# CHAPTER 1

# Introduction

## Background and Significance of the Research Problem

Patient safety is an important issue in healthcare organization, as it has a substantial direct effect on patients' lives and an indirect effect on cost of patient care in health systems (D'Amour, Dubois, Tchouaket, Clarke, & Blais, 2014; Institute of Medicine, 1999). There are ample reasons for such a concern in patient safety. In 1999, as many as 44, 000-98, 000 of people died from medical errors annually in U.S., this number is higher than traffic accident, breast cancer or AIDS (Institute of Medicine, 1999). Moreover, there was a high rates (10%) of adverse events occurred among patients in hospitals in New Zealand and Canada (World Health Organization [WHO], 2004). Adverse events was defined as "incidents in which harm resulted to a person receiving health care" (Australian Institute of Health and Welfare, 2015), they include infections, falls resulting in injuries, and problems with medication and medical devices (Australian Institute of Health and Welfare, 2015). In P. R. China, the Chinese Hospital Association estimated 1.6 to 7.6 million adverse events may occur each year national wide, which was calculated based on 46.68 million inpatients in 2004 (Cao, 2007). Moreover, up to 342 adverse events were reported within one month in a Chinese tertiary hospital (Tian et al., 2015). Adverse events lead to patients' lose confidence and trust toward to healthcare system as well as increase dissatisfaction (Brady et al., 2009). In response to the problems of patient safety, hospitals in many countries carry out a series of initiative concerns to prevent adverse events, one of that is encouraging patient safety culture (PSC) (The Research Priority Setting Working Group, 2008).

PSC refers to 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 safety management (Nieva & Sorra, 2003). Many researchers have carried out studies to determine the components of PSC (Ashcroft,

Morecroft, Parker, & Noyce, 2005; Sammer, Lykens, Singh, Mains, & Lackan, 2010; Sorra & Nieva, 2004). Sorra and Nieva (2004) showed there were twelve components of PSC including 1) frequency of events reported, refers to all the types of mistakes are reported even do not have harm to patient; 2) perceptions of patient safety, refers to staff perceive that procedures and systems are good at ensuring patient safety; 3) supervisor/manager expectations and actions promoting safety, refers to staff perceive that managers consider suggestions and do not neglect patient safety problem; 4) organizational learning–continuous improvement, refers to a leaning culture to improve patient safety; 5) teamwork within units, refers to staff work together as a team; 6) communication openness, refers to staff freely speak up if they see something may injury patient; 7) feedback and communication about error, refers to staff receive information of changes implement and discuss manners to prevent errors; 8) non-punitive response to error, refers to staff perceive that the problem being written up, not the person; 9) staffing, refers to adequate staff to address the best care for patients; 10) management support for patient safety, refers to provide work climate to promote patient safety; 11) teamwork across units, refers to units cooperate well to provide safety care, and 12) handoffs and transitions, refers to transferred information of patient care across units and shifts.

PSC positively contribute to patient safety because it motivates workers to engage in safe behaviors and promote the transition of these behaviors into daily practice and can also influence the ability of employee to raise concerns regarding safety and the ability of managers to respond to those concerns (Zhou, Bundorf, Gu, He, & Xue, 2015). It also contributes to decrease adverse events and increase patient satisfaction, A great deal of empirical studies found that a more positive PSC was related to fewer hospital complications (Mardon, Khanna, Sorra, Dyer, & Famolaro, 2010), increased patients experienced more favorable quality of care (Sorra, Famolaro, Dyer, Nelson, & Smith, 2012) and prevented patients from needless injury (Bahrami et al., 2013). In P.R China, Wang et al., (2014) found positive PSC was significantly related to lower the occurrence of pressure ulcers (OR=.249), prolonged physical restraint (OR=.406), complain (OR=.369), and medicine error (OR =.699). Therefore, creating a high quality PSC is essential for improving quality of care and is necessary to overcome the challenge of patient safety.

Researchers currently assess PSC in healthcare organizations throughout the world. There are two approaches to study PSC - individual level and unit level analysis. However, PSC should be stressed at the unit level rather than individual level due to that most of variance is showed well at a unit level and PSC should be directed from the share by all member in the organization rather than member individual's perception (Smits, Wagner, Spreeuwenberg, Wal, & Groenewegen, 2009). There were a few studies on PSC using the unit level analysis. One PSC study has been done by Moody, Pesut, and Harrington (2006) used a unit level analysis to explore the effects of human performance and system factors on patient safety culture on nursing units in U.S.A., finding showed that favorable dimensions were organizational learning, unit teamwork, and overall hospital management support for patient safety; nevertheless dimensions of openness of communication, aspects of error reporting norms, and hospital handoffs and transitions of patients were areas need to be improved. Moreover, another study used unit level analysis to measure PSC among nurses and physicians in Japan (Fujita, Seto, Kitazawa, Matsumoto, & Hasegawa, 2014). The finding showed moderate areas were frequency of event reporting, perception of safety, supervisor/manager expectations and actions promoting safety, organizational learning-continuous improvement, teamwork within hospital units, feedback and communication about error, and hospital management support for patient safety (Fujita et al., 2014). However, areas should be improved were non-punitive response to error, staffing, communication openness, teamwork across hospital units, and hospital handoff and transitions (Fujita et al., 2014). According to the literature review, staff within different countries has different perception about patient safety culture in their hospitals. This may be due to the difference in the study design that used either unit or individual level of data analysis.



Healthcare organization normally works in a team. Thus, leaders play an important role in promoting PSC (Tregunno et al., 2009). Leader-member exchange (LMX) is one leader behavior that is related to successful safety outcomes in the organization. Dienesch and Liden (1986) developed Multidimensional LMX model to describe LMX development process. They defined LMX as the quality of social exchange relationships between leader and each subordinate and posited that leaders would develop relationships with staff within the same work unit based on staff needs, behaviors, style, and characterized by the desire to achieve mutual goals. Liden and

Maslyn (1998) explained the knowledge of LMX development process from Dienesch and Liden (1986) and concluded that when relationships between subordinates and leaders are positive, staff members create high senses of affect, loyalty, contribution and professional respect, resulting in a response of performing in a manner desired by the leaders. In contrast, when negative relationships exist, staff members tend to respond by meeting minimal job requirements due to having low senses of mutual affect, loyalty, contribution and professional respect (Liden & Maslyn, 1998). Because safety is a major concern in high-risk environments, if relationships between leaders and staffs are positive, staff members develop behaviors valued in their work environment by demonstrating safety role behavior (Hofmann & Morgeson, 1999).

Numbers of previous studies on LMX were found. However, the studies that used unit analysis approach were a few. There were previous studies using unit level analysis and found that there were moderate levels of LMX between nurses and head nurses in Canada (Laschinger, Finegan, & Wilk, 2009, 2011), this could lead to low personal knowledge transfer and negative impact on organizational management in terms of organizational commitment (Laschinger et al., 2009), structural empowerment (Laschinger et al., 2009, 2011), and job satisfaction among nurses (Laschinger et al., 2011). Moreover, previous studies have also examined the association between LMX and safety behaviors at an individual level analysis in variety settings. High LMX has been shown to foster constructive safety communication, raise staff members' safety concerns, and suggest safety strategies (Hofmann & Morgeson, 1999). LMX also was significantly positively related to safety climate and result in increasing safety citizen behaviors of the transportation teams (Hofmann, Morgeson, & Gerras, 2003). One study using unit level analysis to explore the relationship between LMX and PSC which result found nurse staff groups who perceived positive high quality of LMX were related to high level of PSC (Thompson, Hoffman, Sereika, & Lorenz, 2011).

Nowadays, in P. R. China, the Ministry of Health underlines quality management and qualified treatment procedures in order to ensure patient safety. In September 2004, the first World Alliance for Patient Safety was held in Shanghai, P. R. China (Zhang & Li, 2008). In 2007, Chinese Hospital Association presented annual patient safety goals and provided effective strategies for health professionals by referencing literature from

JCAHO and experiences of international safety management, it suggested that healthcare staff should be encouraged to initiatively report adverse events and relevant risk factors, create a non-punitive report system, learn from mistakes, find root causes from system management, and participate in Chinese Medical Association voluntary non-punitive report system (DOC88, 2011). Recently, "Outline of Development Plan for Nursing in P. R. China (2011-2015)" elucidated people highly concern about quality of life, health conditions and health care, therefore nursing in P. R. China should insist to improve patient safety and the quality of care (Department of Medical Administration, 2012). Variety of activities were organized in Chinese healthcare organizations, such as continuous education, academic communication (Zhang & Li, 2008), and creating accreditation standards for hospitals (Ministry of Health of China, 1989). However, Chinese organizations still face great challenges since high risks exist during the procedure of health care.

In P. R. China, there are some obstacles in hospitals that effect on actions to achieve patient safety. One is inadequacy of staffing, which would lead to heavy workload for healthcare workers and in turn to negatively related to staff appreciate the contribution of the local manager to patient safety, organizational learning and continuous improvement, as well as negatively associate with teamwork between units and concerned about the risks of handoffs and transitions (Liu, Liu, Wang, Zhang, & Wang, 2013). Likewise, another study showed nearly 70% of nurses felt there was no sufficient staff to handle high workload and attempt to complete tasks in short time (Wang et al., 2014). Moreover, the lack of trust towards managers is another barrier influence health workers endorse the idea to create an open communication environment and learning from incidences (Liu et al., 2013).



According to the review of previous studies about PSC in P. R China, Wang et al. (2014) showed that 68% of nurses rated negative perception of "non-punitive response to error" in their health care organizations and most respondents preferred keep silent to report mistakes since a punitive response to error environment. More than half employees worried about the mistakes they made were written in their files and staffs responded when an event is reported, it feels like the person is being written up, not the problem (Nie et al., 2013). Liu et al. (2013) reported that health workers preferred not

to report errors and managers acknowledged punishment may be viewed as an effective measure for learning from errors. Cai, Li, and Li (2006) indicated 30.86 % nurses regarded errors as disgraceful events and more than half (69.6%) nurses were not willing to share and discuss mistakes with peers. Dai, Shi, and Mao (2009) stated P.R China still lacks of an effective adverse events reporting system which has good function of notification, monitoring and evaluation. Moreover, almost systems failed in data analysis, evaluation and feedback about errors (Dai et al., 2009). Half of nurses (52.4%) perceived a negative feedback and communication about errors (Feng, Bobay, Krejci, & McCormick, 2012).

In terms of the studies on LMX in P. R. China, it is a new concept applied in nursing studies, there were only four previous studies explored LMX in Chinese healthcare context. Cheng, Huang, Lee, and Ren (2012) had showed a moderate level of LMX ($\overline{X}$=3.35, SD=.83) existed among Chinese nurses which used an individual level analysis. A high quality relationship positively influenced individual affective commitment even in the face of job security threatens (Cheng et al., 2012). Yang, Kunaviltikul, and Supamanee (2013) have conducted a study among nurses in tertiary hospitals in P. R. China at an individual level analysis which showed nurses perceived a moderate level of LMX ($\overline{X}$= 4.55, SD = 1.10). In Taiwan, Chen, Wang, Chang, and Hu (2008) revealed nurses perceived a moderate level of LMX ($\overline{X}$= 3.91, SD = .45) at an individual level analysis and found LMX had effect on trust and perception of supervisor support. High quality of LMX positive related to organizational citizenship behavior (Chen et al., 2008; Chen et al., 2015; Yang et al., 2013), nurses' commitment and low rate of turnover (Chen et al., 2008), therefore, moderate level of LMX should be improved to obtain favorable outcomes.



There was one study examined the relationship between LMX and PSC among 248 nurses in a tertiary university hospital in Sichuan, P. R. China (Feng et al., 2012), however, its result showed no significant relationship between LMX and PSC. The result of Feng's study was not consistent with the study conducted by Thompson et al. (2011) which indicated the positive relationship between LMX and PSC among nursing personnel. The inconsistent findings are drawn from the different design of the studies. Feng's study collected data in a single hospital and analyzed data at individual level. In

contrast, Thompson's study collected in one hospital and analyzed data at group level. As mentioned before that PSC is a product of values, perceptions, attitudes and patterns of behavior in regarding to patient safety shared by members of the organization, it is possible that nurses working in the same hospital would perceive PSC in the same line. According to Blegen, Pepper, and Rosse (2005), employees develop homogenous concerning supervisory safety practices within group; moreover, the perceptions vary between subunits, resulting in significantly different safety score. Furthermore, Smits et al. (2009) suggested that PSC should be addressed at the unit level, rather than the individual level because PSC should be directed from the share by all member in the organization rather than member individual's perception. Therefore, unit analysis of PSC is better fit than individual analysis. However, previous studies on PSC focused on individual level analysis. Hence, this study measures perceived Chinese nurses' LMX and PSC at a unit level and also examines the relationship between LMX and PSC using unit level analysis. The finding of this study provides crucial information for hospital managers to develop interventions in order to foster PSC in Chinese hospitals.

**Research Objectives**

1. To examine leader-member exchange in tertiary hospitals, Kunming, the People's Republic of China.

2. To examine patient safety culture in tertiary hospitals, Kunming, the People's Republic of China.

3. To examine the relationship between leader-member exchange and patient safety culture in tertiary hospitals, Kunming, the People's Republic of China.



**Research Questions**

1. What is the level of leader-member exchange as perceived by nurses in tertiary hospitals, Kunming, the People's Republic of China?

2. What is the level of patient safety culture as perceived by nurses in tertiary hospitals, Kunming, the People's Republic of China?

3. Is there any relationship between leader-member exchange and patient safety culture in tertiary hospitals, Kunming, the People's Republic of China?

**Definition of Terms**

The operational definitions of this study:

**Leader-Member Exchange** refers to the quality of social exchange relationship between a head nurse and a nurse under supervision by that head nurse including a sense of affect, loyalty, contribution and professional respect that generates influence and motivates the nurse to act in a manner valued by the head nurse (Liden & Maslyn, 1998). This concept was measured by the Chinese version of Multidimensional Leader-Member Exchange Scale of Hu and Liden (2013).

**Patient Safety Culture** refers to the product of nurses and group values, attitudes, perceptions, competencies and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's safety management (Nieva & Sorra, 2003). Twelve dimensions of patient safety culture comprise of 1) frequency of events reported, 2) perceptions of patient safety, 3) supervisor/manager expectations and actions promoting safety, 4) organizational learning–continuous improvement, 5) teamwork within units, 6) communication openness, 7) feedback and communication about error, 8) non-punitive response to error, 9) staffing, 10) management support for patient safety, 11) teamwork across units, and 12) handoffs and transitions (Sorra & Nieva, 2004). This concept was measured by the Chinese version of Hospital Survey on Patient Safety Culture of Li and Liu (2009).



**Tertiary Hospital** refers to provincial tertiary-A hospitals in Kunming which has more than 500 beds and carries out high-level, specialized medical services of medical, surgical, pediatric, obstetrics, gynecological, and geriatrics as well as responsible for medical education and scientific research. These hospitals are governed by Yunnan Health Bureau which mainly serve people in Yunnan province.

**Nurses** refers to persons who graduated from an approved nursing education institution, hold the nursing licensure which granted by the Ministry of Health of P. R. China.