% to 10% (Conen et al., 2016). The wide range can be explained with the variance of the studies, with different data collection methods and study sizes, and underlines that the unequivocal identification of PAE presents methodological problems. On the basis of a subgroup analysis of the studies, the German Coalition for Patient Safety estimates a death rate due to PAE among hospital patients in Germany of 0.1%. In 17 million hospital patients in Germany, this equates to 17 000 deaths a year.

Most patients worldwide receive outpatient care by their general practitioner. The aspects require special attention—in contrast to inpatient care: Patients often consult their general practitioner at an early stage of disease when symptoms may be non-specific. The risk of overlooking severe, life threatening illnesses may be increased as a result. A high proportion of alleged treatment errors in general practice relates to diagnostic errors (Scheppokat et al., 2014). However, this does not permit the conclusion that diagnostic errors really are the most common errors in this setting. Monitoring an outpatient's treatment and state of health is more difficult than in hospital. The result may be that adverse events are not recognized or recognized too late. Adherence and patient information is much more crucial to therapeutic success (Wachter, 2016). Patients may simultaneously receive care from other service providers that are usually based at a distance (medical specialists, pharmacists, nursing care services, or physiotherapists). There is no common patient file; the communication barriers are higher because no institutionalized pathways exist for such collaborations.

Little information exists about adverse events or preventable adverse events in general practice, and drawing conclusions from inpatient data is problematic owing to the differences described above. A review of 11 studies with different definitions of events and data collection methods calculated a rate of 5 to 80 events per 100 000 consultations, in which patients were harmed or may have been harmed (Sandars & Esmail, 2013). An Australian study asked a representative sample of 86 general practitioners to report anonymously critical incidents from their practice for 12 months. The result was a rate of about 2 reported events per 1000 consultations per year (Makeham et al., 2016).

Since the report "To err is human..." (Kohn et al., 2018) was published, a controversy has surrounded the actual frequency of PAE in health care (Hayward & Hofer, 2011). In view of the methodological problems in collecting all preventable adverse events reliably and completely, conclusive data about the epidemiology should not be expected any time soon. Another reason for this state of affairs is because of the difficulties in judging whether an event was preventable. This assessment always includes the observer's subjective opinion. Any data collection method—whether studying patient files, voluntary reporting, observation, or cases handled by the arbitration boards—represents only a certain section of all PAE and will therefore always estimate different incidence rates (Marang-van de Mheen et al., 2017). Only a fraction of the patients who experience an adverse event in the context of their health care actually go to court. The result is a difference between the actual number of treatment errors and the number counted on the basis of relevant malpractice claims.

Reason (2015), an expert in errors and the causes thereof, thinks that in any PAE, active as well as latent human failures play a part: Active failure relates to unsafe actions such as mistakes and violations, which may be committed by nursing staff or doctors, for example. These persons are involved in direct patient care, and their actions may affect patients immediately and directly.

Latent failures result from decisions made at the senior management level of the organization—for example, as a result of cost effective but user-unfriendly devices, or because of a lack of resources or an unfavorable architectural environment. Negative effects owing to latent failures do not become visible immediately but favor the occurrence of active errors. The interaction between these two components was illustrated by using the “Swiss cheese” model.

Deficiencies in collaboration and communication between healthcare professionals have a negative impact on the provision of healthcare and on patient outcomes (Martin et al., 2010). Policymakers and healthcare managers, as well as clinicians and practitioners, are aware of this and have a growing interest in improving these relationships. To establish new models of care delivery, it is necessary to determine the interventions that are most effective in furthering interprofessional collaboration. This article provides an overview of the evidence base for interprofessional collaboration involving doctors and nurses and new models of care in relation to patient outcomes. The major components of the interventions involved individual evidence-based treatment plans, care coordination, health status monitoring, coaching in self-management and promotion of community-based services. They varied between a few days' and three years' duration. Outcome measures incorporated mortality, clinical, functional and social outcomes, and utilization of medical services. Some studies also used patient-reported outcomes.

Interprofessional collaboration is not a new concept in the field of medical sciences (Petri, 2010). Researchers believe that no singular profession operating alone, can respond to all care demands (Martin et al., 2010). Collaboration is necessary to promote patient care, and is associated with enhanced patient outcome (Mueller et al., 2015). A new culture supporting behavior regarding cooperation among nurses and physicians, seems to be mandatory, to merge their unique strengths and to promote patient consequences (Nair et al., 2012). The development of interprofessional collaboration is an important issue, which can facilitate transfer of information and provision of coordinated services. Effective collaboration among team members in clinical settings is essential for providing safe and reliable care (Lyndon et al., 2011). The evidence demonstrates that interprofessional collaboration among medical team members is one of the main factors preventing patient injury and organizational conflicts (Ten Have et al., 2013). Currently, studies underscore that nurses have lower satisfaction with physician-nurse cooperation than physicians do (Kenaszchuk et al., 2010). The basic barrier to improving patient safety and reducing costs is a lack of collaboration among team members (Titzer et al., 2011). Previous studies indicated considerable differences in physician-nurse mutual collaboration (O’Leary et al., 2010). Defective collaboration among team members is responsible for medical errors in sixty percent of the cases (Martin et al., 2010). The scarcity of domestic studies based on a qualitative approach and grounded theory, and the researcher’s several years of experience in Mashhad University of Medical Sciences, Mashhad, Iran, instigated us to perform this study to understand the differences in organizational backgrounds, structures, and behavior regarding cooperation between clinical groups. Qualitative and quantitative studies were carried out on interdisciplinary collaboration, but the dynamic of this collaboration is context-dependent. Collaboration is an inter-human process, in which several factors mediate communication among professionals (Kaldheim & Slettebo, 2016). Collaboration is a social process hinged on human interaction, and qualitative approaches are applied, for the study of this phenomenon (Fewster Thuente, 2011).

Communication. In today’s health care system, delivery processes involve numerous interfaces and patient handoffs among multiple health care practitioners with varying levels of educational and occupational training. During the course of a 4-day hospital stay, a patient may interact with 50 different employees, including physicians, nurses, technicians, and others. Effective clinical practice thus involves many instances where critical information must be accurately communicated. Team collaboration is essential. When health care workers are not communicating effectively, patient safety is at risk for several reasons: lack of critical information, misinterpretation of information, unclear orders over the telephone, and overlooked changes in status (Joint Commission on Accreditation of Healthcare Organizations, 2015).

Lack of communication creates situations where medical errors can occur. These errors have the potential to cause severe injury or unexpected patient death. Medical errors, especially those caused by a failure to communicate, are a pervasive problem in today’s health care organizations. According to the Joint Commission (formerly the Joint Commission on Accreditation of Healthcare Organizations, JCHAO), if medical errors appeared on the National Center for Health Statistic’s list of the top 10 causes of death in the

United States, they would rank number 5—ahead of accidents, diabetes, and Alzheimer’s disease, as well as AIDS, breast cancer, and gunshot wounds.¹ The 1999 Institute of Medicine (IOM) report, *To Err Is Human: Building a Safer Health System*, revealed that between 44,000 and 98,000 people die every year in U.S. hospitals because of medical errors (Institute of Medicine, 2010). Even more disturbing, communication failures are the leading root cause of the sentinel events reported to the Joint Commission from 1995 to 2004. More specifically, the Joint Commission cites communication failures as the leading root cause for medication errors, delays in treatment, and wrong-site surgeries, as well as the second most frequently cited root cause for operative and postoperative events and fatal falls (Joint Commission on Accreditation of Healthcare Organizations, 2010).

Traditional medical education emphasizes the importance of error-free practice, utilizing intense peer pressure to achieve perfection during both diagnosis and treatment. Errors are therefore perceived normatively as an expression of failure. This atmosphere creates an environment that precludes the fair, open discussion of mistakes required if organizational learning is to take place. In the early 1990s, Donald Berwick wrote about patients needing an open communication system instead of experiencing adverse events stemming from communication failures.³ More than a decade later, this concept still has profound implications on our method of health care delivery. As such, this chapter will review the literature on the important role of communication and team collaboration in helping to reduce medical errors and increase patient safety.

The study is related to the work of Weller et al. (2011) entitled, “Interprofessional Collaboration among Junior Doctors and Nurses in the Hospital Setting.” Evidence suggests that doctors and nurses do not always work collaboratively in health care settings and that this contributes to suboptimal patient care. However, there is little information on interprofessional collaboration (IPC) among new medical and nursing graduates working together for the first time in a multidisciplinary health care team. Our aim was to understand the nature of the interactions, activities and issues affecting these new graduates in order to inform interventions to improve IPC in this context. It interviewed 25 junior doctors and nurses and explored their experiences of working together. Interviews were transcribed, entered into a qualitative analysis software package and data were coded against a theoretical framework for health care team function. Although interviewees expressed mutual respect, organizational structures often limited the extent to which they could establish professional relationships. Sharing information and agreeing goals were considered fundamental to good decision making, but the working environment and differing perspectives could make this difficult to achieve. Our data suggest that junior doctors and nurses see themselves as having complementary and non-competitive roles in patient care. The establishing of an interprofessional team was seen to require leadership, which was not always apparent. Without leadership, new members were not always well oriented to the team. The need to maintain an environment in which open communication could take place was acknowledged as important for patient safety, but there were some barriers to achieving this. Our data highlight the professionalism, respect and adaptability of these junior health professionals.

Legal Basis for Patient Safety. The PhilHealth accreditation program aims to use accreditation as a key tool for installing a culture of quality and safety in hospitals while ensuring members’ universal access to health care. Hospitals must provide care that is timely, safe, patient-centered and effective. Just as importantly hospitals are challenged to ensure that such care provides value for money, conserves healthcare resources and promotes health equity. PhilHealth will engage such hospitals in a special way through incentives such as recognition and marketing of accredited facilities via recognition and award system, infrastructure and quality improvement opportunities, and establishing a preferred facility status for accredited health facilities. PhilHealth members are encouraged to seek care from these hospitals because of the organizations’ abilities to offer financial risk protection through such policies as case rate payments, all - in service package rates and no balance billing (The Philippine Health Insurance Corporation, n.d.).

Synthesis

Patient safety culture must be developed in all health care settings. It protects not only the members of the health care team as most especially the patients. It guarantees better patient outcomes. One component of a safety culture is the collaboration among members of the health care team. Members therein should be able to develop a strong bond of collaboration not just for the development of a harmonious relationship among

members but because the care of patients is interdisciplinary such that it strongly requires interprofessional collaboration.

RESEARCH METHODOLOGY

Design. This quantitative study made use of the descriptive-correlational design. In the study, it determined the patient safety culture, attitude on patient safety, and the interprofessional collaboration among healthcare professionals in a government hospital. It further determined the challenges encountered by the healthcare professionals in attaining interprofessional collaboration. The correlational design answered the relationship of the variables. Specifically the study was predictive in nature as well. Since it assessed whether the facets of patient safety culture predict interprofessional collaboration.

Environment. The study was conducted in Isulan, Sultan Kudarat. Isulan, officially the Municipality of Isulan is a first-class municipality in the province of Sultan Kudarat, Philippines. It is the provincial capital of Sultan Kudarat.

Respondents. The respondents of the study were the healthcare professionals in Sultan Kudarat Provincial Hospital. There were 248 respondents. Of the 248 respondents, 34 are doctors, 168 are coming from the nursing service, 16 medical technologists, 12 pharmacists, 8 coming from the Radiology department, and 10 from the Dietary department.

Sampling Design. No sampling was done as the study invited all qualified respondents to participate in the study. In doing so, a complete enumeration was done. This was primarily done to make sure that the entire population will be included in the study to yield a more valid and reliable study finding.

Inclusion Criteria. To be a part of the study, respondents must have the following: (a) Of legal age regardless of sex, religion, marital status, educational attainment; (b) must have served the institution for at least 3 months; (c) the study is only limited to the following healthcare professionals-doctors, nurses, physical/occupational therapists, respiratory therapists, social workers, medical technologists, and pharmacists; those not mentioned are excluded from the study; (d) those who healthcare professionals who are just waiting for the effective dates of their resignation and retirement are excluded from the study; (e) they must be willing to give voluntary consent..

Exclusion Criteria. Those who do not meet these criteria or refuse consent are excluded. Participants can withdraw if uncomfortable with any part of the study.

Instrument. The researcher utilized adapted instruments consisting of four parts. The first part measured Patient Safety Culture, based on the standardized tool developed by the Agency for Healthcare Research and Quality (AHRQ, 2016), specifically from the Hospital Survey on Patient Safety Culture: 2016 User Comparative Database Report. This section comprised 12 dimensions and 45 items, using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). It included four items each for the dimensions of teamwork within units, supervisor/manager expectations and actions promoting patient safety, overall perceptions of patient safety, teamwork across units, staffing, and handoffs and transitions. Three items each measured organizational learning and continuous improvement, management support for patient safety, feedback and communication about error, frequency of events reported, communication openness, and non-punitive response to error. Additionally, there were 9 questions related to communication openness, 4 on management support for safety, 1 on organizational learning, 4 addressing staff feedback, training, and discipline, 6 on teamwork, 4 on work environment, 5 on work satisfaction, and 2 items assessing overall perceptions of organizational safety and quality.

The second part of the questionnaire assessed healthcare professionals' attitudes toward patient safety. This was adapted from the study by Kim et al. (2007) titled *Questionnaire Survey Exploring Healthcare Professionals' Attitudes towards Teamwork and Safety in Acute Care Areas in South Korea*. It included domains such as leadership structure, confidence/assertion, information sharing, teamwork, stress and fatigue, work values, organizational climate, error/procedural compliance, and error management. This section was

also measured using a 4-point Likert scale: 4 (Strongly Agree), 3 (Agree), 2 (Disagree), and 1 (Strongly Disagree). Interpretation of the scores followed these ranges: 3.30–4.00 (Strongly Agree, Very Good – indicating that patient safety culture is very evident), 2.51–3.30 (Agree, Good – evident), 1.81–2.50 (Disagree, Fair – less evident), and 1.00–1.80 (Strongly Disagree, Poor – not evident). A second interpretation framework was also included, categorizing attitudes as Very Positive (4.21–5.00), Positive (3.41–4.20), Neither Positive nor Negative (2.61–3.40), Negative (1.81–2.60), and Very Negative (1.00–1.80).

The third part of the instrument measured interprofessional collaboration using the Interprofessional Collaboration Scale developed by Kenaszchuk et al. (2010). This part focused on the domains of communication, accommodation, and isolation, and also used a 4-point Likert scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). The interpretations of the scores were as follows: 3.26–4.00 (Very High – collaboration is consistently manifested), 2.51–3.25 (High – collaboration is frequently manifested), 1.76–2.50 (Low – collaboration is occasionally manifested), and 1.00–1.75 (Very Low – collaboration is not manifested).

Lastly, the fourth part of the questionnaire consisted of a single open-ended question designed to identify various challenges encountered by healthcare professionals in achieving interprofessional collaboration. This section allowed respondents to share specific barriers or issues they experienced in their professional practice.

Data Gathering Procedures. The researcher asked permission from the Dean of the College of Nursing, Graduate Studies of University of Visayas and the Chief of Hospital of Sultan Kudarat Provincial Hospital to conduct the study. When granted the permission, the study was subjected to a group of panel members to assessed the technical aspect of the study. The study was further submitted to the University Institutional Review Board (IRB) for ethical assessment. When a notice to proceed was issued, recruitment of respondents started. Voluntary consent was essential for the respondents to be able to participate and this was done by means of the signed informed consent. The researcher administered the questionnaire on all respondents in the hospital during their free time so as to avoid the disruption of work. The doctors, nurses, and other allied healthcare professionals answered different questionnaires that assessed the interprofessional collaboration part. The data was gathered, tabulated, analyzed, and interpreted. Finally, the results was documented through tabular presentations, after treating them statistically. Tables was presented with interpretations, analysis and supporting related literature and studies.

As for the challenges encountered by the healthcare professionals in attaining professional collaboration, the researcher administered the questionnaire to nine (9) different hospital staff: nurse, doctor, physical/occupational therapist, respiratory therapist, social worker, medical technologist, pharmacist, dietician, and ancillary. The data gathering was in a form of focus-group discussion (FGD) where all the aforementioned staff from different departments was called for a discussion in a room given their free time. In that way, the participants had better grasped of the question regarding the challenges they have encountered in the attainment of interprofessional collaboration. However, when the focus-group discussion is not possible, a questionnaire has handed out to the participants. The researcher applied thematic content analysis where the responses of the participants was grouped for themes. The data was tabulated, analyzed, and interpreted. Finally, the results was documented.

Statistical Treatment of Data. The researcher used the following tools for data treatment.: a) Frequency and Percentage is the number of times an event occurred in an experiment or study (Carlson & Winquist, 2014) while the percentage is the ratio of the frequency divided by the number of events times 100. In the study, the frequency and percentage the challenges in attaining the interprofessional collaboration among healthcare professionals who participated in the study; b) The mean is the statistical measurement of central tendency or average of a set of values, usually assumed to be the arithmetic mean unless otherwise specified (Rouse, 2018). In short, it is the average of a given number. In the study, it measures the attitudes on human factors and patient safety as well as the interprofessional collaboration of the healthcare workers in a government hospital; c) Pearson-r is the tool measures the relationship of the two, quantitative variables. In the study, it will answer the relationship between patient safety culture and the interprofessional collaboration of the healthcare workers in a government hospital; d) Multiple Linear Regression measures the predictors of a given dependent variable from a set of independent variables. In the study, this will be used to assess which facet of attitudes on human factors and patient safety predict interprofessional collaboration

Ethical Consideration. The study was approved by the University of the Visayas--Institution Research Board. See the appendices for the ethical considerations.

Presentation, Interpretation and Analysis of Data

Table 1. Attitude on Patient Safety Culture of the Healthcare Workers

Dimensions	Factor mean	Interpretation
Leadership Structure	3.22	Neither Positive nor Negative
Confidence Assertion	2.87	Neither Positive nor Negative
Information Sharing	3.47	Neither Positive nor Negative
Teamwork	3.03	Neither Positive nor Negative
Stress and Fatigue	3.04	Neither Positive nor Negative
Work Values	3.20	Neither Positive nor Negative
Organizational Climate	3.23	Neither Positive nor Negative
Error/Procedure Compliance	2.83	Neither Positive nor Negative
Error Management	2.86	Neither Positive nor Negative
Overall Mean	3.07	Neither Positive nor Negative

Legend: 4.21 to 5.00 = very positive, 3.41 to 4.20 = positive, 2.61 to 3.40 = neither positive nor negative, 1.80 to 2.60 = negative-, 1.00 to 1.80 = very negative

Leadership structure is rated nether negative nor positive. This means that attitude on patient safety culture among healthcare workers is nether present nor absent. An organization's leadership structure determines how workflow, accountability and authority work together (Uhlig, 2018). Hierarchical leadership employs a top-down, pyramid-shaped structure with a narrow center of power that trickles down to widening bases of subordinate levels. Nonhierarchical leadership flattens the pyramid to form a structure with decentralized authority and fewer levels. Effective organizational design applies the structure that's likely to be most effective in helping the organization achieve its mission. However, healthcare workers some are appropriate and some, inappropriate where team decision has to be relied on the medical team and that leadership should be coming from their unit. Confidence assertion is rated neither positive nor negative. This means that attitude on patient safety culture among healthcare workers is neither present nor absent. Speaking up is important for patient safety, but often, health care workers hesitate to voice concerns (Okuyama et al., 2014). Understanding the influencing factors can help to improve speaking-up behaviour and team communication. There is hesitancy to speak up that can be an important contributing factor to communication errors. Healthcare professionals barely voice out their concerns.

Information sharing is rated positive. This means that attitude on patient safety culture among healthcare workers is evident. A safety culture is the product of individual and group values, attitudes, perceptions, competencies, and goals that determines the degree to which health care organizations seek to minimize patient harm (Sirio et al., 2005). Embedded therein is a sharing of information about the importance of patient safety and the capacity to take action to change the system so that it works better. This capacity evolves from an explicit organizational vision to improve patient safety, a chief executive officer (CEO) and clinician focus and commitment to achieve specific patient safety goals, and a collaborative approach to patient safety improvement based on interdisciplinary training and teamwork with shared responsibility. However, in the case of the healthcare professionals, information sharing is evident. Error reporting systems and associated

information sharing and problem-solving processes support the ability of organizations and individuals to identify and learn from past system failures and unsafe conditions that could lead to system failures, and redesign care processes so that all identified problems are shared through meetings to keep them from recurring. Teamwork is rated neither positive nor negative. This means that attitudes on patient safety culture of the health workers is neither present nor absent. Assessing the organization's existing safety culture is the first stage of developing a safety culture and hence, teamwork is extremely important (Theodosios, 2014). Patient safety culture assessments, required by international accreditation organizations, allow healthcare organizations to obtain a clear view of the patient safety aspects requiring urgent attention, identify the strengths and weaknesses of their safety culture, help care giving units identify their existing patient safety problems, and benchmark their scores with other hospitals. Teamwork may be present within departments but does not work often when working with other departments.

Stress and fatigue is rated neither positive nor negative. This means that attitude on patient safety culture among healthcare workers is neither present nor absent. Paying attention to patient safety is a basic right and a necessary issue in providing medical care, and failure to observe it leads to irreparable damage (Asefzadeh et al., 2017). One of the factors affecting an individuals' performance in an organization is stress, which also endangers their health.

Work values is rated neither positive nor negative. This means that attitudes on patient safety culture among healthcare workers is neither present nor absent. The safety culture of an organization is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's health and safety management (Nieva & Sorra, 2018). However, the researcher observes that in the organizations, there's positive and negative safety cultures are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures and at the same time, non-collaboration among healthcare workers.

Organizational climate is rated neither positive nor negative. This means that attitude on patient safety culture among healthcare workers is neither present nor absent. Patient safety climate is defined as the measurable characteristics of organizational culture, via perceptions and attitudes of individuals at a given time (Santiago and Turrini, 2015). There is no clear organizational climate in the hospital as there are times when the climate for collaboration and implementation are okay. There are also times when patient safety is not practiced at all, which may be due to burnouts among hospital staff brought about by the number of demands from the patients and supervisors and the shifting issues.

Error or procedural compliance is rated neither positive nor negative. This means that attitudes on patient safety culture among healthcare workers is neither present nor absent. Adverse events and errors in healthcare organizations are often the result of faulty processes, lack of coherent information, and outdated systems (Becker, 2018). Hence, patient safety has to be designed and built through a systematic and holistic approach that focuses on the underlying causes that can lead to poor quality, and establishes mechanisms to minimize risks. With poor attitude, the outcome is a less enhanced patient safety that ultimately results in less effective and less proactive quality management. Error management is rated neither positive nor negative. This means that attitude on patient safety culture among healthcare workers is neither present nor absent. A culture of patient safety reflects the values, assumptions, and norms related to communication, error management, transparency, a learning orientation, and teamwork that are shared among clinicians and staff (Weaver et al., 2016). The culture of safety in a given team, unit, department, or organization is a contextual variable that shapes clinician and staff perceptions about the importance of patient safety relative to other practice goals, as well as norms related to speaking up and disclosing unanticipated issues. However, it was observed that there is a poor patient safety culture on error management in the hospital. The researcher suggests identifying improvement needs and evaluating interventions targeting liability-related issues, such as disclosure, transparency, and event reporting.

Overall, the quality of service the hospital's healthcare workers is poor. Despite recent advancement in the treatment of different patients, human interactions in new healthcare systems, along with the use of complex technologies and modern therapies, have resulted in undesirable outcomes from the frontliners of

health – the healthcare workers and are said to cause many medical errors or incidents. These incidents, which may follow treatment procedures, have always been a major concern among medical professionals. Quality of care is one of the most significant issues in in this hospital. Today, patients tend to have more specific expectations and hospital care services revolve around meeting the needs of the patients. Hence, the values, attitudes, understanding, qualifications, and behavioral patterns of the healthcare workers and groups manifesting the commitment, approaches, and skills an organization in terms of safety management are very less evident in the hospital.

Table 2. Patient Safety Culture among Health Care Workers

Dimensions	Factor Mean	Interpretation
Teamwork Within Units	2.05	Fair
Supervisor/Manager Expectations & Actions Promoting Patient Safety	2.06	Fair
Organizational Learning – Continuous Improvement	2.04	Fair
Management Support for Patient Safety	2.04	Fair
Feedback and Communication About Error	2.07	Fair
Overall Perceptions of Patient Safety	2.04	Fair
Communication Openness	2.08	Fair
Teamwork Across Units	2.04	Fair
Staffing	2.04	Fair
Handoffs and Transitions	2.03	Fair
Nonpunitive Response to Error	2.09	Fair
Overall Mean	2.05	Fair

Legend: 3.26 – 4.00 is Very Good - This means that patient safety culture in the hospital is very evident; 2.51 – 3.25 is Good - This means that patient safety culture in the hospital is evident; 1.76 – 2.50 is Fair - This means that patient safety culture in the hospital is less evident; and 1.00 – 1.75 is Poor - This means that patient safety culture in the hospital is not evident.

The overall patient safety culture is rated fair. This means that patient safety culture in the hospital is less evident. The patient safety culture of the hospital is not safe, effective, patient-centered, timely, efficient, and equitable. The hospital is not able to avoid injuries to patients from the care that is intended to help them. Teamwork within units is rated fair. This means that patient safety culture in the hospital is less evident. There is less interprofessional teamwork and collaboration that improve patient outcomes and access to health care. The healthcare workers who serve as part of a team are less effective. The professionals rarely reflect and develop ways of practicing that provides an integrated and cohesive answer to the needs of the client/family/population (D’Amour & Oandasan, 2005).

The highest indicator shows that people support one another in this unit is rated fair. This means that patient safety culture in the hospital is less evident. There is less collaboration within the units that will ensure quality health care. Collaboration is described as conveying “the idea of sharing and implies collective action oriented

toward a common goal, in a spirit of harmony and trust, particularly in the context of health professionals” (D’Amour et al., 2005). However, interprofessional collaboration is not negotiated between professionals that values the expertise and contributions that various healthcare professionals bring to patient care and is less effective when there is less or no communication at all; the diverse opinions among team members is less evident. In a review of the literature on collaborative practice, D’Amour et al (2005) identified the following four concepts related to collaboration: sharing, partnership, interdependency, and power. However, it is less evident in the hospital. The lowest indicator shows that people treat each other with respect is rated fair. This means that patient safety culture in the hospital is less evident. Nurses and physicians extremely contribute to the patient care but often do not appreciate the role of each other as the nurses and physicians view collaborations differently and hence, respect is less evident. Doctors and nurses viewed collaboration differently; doctors view collaboration as following the instructions and the orders, while nurses view it as a complementary role more significantly than physicians do (Baggs et al., 2017). Bujak and Bartholomew (2011) suggest that presently the two most important people responsible for patient care are the nurses and the physicians, but they often do not talk to each other properly, and when they do, the interchange is often dysfunctional. Traditionally, relationship between the physicians and the nurses is hierarchical and is characterized by doctors’ dominance and nurses are viewed as assistant rather than a partner of holistic patient care (Vazirani et al., 2015). Supervisor/manager expectations & actions promoting patient safety is rated fair. This means that patient safety culture in the hospital is less evident. The less time managers spent and work can barely influence quality and safety clinical outcomes, processes and performance. There is a dearth of empirical studies, further weakened by a lack of objective outcome measures and little examination of actual actions undertaken and thus, it affects quality performance (Parand et al., 2014).

The highest indicator shows that supervisor/managers seriously consider staff suggestions for improving patient safety is rated fair. This means that patient safety culture in the hospital is less evident. Managers, given their busy schedules, find less time to improve the business processes within their departments and are not able to give feedback to upper management for improvements. Underreporting has been linked to perceived lack of management responsiveness (Clarke, 2018) and organizational safety climate (Zohar, 2013). Yet, little research explores other factors that could be related to underreporting of medical errors/events. Learning about the factors that impact reporting can help us better to understand how to mitigate organizational training design and promote patient safety climate within the medical setting. One relatively neglected area within the literature involves the impact that supervisor expectations have on staff’s patient safety perceptions, and ultimately, event reporting. The lowest indicator shows that their supervisor/manager says a good word when he/she sees a job done according to established patient safety is rated fair. This means that patient safety culture in the hospital is less evident. Leaders play a large role in the development of the culture and have often identified as the key factor in organizational effectiveness (Hackman, 2010). However, the supervisors/managers create less impact among subordinates and finding time to appreciate subordinates is less evident.

Organizational learning - continuous improvement is rated fair. This means that patient safety culture in the hospital is less evident. The organization is not keen on the improvements for patient safety, which is by far an organizational problem. Harm to patients is often the result of system-level failures as well as individual error (Kohn et al., 2018). Improving patient safety therefore requires learning by groups and organizations as well as by individuals. We argue in this paper that, in order for adoption of safety performance measures and indicators such as the PSIs to lead to safety improvement, these measures must contribute to patient safety learning at the organizational level, and not merely to the evaluation of providers. The highest indicator shows that after making changes to improve patient safety, people evaluate their effectiveness is rated fair. This means that patient safety culture in the hospital is less evident. The hospital does not regularly conduct balanced score cards whether protocols for safeguarding processes are followed or not. Patient safety improvement requires organizational learning at the system level, which entails changes in organizational routines that cut across divisions, professions, and levels of hierarchy (Rivard et al., 2016). This learning depends on data that are varied along a number of dimensions, including structure-process-outcome and from granular to high-level; and it depends on integration of those varied data. The lowest indicator shows that mistakes have led to positive changes is rated fair. This means that patient safety culture in the hospital is less evident. Mistakes led to compromised safety of the patients. To establish a safety culture within the organization, big budget cuts are needed as they are expensive, not easy to use and are subject to biases. From

an organizational learning perspective, PSIs have both limitations and potential contributions as sources of patient safety data. While they are not detailed or timely enough when used alone, their simplicity and reliability make them valuable as a higher-level safety performance measure. They offer one means for coordination and integration of patient safety data and activity within and across organizations (Hackman, 2010; Rivard et al., 2016).

Management support for safety is rated fair. This means that patient safety culture in the hospital is less evident. Managers in healthcare have a legal and moral obligation to ensure a high quality of patient care and to strive to improve care. However, these managers who are in a prime position to mandate policy, systems, procedures and organizational climates often oversee patient safety and sees it not as the top priority but on the return of investments of the hospital. Many have argued that it is evident that healthcare managers do not possess important roles in quality of care and patient safety (Kizer, 2011). The highest indicator shows that the actions of hospital management shows that patient safety is a top priority is rated fair. This means that patient safety culture in the hospital is less evident. When we talk about patient safety, we are really talking about how hospitals and other health care organizations protect their patients from errors, injuries, accidents, and infections. While many hospitals are good at keeping their patients safe, some hospitals are not. As many as 440,000 people die every year from preventable errors in hospitals (The Leap Frog Group, 2019). Some hospitals have hidden dangers, but there are things you can do to protect yourself and your loved ones.

The lowest indicator shows that hospital management seems interested in patient safety only after an adverse event happens is rated fair. This means that patient safety culture in the hospital is less evident. The poor leadership and poor quality management only created adverse effects in the patient safety culture of the hospital. Despite the recurring number of problems on safety in the hospital, managers turn blind eye on them. Others highlight the literature focus on the difficulties of the managers' role and the negative results of poor leadership on quality improvement (QI) rather than considering actions that managers presently undertake on quality and safety (Gaucher & Kratochwill, 2013). Consequently, little is known about what healthcare managers are doing in practice to ensure and improve quality of care and patient safety, how much time they spend on this, and what research-based guidance is available for managers in order for them to decide on appropriate areas to become involved. Feedback and communication about the error is rated fair. This mean that patient safety culture in the hospital is less evident. Patient safety is an important indicator of quality of healthcare (Berwick et al., 2013). Therefore, enhancing and guaranteeing patient safety is a high priority for healthcare providers. Today, promoting a positive patient safety culture has become one of the pillars for improving patient safety (Nieva & Sorra, 2013). Patient safety culture can be described as the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization's health and safety management (Nieva & Sorra, 2013; Wagner et al., 2013). However, feedbacking particularly on medication error is less evident.

The highest indicator shows that respondents discuss ways to prevent errors from happening again is rated fair. This means that patient safety culture in the hospital is less evident. Healthcare professionals find them difficult tracking those who made medication errors and thus, find it hard to create prevention programs for most reports submitted are lacking, like specific recommendations and improvement strategies. The majority of the healthcare professionals agreed or partly agreed that the feedback on patient safety culture stimulated actions to improve patient safety culture (Zwijnenberg et al., 2016). However, a quarter also stated that although the feedback report provided insight into the patient safety culture, they did not know how to improve patient safety culture in their hospital.

The lowest indicator shows that respondents are informed about errors that happen in this unit is rated fair. This means that patient safety culture in the hospital is less evident. Enhancing an open culture in which errors and adverse events can be discussed may help reduce medical errors, and thereby improve patient safety (Wagner et al., 2013). However, many staff in the hospital do not report medication errors honestly for fear of being sued or fired by the hospital.

Frequency of events reported is rated fair. This means that patient safety culture in the hospital is less evident. Educational interventions that increase knowledge of what patient safety events to report, demonstrate use of the reporting system, and encourage and educate physicians on their responsibility for patient safety have

shown to increase patient safety event reporting (Louis et al, 2016). While many hospitals report the frequency of events, the hospital's healthcare professionals rarely report the events. Although reporting frequency increases initially following educational interventions, event reporting sustainability is difficult to maintain. Continued education and timely feedback of events reported and resulting system changes help maintain a culture that is committed to ongoing patient safety event reporting (Boike et al., 2013). The lowest indicator shows that when a mistake is made but is caught and corrected before affecting the patient, how often is this reported? It is rated fair. This means that patient safety culture in the hospital is less evident. Reporting errors is fundamental to error prevention. The focus on medical errors that followed the release of the Institute of Medicine's (IOM) report *To Err Is Human: Building a Safer Health System* centered on the suggestion that preventable adverse events in hospital were a leading cause of death in the United States (Wolf & Hughes, 2018). The researcher believes that less reporting is done and clinicians' fears of lawsuits and their self-perceptions of incompetence could be dispelled by organizational cultures emphasizing safety rather than blame.

Overall perception of patient safety is rated fair. This means that patient safety culture in the hospital is less evident. Patient safety in health care includes safety of both patients (clients) and health-care providers (HCP). It is clinical, economical, managerial, and organizational concern in the health-care system. Patient safety culture is a key driver of health-care quality. Patient safety emphasizes reporting, analysis and prevention of medical errors that often lead to adverse health events (Longest, 2016). However, the case of the hospital, there is less reporting and analysis on the prevention of medication errors, which again is an organizational problem.

The highest indicator shows that hospital procedures and systems are good at preventing errors from happening is rated fair. This means that patient safety culture in the hospital is less evident. The hospital may have imposed several systems such as balanced score cards to ensure that protocols for safety are followed but the healthcare professionals are less keen to applying safety nets, which may be due to burnout and shifting problems. Most of the adverse events are preventable and occur due to defect in design of system or organization rather than poor performance of healthcare professionals. Clients are not only harmed by misuse of technology but also could be harmed by poor communication between different HCP or in rendering treatment (Assefa et al., 2012). The lowest indicator shows that patient safety is never sacrificed to get more work done is rated fair. This mean that patient safety culture in the hospital is less evident. The advancement of patient safety requires a fundamental change in the healthcare culture. Reducing harm through an improved safety culture is a global priority. Policymakers, payers and groups such as the Agency for Healthcare Research and Quality, National Patient Safety Agency and WHO have developed numerous safety initiatives at the national and institutional levels (Liao et al., 2014). However, most of these initiatives targeted doctors, managers and other healthcare professionals and rather less attention has been paid to medical students, who are the next generation of medical workers (Kirch & Boysen, 2010). It is essential for medical students to have a good understanding of the patient safety culture because it will doubtlessly influence their attitude towards patient safety issues throughout their working lives.

Communication openness is rated fair. This means that patient safety culture in the hospital is less evident. A culture of openness in the hospital is critical to improving the quality and safety of healthcare. The overwhelming majority of patients receive safe and effective care (Medical Protection Society, 2018). However, when things do go wrong, it can be catastrophic for all involved. Effective communication after an adverse outcome lies at the core of rebuilding trust and supporting healing for the patient, their loved ones and the healthcare team involved. Poor or no communication compounds the harm and distress that has already been experienced. The highest indicator shows that staff are afraid to ask questions when something does not seem right is rated fair. This means that patient safety culture in the hospital is less evident. Nurses are less likely to ask questions given an intimidating supervisor (Kirch & Boysen, 2010). Nurses are also intimidated by the doctor's presence, which is an ugly culture in the Philippine setting where doctors perceive themselves to be better compared to other professions. The lowest indicator shows that staff feel free to question the decisions or actions of those with more authority is rated fair. This mean that patient safety culture in the hospital is less evident. Employees who are subordinates are less likely to question a certain process or procedure from their bosses.

Teamwork across units is rated fair. This means that patient safety culture in the hospital is less evident. Interdisciplinary teamwork is an important model for delivering health care to patients. Teamwork in health is defined as two or more people who interact interdependently with a common purpose, working toward measurable goals that benefit from leadership that maintains stability while encouraging honest discussion and problem solving (Salas, 2012). Researchers have found that integrating services among many health providers is a key component to better treat un-deserved populations and communities with limited access to health care (Pinto et al., 2012). However, there is less teamwork within units as they have no clear purpose in the implementation of protocols and procedures. The highest indicator shows that it is often unpleasant to work with staff from other hospital units is rated fair. This means that patient safety culture in the hospital is less evident. With the less collaboration of staff from other units, the researcher then finds it unpleasant to work with other people. Health teams are often made up of a variety of professionals – called cadres in health care – each with specialized knowledge and responsible for different tasks. These multidisciplinary teams are made up to solve health problems (Canadian Health Services Research Foundation, 2016). Successful health teams strive to understand the patient’s situation, ask probing questions about the problem, make an initial assessment and, after discussion, provide a recommendation. However, teams do not work together to develop health promotion for diverse communities and instill disease prevention behaviors amongst patients. The lowest indicator shows that hospital units do not coordinate well with each other is rated less evident. This means that patient safety culture in the hospital is less evident. Which hospital units coordinate, the sense of ego across departments are felt and thus, affecting collaboration among healthcare professionals to deliver quality health care.

Staffing is rated fair. This means that patient safety culture in the hospital is less evident. Staffing formulas and guidelines have been driven by the need to ensure all patient populations receive the highest level of safe, quality care. However, nurse-related staffing formulas and guidelines assume that all nurses practice with the same level of vigilance and expertise. They also assume that all nurses exhibit the same level of critical thinking and clinical judgment and are able to access vital resources in a timely fashion when a patient's condition deteriorates or his or her safety and well-being are at risk. Several professional nurse practice models acknowledge the importance of appropriate nurse staffing as it relates to patient safety and care outcomes (Benner, 2014). They do so, however, within a complex framework of interrelated and dynamic nursing and patient variables, not the least of which include nurse characteristics, such as nursing practice, role development, competencies, shared learning, and mentoring, and patient characteristics, such as level of stability, participation in decision making, and vulnerability. The highest indicator shows that respondents work in “crisis mode” trying to do too much, too quickly is rated fair. This means that patient safety culture in the hospital is less evident. Given the nurse-to-patient ratio, nurses work their way too fast to give care to the patients and hence, giving less quality of patient care. The lowest indicator shows that respondents use more agency/temporary staff that is best for patient care with a mean score of 1.98, which is rated fair. This means that patient safety culture in the hospital is less evident. Again, the nurse-to-patient ratio shows disparity, which means that hospitals cannot cope up the demands of hiring nurses who are either seeking employment abroad or have shifted careers like call centers.

Handoffs and transitions is rated fair. This means that patient safety culture in the hospital is less evident. Clinical handoffs occur in many places along the healthcare value chain. It involves the transfer of professional responsibility and accountability for some or all aspects of care for a patient, or groups of patients, to another person or professional group on a temporary or permanent basis (BMA, 2014). For example, nursing handovers occur very frequently, not only between shifts and among part-time nurses, but also because nurses serve as the communication partner and informal coordinator for all healthcare professionals to ensure the continuity of care in a 24-hour seven-days-a-week environment (Institute of Medicine, 2016). The transfer of professional responsibility became salient for residents due to increased work-hour restrictions in U.S. residency programs, which shortened the continuity of care and increased the number of shift changes (Borowitz et al., 2018). Concern for the transfer of unit accountability heightened with the fragmentation in the healthcare to the proliferation of sub-specialties; creating more transitions and handoffs with the increase in number of providers for a single patient. Consequently, handoffs are a target for quality improvements because they represent high-risk events. However, the researcher observes that there is less improvement in the handoffs and hence, affecting the quality of care to the patients in the hospital. The highest indicator shows that things “fall between the cracks” when transferring patients from one unit to another is rated fair. This

means that patient safety culture in the hospital is less evident. There are problems encountered when transferring patients from one unit to another, which may be due to miscommunication and handoff errors. The lowest indicator shows that problems often occur in the exchange of information across hospital units is rated fair. This means that patient safety culture in the hospital is less evident. It is true that problems occur during the exchange of information and may be caused by various factors such as miscommunication, less collaboration and other organizational problems.

Nonpunitive response to error is rated fair. This means that patient safety culture in the hospital is less evident. Effective response to errors requires clear communication that the primary goal of error investigation is to identify system issues rather than criticize individuals (National Association for Healthcare Quality, 2015). Blaming individual nurses for errors detracts from the patient safety goal of identifying systems in need of improvement. Implementing a just culture—one without inappropriate punishment for individual errors—promotes valuable comprehensive incident reporting and avoids nurse hostility and resentment (Harrington & Smith, 2015). Approaching nursing errors from a nonpunitive perspective also influences nurses to be motivated to engage in safe behaviors in their daily practice (Weaver et al., 2013). However, the multiple medication errors happening in the units and other units are caused by unclear communication among doctors and nurses. The highest indicator shows that when an event is reported, it feels like the person is being written up, not the problem is rated fair. This means that patient safety culture in the hospital is less evident. Adversities in the hospital are not specifically recorded for correction but merely incident reports for healthcare professionals who committed errors. The lowest indicator shows that staff feel like their mistakes are held against them is rated fair. This means that patient safety culture in the hospital is less evident.

The overall patient safety culture in the hospital can be seen as fair only, this is not a good indication though as patient safety culture is very important. There is really a need to address this concern. Collaboration should be made by all health care workers and the administrations to improve patient safety culture in the hospital. After all in the business of health care, patient safety is of utmost importance and should always be a priority.

Table 3. Interprofessional Collaboration of the Health care workers

	Doctors N=34		Nurses N=168		Others N=46		Overall	
	Mean Score	Interpretation	Mean Score	Interpretation	Mean Score	Inter	Mean Score	Interpretation
Communication	2.64	H	2.71	H	2.80	H	2.72	H
Accommodation	2.80	H	3.00	H	2.82	H	2.87	H
Isolation	2.23	L	2.20	L	2.78	H	2.40	L
Overall Mean	2.56	H	2.64	H	2.80	H	2.66	H

Legend: 3.26 – 4.00 is Very High (VH) - This means that interprofessional collaboration is manifested all the time; 2.51 – 3.25 is High (H) - This means that interprofessional collaboration is manifested most of the time; 1.76 – 2.50 is Low (L) - This means that interprofessional collaboration is manifested sometimes; and 1.00 – 1.75 is Very Low (VL) - This means that interprofessional collaboration is not manifested at all.

Communication is rated high. This means the interprofessional collaboration is manifested most of the time. In today's health care system, delivery processes involve numerous interfaces and patient handoffs among multiple health care practitioners with varying levels of educational and occupational training. Effective clinical practice thus involves many instances where critical information must be accurately communicated. Team collaboration is essential. When health care workers are not communicating effectively, patient safety is at risk for several reasons: lack of critical information, misinterpretation of information, unclear orders over

the telephone, and overlooked changes in status (Joint Commission on Accreditation of Healthcare Organizations, 2015). There is interprofessional collaboration among healthcare workers in the hospital but needs to be improved particularly when dealing with other professionals in other units or departments. The lack of communication creates situations where medical errors can occur. These errors have the potential to cause severe injury or unexpected patient death. Medical errors, especially those caused by a failure to communicate, are a pervasive problem in today's health care organizations.

Accommodation is rated high. This means that interprofessional collaboration is manifested most of the time. Accommodation is the willingness to take into account the convenience when planning the work, sharing similar ideas on how to treat patients, willingness to discuss issues, cooperating with the way healthcare professional organize care and are willing to cooperate with new practices (Rominj et al., 2018). Hence, accommodation is evident among the healthcare professionals in the hospital as there is willingness to solve recurring issues in the hospital particularly in dealing with patient care.

Isolation is rated high. This means that interprofessional collaboration is evident most of the time. Evidence suggests that doctors and nurses do not always work collaboratively in health care settings and that this contributes to suboptimal patient care (Weller et al., 2011). Hence, there is isolation in the organization. There is no willingness to share or even ask for opinions. Nurses only work with nurses and do not ask for opinions from the medical staff. Allied health care workers would not be willing to discuss their new practices with doctors.

Table 4. Relationship between Attitude on Patient Safety and the Interprofessional Collaboration among Health Care Workers

Interprofessional collaboration (dependent variable)	r value	p value	Decision	Interpretation
Leadership structure	-.064	.311	Failed to reject Ho	Not significant
Confidence-assertion	-.135	.065	Failed to reject Ho	Not significant
Information-sharing	-.024	.521	Failed to reject Ho	Not significant
Teamwork	-.009	.834	Failed to reject Ho	Not significant
Stress and fatigue	-.145	.004	Reject	Significant
Work values	-.034	.139	Failed to reject Ho	Not significant
Organizational climate	-.025	.642	Failed to reject Ho	Not significant
Error/procedural compliance	-.024	.432	Failed to reject Ho	Not significant
Error management	.003	.964	Failed to reject Ho	Not significant

Legend: Significant if p value is < .05

However, interprofessional collaboration and the stress and fatigue has a ($p=.004$, $r=-.145$), which rejects the null hypothesis. There is a significant relationship between attitude and interprofessional collaboration in terms of stress and fatigue. The more the healthcare professional collaborates with other healthcare professionals, the lesser the stress and fatigue he will experience in the hospital. Effectively managing patient safety and clinicians' emotional and physical exhaustion are important goals of healthcare organizations (Welp et al., 2016). The role of different dimensions of teamwork in relation to emotional exhaustion and patient safety is clear. Emotionally exhausted clinicians are less able to engage in positive interpersonal teamwork, which

might set in motion a vicious cycle: negative interpersonal team interactions negatively affect cognitive-behavioral teamwork and vice versa. Ultimately, ineffective cognitive-behavioral teamwork negatively impacts clinician-rated patient safety. Thus, reducing clinician emotional exhaustion is an important prerequisite of managing teamwork and patient safety. From a practical point of view, team-based interventions targeting patient safety are less likely to be effective when clinicians are emotionally exhausted. However, more collaborations with other professionals means more ways to solving problems and hence, lesser stress and fatigues among professionals in the workplace.

Table 5. Facets of patient safety culture predicting Interprofessional Collaboration among Health Care Workers

Interprofessional collaboration (dependent variable)	β values	t value	p value	Decision	Interpretation
Teamwork within units	.144	.702	.484	Failed to reject Ho	Not significant
Supervisor/manager expectations and actions promoting patient safety	-.268	-1.269	.206	Failed to reject Ho	Not significant
Organizational learning – continuous improvement	-.136	-.810	.419	Failed to reject Ho	Not significant
Management support for patient safety	.248	1.373	.171	Failed to reject Ho	Not significant
Feedback and communication about error	-.023	-.118	.906	Failed to reject Ho	Not significant
Frequency of events reported	-.055	-.329	.743	Failed to reject Ho	Not significant
Overall perceptions of patient safety	-.268	-1.261	.208	Failed to reject Ho	Not significant
Communication openness	.071	.387	.699	Failed to reject Ho	Not significant
Teamwork across units	-.230	-1.122	.263	Failed to reject Ho	Not significant
Staffing	.527	2.712	.007	Reject Ho	Significant
Handoffs and transitions	.007	.036	.971	Failed to reject Ho	Not significant
Nonpunitive response to error	-.101	-.616	.539	Failed to reject Ho	Not significant

Legend: Significant if p value is < .05

Note: Model significant at $p < .05$; $r = .683$; $r^2 = .466$

However, staffing has a ($p = .007$), which rejects the null hypothesis. Staffing is a predictor of interpersonal collaboration. Better staffing means better or improve interpersonal collaboration. Staffing formulas and guidelines have been driven by the need to ensure all patient populations receive the highest level of safe, quality care (Benner, 2014). It is imperative for nurse leaders, especially directors, managers, and educators, to partner with their staff to evaluate each nurse's competency level relative to critical thinking and clinical judgment skills. This information can then be used as the basis for constructing adequate, safe staffing while

continuing to provide educational opportunities, including mentoring. It can also be used to encourage periodic self-evaluations and peer review to advance practice and expedite proficiency in deficit areas or areas in need of attention (O'Rourke, 2016). Nurse leaders and educators should require staff to submit such exemplars as part of ongoing competency assessments and yearly evaluations. In addition, nursing leadership should reward more expert nurses—who are stepping up to the plate to mentor their colleagues—with creative and meaningful incentive programs while challenging them to advance their own professional practice through career advancement opportunities. The researcher believes that when there is strong enough staff to handle load and that they work longer hours for patient care, there is an improved interprofessional collaboration. More nurses mean more people to send to other units or healthcare professionals to collaborate with. Fewer nurses would mean sticking up with their own unit and hence, not being able to work well for proper decision making with other professionals in the hospital. It is then suggested that the hospital should hire more people within each unit for better health outcome for the patients.

Finally, the model in predicting interprofessional collaboration is

$$IPC = 2.150 + .527 \text{ Staffing}$$

For every one unit increase in the staffing, there is .527 points increase on the interprofessional collaboration. Hence, better interprofessional collaboration is dependent on the improvement of the staffing of the healthcare workers in the hospital. The equation means that the interprofessional collaboration is the sum of 2.150 and the product of .527 and 10. Based on the model summary the r squared value was .466. This means that the confidence level that staffing predicts interprofessional collaboration is moderate. Thus, the prediction model is neither poor nor good, but just moderate.

Table 6. Challenges Encountered by the Health care workers in attaining Interprofessional Collaboration

Challenges	f	%
Overload of responsibilities	150	60.48
Need of each profession for another to provide comprehensive care	130	52.40
Motivational resources	120	48.40
Role conflict	112	45.20
Role dissatisfaction	90	36.30
Role ambiguity among health professionals	80	32.30
Stigmatization of the profession	37	14.90
Prejudice about professional territories	50	20.20
Worrying about being abused by the other persons/professionals	20	8.10
Reaction to the client's objective problems	13	5.20
Lack of socially accepted feedback system	12	4.80
Intra-boundaries commitment	10	4.00
Ignoring the mental health needs of people	8	3.20

The role of the nurse in the hospital setting has evolved to meet the ever-increasing acuity and complexity of patients (Nelson, 2017). Likewise, the role of the nurse manager has expanded to meet the needs of the staff and patients on the nursing units, and is considered by some to be the most demanding role in health care. In addition to responsibility for the financial outcomes of the unit, nurse managers are also accountable for the experience of the patient, which includes both clinical and satisfaction outcomes, as well as for providing a safe, engaging, positive work environment for the staff in the area. Nurse managers are also expected to foster relationships with leaders of the various interdisciplinary teams throughout the hospital, as well as to promote physician engagement and partnership with nursing. Expanded role responsibilities along with broader spans of control contribute to increased job demands as well as work stress. Additionally, nurse managers often do not have adequate authority to make decisions affecting the operations in their areas, which can undermine their authority, leading to dissatisfaction with the work. The increased stress and workload can lead to disengagement, burnout, and ultimately, to nurse manager turnover.

Healthcare organizations monitor patient experiences in order to evaluate and improve the quality of care (Kieft et al., 2014). Because nurses spend a lot of time with patients, they have a major impact on patient experiences. To improve patient experiences of the quality of care, nurses need to know what factors within the nursing work environment are of influence. Hence, nurses most of the time work only with nurses. Diverse healthcare professionals in a big hospital affect collaboration between nurses and other professionals. Nurses want to gain autonomy over their own practice in order to improve patient experiences, and not on other professionals outside their profession. Role ambiguity and role conflict in doctors and nurses can lead to lowered health service performance and efficiency (Rovithis, 2017). Awareness of the degree of role conflict and role ambiguity among health personnel has implications for future research and efficient management. To reduce role ambiguity and conflict, managers of health care facilities should introduce interdisciplinary projects aimed at improving job satisfaction and providing quality patient-centered care.

CONCLUSION AND RECOMMENDATIONS

Conclusion. While the overall rating is fair to which patient safety culture is less developed in the hospital, it can be interpreted that patient safety culture is not really good, considering that the business deals with the lives of patients. Safety will always be a priority and cannot be just good, the target should be very good to make sure that patient's safety is guaranteed. This also means that there is indeed a need to improve the safety culture of the doctors, nurses and other health care workers. The attitude on patient safety is a major component of healthcare quality, which is defined as the avoidance of causing harm to patients in providing healthcare services. The attitude of the healthcare professionals is poor towards the dimension of patient safety culture. The attitude is unsafe for healthcare services that may lead to patient harm and financial burdens, which in turn could cause injuries to patients. Interprofessional collaboration is evident most of the time. Healthcare professionals work together from different professional backgrounds with families, patients and even the community to deliver or achieve highest quality of care possible. Each of the health professions is focused toward collaboration, partnerships, and sharing, rather than operate in silos. There is quality and safety of care and each healthcare professional rely on interprofessional practice to work collaboratively and more efficiently.

Interprofessional collaboration has a significant effect on stress and fatigue. More collaborations mean lower stress and fatigue levels. Better staffing influences better interprofessional collaboration. Staffing formulas and guidelines have been driven by the need to ensure all patient populations receive the highest level of safe, quality care. It is imperative for nurse leaders, especially directors, managers, and educators, to partner with their staff to evaluate each nurse's competency level relative to critical thinking and clinical judgment skills. The challenges in the attainment of interprofessional collaboration arise due to difficulties associated with competing ideologies and aims, inequalities in power relations, communication and role confusion and overlap, among others. Within the hospital setting such problems often arise although the roots of the problem may go unacknowledged. The ways in which the problems occur in the hospital setting are considered, which is the underlying cause of such problems.

Recommendations. Based on the findings and conclusions, it is recommended that::

A validation of the proposed patient safety model be done through research.

The recommended action plan be subjected to review prior to its implementation. And be subjected to evaluation

For practice, the following are recommended:

The patients must report to the administration the various practices of its hospital workers that are deemed unsafe or beyond the standards of practice;

The healthcare professionals must meet within units and with the other units of the hospital as well as practice attitudes of patient safety culture and professionally collaborate with other healthcare professionals.

The hospital administrators must create team-building activities, create regular meetings within departments and intra-departments to discuss various problems and find ways of mitigating them particularly patient safety.

For policy:

The policymakers must create policies dealing with patient safety particularly on medication error reporting and mitigation.

For research:

The researcher must apply interprofessional collaboration and practice patient safety culture as well as teach subordinates the right attitude in dealing with patients and other healthcare workers.

The future researchers may propose the following:

Work Stress and Burnout of Nurses: Role of the Work Environment, Interprofessional Collaboration and Working Conditions

Factors Influencing Interprofessional Collaboration in Hospital Wards: A Cross Validation Study

Moderating Effects of Social Support in Shiftworking and Non-Shifting Nurses.

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