Western Graduate&PostdoctoralStudies

Western University
Scholarship@Western

Electronic Thesis and Dissertation Repository

3-10-2020 1:30 PM

The Effect of Authentic Leadership on New Graduate Nurses' Organizational Identification, Trust in the Manager, Patient Safety Climate, and Willingness to Report Errors

Fatmah Fallatah, *The University of Western Ontario*

Supervisor: Wong, Carol A., *The University of Western Ontario*

A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Nursing

© Fatmah Fallatah 2020

Follow this and additional works at: https://ir.lib.uwo.ca/etd

 Part of the Nursing Commons

Recommended Citation

Fallatah, Fatmah, "The Effect of Authentic Leadership on New Graduate Nurses' Organizational Identification, Trust in the Manager, Patient Safety Climate, and Willingness to Report Errors" (2020). *Electronic Thesis and Dissertation Repository*. 6866.
https://ir.lib.uwo.ca/etd/6866

This Dissertation/Thesis is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Electronic Thesis and Dissertation Repository by an authorized administrator of Scholarship@Western. For more information, please contact wlswadmin@uwo.ca.

Abstract

Background: Error reporting has been identified as an important approach to improve delivery of both safe and quality care. However, existing evidence suggests that nurses are reluctant to report errors they make or fail to speak up about mistakes committed by others. Authentic leadership has been linked to improved work environments for nurses and enhanced quality of care but the question of how authentic leaders influence new graduate nurses' willingness to report errors has received minimal attention.

Purpose: The aim of this study was to test a theoretical model that examined the influence of authentic leadership on new graduate nurses' personal identification with the leader, organizational identification, trust in the manager, climate factors of judgment-free environment and job repercussions of error, error communication, error strain, and covering up error.

Methods: Employing a predictive non-experimental cross-sectional design, a self-administrated survey was mailed to a random sample of 1275 registered new graduate nurses practicing in acute care settings in Ontario. The final sample size was 178 participants (response rate of 15.8%).

Results: The structural model had an acceptable fit: $\chi^2(140) = 253.248$, $p < .001$; CFI = .950 TLI = .938; RMSEA = .068(CI = .054, .081); SRMR = .060. Authentic leadership was positively associated with personal identification, which in turn was positively associated with organizational identification and trust in the manager. Trust in the manager was positively associated with judgment-free environment and job repercussions of error. Judgment-free environment was positively associated with error communication and job repercussions of error was positively associated with covering up error.

Conclusions: Findings provide empirical support for the influence of authentic leadership on new graduate nurses' attitudes toward error reporting. Authentic leaders are able to create work environments that support new graduate nurses error reporting by strengthening their personal identification with the leader and building trusting relationships. Healthcare organizations should invest in leadership-training and development programs that focus on building authentic leadership dimensions among nursing managers.

Keywords

Nursing, new graduate nurses, authentic leadership, personal identification, organizational identification, trust in the manager, patient safety climate, attitudes toward error reporting, willingness to report errors

Lay Summary

Error reporting is one of the most important strategies to improve the delivery of safe patient care. However, current research suggests that nurses are afraid to report errors due to the negative responses towards error reporting. Studies have suggested that authentic leadership may improve nurses' workplace environment. It is important to know the way authentic leaders influence new graduate nurses' willingness to report errors.

The current study investigated the influence of authentic leadership on new graduate nurses' personal identification with the leader, organizational identification, trust in the manager, climate factors of judgment-free environment and job repercussions of error, error communication, error strain, and covering up error. This study used data from 178 new graduate nurses with less than three years of nursing experience working in hospitals across Ontario. We had new graduate nurses rate their nursing manager's leadership style, their perceptions about their healthcare organization, work environment, and errors within their nursing units.

Overall, we found that authentic leadership style positively influence new graduate nurses' attitudes toward error reporting. Authentic leaders are able to create work environments that support new graduate nurses error reporting by strengthening their' personal identification with the leader and building trusting relationships. Healthcare organizations should invest in leadership-training and development programs that focus on building authentic leadership dimensions among nursing managers.

This dissertation is dedicated to my late father, who would have been deeply proud of my accomplishment.

Acknowledgments

Foremost, all my thanks and gratitude go to Allah the Almighty for giving me the patience, strength and ability to complete my doctoral studies. I wish to express my deepest gratitude and appreciation to my supervisor Dr. Carol Wong. I have learned so much from you. You have challenged my thinking, provided guidance, and went above and beyond to help me to achieve my goal of completing this research study. Without your consistent commitment and continual support, I would not have been able to overcome the numerous obstacles I faced along my journey.

I express my sincere appreciation to the members of my dissertation committee for their generous advice, intellectual contributions, and immeasurable expertise. They helped ensure that my dissertation would be successful. Dr. Joan Finegan, thank you for your tireless support and invaluable insight on my work, which has expanded my horizons. Dr. Kim Jackson, thank you for your useful suggestions and unwavering encouragement. Dr. Roberta Fida, thank you for sharing your knowledge and guiding me throughout the data analysis process.

I am wholeheartedly thankful to my former supervisor, Dr. Heather Laschinger. Although no longer with us, she had faith in me and sparked my interest in research. I am grateful for having had the opportunity to work in her research lab. I also wish to offer special thanks to Dr. Emily Read, who provided support and advice when we worked in the research lab.

I would like to thank all the wonderful new graduate nurses who took part in this study. Without their time and perspectives, this study would not have been possible.

A special thanks to Bayan, Edmund, and Ohud for their help during the survey mail-outs.

I would like also to express my thanks to King Faisal Specialist Hospital & Research Center (KFSH&RC) for granting me a scholarship to pursue my doctoral studies at Western University. I would like also to thank Helen Redekopp, Assistant Chief, Nursing Affairs at KFSH&RC, for believing in me and providing me with the opportunity to advance my career. I greatly appreciate your unlimited support, encouraging words, direction, and motivation.

I would like to acknowledge my best friend, Areej, for her support, advice, and love over the years. I would like also to thank my good friends Mollie, Nelsa, Sally, Sarah, and Sheila for inspiring me, giving me your time and listening ears. I cannot thank you enough for your friendship.

I owe a debt of gratitude to my amazing husband, Dominic, who supported me in this worthwhile endeavor. His encouragement and understanding gave me the will to finish this work. Thank you for taking care of our daughter while I dedicated my time to my

dissertation. Your love, patience, and sacrifices enabled me to achieve this dream. My daughter, Zoya, put up with my frequent absences, tolerated me being tired, and kept me strong. Zoya thank you for bringing so much joy to my life.

Word cannot express how thankful I am for my mother's unconditional love, constant prayers, and ongoing support. I am who I am because of her. I am forever grateful for my sisters and brother for always being a source of strength and motivation. To my parent-in-law, sister-in-law and brother in-law, thank you for your encouragement and understanding. Your support has been pivotal in this journey.

Table of Contents

List of Tables

List of Figures

List of Appendices

CHAPTER 1: Introduction

1.1 Introduction

Over the last two decades, healthcare organizations have experienced major changes that resulted in decreased length of hospital stay, and increased levels of acuity of hospitalized patients (Trinkoff, Le, & Geiger-Brown, Lipscomb, & Lang, 2006), which have increased the need for nurses to possess specialized skills and knowledge (Ebright, Urden, Patterson, & Chalko, 2004; Page, 2004). Despite new graduate nurses' educational preparation, they have limited clinical and critical thinking skills that may undermine patient safety (Boychuk-Duchscher, 2008; Kantar, 2012; Murray, Sundin, & Cope, 2019).

According to Benner (1984) new graduate nurses enter the workforce as advanced beginners and thus, their professional experience is limited, which urges them to seek mentors' guidance in identifying critical aspects of patient care (Benner, 1984). As a result, new graduate nurses may be at higher risk for making errors (Berkow, Virkstis, Stewart, & Conway, 2008; Meyer, 2014). Seventy-five percent of new graduate nurses reported making at least one practice error within the first six months of employment (Johnson, Roth, & Jenkins 2011), whereas 56.2% of experienced nurses reported committing at least one error within the last 12 months (Hobgood, Xie, Weiner, & Hooker, 2004). Meyer (2014) explained that new graduate nurses start to prioritize their tasks and understand the impact of their interventions on long-term goals for each patient after completing two or three years in a clinical nurse role.

New graduate nurses often experience conflict between what they were taught in nursing school and what they experience in their work environment (Kramer, 1985;

Duchscher, 2009). This conflict is most noticeable as new graduate nurses make the transition from supervised learner to autonomous practitioner (Monaghan, 2015; Whitehead and Holmes, 2011). Purling and King (2012) indicated that new graduate nurses' lack of experience and poor decision-making skills affected their ability to identify and respond to deteriorating patients and subsequently contributed to unsafe practice. Additionally, new graduate nurses expressed fear of making medication errors, which often increased their anxiety and stress and frequently led to committing errors (Halpin, Terry. & Curzio, 2017; Murray, Sundin, & Cope, 2019). This was attributed to experiencing time pressures as new graduate nurses struggled with workload and time management and they often shifted their focus from maintaining patient safety to completing tasks (Murray, Sundin, & Cope, 2019).

New graduate nurses also experience lack of support and limited access to supervised learning opportunities (Gardiner & Sheen, 2016; Monaghan, 2015), which intensified their feelings of being underprepared for practice that affects their clinical confidence (Monaghan, 2015). Additionally, Canadian new graduate nurses reported that orientation and supervised learning did not meet their expectations in respect to support, availability of mentors, buddy shifts, and adequate learning opportunities (Nour & Williams, 2019). Ongoing support and mentorship play important role in new graduate nurses' successful transition into practice (Duchscher, 2009; Mellor & Greenhill, 2014).

New graduate nurses' transition to practice in an environment where 5.6% of hospitalized patients experienced preventable errors between 2014 and 2015 (CIHI, 2016). Of those, 20% involved more than one event (CIHI, 2016). Errors in healthcare are not merely a Canadian concern, but also an international issue. In the US, 210,000

hospitalized patients died between 2008 and 2011 as a result of medical errors (James, 2013). Similarly, in the UK 10% of hospitalized patients experienced medical errors annually (Sari, Sheldon, Cracknell, & Turnbull, 2007).

Medical errors lead to increased healthcare costs that are associated with prolonged hospitalization, additional medical treatments, disability, and loss of lives (Osborne, Blais, & Hayes, 1999; Webster & Anderson, 2002). In Canada, the cost of preventable errors was estimated to be $63.6 billion in 2014 out of 216 billion of total spending on healthcare (CIHI, 2016). These reports recommend healthcare organizations implement an approach that focuses on error reduction to provide safe and cost-effective care.

One of the most effective strategies to enhance patient safety is error reporting by nurses (Hung, Lee, Liang, & Chu, 2016). Error reporting refers to verbal, written, or other form of communication of near miss and patient safety incidents that involves some form of reporting system (Wolf & Hughes, 2008). Although error reporting provides valuable information on ways to effectively change and redesign the healthcare system, and guide organizational learning, there are several of barriers that prevent nurses from reporting errors. Pfeiffer, Manser, and Wehner (2010) concluded that clinicians' willingness to report errors were impacted by their personal attitudes (e.g., fear of consequences for reporting errors, and/or perceived instrumentality of error reporting) and the norms surrounding error reporting in their workplace. Previous publications on nurses' attitudes toward error reporting found that nurses who make errors are blamed for them and experience punitive actions which ultimately affect their self-esteem and damage their relationships with colleagues (Crigger & Meek, 2007; Dewar, 2012; Zabari,

2016). This negative response to errors results in minimizing the opportunity to discuss mistakes and discourage error reporting (Crigger & Meek, 2007; Dekker, 2013). This is alarming because patients mainly interact with nurses within an environment where the fear of repercussions from reporting errors or potential error is great (Almutary & Lewis 2012; Osborne, Blais, & Hayes, 1999) and this fear may sabotage patient safety efforts. It has been suggested that engaged leadership is essential to design, foster, and nurture a work environment in which a culture of safety is the first priority (Duffield et al., 2011; Murray, Sundin, Cope, 2018; Sammer, Lykens, Singh, Mains, & Lackan, 2010)

Past study findings indicated that visible and strong leadership is needed to create a culture of safety (Murray et al., 2018; Vogus & Sutcliffe, 2007a). Senior nursing leaders have been named as key contributors to the establishment of a patient safety culture, as they often identify and lead quality improvement approaches and create policies and guidelines that support nurses in the delivery of safe care (Huston, 2008; Sammer, Lykens, Singh, Mains& Lackan, 2010; Stumpf, 2007). Unit-level nurse managers are successful in transforming nursing work culture by establishing trusting relationships with nurses, involving nurses in decision-making regarding work design and flow, addressing safety concerns, and promoting continuous learning (Merrill, 2015; Page, 2004; Thompson et al., 2011).

Various leadership theories can be applied to guide the development of patient safety. For instance, authentic leadership, as a form of relational leadership, has been linked to improved work environments for nurses and positive perceptions of quality of care. Relational leadership refers to a style of leadership that focuses on modeling relational behaviours that encourage collaboration and open communication and promote

sincere relationships as the means to achieve organizational goals (Carmeli, Brueller, & Dutton, 2009; Cunliffe & Eriksen, 2011). Leaders are described as authentic when they strive to establish and maintain positive relationships with their followers and focus on building on followers' strengths by modeling integrity and core values through their words and actions (Gardner, Avolio, Luthans, May, & Walumbwa, 2005).

Past research has found that managers' authentic leadership was associated with engendering trust among nurses, which motivates nurses to express concerns and offer suggestions to improve their work environment and patient care. This subsequently enhances nurses' perceptions of quality of patient care (Wong & Cummings, 2009; Wong, Laschinger, & Cummings, 2010). Managers' authentic leadership behaviours have been strongly associated with reduced frequency of adverse patient outcomes (Wong & Giallonardo, 2013). Authentic leadership of managers was also positively related to patient safety climate (Dirik & Seren Intepeler, 2017). However, the question of how authentic leaders influence new graduate nurses' willingness to report errors has received minimal attention. Therefore, the current study aimed to address this gap by advancing our understanding of the role of authentic leadership in influencing new graduate nurses' willingness to report errors. This was accomplished by exploring the influence of authentic leadership on new graduate nurses' personal identification with the leaders, organizational identification, trust in the manager, patient safety climate, and willingness to report errors.

1.2 Background

The transition from student nurse to staff nurse is challenging (Cheng, Liou, Tsai, & Chang, 2015; Murray, Sundin D, Cope, 2018). This is because new graduate nurses

who enter clinical practice face working conditions that are often characterized by increased patient acuity, heavy workload, low levels of staffing, and lack of support (Casey, Fink, Krugman, & Propst, 2004; Lavoie-Tremblay et al., 2008; Needleman, 2013; O'Shea & Kelly, 2007). In light of these work-related difficulties, new graduate nurses require support and guidance as they assume their professional role (Scott, Engelke, & Swanson, 2008). As the future of the profession, new graduate nurses are a key element in ensuring the delivery of high-quality and safe care to patients.

The concern with patient safety was triggered by the Institute of Medicine's (IOM) report, *To Err is Human: Building a Safer Health System,* that found approximately 98,000 US hospital patients die due to medical errors and nearly half of these could have been prevented (Kohn, Corrigan & Donaldson, 2000). The traditional approach following an error is to place blame on an individual deemed to be responsible (Ottewill, 2003). This response does not identify the underlying cause of the error and thus, promotes errors recurrence (Ottewill, 2003; Stump, 2000). To enhance patient safety, healthcare organizations are required to transform their culture from blame to a safe and reliable culture that views errors as opportunities to learn and improve (Castel, Ginsburg, Zaheer, & Tamim, 2015; Kohn, Corrigan & Donaldson, 2000; Wachter, 2004). This transformation encourages staff to fully disclose all mistakes, failure, and near misses (Emanuel et al., 2008).

One approach that has been recommended to shift healthcare culture is the involvement of leadership (Duffield et al., 2011; Kohn, Corrigan, & Donaldson, 2000; Murray, Sundin, Cope, 2018). In the report entitled *Keeping Patients Safe—Transforming the Work Environment of Nurses*, the IOM (2004) analyzed nurses' work environment in

relation to patient safety. They emphasized the crucial contribution that transformational leadership and evidence-based management practices can have on achieving changes in nurses' work environment that enhance the delivery of safe care. The report suggested that strong nursing leadership is capable of creating cultures of safety (Page, 2004). A subsequent IOM report (2010) attributed a moderate improvement in patient safety after the initial IOM report in 2000 to the commitment of healthcare leaders to patient safety (Wachter, 2010). In another report, entitled *The Future of Nursing*, the IOM recommended that nursing leadership shift their leadership style from a task-oriented to a relationship-oriented one that encourages nursing staff to participate in decision-making and support their efforts to improve patient safety (IOM, 2011).

Relational leadership approaches, such as authentic leadership, focus on building positive work environments and establishing trusting relationships with followers, and have been shown to improve patient outcomes (Wong & Cummings, 2007; Wong, Cummings, & Ducharme, 2013; Wong & Giallonardo, 2013; Wong, Laschinger, & Cummings, 2010). More specifically, authentic leaders who interact with others in transparent ways, stay true to their values, and align their words and actions are more likely to foster safety climates that encourage their followers to speak up about errors (Dirik & Seren Intepeler, 2017; Farnese et al., 2019; Leroy, Palanski, & Simons, 2012; Wong, Laschinger, & Cummings, 2010). Understanding the mechanisms by which an authentic leader influences his or her followers' attitudes toward error reporting is important for enhancing the quality of patient care.

Leaders may exert their influence on followers through two major mechanisms: (1) personal identification with the leader, and (2) organizational identification (Kark &

Shamir, 2000; Kark, Shamir, & Chen, 2003). Specifically, the way in which newcomers define themselves in terms of their relationship with the leader and the organization may be affected by their managers' leadership behaviours (Sluss, Ployhart, Cobb, & Ashforth, 2012; Smith, Amiot, Callan, Terry, & Smith, 2012). This is because new graduate nurses, as new hires into the organization, need support and guidance to learn workplace competencies and require a work culture that enables them to practice effectively. Authentic leaders' behaviours encompass supportive and nurturing interactions that may encourage new graduate nurses to develop close relationships with their leaders, which in turn leads to personal identification with that leader. When leaders engage in high-quality relationships with their new employees, they are more likely to connect them psychologically to the organization (Schaubroeck, Peng, & Hannah, 2013; Sluss & Ashforth, 2008). This occurs because newcomers view their managers as a representative of the organization and through their social interactions with their managers, they learn, respect, and identify with the organization's values and goals (Beyer & Hannah, 2002; Sluss & Ashforth, 2008; Smith, Amiot, Callan, Terry, & Smith, 2012). Understanding the ways authentic leaders influence new graduate nurses' personal identification with the leader and organizational identification may provide new knowledge about strategies to enhance new graduate nurses' participation and compliance with patient-safety initiatives.

It has been reported that trust in leaders encourages nurses to engage in discussing errors, to identify methods to prevent incidents from reoccurring, and to recognize ways to enhance their practice (Vogus & Sutcliffe, 2007a). When staff notice that their manager has a positive attitude toward error reporting and patient safety by ensuring that

nurses' recommendations are reflected in changes to the workplace climate and policies and procedures, they are more likely to trust that manager (Benn et al., 2009; Vogus & Sutcliffe, 2011). This suggests that trusting leadership plays a key role in developing and changing followers' attitudes toward error reporting.

There has been a great deal of evidence emphasizing the positive influence of authentic leadership on the work attitudes and behaviors of followers. However, it has been noted that the methods or processes by which authentic leaders influence followers' attitudes and behaviours needs to be better understood (Avolio, Gardner, Walumbwa, Luthans, & May, 2004). Specifically, the underlying mechanisms authentic leaders implement to generate change in their followers, and subsequently produce positive outcomes requires further investigation. Therefore, the goal of this study was to address our lack of understanding of how authentic leadership behaviours of nursing managers promote the highest levels of patient safety performance.

1.3 Problem Statement

Although healthcare organizations have made major strides in patient safety, a growing number of patients are experiencing preventable medical errors. Many studies have been conducted to examine the influence of leadership on safety outcomes (Cummings et al., 2010; Flin, & Yule, 2004; Künzle, Kolbe, & Grote, 2010; McFadden, Henagan, & Gowen, 2009; Squires, Tourangeau, Laschinger, & Doran, 2010; Thompson et al., 2011; Wong & Cummings, 2007; Wong, Cummings, & Ducharme, 2013; Wong & Giallonardo, 2013; Wong, Laschinger, & Cummings, 2010). However, few studies have investigated the influence of leadership on nurses' error reporting attitudes and behaviours (e.g., Drake, 2015; Munn, 2016). Therefore, the current study attempted to fill

that gap in the literature by testing a hypothesized model that explored how authentic leadership behaviours, identification with the leader and organization, trust in the manager, and patient-safety climate affect new graduate nurses' willingness to report errors.

1.4 Study Purpose

The purpose of this study was to explore the effect of authentic leadership on new graduate nurses' willingness to report errors. Specifically, the study tested a theoretical model that examined the influence of authentic leadership on new graduate nurses' perceptions of personal identification with the leader, organizational identification, trust in the manager, patient safety climate, and willingness to report errors. It is important for healthcare leaders to understand what leadership practices and behaviours foster new graduate nurses' willingness to report errors, which in turn, provide successful strategies to provide high quality and safe care.

1.5 Significance

The results from the current study benefit healthcare leaders in developing and implementing theory-informed and evidence-based strategies that aim to improve workplace culture, which subsequently enhance the delivery of safe and quality patient care. This study identifies how authentic leaders' behaviours influence new graduate nurses' attitudes toward error reporting. Personal identification with the leader is a potential mechanism used by nursing managers to create a blame-free and positive environment where error reporting is not viewed as a sign of incompetency but rather as an opportunity to learn for both individuals and the organization. The findings of this study guides healthcare organizations, professional associations, and government

agencies in planning and evaluating future initiatives to improve patient safety by making work environments more supportive for error reporting. In addition, the study findings encourages organizations to invest in authentic leadership training programs that focus on providing frontline managers with skills and tools that allow them to establish positive and trusting relationships with their staff.

1.6 Summary

Error reporting has been identified as an important approach to improve or redesign the healthcare system to deliver both safe and quality care to the public (Kohn, Corrigan, & Donaldson, 2000). The healthcare literature has not previously investigated the impact of authentic leaders' practices on new graduate nurses' attitudes toward error reporting. The intent of this study was to add to the limited body of knowledge by examining the effects of authentic leadership on new graduate nurses' personal identification with the leader, organizational identification, trust in the manager, patient safety climate, and willingness to report errors. The following chapter presents a comprehensive review of the relevant literature that was used to inform this study. The hypothesized model is also discussed in Chapter 2.

CHAPTER 2: Theoretical Framework and Review of the Literature

2.1 Introduction

In the following chapter, the literature concerning theory and research related to authentic leadership, personal identification with the leader, organizational identification, trust in the manager, patient-safety climate, and willingness to report errors is outlined. Gaps in the existing literature are identified and the need for research to address those gaps is also discussed. A theoretical model is developed for the research study using authentic leadership theory as the foundation (Avolio et al., 2004) to describe how nursing managers influence new graduate nurses' willingness to report errors.

2.2 Theoretical Framework

The theoretical framework informing this study is authentic leadership theory (Avolio et al., 2004). Authentic leadership (Figure 1) is a positive form of leadership that focuses on integrity, honesty, and high moral perspective (Avolio et al., 2004). In the literature, authentic leadership has been presented as the root construct of contemporary positive-leadership theories that include transformational leadership and ethical leadership (Avolio & Gardner, 2005). Authentic leadership is defined as a pattern of a leader's behaviour that both builds upon and promotes "positive psychological capacities and a positive ethical climate, to foster greater self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency on the part of leaders working with followers, fostering positive self-development." (Walumbwa et al., 2008, p. 94). This definition identifies components of authentic leadership that including self-awareness, balanced processing, an internalized moral perspective, and relational transparency. *Self-awareness* is an authentic leader's deep understanding of his

or her values, beliefs, strengths, and weaknesses (Avolio & Gardner, 2005). The leader combines self-awareness with positive psychological capacities of confidence, hope, optimism, and resilience (Luthans & Avolio, 2003) that amplify the authentic leader's self-regulatory behaviour when interacting with followers, and subsequently facilitates the development of both the leader and his or her followers (Gardner et al., 2005). *Balanced processing* involves evaluating all relevant information while taking into account opposing views and ideas to make sound decisions (Walumbwa et al., 2008). Within the theory of authentic leadership, leaders are inherently moral (Luthans & Avolio, 2003) which allows them to recognize the moral aspect of their role (May, Chan, Hodges, & Avolio, 2003). Authentic leaders rely on their *internalized moral perspective* when dealing with moral issues. *Internalized moral perspective* refers to an internalized and integrated form of self-regulation (Ryan & Deci, 2003) that is guided by moral standards when encountering group, organizational, and societal pressure, which results in decisions and behaviours that are consistent with these standards (Avolio & Gardner, 2005; Gardner et al., 2005; Walumbwa et al., 2008). Authentic leaders "utilize their reserves of moral capacity" (Gardner et al., 2005, p. 395) to make a moral decision and openly discuss their decision-making process (May et al., 2003; Gardner et al., 2005). Finally, *relational transparency* refers to leaders displaying openness and honesty in presenting one's true self to others (Gardner, Fischer, & Hunt, 2009).

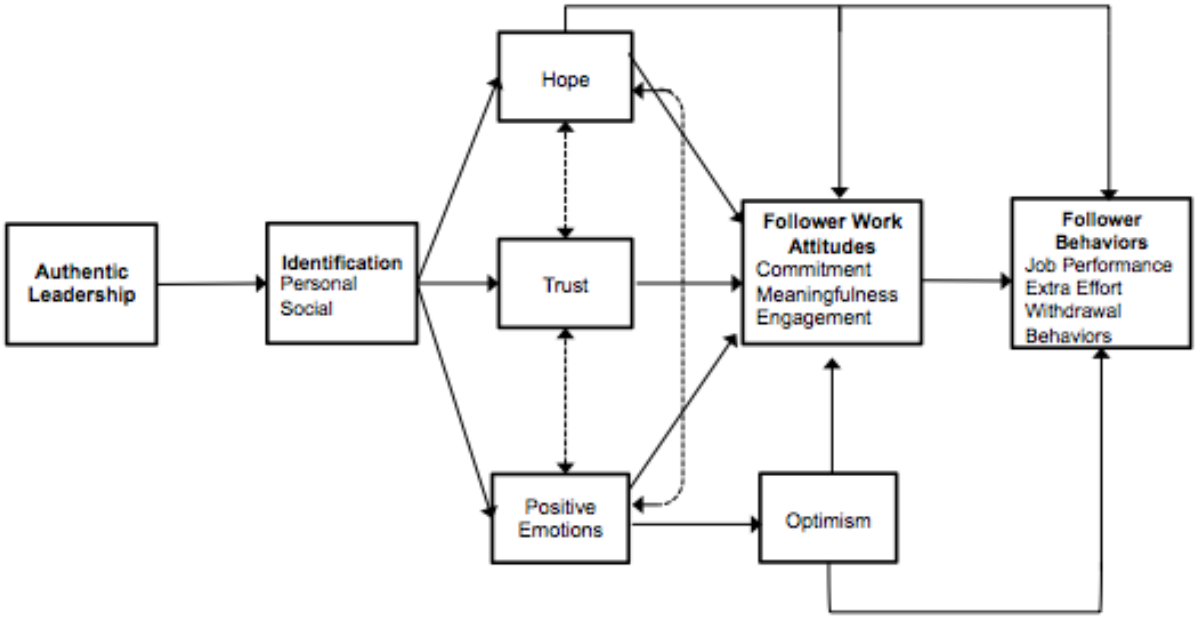


Figure 1. The authentic leadership framework. Adapted from "Unlocking the Mask: A look at the Process by which Authentic Leaders Impact Follower Attitudes and Behaviors" by B.J. Avolio, W. L. Gardner, F. O. Walumbwa, F. Luthans, and D. R. May, 2004. *The leadership quarterly*, *15*(6), p. 803. Copyright 2004 by Elsevier Inc.

The theory of authentic leadership describes several mechanisms whereby leaders influence followers' work attitudes and behaviours. Avolio and colleagues (2004) maintained that personal identification with the leader and social identification with the organization are two significant mechanisms that enable authentic leaders to produce positive outcomes in their followers. *Personal identification* with the leader refers to a mechanism whereby the follower's beliefs about the leader become self-defining (Kark, Shamir, & Chen, 2003). In other words, when followers see their leader's words and actions exemplify high moral values, integrity, fairness, transparency, and honesty, they recognize that they share similar beliefs and values with the leader (Avolio et al., 2004; Pratt, 1998). As a result, followers transform their self-concept so their beliefs and values mimic those of the leader (Avolio et al., 2004; Pratt, 1998).

Social identification with a collective is one of the important processes through which authentic leaders achieve their effect on followers. According to Tajfel (1978), an individual's self-concept is defined through the individual's knowledge that he or she is a member of a social group and the value and emotional importance he or she attaches to that membership. Authentic leaders evoke followers' social identification by creating a deeper sense of high moral standards and expressing high levels of honesty and integrity in their interactions with followers (Avolio et al., 2004). Such leaders are better able to strengthen followers' identification with their beliefs, values, goals, and activities, which become related to a collective with whom the followers similarly identify (Walumbwa et al., 2008). As a result, the authentic leaders encourage followers to commit to the success of the organization (Avolio et al., 2004).

The identification with a collective, such as the organization, which promotes elevated levels of moral values, integrity and transparency, is postulated to generate increased levels of trust, hope and positive emotions among followers (Gardner et al., 2005). Fostering the development of these attitudes, authentic leaders maximize followers' job satisfaction and organizational commitment by increasing followers' work engagement (Avolio et al., 2004). In addition, authentic leaders augment followers' motivation and self-determination with the establishment of positive work conditions that facilitate open communication, sustain followers' autonomy, and provide ongoing coaching and feedback (Gardner et al., 2005). Such behaviours create positive and strong leader-follower relationships that support honest communication about how work environment must be reconstructed to achieve optimal performance (Laschinger, Wong, & Grau, 2012).

Through the processes of personal identification with the leader and social identification with the collective, authentic leaders can influence their followers to achieve positive organizational outcomes (Avolio et al., 2004). Specifically, an authentic leader has the ability to build relationships with his or her followers that are based on hope, trust, positive emotions, and optimism that lead to favourable outcomes. Hope is defined as a cognitive process that is comprised of a reciprocally derived sense of successful agency and pathway (Snyder et al., 1991). According to Snyder and colleagues (1991), agency refers to a sense of successful determination in meeting goals, while pathway reflects planning of ways to achieve goals. Davidson (2014) explained that when an individual pursues a goal, he or she might face difficulties that can obstruct the planned route and stop the individual from achieving the goal. To overcome this obstacle, the individual may use pathway thinking to develop an alternative plan, and when he or she successfully overcomes the obstacle, the individual achieves the goal (Davidson, 2014). A person's hope is enhanced through his or her close bond to a high-hope and responsive individual (Shorey, Snyder, Yang, & Lewin, 2003; Snyder, 2000; Snyder, Rand, & Sigmon, 2002). Considering that authentic leaders have the ability to remain hopeful and trustworthy, especially during difficult times, they are capable of strengthening their followers' hope by providing genuine feedback and direction that encourage followers to pursue goals and to find ways to achieve those goals (Avolio, Luthans, & Walumbwa, 2004). Avolio and colleagues (2004) suggested that authentic leaders, through the mechanism of personal identification with the leader and social identification with the collective (e.g., an organization), influence their followers to identify with leaders' and organizational goals. Identification, subsequently, encourages

followers to focus on accomplishing organizational goals and find alternative means to achieve desired outcomes (Avolio, Luthans, & Walumbwa, 2004). Because authentic leaders possess pathways thinking, they lead their followers to see every obstacle as a learning opportunity and look for new solutions to achieve the work goals (Rego, Sousa, Marques, & Pina e Cunha, 2014). When followers recognize that their leader is authentic, they do not hesitate to acknowledge difficulties they encounter in pursuing goals, which subsequently, influences them to re-examine their strategies and find the best ways to achieve goals (Luthans & Youssef, 2004; Rego et al., 2014).

Authentic leadership theory proposes that once followers develop personal identification with the leader and social identification with the collective, they engage in trusting relationship with their leaders (Avolio et al, 2004). When followers perceive their leaders' words and actions to express high moral values, integrity, and honesty, they tend to trust the leader (Dirks & Ferrin, 2002), and are willing to engage in risk-taking behaviours (Mayer, Davis, & Schoorman, 1995). Authentic leaders are transparent about their values, beliefs, strengths, weaknesses, and motives. They examine various perspectives and have the ability to make balanced decisions. Authentic leaders' behaviours are based on internal moral standards, and they do not alter their actions to accommodate popular opinions; therefore, they are able to invoke trust among their followers. As followers believe in the leader's honesty, integrity and ability, followers are more likely to trust the leader and become willing to share important information, knowing that the leader is concerned with the wellbeing of the followers (Dirk & Ferrin, 2002; Mayer, Davis, & Schoorman, 1995).

Influencing followers' positive emotions is another crucial element of being an authentic leader. During personal interactions, leaders and followers' emotions and moods converge through emotional contagion (Ilies, Morgeson, & Nahrgang, 2005). Emotional contagion is described as "the tendency to automatically mimic and synchronize expressions, vocalizations, postures, and movements with those of another person and, consequently, to converge emotionally" (Hatfield, Cacioppo, & Rapson, 1994, p. 5). This indicates that a person's tendency to catch others' emotions is influenced by unconscious, automatic motor mimicry mechanisms (Snaebjornsson & Vaiciukynaite, 2016). Fredrickson (2003) explained that leaders are in a powerful position to influence their followers' positive emotions, because leaders' positive emotions are especially contagious. Specifically, Keltner, Gruenfeld, and Anderson (2003) suggested that individuals with less power (e.g., followers) are more attentive to the more powerful (e.g., leaders). Authentic leaders who engage in self-awareness and relational transparency are more likely to experience positive emotional states (Kernis, 2003). This subsequently, through emotional contagion, leads followers to experience more positive emotions (Ilies et al., 2005). This is important, as Avolio and colleagues suggested that followers' positive emotions are positively related to followers' work attitudes and behaviours, such as commitment, coping, performance, and satisfaction.

Authentic leaders are more effective in raising optimism among their followers (Gardner & Schermerhorn, 2004). Optimism refers to a cognitive process that allows an individual to attribute success to self, whereas failure is attributed to external factors (Seligman, 1999). Optimism is associated with a positive outlook of a situation (Luthans, 2002b; Luthans, Youssef, & Avolio, 2007) that involves objectively assessing what one

can accomplish in a specific situation and time with the available resources (Peterson, 2000; Seligman, 1999). This type of optimism is known as realistic optimism (Peterson, 2000; Luthans, 2002b). According to Avolio and colleagues (2004), authentic leaders can influence their followers' optimism through a two-step process. Initially, authentic leaders establish identification among their followers, and then evoke followers' positive emotional states. Role modeling is one way authentic leaders can influence their followers' optimism (Avolio et al., 2004). That is to say, followers who identify with their authentic leaders are affected by their leaders' positive emotional state, and by mimicking leaders' positive emotions followers establish realistic optimism, which leads them to higher levels of performance and positive attitudes towards organizational goals (Avolio, Luthans, & Walumbwa, 2004; Luthans & Avolio, 2003).

Authentic leaders are expected to engage in deep reflection on their thinking and behviours, and are regarded by others as cognizant of their own and others' moral standards, strengths and weaknesses (Avolio et al., 2004). When making a decision, authentic leaders examine different sides of any given situation, maintain a sound moral perspective, and share the reasons and goals for their actions (Woolley, Caza, & Levy, 2011). By doing so, authentic leaders contribute to the development of a supportive and positive organizational climate that in turn enhances followers' development (Gardner et al., 2005). Specifically, authentic leaders facilitate the development of authenticity and self-awareness in their followers by providing opportunities to learn new skills, thereby increasing followers' engagement, motivation, commitment, and involvement that are essential to improve job satisfaction and performance (Avolio & Luthans, 2006; Avolio & Walumbwa, 2006; Gardner et al., 2005; Wong & Cummings, 2009; Wong &

Laschinger, 2013).

2.3 Authentic leadership

The theory of authentic leadership was developed in response to an upswing in corporate scandals and unethical leadership behaviours that occurred in the early 2000s (Avolio et al., 2004; Gardner et al., 2005). Authentic leadership was conceived from the fields of positive organizational behaviours, ethics, and leadership (Avolio et al., 2004; Cameron, Dutton, & Quinn, 2003; Cooper, Scandura, & Schriesheim, 2005; Luthans & Avolio, 2003).

Positive organizational behavior is the study and application of leader's positive psychological traits that promote leaders to lead effectively and bring about similar outcomes among their followers (Avolio & Gardner, 2005; Luthans, 2002a; Luthans, 2002b). Put another way, positive psychological capacities such as hope, optimism, resilience, and self-efficacy are state-like qualities that can evolve, develop, and be reinforced to positively influence authentic leaders, followers, and organizations (Avolio et al., 2004).

Within the field of positive psychology, Harter (2002) explained that authenticity "involves owning one's personal experiences, be they thoughts, emotions, needs, wants, preferences, or beliefs, processes captured by the injunction to 'know oneself'"(p. 382) and acting in ways that reflect inner thoughts and feelings. In his conceptualization of authenticity, Kernis (2003) postulated that when individuals achieve authenticity they reach high levels of optimal self-esteem. This occurs once an individual knows and recognizes his or her strengths and weaknesses, which leads to exhibiting high degrees of stable and secure self-esteem. The individual avoids defensive biases and as a result is

able to establish transparent, open, and close relationships with others (Kernis, 2003). In addition, an individual's authenticity is exhibited when his or her behaviors are congruent with the beliefs and values he or she holds.

Kernis and Goldman (2006) identified four components of authenticity: (a) awareness, (b) unbiased processing, (c) behaviour, and (d) relational orientation. Awareness refers to being motivated to learn about one's dispositional attributes, strengths and weaknesses, goals and desires, and emotional states (Kernis & Goldman, 2006). Unbiased processing is the ability of an individual to objectively assess one's positive or negative personal aspects, feelings, characteristics, and experiences (Goldman & Kernis, 2002). Behaviours refer to actions that are influenced by internal values, as opposed to be affected solely by external motivations (Kernis & Goldman, 2006). Finally, a relational orientation is the tendency to be open, sincere, and truthful when interacting with others (Goldman & Kernis, 2002).

Further, the four components of authenticity outlined by Kernis and colleagues (2000, 2003) were integrated in Ilies, Morgeson, and Nahrgang's (2005) model of authentic leadership. This model consisted of self-awareness, unbiased processing, authentic behavior/acting, and authentic relational orientation. Similarly, Gardner and colleagues (2005) constructed their authentic leadership conceptualization using these four factors: self-awareness, relational transparency, balanced processing, and internalized moral perspective. The researchers proposed changing the *unbiased processing* component to *balanced processing*. This is because evidence from social psychology suggested that individuals are inherently flawed and biased as information processors, particularly regarding self-relevant information (Tice & Wallace, 2003).

Therefore, they recommended using *balanced processing* to indicates how authentic leaders are able to evaluate and acknowledge their strengths and limitations and display adaptive ego defense styles. This allows authentic leaders to follow their core beliefs and values without becoming distracted by self-enhancement and self-protection (Gardner et al., 2005). In addition, including an internalized moral perspective was deemed to be important for the development of the authentic leadership theory (Avolio & Gardner, 2005).

2.3.1 Dimensions of authentic leadership. The conceptualization of authentic leadership is based on four dimensions: self-awareness, relational transparency, balanced processing, and internalized moral perspective. *Self-awareness* reflects the ability of leaders to obtain insight into how they make meaning of the world and how that understanding influence the way they perceive themselves (Walumbwa et al., 2008). It also reveals the leader's awareness of his or her strengths and weaknesses, which include understanding of self through exposure to others and the knowledge of how he or she affects other people (Kernis, 2003; Walumbwa et al., 2008). *Relational transparency* refers to revealing authentic self to others (Walumbwa et al., 2008). Engaging in this behaviour leads to the development of trust through candidly sharing information and expressing one's true thoughts and feelings while reducing the demonstrations of inappropriate emotions (Kernis, 2003; Walumbwa et al., 2008). In *balanced processing*, a leader shows that he or she has objectively analyzed relevant information before making a decision (Walumbwa et al., 2008). That leader also seeks perspectives that challenge his or her deeply rooted beliefs (Gardneret al., 2005). *Internalized moral perspective* combines internalized and integrated processes of self-regulation (Ryan & Deci, 2003;

Walumbwa et al., 2008). The self-regulation is formed through internal moral standards and values without the influence of group, organizational, and societal persuasion (Gardner, Avolio, Luthans, et al., 2005; Walumbwa et al., 2008).

2.3.2 Empirical authentic leadership research. A growing body of literature has emphasized the significant role authentic leaders play in enhancing followers' performance and job satisfaction. However, there is scant evidence to support the relationship between authentic leadership and safety outcomes, and the mechanisms by which an authentic leader facilitates these outcomes. In a study on the effect of authentic leaders on safety climate, personality, and risk perceptions, Birkeland Nielsen, Mearns, and Larsson (2013) surveyed 293 offshore oil installation workers from a single company. They found that authentic leadership was negatively associated with risk perceptions (r = -0.18) and positively related to safety climate (r = 0.49). The authors also found that when personality characteristics (i.e., the Big Five factors: extraversion, agreeableness, openness, conscientiousness, and neuroticism) and leadership responsibility among participants were controlled, safety climate mediated the relationship between authentic leadership and risk perceptions. These findings suggest that authentic leaders, through their positive psychological capacities and fostering of a positive and ethical work climate, are able to decrease followers' perceptions of risk by creating a positive safety climate, which is influenced by the leaders' personal modeling of safety performance and behaviours (Birkeland Nielsen, Mearns, & Larsson, 2013).

Surveying 252 employees and 49 teams within 25 Belgian organizations, Leroy, Palanski, and Simons (2012) demonstrated that authentic leaders' behaviours engender followers' belief that their leaders' words are consistent with their deeds (i.e., behavioural

integrity), and that these beliefs influence followers' affective organizational commitment (i.e., emotional attachment to the organization). In turn, this motivates followers to adapt to difficult working conditions and perform effectively. These findings suggest that in complex and changing work environments, an authentic leader can motivate adaptive and efficient work behaviours among followers by aligning his or her words and actions. This behavioural integrity can heighten followers' emotional attachment and identification with the organization because the leaders are deemed to be representative of what the organization stands for.

In nursing literature, there is a substantial body of evidence indicating that authentic leadership is associated with positive outcomes for nurses. Authentic leaders have been found to create healthy work conditions for both new and experienced nurses, which subsequently lead to positive work attitudes and behaviours. Specifically, new graduate nurses reported that managers who demonstrate authentic leadership were more likely to influence their personal identification with the leader and organizational identification, which ultimately enhanced their confidence in their ability to cope with job demands and reduced their intention to leave their current position (Fallatah, Laschinger, & Read, 2017). Wong, Laschinger, and Cummings (2010) found that managers' authentic leadership practices positively influenced nurses' voice behaviour (i.e., speaking up) and perceptions of care quality through the mechanisms of personal identification with, and trust in, the manager. The authors also found that nurses' social identification with the work group, when compared to their personal identification with the manager, had a moderate to strong direct effects on voice ($ß = 0.19$, $p = 0.003$), work engagement ($ß = 0.41$, $p < 0.001$), and quality of care ($ß = 0.35$, $p < 0.001$). They explained that nurses

might not strongly identify with their manager because of a large span of control. These findings emphasize the importance of nurses' day-to-day interaction with their managers in influencing nurses' work attitudes and behaviours.

Studies examining the influence of authentic leadership on patients' outcomes are limited in nursing. Wong and Giallonardo (2013) investigated the relationship between authentic leadership and adverse patient outcomes through the mediating effects of trust in manager and area of worklife. Areas of worklife are work conditions that can lead to burnout, and consist of control, workload, community, rewards, fairness, and values (Maslach & Leiter, 1997). The researchers surveyed 600 nurses working in acute-care settings across Ontario, Canada. They found that managers' authentic leadership behaviours had a positive direct effect on trust in the manager ($ß = 0.69$, $p < 0.001$) and a moderate effect on six areas of worklife ($ß = 0.24$, $p < 0.001$). Further, a Sobel test confirmed that the effect of authentic leadership on adverse patient outcome was mediated by area of work life ($z = -2.72$, $p < 0.01$) and trust ($z = -2.85$, $p < 0.01$).

Recently, Farnese and colleagues (2019) examined the ability of nursing managers who model authentic leadership to foster a work culture that is geared toward error management to reduce the number of errors occurring in nursing units. The authors found that authentic leadership resulted in decreased practice mistakes by creating a work environment that was oriented toward rapid detection of and recovery from errors, error communication, and learning from mistakes (i.e., error management culture). Dirik and Seren Intepeler (2017) also showed that authentic leadership of nursing managers was positively associated with Turkish nurses' perceptions of patient safety climate. More specifically, after controlling for gender, education level, hospital type, work unit,

and tenure, managers' authentic leadership behaviours contributed 23.4% to nurses' perceptions of patient safety climate. Additionally, balanced processing and relational transparency significantly predicted safety climate. These studies provide empirical support for the link between authentic leadership and patient safety climate and demonstrate the significant effects nurse managers can have on nurses by exhibiting authentic leadership behaviours and creating a workplace environment that support patient safety.

2.4 Personal Identification with the Leader

Personal identification in the workplace has been understudied; instead the majority of the literature has focused on employees' identifications with the workgroup, department and the organization (Carmeli, Atwater, & Levi, 2011; Sluss & Ashforth, 2007). Personal identification with the leader is "a self-categorization process that involves an individual defining him or herself in terms of the attributes of the leader, shifting his or her focus on individual gains for the leader, and experiencing a high level of connection with the leader" (Hobman, Jackson, Jimmieson, & Martin, 2011, p. 556). It describes situations in which an individual "attempts to be like or actually to be the other person" (Kelman, 1958, p. 57). Individuals' identification with a leader is determined by the type of the relationship they have with the leader (Steffens, Haslam, & Reicher, 2014; van Knippenberg, van Knippenberg, DeCremer, & Hogg, 2004). If the relationship fulfills individuals' task and socio-psychological needs, then this relationship is considered important and desirable (Sluss & Ashforth, 2008). Therefore, this relationship engenders personal identification.

Personal identification with a leader is thought to occur when followers notice

their leader embodies the values and goals that coincide with their own, or when they are motivated to internalize that leader's values and beliefs (Kark & Shamir, 2002). The theory of authentic leadership asserts that the influence of an authentic leader on his or her followers' attitudes and behaviours becomes stronger and motivational through the degree of followers' personal identification with that leader (Avolio et al., 2004).

In the next section, personal identification is described focusing on the following themes: (a) the distinction between personal identification and relational identification, and (b) personal identification and leadership.

2.4.1 Personal identification versus relational identification. It is important to note that the concept of personal identification is easily confused with the concept of relational identification (Fox, 2011). In the social identity literature, personal identification has been discussed widely and is known as classical identification (Shamir, House, & Arthur, 1993) while relational identification is a construct that has been recently described by Sluss and Ashforth (2007). Personal identification focuses on a person's desire to be similar or actually to be the other person (Kelman, 1961). This may result in restraining the person's ability to express his or her individuality (Sluss & Ashforth, 2007; Kark, Shamir, & Chen, 2003). However, Shamir and colleagues (1993) argued that leaders build personal identification among their followers by linking followers' self-concept to the value and goals of the leader and organization, which subsequently enhances followers' organizational commitment, performance, and organizational citizenship behaviours. In contrast, relational identification involves one's role relationship with another individual, desire to benefit the dyadic relationship, and self-esteem obtained from fulfilling the role-related relationship's expectations and

demands (Qu, Janssen, & Shi, 2015; Sluss & Ashforth, 2007). Thus, an individual defines him or herself through the role he or she assumes in a given relationship. Personal identification focuses on the individual's perception of self in regard to another individual (Fox, 2011). In other words, through the process of personal identification, individuals define themselves in terms of the leader's attributes, and share his or her values and beliefs and aim to benefit the leader by following the leaders' guidance to carry on their work roles (Kark et al., 2003). The focus of this study is on personal rather than relational identification.

2.4.2 Personal identification and leadership. The literature on leadership has indicated that leaders influence employees' social identification with the workgroup and/or the organization through their personal identification with the leader. More specifically, studies have reported that the influence of positive forms of leadership on followers, such as charismatic, transformational, and authentic leadership, is built on followers' personal identification with the leaders (Shamir, House, & Arthur, 1993; Kark et al., 2003; Yukl, 2010). For instance, the theory of charismatic leadership maintains that charismatic leaders influence their followers through the process of personal identification with the leader (Conger & Kanungo, 1998). According to Shamir, House, and Arthur (1993) leaders are able to activate self-concept among their followers through their actions, and this in turn influences followers' motivational mechanisms of self-expression, self-consistency, and the maintenance and enhancement of self-esteem and self-worth. Subsequently, these processes strongly influence followers' behaviours and psychological states (Shamir, House, & Arthur, 1993). According to Yukl (2010), followers' strong commitment to the mission and goals of the organization is mainly due

to followers' personal identification with the leader. He affirmed that leaders trigger personal identification when they express an appealing vision, exhibit courage and conviction, and make self-sacrifices that benefit followers or the mission. As a result, when followers establish a strong personal identification with their leader, they will mimic that leader's behaviours, fulfill the leader's demands, and perform extra-role activities to please their leader (Yukl, 2010).

Within transformational leadership, Kark and Dijk (2007) postulated that transformational leaders achieve their influence through developing followers' personal identification with the leaders. Personal identification occurs when followers attribute remarkable and positive characteristics to their transformational leader (Yukl, 1999). Such leaders behave as positive role models, and demonstrate positive behaviours including: idealized vision, inspirational motivation, individualized consideration, and intellectual stimulation (Bass, 1985; Shamir, House, & Arthur, 1993; Walumbwa & Lawler, 2003). These behaviours exert strong influence on followers to become similar to their leaders in relation to their leaders' beliefs, values, and behaviours (Liu, Zhu, & Yang, 2010).

Given the newly emergent status of authentic leadership theory, the development of personal identification with the authentic leader has not been widely examined. However, authentic leadership theory used both charismatic and transformational leadership theory and empirical studies to propose that authentic leaders produce positive outcomes among their followers through stimulating personal identification (Avolio et al., 2004). According to Avolio et al. (2004), this proposition is based on the similarities that authentic leadership shares with transformational leadership. Adding to that, the

authors hypothesized that authentic leaders influence followers' trust through the mediating effects of personal identification.

Avolio and colleagues' (2004) proposition has been supported empirically. For example, a study by Liu, Fuller, Hester, Bennett, and Dickerson (2018) examined how authentic leadership influences followers' personal identification. The researchers also investigated the mediating effects of personal identification and psychological safety on followers' tendency to take the initiative in improving current work conditions (i.e., proactive behaviour) and job engagement. Results showed that authentic leadership had a positive association with followers' personal identification with the leader ($r = .47$, $p < 0.01$). The authors found that personal identification with the leader and psychological safety mediated the relationship between authentic leadership and proactive behaviour, and also mediated the relationship between authentic leadership and job engagement. Further, Fox (2011) found that personal identification with the authentic leader partially mediated the relationship between authentic leadership and trust in a sample of 398 teachers. Wong and colleagues (2010) found that nurses' personal identification with the manager had a direct positive relationship with their trust in the manager (ß = 0.37, $p < 0.001$). Based on the theoretical and empirical link between authentic leadership and personal identification, the following hypothesis is proposed:

Hypothesis 1: Authentic leadership of managers is positively related to new graduate nurses' personal identification with their manager.

2.5 Organizational Identification

Organizational identification is a specific type of social identity that ties the employee-organization relationship to an employee's self-concept (Epitropaki & Martin,

2005; Pratt, 2001). It is a psychological connection that links an employee to his or her organization by which the employee experiences an affective and cognitive bond with the organization (Edward, 2005). Organizational identification occurs when individuals' definition of themselves is associated with what they assume the organization stands for (Kreiner & Ashforth, 2004). It also reflects employees' perceptions that one's beliefs, values, and goals are similar to that of the organization (Dutton, Dukerich, & Harquail, 1994).

The theoretical foundation of organizational identification is based on social identity theory, or SIT (Ashforth & Male, 1989; Tajfel & Turner, 1986). Within SIT, organizational identification is viewed as a specific form of social identification (Pratt, 2001). It has also been conceptualized as a continuum from personal to social identity (Epitropaki & Martin, 2005). Thus, organizational identification manifests when an employee includes the perceived prototypical characteristics of the organization into his or her view of his or herself (Ashforth & Mael, 1989; Dutton, Dukerisch, & Harquail, 1994; Mael & Ashforth, 1995).

In this section of organizational identification, the discussion will focus on reviewing the social identity theory, as the theoretical underpinning of organizational identification. Then, the literature that examines social identification in organizational contexts will be presented. Next, the difference between organizational identification and organizational commitment will be examined. In addition, organizational identification outcomes will be discussed. This portion will conclude with an exploration of the link between leadership and organizational identification.

2.5.1 Social identity theory. The examination of organizational identification is centered on SIT. According to SIT, identification is the need to categorize oneself and others into different social classifications to differentiate between ingroup and outgroup members (Ashforth & Male, 1989; Tajfel & Turner, 1986). This process guides individuals to attempt to strengthen or establish clear and positive differences between the ingroup and outgroup (Hogg, Terry, & White, 1995). Hogg and Terry (2001) maintained that social identity induces two fundamental socio-cognitive processes: categorization, and self-enhancement. Categorization involves cognitively assigning oneself and others into ingroup and outgroup depending on the similarities the individual shares with a specific group (Hogg & Terry, 2000). Ashforth and Mael (1989) explained that this categorization serves two purposes. First, social categorization cognitively assists individuals to segregate and assign others into groups according to the common characteristics they share with other group members. Second, it allows people to compare themselves to others in terms of their membership of a specific group. Self-enhancement drives the process of self-categorization because individuals have the desire to see themselves in a favorable way in an attempt to establish positive self-esteem (Hogg, Terry, & White, 1995; Tajfel & Turner, 1979). As a result, when individuals categorize themselves as members of a particular group, they desire to differentiate themselves from people in other social groups, and they aspire to be better than them in order to feel that this membership is rewarding (Edwards, 2005; Haslam & Ellemers, 2005).

Social identity theory includes three components of identification including cognitive, evaluative, and emotional (Hogg & Terry, 2001). Tajfel (1978) explained that identification is “that part of an individual’s self-concept which derives from his

knowledge of his membership of a social group together with the value and emotional significance attached to that membership" (p.63). The cognitive dimension of identification highlights an individual's perceptions of the common interests he or she shares with the organization (Ashforth & Male, 1989). The evaluative component refers to the positive or negative appraisal of group membership (Hogg & Terry, 2001). The emotional dimension reflects an individual's sense of pride in belonging to the organization, which subsequently leads to a positive social identity for that individual (Smidts, Pruyn, & Riel, 2001; Tajfel, 1978).

2.5.2 Social identification within organizations. Employees shape their identity based on their membership in the organization or work groups. Organizational identification is the mechanism of internal or external persuasion through which employees of the organization link organizational values and ideas to their self-concept (Van Knippenberg & Van Leeuwen, 2001) cognitively or emotionally (Riketta, 2005). Social identity theory postulates that individuals' behaviours are mainly influenced by their social identification because their needs are linked to their group membership that is internalized and plays a role in guiding or motivating their actions at work (Hogg & Hains, 1996). When organizational identification takes place, individuals are more likely to stay with the organization, coordinate with their colleagues, and when faced with a difficult decision, they will make a choice that best benefits the organization (Ashforth and Mael 1989; Dutton et al., 1994). Employees strive for cooperation to achieve organizational success (Rousseau, Sitkin, Burt, & Camerer, 1998) by being influenced to participate in organizational activities; therefore, the organization's objectives become

employees' objectives (Edwards, 2005), which in turn encourage individuals' in-role and extra-role performance.

2.5.3 Organizational identification and organizational commitment. Within organizational research, organizational identification and organizational commitment are each focus on employees' psychological attachment to their organizations (van Dick, Drzensky, & Heinz, 2016). Commitment is defined to include identification as a component of the phenomena. For example, two popular definitions of commitment describe it as "the relative strength of an individual's identification with and involvement in a particular organization" (Mowday, Steers, & Porter, 1979, p. 226). Also, Allen and Meyer (1990) conceptualized the affective component of the three-component commitment model as "emotional attachment to, identification with, and involvement in, the organization" (p. 1). However, identification within these conceptions is not based on SIT that focuses on defining self in terms of organizational membership (Mael & Ashforth, 1995; van Dick, 2004). Ashforth and Mael (1989) argued that commitment reflects individuals' attitudes towards the organization, while organizational identification refers to employees' sense of oneness with the organization. In addition, identification develops because an employee recognizes the similarities between his or her beliefs, values and objects with those of the organization, while organizational commitment is achieved through an exchange process that motivates the employee to become committed to his or her organization as a way to accomplish personal goals (Ashforth & Mael, 1989). Another difference between these constructs is that identification is sharing organizational values and beliefs, whereas commitment is accepting organizational values (Epitropaki & Martin, 2005). Finally, identification is

considered a process, but commitment is seen as a motivational force (Meyer & Herscovitch, 2001).

Empirically, studies have reported a strong correlation between measures of organizational identification and organizational commitment (Riketta, 2005; van Dick, 2004). However, Mael and Tetrick (1992) examined the discriminate validity of organizational identification and commitment and found that these constructs were empirically distinct. Similarly, Van Knippenberg and Sleebos (2006) found that organizational identification was empirically distinct from organizational commitment because organizational identification was related to the self-referential aspect of organization membership, while commitment was associated with perceived organizational support, job satisfaction, and turnover intention (Van Knippenberg & Sleebos, 2006).

2.5.4 Organizational identification outcomes. Organizational identification is related to job satisfaction (Ashforth & Mael, 1989; Collins, Galvin, & Meyer, 2019; Van Dick et al., 2004), work adjustment (Carmeli, Cohen-Meitar, & Elizur, 2007), and commitment (Foreman & Whetten, 2002, Cole & Bruch, 2006). Employees with stronger organizational identification were more likely to cooperate, participate, and make extra effort (Bartel, 2001; Dukerich, Golden, & Shortell, 2002; Miao, Eva, Newman, & Schwarz, 2019). Studies have also shown that organizational identification has a positive influence on employees' occupational self-efficacy (Fallatah, Laschinger, & Read, 2017), motivation, and compliance with organizational policies (Cheney, 1983).

2.5.5 Leadership and organizational identification. Given that the focus of the study is to examine how authentic leadership influences new graduate nurses'

organizational identification, it is important to shed light on organizational identification within the context of the leader-follower relationship. The literature review in this section focuses on how leaders foster organizational identification among their followers. Without a doubt, the leader-follower relationship is significant in determining how followers perceive their work and behaviour. Ashforth and Mael (1989) argued that the development of an individual's social identity is not only influenced by the organization but also from his or her interaction with other group members. Accordingly, it seems logical to posit that managers' leadership style would shape followers' organizational identification. For instance, transformational leadership has been suggested as a key predictor of organizational identification (Epitropaki & Martin, 2005). Epitropaki and Martin (2005) maintained that the transformational leader pays attention to the developmental, learning, and achievement needs of each follower, and while the leader acts as a role model, he or she provides meaning, challenge, a sense of mission, and high vision, thus obtaining followers' respect and trust. Transformational leaders are able to link followers' self-concept and self-esteem to followers' organizational membership (Ashforth, Harrison, & Corley, 2008). Epitropaki and Martin (2005) concluded that although both transformational and transactional leaders are capable of motivating their followers' organizational identification, transformational leaders are more likely to influence and maintain their followers' organizational identification.

Within the theory of authentic leadership, Avolio and colleagues (2004) proposed that authentic leaders facilitate the development of organizational identification among their followers by creating work interactions that are based on high moral standards, honesty, and integrity. Followers see leaders' values and ethical behaviours as examples

of what the organization stands for (Mael and Ashforth, 1992). Thus, followers feel trust, hope, positive emotions, and optimism (Avolio et al., 2004). This in turn leads to increases in positive work outcomes among followers, such as job satisfaction, commitment, and performance (Avolio et al., 2004; Gardner et al., 2005). Social identity theory states that individuals tend to think, feel, and act as group members (Ellemers, 2012). Turner (1991) explained that when individuals categorize themselves as members of a group, they are more open to the influence of one or more group members which subsequently leads to trust and cooperation with ingroup members. For instance, Dechawatanapaisal (2018) found that nurses who experience high-quality relationships with their leaders are more likely to develop organizational identification which in turn increases their sense of belonging to the organization. It therefore seems logical that authentic leaders are more likely to influence new graduate nurses to buy into the organization's mission and values, and function to achieve its goals, accordingly, strengthening new graduate nurses' organizational identification. Based on the argument presented above a second hypothesis is proposed:

Hypothesis 2: Authentic leadership of managers is positively associated with new graduate nurses' organizational identification.

Authentic leaders play a vital role in evoking followers' organizational identification through the mechanism of personal identification with the leader. It is reasonable to expect that new graduate nurses who personally identify with their leaders are more likely to identify with the organization, as they perceive the match between authentic leaders behaviours and the organization's standards, norms, and values. In support for this argument, Wong and colleagues (2010) found that the effect of authentic

leadership on nurses' social identification with workgroup was significant only through the effect of their personal identification with the leader. This leads to the following hypotheses:

Hypothesis 3: Personal identification mediates the relationship between authentic leadership and organizational identification.

2.6 Trust in the Manager

The notion of trust has been studied from a variety of disciplines, including psychology, sociology, philosophy, organizational science, and economics. A significant number of studies have focused on defining trust and conceptualizing it in an effort to bring some clarity to this construct; however, trust remains a complex concept (Payne & Clark, 2003).

The following portion of the literature review discusses definitions and conceptualizations of trust, followed by the theoretical foundation that is applied in this study. A review of empirical studies pertaining to trust and leadership is then be presented. Finally, this section will conclude with a discussion about the link between identification and trust.

2.6.1 Definitions of trust. Not surprisingly, a myriad of definitions of trust have been put forward over the years. In their work, Rousseau and colleagues (1998) observed that scholars from diverse disciplines agreed fundamentally on the meaning of trust and found that scholars accepted the core assumptions that trust is a psychological state and an important organizational phenomenon. Despite these similarities, there are many differences among the different conceptualizations. For instance, psychologists viewed trust as attributes of trustors and trustees and often focused on internal cognition;

economists perceived trust as calculative (based on costs and benefits) or institutional (i.e., organizational trust); and sociologists frequently examined trust as a social property of relationships among individuals.

Rousseau et al. (1998) suggested the following widely used definition of trust: a psychological state that involves the intention to assume vulnerability (i.e., risk taking) as a result of positive expectations of another person's intention or behaviour. Several authors used a slightly different operationalization of trust that proposed trust as an expectation or belief that an individual can depend upon another individual (Dirks & Ferrin, 2002). For example, Rotter (1967) defined trust as "… expectancy held by an individual that the word, promise or written communication of another can be relied upon" (p. 651). Others conceptually defined trust as a psychological state that involves an individual's willingness to be vulnerable to another individual's actions without the ability to control or monitor that individual's behaviours (Mayer, Davis, & Schoorman, 1995). This study will employ the trust definition that is proposed by Mayer and colleagues (1995) because this conceptualization refers to trust that arises within a dyadic relationship between the trustee (in this case a nursing manager) and trustor (a new graduate nurse). In addition, this definition examines trust within interpersonal work relationships (Burke, Sims, Lazzara, & Salas, 2007; Caldwell & Hayes, 2007; Wilson, 2012).

2.6.2 Conceptualizations of trust. Trust has been studied from a variety of perspectives; accordingly, this section will present a brief description of the most popular conceptions of trust. Within the trust literature, trust is viewed as a categorical approach or multidimensional construct. Dirks and Ferrin (2002) differentiated two theoretical

processes of trust categorizing these as either relationship-based perspective or character-based perspective. In relationship-based trust, the follower-leader relationship is viewed as a key element in the social exchange process (Blau, 1964). According to Blau (1964), followers deem their relationship with the leader to exceed the standard economic contract and that both sides of the exchange operate on trust, goodwill, and the perception of mutual obligation. This form of exchange is centered on care and consideration (Dirks & Ferrin, 2002). The character-based perspective suggests that followers' vulnerability is affected by the way followers see their leader's character (Dirks & Ferrin, 2002). Dirks and Ferrin (2002) asserted that the perceptions of a leader's character are significant because that leader may have the authority to make decisions that have important consequences on the follower and his or her ability to attain a goal. The authors also indicated that followers make inferences about their leader's qualities, such as integrity, dependability, ability, and fairness, and that these inferences are important because they have a major impact on followers' work attitudes and behaviours.

Some researchers argue that trust is a multidimensional construct that consists of cognitive and affective forms of trust. Cognitive-based trust is dependent on an individual's choice to trust another individual (Lewis & Wiegert, 1985). The decision to trust is based upon the available knowledge and good reasons (McAllister, 1995), while affective-based trust is fostered by the emotional bond that links two individuals (Lewis & Wiegert, 1985). Dirks and Ferrin (2002) stated that some scholars include both cognitive and affective components in their definition of trust to create an overall measure of trust.

2.6.3 Theoretical foundation of trust. Mayer and colleagues' (1995) *Integrative*

Model of Organizational Trust provides the theoretical ground for this study. This theory combines trustworthiness of the trustee, attributes and behaviours of the trustor, and the risk associated with the work relationship between the trustor and the trustee. An individual's willingness to trust another is determined by the trustor's propensity to trust and the trustor's beliefs about the trustee's trustworthiness that is influenced by trustor's ability, benevolence, and integrity. When one believes another person is trustworthy, he or she engages in trusting behaviours by putting oneself at risk (Dirks & Ferrin, 2002; Mayer et al., 1995).

Mayer et al. (1995) proposed three factors that lead to trustworthiness: ability, benevolence, and integrity. Ability is a group of competencies and skills that allow an individual to influence others. Benevolence is the belief that a trustee is concerned about the welfare of a trustor. Integrity is the perception of the trustor that the trustee accepts and consistently applies ethical standards.

In addition, Mayer and colleagues (1995) identified another factor referred to as propensity to trust. Propensity to trust is a general willingness to trust others. It is a trait that promotes the generalized expectation regarding the trustworthiness of other individuals. Propensity to trust is seen as a stable within-party factor that will influence the tendency of the individual to trust. Antecedents of trustworthiness and propensity to trust will not be examined in this study.

2.6.4 Trust and Leadership. Within transformational leadership theory, a leader gains trust from his or her followers by empowering and encouraging them to make decisions that may establish the leader's trust in followers (Avolio & Bass, 1995). Avolio and Bass (1995) posited that when transformational leaders behave as role models and

trust their followers, followers are likely to admire, respect and trust their leaders. In their meta-analysis study of 13 empirical studies, Dirks and Ferrin (2002) found a significant relationship between transformational leadership and trust in the leader. As well trust was strongly associated with satisfaction with the leader and the quality of the relationship with the leader (r = .73 and r = .69 respectively). Scholars found that transformational leadership influenced followers' organizational citizenship behaviours through the mechanism of trust in the leader (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Organizational citizenship behaviours are an individual's contributions in the workplace that exceed prescribed job duties (Organ & Ryan, 1995).

In an experimental study involving 194 students, Jung and Avolio (2000) found that transformational leadership had a significant effect on followers' trust in the manager ($\beta = .72$; $p < .01$). Holtz and Harold (2008) examined the relationship among leadership style, managerial trust, and beliefs of fairness among 203 workers and found that transformational leadership was a significant predictor of trust in the manager. They also found that trust mediated the relationship between transformational leadership and the perception of fairness.

Leadership scholars have found that trust is a key ingredient in developing effective leadership. Yukl (1998) posited that integrity is a significant factor in establishing trust in the leader because integrity determines the way employees perceive their leaders' trustworthiness. Trustworthiness of the leader influences followers' loyalty and whether or not to seek support from colleagues and the leader. In a meta-analysis of research findings on trust and trustworthiness, Colquitt, Scott, and LePine (2007) found that trustworthiness has significant relationships with risk-taking, citizenship behaviours,

and task performance. A few studies have examined the influence of trust in leadership on nurses and concluded nursing managers develop healthy and supportive relationships with staff by demonstrating trustworthiness, empowerment, consistency and coaching (Akerjordet & Severinsson, 2008; Kane-Urrabazo, 2006; Laschinger, 2004).

Within the authentic leadership theory, leaders' benevolence and integrity are the most significant factors that smooth the path for leaders to exert their influence on their followers (Avolio et al., 2004). According to Avolio and colleagues (2004), when authentic leaders' actions reflect high ethical standards, honesty, and integrity, followers tend to trust their leaders. Authentic leaders' self-awareness reflects leaders' honesty about their weaknesses, strengths, values, and motivation, which in turn allows followers to see the consistency in their leaders' words and actions, thus engendering trust among followers. When leaders present their authentic self through engaging in high levels of openness, and self-disclosure (Gardner et al., 2005), they display sincerity and honesty, which subsequently leads to developing trust among their followers. Moreover, each decision made by the leader is based on objectively analyzing all relevant information which shows that the leader welcomes and appreciates alternative solutions from followers. Therefore, followers tend to perceive their leader to be fair, and consequently they trust the leader. In line with these arguments, Coxen, van der Vaart, and Stander (2016) found that authentic leadership of healthcare managers was significantly and positively related to employees' trust in the organization (r = .60), their immediate manager (r = .82), and peers (r = .48).

2.6.5 Identification and trust. Theoretically, individuals' identification with another individual might become grounds for presumptive trust (Brewer, 1981). The

development of trust in another individual is determined by a strong identification with that individual (Ole Borgen, 2001). To the author's knowledge, no study has examined the influence of identification on trust among nurses, except for the Wong and colleagues' study (2010) that found a significant relationship between nurses' personal identification with the manager and their trust in the manager. Thus, it is reasonable to assume that new graduate nurses with strong personal identification with the leader and organizational identification are likely to develop trust in their leader. This makes sense, because authentic leaders influence their followers' trust in them by acting in accordance with their beliefs, values, and principles (Gardner et al., 2005). Through self-awareness, authentic leaders demonstrate high levels of integrity because their behaviors are consistent with their elevated values and internal moral standards (Avolio & Gardner, 2005; Avolio et al., 2004). When making critical decisions, authentic leaders objectively evaluate several perspectives and engage others when assessing information, which reflect leaders' fairness. Within leader-follower relationships, authentic leaders maintain and support open and transparent interactions that allow sharing of information regarding personal values, emotions, and limitations (Ilies et al., 2005). Additionally, followers perceive their leader to be a representative of what the organization stands for, therefore they socially identify with the organization (Sluss & Ashforth, 2008). Leaders also provide important information through which followers connect psychologically with the organization (Edward, 2005). When organizational identification takes place, followers are more likely to trust their leaders because they view the leaders' behaviours as examples of what the organization endorse (Mael and Ashforth, 1992). Accordingly, the following hypotheses are formulated:

Hypothesis 4: Personal identification with the manager is positively associated with the trust in the manager.

Hypothesis 5: Organizational identification is positively associated with the trust in the manager.

2.7 Patient Safety Climate

When attempting to describe and measure an organization's state of safety, it is important to make a clear distinction between the concepts of safety climate and safety culture (Mearns & Flin, 1999). Denison (1996) defined organizational culture as "the deep structure of organizations, which is rooted in the values, beliefs and assumptions held by organizational members" (Denison, 1996, p. 644). Organizational climate, in contrast, refers to "a situation and its link to thoughts, feelings and behaviours of organisational members" (Denison, 1996, p. 644). More specifically, the term "safety culture" focuses on the fundamental values, norms, and assumptions of the organization with respect to safety (Mearns & Flin, 1999), whereas safety climate—a term often used interchangeably with safety culture—reflects employees' perceptions, attitudes, and beliefs towards safety (Mearns & Flin, 1999; Zohar, 1980). Sexton and colleagues (2006) suggested using the term "climate" because questionnaire surveys are only able to measure individual perceptions and are "not capable of measuring all other aspects of culture like behavior, values, and competencies" (p.2). Therefore, in the proposed study, the focus is more aligned with the organizational safety climate concept because it provides a glimpse into an organization's state of safety and serves as an indicator of the underlying safety culture of the organization (Flin, Mearns, O'Connor, & Bryden, 2000). To improve patient safety within a healthcare organization, it is important to examine

how some organizations manage high-risk work, avoid errors, and operate safely. Thus, the following section will focus on high-reliability organizations.

2.7.1 High-reliability organizations. In an effort to deliver high quality and safe health care, healthcare organizations have turned to hazardous industries (e.g., aviation and nuclear power plants) that avoid catastrophic outcomes despite functioning under complex and challenging conditions (Singer et al., 2007;Weick & Sutcliffe, 2001). Such industries have come to be called high-reliability organizations (HROs) because they follow specific standards that allow these organizations to anticipate unpredicted events and use appropriate resources to resolve them (Christianson, Sutcliffe, Miller, & Iwashyna, 2011). The emphasis of HROs is on establishing a culture of reliability that is focused on safety (Roberts, 1993; Weick & Sutcliffe, 2003).

2.7.1.1 Overview of theory of high reliability organizations and normal accident. Two schools of thought have dominated the study of accidents and failure in organizations: the Normal Accident Theory (NAT) and its alternative, the High-Reliability Organizations Theory (HRO). These approaches provide different views on how organizations operating within complex environments avoid accidents. The Normal Accident Theory focuses on failures in the systems that are caused by a complex work environment and a concept known as “tight coupling” (Bierly & Spender, 1995), which refers to the strong interconnectedness between system components (Sammarco, 2005). On the other hand, HRO is concerned with work processes and organizational interventions that can prevent the occurrence of incidents (Shrivastava, Sonpar, & Pazzaglia, 2009). To provide a foundational understanding of accident research, these two perspectives are discussed below.

The Normal Accident Theory holds that high-risk organizations operate in environments where the potential for failure is significant, and where any failure can lead to catastrophe (Bierly & Spender, 1995). Further, accidents are inevitable within these organizations and occur due to complex interactions among the components of the system that are tightly coupled or connected (Perrow, 1999). Complexity, such as functioning in a risky environment that demands speed and efficiency, will lead the system to interact in an unexpected manner and can cause the system to have a higher chance of failure. All components of a tightly coupled system are interconnected. Therefore, failure in one component can spread rapidly to other components of the system, leaving less time and opportunity to detect and correct the failure (Leveson, Dulac, Marais, & Carroll, 2009; Sammarco, 2005).

In contrast, HRO holds that organizational strategies can reduce or prevent the occurrence of failures resulting from risky working conditions (Frederickson & La Porte, 2002; Roberts & Libuser, 1993; Weick & Sutcliffe, 2001). High reliability organizations achieve error-free performance because they focus on implementing collective mindfulness at the organizational level (Weick & Sutcliffe, 2001). Weick and Sutcliffe (2001) described how HROs maintain a safe workplace. They asserted that through the development of collective mindfulness in their employees, organizations can encourage them to anticipate, detect, and report events and small errors early, before they escalate into large and disastrous failures. Collective mindfulness refers to collective awareness that "facilitates the construction, discovery, and correction of unexpected events capable of escalation" (Weick, Sutcliffe, & Obstefeld, 1999, p. 37). It illustrates the ability of workers within an organization to notice even the smallest indication of deficiency in

safety protocols (Chassin & Loeb, 2011). Weick and Sutcliffe (2001) defined five key processes that generate collective mindfulness: preoccupation with failure, reluctance to simplify interpretation, attention to operations, commitment to resilience, and deference to expertise. A preoccupation with failure refers to constant monitoring of the early signs of near-failure and failure to learn from these incidents and prevent future errors (Weick & Sutlcliffe, 2001). Reluctance to simplify interpretation helps organizations retain complexity and encourage multiple viewpoints that foster healthy skepticism (Rerup, 2005). Attention to operations allows individuals to combine information and diverse perspectives to develop a bigger picture of organizational operations at the moment (Butler & Gray, 2006). A commitment to resilience reflects an organization's ability to cope with emerging incidents by developing both error prevention and error containment strategies (Weick, Sutcliffe, & Obstfeld, 2008). Finally, in deference to expertise, Weick and Sutcliffe (2001) explained that when a problem unfolds, organizations tend to give authority and allow those with the best qualifications and experience to make decisions. Establishing collective mindfulness fosters high organizational performance, governs information management, and facilitates awareness towards one's environment and considers heedful action (Venette, 2003).

Scholars studying high reliability organizations have concluded that an organization reaches high reliability by achieving four conditions. The first condition is that leaders of the organization should make safety and reliability a high priority. The second condition is that redundancy should be incorporated into the organizational structure. In other words, organization duplicated its technologies (e.g., backup system) and safety checks are assigned to more than one employee (Roberts, 1990). The third

condition is that they should focus on building a culture of reliability through employee socialization and training/guides to help employees make the right decision regarding safety issues. The final condition is that organizational learning is valued and supported. Employees are provided with opportunities to examine past incidents and openly discussed mistakes and near misses in order to prevent their reoccurrence (Ericksen & Dyer, 2005; La Porte & Consilini, 1991).

A good deal of research has revealed the potential benefits of applying reliability principles to healthcare organizations to improve patient safety (Boston-Fleischhauer, 2008; Carroll & Rudolph, 2006; Tolk, Cantu, & Beruvides, 2015). The patient safety climate within highly reliable healthcare organizations is characterized by engaging leadership, open communication, safety-related feedback, communication about incidents, non-punitive approach to error reporting, ongoing organizational learning, and constant improvement (Sorra & Dyer, 2010; Vogus & Sutcliffe, 2007a).

2.7.2 Leadership and patient safety climate. Leaders play a dominant role in developing a positive patient safety climate by creating conditions that place priority on safety (Vogus, Sutcliffe, & Weick, 2010). When leaders engage with their followers in safety related activities on a day-to-day basis, followers are able to recognize the elements of safe work practices (Zohar, 2000). In doing so, leaders foster a safety climate that encourages close adherence to safety standards, promotes learning from errors (Hofmann & Mark, 2006), and increases followers' willingness to report errors (Katz-Navon, Naveh, & Stern, 2005). In their systematic review, Wong, Cummings, and Ducharme (2013) found that relational leadership styles, such as authentic leadership, reduce the occurrence of adverse events, specifically, medication errors. In addition,

Laschinger and Leiter (2006) found that strong nursing leadership plays a fundamental role in creating an environment that supports nurses' work engagement and, ultimately, their ability to provide safe quality care.

Auer, Schwendimann, Koch, De Geest, and Ausserhofe (2014) showed that hospital management support for patient safety is positively associated with nurses' overall perception of patient safety through safety communication. Aspects of safety communication included non-punitive response to error, openness of communication, communication of errors, and organizational learning and feedback. Additionally, Auer and colleagues found that management support for patient safety had a direct and significant association with nurses' trust in management and their overall perceptions of patient safety. Thompson and colleagues (2011) established that high quality manager-nurse relationships were associated with nurses' positive perceptions of safety climate including non-punitive responses to error reporting, the supervisor's expectations regarding safety, organizational learning, feedback and communication about errors. In addition, Vogus and Sutcliffe (2007a) developed the *Safety Organizing Scale* (SOS), which incorporated HRO's five interrelated behavioural processes of collective mindfulness to measure the unit-level safety culture within hospitals. They found that units that reported higher trust in their unit manager also had higher levels of safety organizing practices had fewer reports of medication errors and patient fall over time. In high reliability organizations, Cox, Jones, and Collinson (2006) found that trust in leaders contributed significantly to the development and sustainability of an effective safety culture as a result of error reporting and learning from errors. In light of these findings, it seems that nursing leaders have the capacity to shape workplace environments and

subsequently influence new graduate nurses' attitudes toward safety. When nursing managers show their commitment to patient safety by focusing on nurses' concerns regarding safety, taking actions on safety issues, seeking suggestions on ways to enhance work conditions, and using reported incidents as learning opportunities, they are more likely to develop trust in new graduate nurses, which influences their perceptions of the patient safety climate. Therefore, the following hypothesis is put forward:

Hypothesis 6: Trust in the manager is positively associated with patient safety climate.

2.8 Willingness to Report Errors

The interest in examining errors within health care organizations originated from past research conducted within HROs. Errors in these organizations are minimized by developing a system that focuses on reducing and eliminating the occurrence of failure rather than expecting a human to be error-free. One method to learn how to improve the system is error reporting. It is the ethical responsibility of nurses to report errors committed by themselves or others. Nursing errors have been described as "a discipline-specific term that encompasses an unintended 'mishap' made by a nurse and where a nurse is the one who is situated at the 'sharp end' of an event that adversely affected—or could have adversely affected—a patient's safety and quality care" (Johnstone & Kanitsaki, 2006, p. 368).

Errors have been classified into three categories: skill-based slips and lapses; rule-based mistakes; and knowledge-based errors (Reason, 1990). Skill-based slips and lapses arise when people perform routine activities without cognitive (i.e., conscious and subconscious) monitoring (Cho, 2001; Skalle, Aamodt, & Laumann, 2014). Skill-based slips and lapses may occur when a nurse is interrupted during performing routine tasks,

such as preparing medication. In rule-based mistakes, individuals are provided with accurate information to carry on the task; however, the method is insufficient to achieve the intended outcome (Reason, 1990). An example of rule-based mistake is when a pediatric nurse does not calculate the dose of a medication despite knowing that the healthcare organization policy requires nurses to calculate the dose of every medication administered to pediatric patients. Finally, knowledge-based errors are associated with situations where individuals have no experience in managing a specific situation (Rasmussen 2003; Reason, 2001). For example, within healthcare organizations, knowledge-based errors could be seen in situations where new graduate nurses are assuming professional nurse roles without adequate training to manage a specific task or patient condition.

Reason (1998) described the mechanism of error through the “Swiss Cheese” model, presented in Figure 2, which illustrates the idea of multi-causation. In an ideal world, the system is seen as successive slices of Swiss cheese, and each slice is considered to be a defense layer that aims to mitigate error or prevent it from growing. Holes in the defense layer represent the opportunity for errors or failure. When these holes align, that means all defenses fail and errors occur.

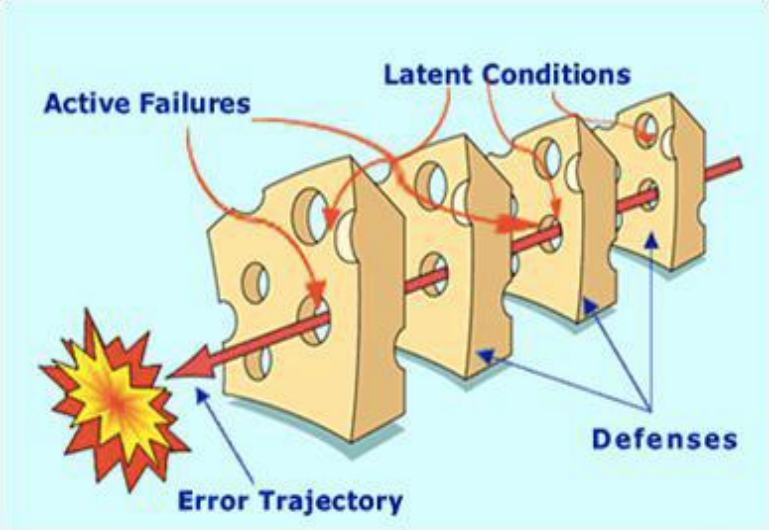


Figure 2. Reason's Swiss Cheese Model. Adapted from "Achieving a safe culture: theory and practice" by J. Reason, 1998. *Work & Stress, 12*(3), p. 296. Copyright 1998 by Tyler & Francis.

Further, Reason (2004) explained that these holes exist for two reasons. First, active failures refer to unsafe acts executed by practitioners who are in direct contact with the patient. Second, latent conditions are defense gaps, weaknesses, or absences of defenses that are developed by the earlier decisions made by the managers, regulators, and designer of the system. Focusing on improving latent conditions is crucial in a safety management system because the effects of these conditions are longer lasting than those resulting from active failure; and additionally, these conditions can be detected and corrected before they cause errors (Reason, 2004).

2.8.2 Error underreporting. It has been suggested that error reporting is an essential strategy to improve the reliability and safety of the healthcare system (Benn et al., 2009; Kohn, Corrigan, & Donaldson, 2000) by allowing organizations to educate their employees and implement changes (Reason, 2001). However, several studies have reported that patient safety incidents are underreported (Barach & Small, 2000; Hewitt &

Chreim, 2015; Noble & Pronovost, 2010; Rowin et al., 2008). Studies have indicated that between 50% and 96% of medical incidents in hospitals were not reported (Potylycki et al. 2006; Runciman, Roughead, Semple, & Adams, 2003). Underreporting is problematic because it prevents healthcare organizations from accurately identifying and mitigating safety issues (Pronovost et al., 2006). It also systematically underestimates the type and frequency of errors (Noble & Pronovost, 2010) which results in organizations directing their effort to managing minor incidents at the expense of the critical ones (Wakefield & Jorm, 2009).

The most common reason for underreporting is nurses' perceptions of the consequences of error. Nurses' attitudes toward error reporting can be deemed negative, because they view errors as threat to their practice (Kingston, Evans, Smith, & Berry, 2004). This occurs because errors make nurses feel susceptible to name, blame, and shame, and signify their incompetence or negligence (Crigger & Meek, 2007; Johnstone & Kanitsaki 2006). Further, the nurse involved in committing an error experiences emotional turmoil ranging from feelings of guilt, anxiety, fear, and anger to low self-esteem (Dewar, 2012; Schelbred & Nord, 2007; Sirriyeh, Lawton, Gardner, & Armitage, 2010). This negative attitude toward error reporting prevails as a result of the misguided view that all errors are preventable, and that if they occur, someone is to be blamed (Crigger, 2005). This unhealthy way of handling errors results in the reluctance of nurses to report errors made by them or to speak up about mistakes committed by others (Crigger & Meek, 2007; Lee, Yang, Chen, 2016). Nurses reported that their managers and colleagues are a significant source for their attitudes toward error reporting, which

subsequently influenced their intention to report medical incidents (Hung, Chu, Lee, & Hsiao, 2016).

The study of Ulanimo, O'Leary-Kelley, and Connolly (2007) on 61 medical-surgical nurses indicated that some errors were not communicated because of the fear of the nursing managers' responses (60%) and peers' skepticism (64%). Similarly, Unver, Tastan, and Akbayrak (2012) found that Turkish new graduate nurses did not report medication errors mainly because they were afraid of their supervisors' (69%) and colleagues' (60%) reactions. However, a study showed that most nurses (87.7%) were willing to report errors when no punitive action ensued (Lin & Ma, 2009). Drake (2016) examined the relationship between feedback from nurse leaders about error and nurses' self-reported number of patient safety incidents, and documented unit-level patient safety event rates. Positive feedback about error was associated with units with lower documented patient safety event rates and fewer self-reported patient safety events (Drake, 2016). Drake (2016) explained that nurses reported fewer errors in units where negative feedback and communication about error occurred, while units with higher self-reported events reported more positively cultures of non-punitive responses to error. Munn (2016) also observed that when nurses perceived their unit to have a strong safety climate and their managers were viewed to be inclusive leaders (i.e., available, open, and accessible to their staff), nurses were more likely to believe that error reporting behaviours on their units were positive (i.e., more reported errors and near misses).

The need for a blame-free work culture is crucial in changing error-reporting practices and promoting a healthy coping approach (Cannon & Edmondson, 2001). When employees experience an encouraging response to errors, their emotional reaction to the

occurrence of errors will be less negative, and they will be focused more on learning (Van Dyck, Frese, Baer, & Sonnentag, 2005). Such an argument is further supported by the affective event theory (Weiss & Cropanzano, 1996) which suggests that people react emotionally to events occurring in the workplace, and these affective reactions strongly influence their work-related attitudes and behaviours. Van Dyck and colleagues (2005) further asserted that if an employee considers an error as a negative event, and he or she encounters a positive reaction from others, he or she would have less negative affect about the event.

In light of the argument presented above, it seems likely that new graduate nurses involved in errors experience serious emotional consequences. However, if they experience a manager's response that reflects support for learning, the intensity of these emotions should be less problematic. The link between error reporting and learning from errors has been found to improve patient safety. More specifically, leaders who prioritize patient safety by establishing work norms that value open communication, create a work environment that fosters learning from errors (Chuang, Ginsburg, & Berta, 2007). In addition, nursing managers who are goal-oriented, communicate clear expectations regarding error reporting, and provide feedback about interventions to prevent the reoccurrence of errors have been found to increase nurses' willingness to report errors (Farag, Blegen, Gedney-Lose, Lose, & Perkhounkova, 2017). When nurses perceive that their managers exhibit positive form of leadership coupled with a workplace climate characterized by harmony, warmth, and cohesion among its members, nurses are more likely to view their work environment to be non-punitive (Farag, Tullai-McGuinness, Anthony, & Burant, 2017). This, in turn, positively influences their error reporting

attitudes and subsequently influences their willingness to report errors (Farag, Tullai-McGuinness, Anthony, & Burant, 2017). Along the same line, Farag, Lose, and Gedney-Lose (2018) reported that nursing managers who model characteristics of transformational leadership influenced nurses' willingness to report medication errors by creating a positive safety climate. A positive patient safety climate emphasizes teamwork and actions that promote safety, open communication, organizational learning, non-punitive responses to errors, and error feedback. Additionally, Farag et al. (2018) suggested that transformational leadership facilitated nurses' willingness to report medication errors by influencing organizational factors, such as cohesion, support and familiarity between nurses working together, and organizational trust (peers and manager). The authors also found that error feedback about corrective actions to prevent future errors (a dimension of safety climate) was the strongest predictor of nurses' willingness to report medication errors. They explained that nurses who report errors are concerned with patient safety and want to prevent their co-workers from making the same mistakes. When the manager provides prompt and helpful feedback about strategies to minimize the reoccurrence of errors, the manager communicates to nurses that he or she values and encourages nurses to report errors in the future.

As far as it is known, no study has examined the influence of authentic leadership on new graduate nurses' willingness to report errors; however, it can be assumed in shifting to a blame-free culture, nursing managers must exhibit attitudes and behaviors that stress the learning opportunities from error-reporting and how these can benefit nurses, patients, and organizations (Force et al., 2006). When new graduate nurses believe that their managers are focused on sharing information about errors and analyzing

the factors that contribute to their occurrence in a work culture that promotes learning from these incidents, they may become willing to report their own or others' mistakes. Therefore, the following hypothesis is proposed:

Hypothesis 7: Patient safety climate is positively associated with new graduate nurses' willingness to report errors.

2.9 Hypothesized Study Model

Building on the literature review presented above, the current study was designed to provide an examination of the influence of authentic leadership on new graduate nurses' willingness to report errors. The identified gap in the research was addressed by investigating the mediating mechanisms to better understand how authentic leaders exert their influence on new graduate nurses and impact their willingness to report errors. For this study, the proposed relationships between the variables discussed were incorporated into the hypothesized model.

It was hypothesized that authentic leaders influence new graduate nurses' personal identification with the leader, and organizational identification. Moreover, through the mediating effect of personal identification with the manager, authentic leader impact new graduate nurses' organizational identification. In turn, it was hypothesized that new graduate nurses' identification with the leader and the organization would lead to increased levels of trust in the manager. This, in turn, would influence their perceptions of patient safety climate, and subsequently, would influence their willingness to report errors. The hypothesized relationships are summarized in Figure 3.

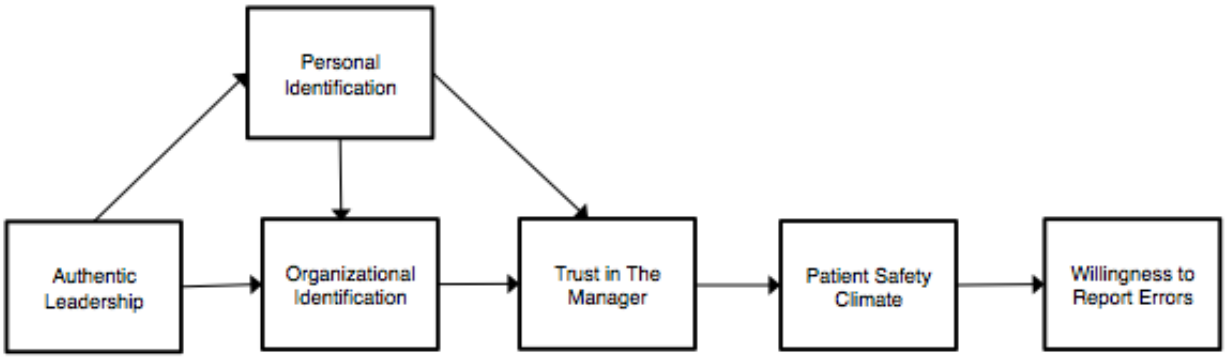


Figure 3. The hypothesized model

Based on this study model, the following hypotheses have been formulated:

1. Authentic leadership of managers is positively related to new graduate nurses' personal identification with their manager.
2. Authentic leadership of managers is positively associated with new graduate nurses' organizational identification.
3. Personal identification mediates the relationship between authentic leadership and organizational identification.
4. Personal identification with the manager is positively associated with the trust in the manager.
5. Organizational identification is positively associated with the trust in the manager.
6. Trust in the manager is positively associated with patient safety climate.
7. Patient safety climate is positively associated with new graduate nurses' willingness to report errors.

2.10 Summary

To date, research has not examined the influence of authentic leadership on new graduate nurses' willingness to report errors. The literature review clearly supported the notion that leaders substantially influence new graduate nurses' work attitudes and behaviours. More specifically, leadership plays an influential role in creating a non-punitive culture of safety that encourages new graduate nurses to report errors. However, evidence regarding the mechanisms by which authentic leaders influence new graduate nurses' willingness to report errors is lacking. The combined effects of authentic leadership, personal identification with the leader, organizational identification, trust in the manager, and the patient safety climate has not been examined. The literature review, theoretical papers and empirical studies have provided support for each of the links in the hypothesized model. In chapter 3 the research design and methodological steps that were employed to test the study model are explained.

CHAPTER 3: Methodology

3.1 Introduction

In the current chapter, the design and methods to collect and analyze the data are outlined. First, the research design, sample size determination, sampling approach, and setting are described followed by an explanation of the data collection procedures. In addition, instruments that were used to measure study variables are reviewed including a discussion of their validity, reliability, and scoring. Data management processes are presented, followed by a description on how the data was screened and cleaned as well as how sample attrition and missing data were handled. The techniques that were used to test the underlying assumptions and the hypothesized model are explained. Finally, the ethical considerations that were applied in this study are discussed. The chapter concludes with a summary of the methods that were employed in this study.

3.2 Design

The overarching purpose of this study was to determine whether authentic leadership influences new graduate nurses' willingness to report errors. Specifically, the aim of the current study was to test a model that explains the influence of authentic leadership, personal identification with the leader, organizational identification, trust in leader, and patient safety climate on new graduate nurses' willingness to report errors. A predictive non-experimental cross-sectional survey design was used.

Over the period of July 2018 to September 2018 the data for this study were collected using a mailed self-administrated survey method. This mode was selected because it is cost-effective and provides access to a large sample of new graduate nurses across a large geographic region in a short amount of time (Creswell, 2009; Wright, 2005). The surveys were sent by mail to the home addresses of a random sample of new

graduate nurses working in Ontario hospitals.

3.3 Setting and Sample

According to the College of Nurses of Ontario (CNO) there were approximately 2,450 registered new graduate nurses providing direct care to patients within acute-care hospitals across Ontario (College of Nurses of Ontario, 2016). The sampling frame from this population comprised new graduate nurses employed in these roles who are registered with the CNO. A random sample for this study was obtained from the CNO who provided a mailing list of new graduate nurses working in acute-care hospitals within the province of Ontario. In this way, a representative sample of new graduate nurses was obtained which may allow the researcher to generalize the findings to new nurses in a similar context.

3.3.1 Inclusion/exclusion criteria. New graduate nurses who provided their consent to the CNO to participate in research during their annual registration renewal were included. Only new graduate nurses with less than three years of experience in providing direct patient care and working in acute-care settings were included in this study. Less than three years of experience was selected because it was consistent with previous studies conducted of new graduate nurses (Giallonardo, Wong, & Iwasiw, 2010; Laschinger, Borgogni, Consiglio, & Read, 2015; Laschinger, Grau, Finegan, & Wilk, 2010). New graduate nurses employed in full-time, part-time, and casual positions and working in both teaching and non-teaching hospitals were sought. Exclusion criteria included new graduate nurses who were not practicing nursing, those who were employed in non-acute care settings, and those who were not providing direct care to

patients (that is, those in educator, manager or other roles that do not include providing direct care to patients).

3.3.2 Sample size. The recommendations by Kline (2016) and Jackson (2003) were followed to obtain an adequate sample size that provides high statistical power. Kline (2015) and Jackson (2003) suggested following the N:q rule, where N is the ratio of cases to q the number of parameters in the model that needs to be estimated. Kline (2016) endorsed using a range of 5-20 cases per parameter to accurately perform estimations in structural equation modeling. This study had 51 parameters (i.e., seven regressed paths, 16 factor loadings, six latent variable variances, and 22 observed variable variances) that required estimation with 10 cases per parameter (i.e., 51 x 10). Thus, a minimum sample size of 510 new graduate nurses was recommended based on parameter estimate ratio. The previous response rates for questionnaires mailed to new graduate nurses have been reported to be between 39% (Giallonardo, Wong, & Iwasiw, 2010) and 48% (Read, & Laschinger, 2013). Therefore, a 40% response rate was estimated, which required a total of 1275 new graduate nurses working in Ontario.

3.4 Data Collection Procedures

A modified Tailored Design Method proposed by Dillman, Smyth, and Christian (2011) was followed to recruit participants. This method provides an effective guide to design survey and data collection strategies that minimize errors and increase response rates. In July 2018, personal information including names and addresses of 1275 new graduate nurses was obtained from the CNO. Potential participants were contacted three separate times during this study. Initially, a survey package, which included an

information letter (Appendix A), a questionnaire (Appendix B), and a postage-paid return envelope, was sent to all participants in July 2018.

On the letter of information, a web-based survey option was also included because this mode may appeal to some participants. Research has shown that response rates increase when participants have a choice of methods to respond (Diment & Garrett-Jones, 2007) particularly when targeting a younger generation who are highly Internet literate (Millar & Dillman, 2011). The online survey was located on the Qualtrics Research Suite provided by Western University, which is a secure and safe server to collect and store data. The electronic version of the survey was formatted to look similar to the paper version. Participants who opted to complete the web-based survey were asked to enter the personal identification number assigned to their paper survey before accessing the online survey which prevented double responses. On the information letter, potential participants were informed that those who returned a completed survey would be eligible to enter a drawing for a $500 gift card. A random number was selected from a numbered list of respondents who returned a completed survey.

Three weeks after the initial mail out, a reminder letter (Appendix C) was mailed to non-respondents (n = 1196). A replacement questionnaire accompanied with a stamped self-addressed return envelope was mailed four weeks following the reminder letter to participants who did not return the survey (n = 1138). After all mail-outs, a total 187 surveys were returned. The responses of some nurses were excluded because they reported having more than three years of nursing experience (n = 9). Thus, the final sample consisted of 178. Of these, three were completed online. Various factors may have contributed to the low overall response rate (15.8%) including survey fatigue as a

result of receiving many similar requests to participate in several large studies pertaining to new graduate nurses in Ontario; perceived long length of the questionnaire; sending surveys during summer months; and the use of a post-paid incentive (i.e., a sweepstakes drawing) rather than a nominal pre-paid incentive (which was not economically feasible due to the large sample size) with the survey package. Additionally, Millar and Dillman (2011) found that when an e-mail link to the online survey was offered following sending an initial survey request and Web option via postal mail to an Internet-savvy population, the response rate increased. This was attributed to reducing the inconvenience of switching from mail to online survey because participants can simply click on the link and copy and paste the access code from the e-mail to the online questionnaire (Millar & Dillman, 2011). Further, perhaps new graduate nurses, as young adults, were difficult to reach using postal mail because they are highly mobile and focused on online communication (Harris, Loxton, Wigginton, & Lucke, 2015; Mohan, Cornejo, Sidell, Smith, & Young, 2017). Contacting new graduate nurses via e-mail messages was not feasible because the CNO does not provide access to e-mail addresses of potential participants.

To maintain confidentiality, participants were assigned a random personal identification number (PIN) which was the only method used to identify their data in the SPSS file. A master list that connected personal identification number with participants names and addresses was created using a Microsoft Excel spreadsheet and was stored electronically in an encrypted external hard drive and stored in a locked cabinet only accessed by the researcher. The spreadsheet was used to maintain a record of returned questionnaires and to avoid mailing the reminder letter, and replacement survey to those

who have already responded (Connaway & Radford, 2017). All mailed responses were entered into the SPSS spreadsheet manually as they arrived. In addition, the online survey returns were exported into a SPSS file and then merged with the main SPSS file that had the mailed survey data.

3.5 Instrumentation

For this study, six published and standardized instruments with demonstrated acceptable reliability and validity were selected to measure each of the constructs in the hypothesized model (Table 1). Several demographic questions were also included.

3.5.1 Authentic leadership. Authentic leadership was measured using the *Authentic Leadership Questionnaire* (ALQ; Walumbwa et al., 2008) which consists of 16 items that measure the four components of authentic leadership, namely, self-awareness (4 items), relational transparency (5 items), internalized moral perspective (4 items), and balanced processing (3 items). The questionnaire is rated on a 5-point Likert scale with responses ranging from not at all = 0, to frequently, if not always = 4. New graduate nurses were asked to indicate how frequently each statement fits their manager's leadership style. A sample item for self-awareness is " Seeks feedback to improve interactions with others". A sample item for relational transparency " Tells you the hard truth". A sample item from internalized moral perspective subscale is "Makes decisions based on his or her core values". A sample item for balanced processing is "Solicits views that challenge his or her deeply held positions". Subscale scores were computed by averaging all items within each subscale and the scores of each subscale were averaged to produce a total score (score range 0-4) with higher scores reflected greater authentic leadership. Walumbwa and colleagues (2008) reported acceptable reliability and validity.

Cronbach's alphas for each subscale were as follow: self-awareness .92; relational transparency .87; internalized moral perspective .76; balanced processing .80; and overall, .93 (Walumbwa et al., 2008). In a Canadian nursing study pertaining to new graduate nurses, the internal consistency of ALQ was reported to range from .79 to .93 (Laschinger, Borgogni, Consiglio, & Read, 2015). Walumbwa and colleagues (2008) provided support for convergent and discriminant validity. Their confirmatory factor analysis (CFA) indicated that a second-order factor of authentic leadership explained relationships between the lower-order factors ($\chi^2(196) = 421.30$, CFI = .96, RMSEA = .06).

3.5.2 Personal identification. New graduate nurses' perceptions of their personal identification with their immediate manager was measured using the *Personal Identification Scale* used by Kark, Shamir, and Chen, 2003. According to the authors, the items of the scale were adapted from Mael and Ashforth (1992) and Shamir, Zakay, Breinin, and Popper (1998). This scale is comprised of 10 items that are rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). A sample item is "I view the success of the manager as my own success." To create a total score, item scores were averaged with the minimum possible score was 1, and the maximum was 7. A higher score indicated higher levels of personal identification with the leader. Kark and colleagues (2003) found that the scale had acceptable reliability (Cronbach's alpha = .96). Confirmatory factor analysis supported the construct validity of this unidimensional measure (Kark et al. 2003).

3.5.3 Organizational identification. The *Organizational identification Scale* (Edwards & Peccei, 2007) was used to measure new graduate nurses' perceptions of their

organizational identification. This instrument measures both cognitive and affective components of organizational identification. The instrument includes three subscales: self-categorization and labeling, sharing of organizational goals and values, and a sense of organizational belonging and membership. Each subscale has two items that are rated on a 5-point Likert scale (1 = strongly disagree and 5 = strongly agree). New graduate nurses were asked to indicate the extent by which they agreed with the statements about their organization. A sample item for self-categorization and labeling subscale is "My employment in the organization is a big part of who I am". A sample item for sharing of organizational goals and values subscale is "What the organization stands for is important to me". A sample item for a sense of organizational belonging and membership subscale is "I f eel strong ties with the organization". Subscale scores were computed by averaging all items in each subscale; these were summed and averaged to obtain a total score with the minimum possible score was 1 and the maximum was 5. Confirmatory factor analysis of the scale has supported the three-factor model (χ^2/df = 1.02, SRMR = .012, RMSEA = .005, CFI = 1.0, TLI = 0.99) with item factor loadings ranging from .65 to .92 (Edwards & Peccei, 2007). Acceptable Cronbach's α values have been reported for each subscale as follows: self-categorization and labeling .82; sharing of organizational goals and values .69; and a sense of organizational belonging and membership .89 (Edwards & Peccei, 2007). Fuchs and Edward (2012) reported that the reliability for the overall scale was satisfactory (Cronbach's α = .94).

3.5.4 Trust in the manager. Five items from The *Trust in Management Scale* (TMS) developed by Mayer and Gavin (2005) were selected to measure new graduate nurses' perceptions of the degree to which they trust their nursing manager. Mayer and

Gavin (2005) and Colquitt and Rodell (2011) reported that only five items out of the 10 items from the *Trust in Management Scale* truly assessed an individual's willingness to trust his or her manager. The items were TM1, TM2, TM3, TM4, and TM9 (See Appendix B). The scoring of each item was based upon a 5-point Likert scale ranging from 1 = "strongly disagree" to 5 = "strongly agree". A sample item is "I would be comfortable giving my manager a task or problem, which was critical to me, even if I could not monitor her/his actions." The total score was calculated as the mean of the items' scores, with scores ranging between 1 and 5. A higher score indicated the extent to which new graduate nurses were willing to be vulnerable to their immediate manager.

Mayer and Gavin (2005) conducted a confirmatory factor analysis to establish construct validity. The hypothesized model was found to have adequate fit (χ^2 = 1,905.70, df = 1.139, SRMR = .05, RMSEA = .05, CFI = .98) with item factor loadings ranging from .52 to .67. The scale demonstrated acceptable internal consistency reliability (i.e., Cronbach's alpha = .82). In nursing, Wong and colleagues (2010) have found the scale to be reliable (Cronbach's alpha = .83).

3.5.5 Patient safety climate. The *Canadian Patient Safety Climate Scale* (CAN-PSCS; Ginsburg, Tregunno, Norton, Mitchell, & Howley, 2013) was used to measure new graduate nurses' perceptions of patient safety climate in their workplace. The instrument consists of 19 items divided into six subscales: organizational (senior) leadership support for safety (4 items), incident follow up (3 items), supervisory leadership for safety (2 items), unit learning culture (4 items), enabling open communication I: judgment-free environment (3 items), and enabling open communication II: job repercussions of error (3 items). Respondents rate items using a 5-

point Likert-type scale with anchors ranging from 1 = “strongly disagree” to 5 = “strongly agree”.

Judgment-free environment and job repercussions of error were the only two subscales that were included as separate subscales in the confirmatory factor analysis and were modeled in the structural model as aggregate variables (i.e., observed variables). This decision was made because all other dimensions of the scale overlapped conceptually with other constructs in the hypothesized model. In addition, the relatively small sample size restricted including six subscales of the patient safety climate and modeling judgment-free environment and job repercussions of error as latent variables in the analyses. A sample item for judgment-free environment is “Others make you feel like a bit of a failure when you make an error”. In addition, a sample item for job repercussions of error is “Making a serious error may cause a staff member to lose his/her job”. Subscale scores were obtained by averaging the scores of all items to produce a total score with a possible score ranging from 1 to 5. Items of judgment-free environment are reverse scored, which means that higher scores indicate that new graduate nurses perceive they work in a more judgment-free environment. Items of job repercussions of error are also reverse scored indicating that those who report higher scores on the subscale work in an environment where making errors have few, if any, negative consequences on their job.

Five items were reworded to elicit new graduate nurses’ perceptions of the nursing staff’s experience of the patient safety climate as a whole, rather than their own experience. For example, the item “If I make a serious error I worry that I will face disciplinary action from management ” from the job repercussions of error subscales was

changed to “If someone makes a serious error he/she worries that he/she will face disciplinary action from management”. Confirmatory factor analysis of the CAN-PSC scale has produced good fit for the six-factor 19-item model (χ^2 = 641.63, df = 137, RMSEA = .035, CFI = .981). The internal consistency of all six dimensions ranged between .70 and .80. More specifically, Cronbach’s alpha values for judgment-free environment and job repercussions of error exceeded 0.70.

3.5.6 Willingness to report errors. New graduate nurses’ willingness to report errors was assessed by examining their attitudes toward reporting errors using three subscales from the *Error Orientation Questionnaire* (EOQ; Rybowiak, Garst, Frese, & Batinic, 1999): error communication (4 items), error strain (5 items), and covering up error (6 items). Error communication refers to openly communicating about errors made in the workplace. A sample item for error communication is “If I cannot rectify an error by myself, I turn to my colleagues.” Error strain means that an employee fears the occurrence of errors or reacts to incidents with negative emotions when they happen. A sample item for error strain is “I find it stressful when I err.” Covering up error reflects the extent to which an individual intends to report an error. A sample item for covering up error is “Why mention a mistake when it isn’t obvious?” These subscales were selected because they reflect the participants’ perceptions towards errors and the coping strategies they implement to deal with the occurrence of errors at work. The remaining subscales (error anticipation, error competence, learning from errors, thinking about error, and error risk taking) of the EOQ were not included. Responses are rated on a 5-point Likert scale ranging between 1 (not at all) and 5 (completely). Subscales scores are computed as the mean of the items within each subscale. Scores on the subscales are

averaged to produce a total scale score ranging between 1-5. Higher scores on the error communication subscale indicate that new graduate nurses are open to discuss errors made on their unit. Items of the error strain subscale were reversed scored, suggesting that those who have higher scores are new graduate nurses who do not fear errors and do not react negatively when errors occur. Items of the covering up error subscale were reverse scored which indicates that when a participant scores higher on this subscale he or she has a high likelihood of not covering up errors.

Rybowiak and colleagues designed the questionnaire using a general coping concept proposed by Lazarus and Folkman (1984), which reflects employees' coping resources and strains when dealing with errors. The questionnaire consists of eight subscales including: error strain; error communication; covering up error; error anticipation; error competence; learning from errors; thinking about error; and error risk taking. Rybowiak and colleagues (1999) tested the full questionnaire in two studies. The first study was conducted using a random sample from Germany (n = 478). The researcher employed both exploratory factor analysis (EFA) and CFA and generated eight subscales with 3 items per scale. The Cronbach's alphas for all items were greater than .40. Through CFA a six-factor model was selected with the best fitting measures (X^2 = 180.49, df = 135, p = .005, GFI = .94, AGFI = .91, SRMR =.04) which included error competence, learning from errors, error risk taking, error strain, error anticipation, and covering up errors subscales.

In the second study, the researchers generated additional items and included two subscales (error communication and thinking about errors). The instrument was introduced to 160 university students in both English and Dutch. The following

Cronbach's alpha values were reported: covering up errors (.78), communication about errors (.67), and error strain (.79) subscales. The researchers explained that the low Cronbach's alpha for some subscale were related to English not being the native language of study participants and recommended using this version with native speakers to confirm its reliability. Further, the researcher performed item-by-item equivalence test by allowing error terms of each item in the English version to correlate with its respective error terms in the Dutch version. The correlations ranged between .50 and .78. In addition, the correlations between the latent constructs were greater than .80, which supported the scale equivalence for both versions.

The *Error Orientation Questionnaire* has been used in a number of nursing studies. For example, EOQ was used to examine the relationship between medication error and safety climate among nurses working in acute care settings (Hofmann & Mark, 2006). In addition, Bae, Mark, and Fried (2010) employed EOQ to examine the influence of nursing unit turnover on workgroup processes (workgroup cohesion, relational coordination, and workgroup learning from errors) as well as on patient outcomes (patient satisfaction, average length of patient stay, patient falls, and medication errors). Baernholdt and Mark (2009) utilized EOQ to investigate the difference between rural and urban hospitals in hospital characteristics, nursing unit characteristics, such as job duties that allow for safe performance, management attitude toward safety, nurses' willingness to report errors and communication about practice mistakes. Acceptable Cronbach's alpha values have been reported for reveal errors (i.e., covering up error .83) and communication about errors (.86) subscales (Hofmann & Mark, 2006).

3.5.7 Demographic Questions. The survey also included a number of demographic questions that capture respondent characteristics, such as age, sex, year of graduation, highest degree in nursing, employment status, years of nursing experience, type of employment and the type of nursing units. A summary of all measures used is included in Table 1.

Table 1

Variables and Measures

Variable	Measure	Authors	# of Items	Scoring	Score Range
Authentic Leadership	*Authentic Leadership Questionnaire (ALQ)*	Walumbwa et al., 2008	16	5-point Likert scale 0 = not at all= 4 = to	0-4
Self-awareness			4	frequently, if	
Balanced processing			3	not always	
Internalized moral perspective			4		
Relational transparency			5		
Personal Identification with the manager	*Personal Identification Scale*	Kark et al., 2003	10	7-point Likert scale 1 = strongly disagree 7 = strongly agree	1-7
Organizational Identification	*Organizational Identification Scale*	Edwards & Peccei, 2007	6	5-point Likert scale 1 = strongly disagree 5 = strongly agree	1-5
Self-categorization and labeling			2		
Sharing of organizational goals and values			2		

A sense of organizational belonging and membership			2		
Trust in the manager	*Trust in Management Scale* (TMS)	Mayer & Gavin, 2005	5	5-point Likert scale 1 = strongly disagree 5 = strongly agree	1-5
Enabling open communication I: judgment-free environment	*Canadian Patient Safety Climate Scale* (CAN-PSCS)	Ginsburg et al., 2014	3	5-point Likert scale 1 = strongly disagree 5 = strongly agree	1-5
Enabling open communication II: job repercussions of error	*Canadian Patient Safety Climate Scale* (CAN-PSCS)	Ginsburg et al., 2014	3	5-point Likert scale 1 = strongly disagree 5 = strongly agree	1-5
Willingness to report errors	*Error Orientation Questionnaire* (EOQ)	Rybowiak et al., 1999	15	5-point Likert scale 1 = not at all 5 = completely	1-5
Error communication			4		
Error strain			5		
Covering up error			6		

3.6 Data Management

3.6.1 Data integrity. Data management procedures were performed following data screening techniques suggested by Tabachnick and Fiddell (2013). Prior to conducting data analyses, data cleaning and screening were performed. Ten percent of the paper surveys were checked against the data entered in the Statistical Package for the Social Sciences (IBM SPSS Statistics) version 23.0 (IBM, 2015) file for accuracy and missing values. Less than 0.1% error rate was found; therefore no additional accuracy checks were needed.

3.6.2 Missing data. Prior to conducting any statistical analysis, missing data analysis was conducted in SPSS. The data was examined for cases where responses are missing for one or more variables of the study. It is important to identify the type of missingness which includes missing completely at random, missing at random, and missing not at random. Graham (2009) explained that missing completely at random results in low statistical power; however, the analysis always leads to unbiased parameter estimations. Missing at random means that the cause of missing data has been considered and its estimation yields unbiased parameter estimations (Smith, 2011). Missing not at random produces biased parameter estimations, because the missingness is due to unobserved variables in the data (Graham, 2009).

To evaluate the pattern and amount of missing data, frequency tables were generated using SPSS to analyze missing data by item and by participants. Results (Appendix D) showed that three participants had missing data on one or more subscales of the main study variables. Scholars recommend retaining the maximum number of cases to prevent results bias from listwise deletion; however, excluding cases with missing values is an alternative option if only few cases have missing data and they appear to be a random subsample of the whole sample (Graham, 2009; Tabachnick & Fiddell, 2013). For instance, three participants did not answer any items for *Authentic Leadership Questionnaire, Personal* and *Organizational Identification Scales*, as well as *Trust in Management Scales*. These cases were excluded from further analysis, which left 175 cases for subsequent analyses. In addition, the "missing completely at random" (MCAR) test (Little, 1988) was employed to determine the pattern of missing values. Little's MCAR test was not significant (1539.388, $df = 1481$, $p = .142$) indicating that the

missingness was completely at random. Less than 3% of values were missing of a single item. Kline (2011) explained that when missing values are small (5% or less) in any variable likelihood-based imputation methods can be used. Therefore, maximum likelihood estimation (ML) was used to estimate the measurement models and structural models, because it is the most widely used method for imputing missing observation (Allison, 2003). In the maximum likelihood the distribution of all endogenous variables are continuous and generally assumed to have normal distributions (Kline, 2011). According to Byrne (2001) utilizing this approach retains all cases without creating bias that is produced by deleting significant number of cases.

3.6.3 Underlying assumptions. Prior to conducting any analysis, SEM assumptions were evaluated. To apply SEM, variables must be normally distributed and without extreme multicollinearity. The assumption of normality was examined by obtaining values of skewness and kurtosis and checking the histogram for each item. According to Tabachnick and Fidell (2013) the data is not normally distributed when skewness and kurtosis values exceed 1.0. All variables were approximately normally distributed, with the exception of years of experience (skewness = 1.30, kurtosis = 6.94). It was decided not to perform data transformation on years of experience because this variable was not included in SEM due to small sample size and weak association between years of experience and error strain ($r_{s=}$ .195, p = .010). In addition, years of experience had a non-significant correlation with both error communication and error strain.

Multicollinearity refers to a high correlation (.90 and above) between two or more predictors that affects the estimation of parameters such as path coefficients and errors (Grewal, Cote & Baumgartner, 2004). In the current study, the possibility of

multicollinearity among the predictors was checked by conducting a multiple hierarchical regression in SPSS to obtain variance inflation factor (VIF) and tolerance statistics. Variance inflation factor shows the increase in the estimate variance of each regression coefficient for multicollinear data when compared to data where predictor variables have a correlation of zero (O'Brien, 2007). Tolerance indicates the proportion of variance in the predictor that is not related to other predictors in the model (O'Brien, 2007). To rule out multicollinearity, each predictor must have VIF coefficient less than 5.0 and tolerance values greater than .20 (O'Brien, 2007). In Table 2, the results of collinearity statistics suggested that multicollinearity was not an issue.

Table 2

VIF and Tolerance Values for Independent Variables in The Hypothesized Model

Model		Unstandardized Coefficients		Standardized Coefficients	Collinearity Statistics			
		B	*SE*	*β*	t	*p*	Tolerance	VIF
1	(Constant)	3.541	.102		34.763	< .001		
	Authentic Leadership	0.19	.038	.038	.500	.965	1.000	1.000
2	(Constant)	3.531	.107		32.930	< .001		
	Authentic Leadership	.003	064	.006	.045	.965	.359	2.788
	Personal Identification	.013	.041	.040	.318	.751	.359	2.788
3	(Constant)	3.034	.180		16.847	< .001		
	Authentic Leadership	.011	.062	.021	.170	.865	.358	2.792
	Personal Identification	-.015	.041	-.046	-.362	.718	.344	2.907
	Organizational Identification	.158	.047	.261	3.376	.001	.919	1.089
4	(Constant)	2.591	.216		11.991	< .001		
	Authentic Leadership	-.032	.061	-.065	-.531	.596	.344	2.910

	Personal Identification	-.069	.043	-.211	-1.608	.110	.299	3.343
	Organizational Identification	.138	.046	.228	3.027	.003	.905	1.105
	Trust in the Manager	.252	.072	.353	3.484	.001	.499	2.003
5	(Constant)	2.491	.214		11.625	< .001		
	Authentic Leadership	-.059	0.61	-.118	-.976	.330	.336	2.978
	Personal Identification	-.049	.042	-.150	-1.151	.251	.291	3.432
	Organizational Identification	.107	.046	.176	2.323	.021	.855	1.170
	Trust in the Manager	.195	.074	.273	2.646	.009	.463	2.159
	Judgment-free Environment	.121	.042	.229	2.911	.004	.793	1.261
6	(Constant)	2.443	.214		11.409	< .001		
	Authentic Leadership	-.057	.060	-.114	-.948	.345	.336	2.979
	Personal Identification	-.052	.042	-.161	-1.245	.215	.291	3.440
	Organizational Identification	.103	.046	.170	2.260	.025	.853	1.172
	Trust in the Manager	.170	.074	.238	2.288	.023	.448	2.230
	Judgment-free Environment	.077	.047	.146	1.629	.105	.601	1.663
	Job Repercussions of Error	.096	.051	.169	1.881	.062	.601	1.664

3.6.4 Data analysis. In order to conduct descriptive, inferential, and internal consistency (Cronbach's alpha) analyses of major study variables, SPSS version 23.0 (IBM, 2015) was used. To test the hypothesized model, Mplus (Muthén & Muthén, 2012) was used to estimate a partially latent structural regression model. A partially latent structural regression model is one in which at least one variable in the structural model is a single indicator, that is, an observed variable that is a single indicator for a construct (Kline, 2011). According to Kline (2011), this statistical approach should be considered

only when measurement errors in the observed variables are estimated because partially structural models have the same limitations as path models (Kline, 2011). However, the assumption that measurement errors cannot be accounted for is not a concern for observed endogenous variables in partially latent structural regression models because it is manifested through their disturbances (i.e., account for measurement error and omitted causes; Kline, 2011, 2016).

The two-step SEM procedure proposed by Kline (2011) was followed to estimate the hypothesized model. First, a measurement model was tested using confirmatory factor analysis (CFA). Then, a structural model was tested employing ML. The two-step model allowed for identifying the source of the poor model fit, whether it was caused by the parameters that were identified and specified in the measurement model or structural model (Kline, 2011).

To conduct SEM, Kline (2011) suggested following six basic steps. First, the model must be specified. The specification process involves drawing a hypothesized diagram that represents relations among the observed and latent variables; it can also be described using structural equations (Kline, 2011). A model is specified based on reviewing the theory and related literature, which identifies the observed variables that can accurately measure the latent variables and proposes relations among observed and latent variables. Second, the model must be identified. Model identification is the ability of the SEM analysis tools to find an estimate for each parameter in the model (Kline, 2011) this implies that the model is testable (Byrne, 2013). Third, measures must be selected, and the data must be collected, prepared, and screened (Kline, 2011). The fourth step involves using SEM analysis programs to conduct analyses and determine whether

the model fits the data. If a priori model provides a satisfactory fit, the model suggests that the hypothesized relations between the variables are possible (Byrne, 2013; Kline, 2011). Therefore, the sixth step must be followed. If the model indicates a poor fit, the fifth step must be executed that demands that the model must be re-specified based on the evaluation of the previously estimated model and theoretical justification (Kline, 2011). Sixth, the results of the SEM analysis must be accurately and completely described (Kline, 2011). The discussion in the following sections will focus on describing the steps that were followed to analyze the measurement and structural models in the current study.

3.6.4.1 the measurement model. To estimate the measurement model, confirmatory factor analysis (CFA) procedures were used to evaluate the reliability of the constructs and to assess the correlations among the factors. The results of CFA provide estimates of factor variances and covariances, loadings of each indicator on a given factor, as well as the amount of measurement error for each indicator (Kline, 2011). Factor loadings measure how much an item contributes to the factor. The process of retaining items should not be solely determined based on an item's factor loading but should also be based on a theoretical rationale (Comrey & Lee, 1992; Matsunaga, 2010). There several approaches that are widely utilized in literature. For example, Tabachnick and Fiddell (2013) considered factor loadings of 0.71 as excellent, loadings of 0.63 as very good, factors loading of 0.55 as good, and factors loadings of 0.45 as fair, while any factor loadings of 0.32 or lower are deemed poor. Another approach is to set the lowest acceptable factor loading cut-off at 0.40 (Matsunaga, 2010). In the current study, a cutoff factor loading value of .40 was used.

A second-order CFA was performed for each of the following scales: *Authentic Leadership Questionnaire, Organizational Identification Scale,* and *Error Orientation Questionnaire*. Items could load on their respective factors and allowing factors within each measure to load on an overall latent construct. A first-order CFA was conducted on *Personal Identification Scale, Trust in Management Scale, Judgment-free Environment and Job Repercussions of Error Subscales* by allowing items to load on their respective scales. Each measurement model was assessed for factor loadings and goodness of fit. If the model indicates a poor fit, the model was re-specified based on the correlation residuals, and modification indices as well as the theoretical justification that supports these changes.

After conducting a CFA for *Personal Identification Scale,* a parceling approach was applied to create item parcels (i.e., groups of items). Item parcels refers to aggregating items into parcels and using them as indicators of the specific factor construct rather than individual items (Cattell & Burdsal, 1975; Kishton & Widaman, 1994). Parceling involves summing or averaging scores of multiple items (Bandalos, 2002; Little, Cunningham, Shahar, & Widaman, 2002).

Applying parceling approach has several advantages. According to Little and colleagues (2002) and Rushton, Brainerd, and Pressley (1983), the use of parcels enhances reliability, does not require a large sample size, minimizes the effect of each items' systematic errors on model estimates, and provides better model fit. Researchers also recommended using parcels to reduce model complexity because the number of indicators of a target construct is reduced to few indicators (Nasser & Takahashi, 2003). This reduces the risk of spurious correlations; that is, fewer correlations are being

estimated (Little et al., 2002; Rushton et al., 1983). One disadvantage of parceling strategy is masking the multidimensionality of original measures that produces biased parameters estimates (Little et al., 2002; Matsunaga, 2008). Little and colleagues (2002) recommend conducting exploratory factor analysis (EFA) of the measure to determine the dimensionality of the measure before parceling items. Given that Kark and colleagues (2003) confirmed the unidimensionality of *Personal Identification Scale*, EFA of the scale was not necessary.

To form item parcels, researchers proposed three techniques: (1) random assignment, (2) item-to-construct balance, and (3) correlation algorithm (Little et al., 2002; Matsunaga, 2008). Random assignment involves randomly assigning items into parcels (Little et al., 2008). Those parcels should contain relatively equal common factor variance (Little et al., 2002; Matsunaga, 2008). “If the items evince unequal variances because the scales, or metrics, differ across items, the resulting parcel would be biased in favor of the items with the larger variances” (Little et al., 2002, p. 165). To solve this problem, Little and colleagues (2002) recommended standardizing the item scores.

In item-to-construct balanced approach, a factor analysis is conducted by loading all items on one factor, then the factor loadings are used to build parcels by assigning items with highest loadings in each parcel and then adding sequentially the next highest loadings to the parcels, and so on (Matsunaga, 2008). For example, a researcher has a unidimensional scale with nine items, and needs to create three parcels. The researcher conducts factor analysis and finds that items five, four and seven have the highest loadings, while items three, one, and eight have the next highest loadings. In addition, items two, six, and nine have the lowest loadings. The researcher assigns items five,

three, and two to the first parcel. The second parcel has items four, one, and six. Finally, the third parcel consists of items seven, eight and nine.

The third parceling method is based on correlation algorithm. Matsunaga (2008) described the process as follow: a researcher starts with calculating bivariate correlation, then assigns the pair of items with the highest correlation to the first parcel. The second parcel consists of the pair of items with the second highest correlation. This procedure is applied until all parcels are assigned equal numbers of items (Matsunaga, 2008). For the current study, the *Personal Identification Scale* is a unidimensional measure. Therefore, item-to-construct balanced approach was used as a parceling technique to build three parcels with two parcels containing the sum of three items, whereas the third parcel consisting of the sum of four items.

3.6.3.2 the structural model. Once an acceptable measurement model was established for each measure, the hypothesized model was tested. The structural model tests the extent to which the hypothesized model fits the data obtained from the sample (Schumacker & Lomax, 2015). More specifically, it examines the theoretical relationships among the latent variables and the extent to which each latent variable directly or indirectly influences changes in other latent variables (Byrne, 2013). However, these relations cannot provide evidence of causation (Kline, 2011). Model fit was examined, and when there was a discrepancy between the structural model and the data, the model could be re-specified based on the fit indices and the theory.

To determine model fit, five fit indices were assessed including a chi-square test (X^2), root-mean-square errors of approximation (RMSEA), standardized root-mean-square residual (SRMR), comparative fit index (CFI), and the Tucker-Lewis index (TLI).

Chi-square (X^2) is the traditional method to assess goodness-of-fit of a model (Hooper, Coughlan, & Mullen 2008), and it evaluates the magnitude of inconsistency between the actual and predicted matrices (Hu & Bentler, 1999). Chi-square (X^2) is sensitive to sample size, this means that a large sample size will always lead to significant X^2, which indicates a poor fit (Gerbing & Anderson, 1985). Thus, X^2 was used to assess the differences in fit among nested models. The RMSEA is a non-centrality measure of fit that estimates the size of the residual and takes into account the error of approximation, which means that it does not assume the model fit with the population to be perfect (Kail, 2007). It is less affected by sample size (Kail, 2007). The RMSEA value indicates badness of fit, which means that values closer to 1.0 are considered bad, but values closer to 0 are regarded as a good fit (Walker & Smith, 2016). Values between .05 and .08 indicate a reasonable fit and those of 1.0 indicate a poor fit (Kline, 2011). The SRMR is the square root of the difference between the residuals of the observed covariance matrix and predicted covariance (Iacobucci, 2010). A value of zero indicates perfect fit and values less than 0.10 are considered a good fit (Kline, 2005). The CFI, a noncentrality parameter-based index, minimizes the effect of sample size. The index score range is between 0 and 1, and an acceptable fit is indicated with values of .90 or higher (Borsci, Federici, & Lauriola, 2009; Kline, 2011). Finally, TLI is sometimes called the non-normed fit indexes that are not influenced by sample size (Bollen, 1990). This index estimates the ratio of chi-square to the degree of freedom and it is used in an absolute sense, which means that TLI value equal to 1 is assumed a perfect fit, while a values of 0 is regarded as no fit (Smith & McMillan, 2001). However, an index value of .90 and greater suggests a good to excellent fit (Bentler & Bonett, 1980).

3.6.3.3 extraneous variables. It is necessary to determine the influence of extraneous variables on the phenomena under study to eliminate the potential threat of these variables on the validity of findings and to inferences made from them (Pedhazur & Schmelkin, 1991). Based on previous studies, the influence of some variables on new graduate nurses' willingness to report error was examined. First, research on the link between nurses' years of experience and patient safety outcomes has produced mixed results. Some studies found that when nurses' years of clinical experience increased, the rate and severity of medication error was reduced significantly (Blegen, Vaughn, & Goode, 2001; Westbrook, Rob, Woods, & Parry, 2011). However, a number of other studies found a significant and positive relationship between nurses' years of experience and error reporting (Munn, 2016; Kim, An, Kim, &Yoon, 2007; Sears, O'Brien-Pallas, Stevens, & Murphy, 2016). Whereas Unver and colleagues (2012) reported no significant difference between new graduate nurses' and experience nurses' views on error reporting. However, they found a significant difference in understanding what constitutes a medication error between newly graduated nurses and more experienced nurses. They found that nurses with more professional experience were more likely to understand what is considered a medication error. Munn (2016) explained that these contradictory results might be attributed to the studies' different foci on measures of error reporting (i.e., perceptions of reporting, willingness to report, or knowledge of what to report).

Additionally, the type of nursing unit has been linked to the number of reported errors. Vogus and Sutcliffe (2007b) found that nurses working in intensive care units submitted more medication error reports, and those working in emergency departments submitted fewer error reports. Similarly, Munn (2016) found that the percentage of

reported error was the highest among critical care units than medical and surgical units. Based on these findings, a one-way ANOVA was performed to examine the impact of nursing area of specialty on new graduate nurses' error communication, error strain, and covering up error.

3.7 Protection of Human Rights

In May 2018, ethical approval was obtained from the Western University Research Ethics Board prior starting the study. Precautions were taken to protect participants' anonymity and privacy. Once the randomized list of participants was received from the CNO, a list was created where each name was assigned a PIN number. The list was accessed only by the researcher and saved on an encrypted external hard drive, which was saved in a locked cabinet. The identification code was attached to each survey prior mailing it to the participants. In addition, the identification code served as a method to track the returned surveys. It was also beneficial in identifying non-respondents. Western's Qualtrics applies data encryption and firewalls to protect survey information. The only personal identifier requested from participants who decided to complete the survey online was the personal identifier number from their mailed survey. Once the electronic surveys were submitted, the researcher instantly downloaded and saved them on a password-protected laptop.

The information letter (See Appendix A) attached to the survey included information regarding the purpose of the study. It stated that the information obtained from the participants would be used to expand nursing knowledge regarding the influence of leadership behaviors on new nurses' error reporting behaviors, and that the findings of the study would be published and shared without disclosing their identity. The letter of

information declared that taking part in this study was voluntary and if they desired not to be contacted or no longer interested in participating in the study, they could call or email the researcher and they would be removed from the contact list. The returned surveys from participants were considered an agreement to take part in the study.

3.8 Summary

In summation, in this chapter the methods that were employed to conduct this study were discussed. Information was provided regarding the study design and sample. Further, data collection and analysis associated with this research were described, including a discussion of the instruments that were used to measure the study variables, and data management procedures. Strategies that were followed to ensure the protection of human rights were discussed in detail.

CHAPTER 4: Results

4.1 Introduction

In this chapter, the findings of the study are presented. The chapter begins with a description of the participant characteristic followed by a report of the results from conducting the measurement model analysis of the scales used in the current study. Decisions to modify each measurement model are discussed including model fit statistics, and item factor loadings. The descriptive statistics and Pearson's correlations are presented. In the final section of this chapter, results of the structural model are provided, including model fit statistics, and standardized path coefficients for the relationships between study variables. The chapter concludes with a summary of the study results.

4.2 Participant Demographics

Participants' demographic and employment information are presented in Table 3. The majority of the participants was female (91.4%) and graduated in 2016 (43.4%). One hundred and seventy-three participants obtained a bachelor's degree in nursing (98.9%) and two participants completed a master's degree in nursing (1.1%). The average age of new graduate nurses in the current study was 27.16 (SD= 5.24) years and had 1.64 (SD= 1.04) years of experience as a registered nurse, 1.20 (SD= 1.10) years working on their current unit, and 1.50 (SD= 1.71) years working at their current hospital. A total of 112 (64%) participants worked full-time, while 61 (34.7%) worked part-time. Almost 93.8% had a permanent employment status, while the remaining 5.7% worked in temporary positions. The majority of nurses worked in medical/surgical units (50.3%) followed by critical care units (28.6%) and maternal/child units (8.7%). Most new graduate nurses see/meet their unit manager once or twice a week (46.2%), followed by once or twice a

month (18.9%), everyday (18.2%), once or twice in 6 months (9.1%), and once or twice a year (6.3%).

Table 3

Participant Characteristics (N=175)

Demographic Characteristics	*N*	*Mean*	*SD*
Age	175	27.16	5.24
Years of Nursing Experience	174	1.66	1.04
Years of Nursing Experience at The Unit	172	1.20	1.10
Years of Nursing Experience at The Organization	172	1.50	1.71
Gender	*N*	%	
Female	160	91.4	
Male	15	8.5	
Year of Graduation			
2015	52	29.5	
2016	76	43.4	
2017	44	25.1	
2018	2	1.1	
Highest Degree Obtained in Nursing			
Bachelors Degree in Nursing	173	98.9	
Masters Degree in Nursing	2	1.1	
Current Employment Status			
Full-time	112	64.0	
Part-time	61	34.9	
Casual	1	.6	
Current Employment Type			
Permanent	165	93.8	
Temporary	10	5.7	
Specialty of Current Unit			
Medical-surgical	88	50.3	
Critical Care	50	28.6	
Maternal-child	14	8.0	
Mental health	8	4.6	
Float Pool or Nursing Resource Unit	8	4.6	
Frequency of seeing/meeting The Unit Manager			
Every day	32	18.2	
Once or twice a week	81	46.2	
Once or twice a month	33	18.9	
Once or twice in six months	16	9.1	
Once or twice a year	11	6.3	

4.3 Measurement Results: Confirmatory Factor Analyses

In this section the measurement models of all instrument used in the current study are described. Each measurement model was evaluated using the following criteria: the chi-square was used to assess the differences in fit among nested models (Gerbing & Anderson, 1985), the RMSEA values between .05 and .08 indicate a reasonable fit and values of 1.0 or more indicate a poor fit (Kline, 2011), The SRMR value of zero indicates perfect fit, however values less than 0.10 are considered a good fit (Kline, 2005) and the CFI and TLI values of .90 or higher indicate an acceptable fit (Borsci, Federici, & Lauriola, 2009; Kline, 2011). In the current study, the lowest acceptable factor loading cut-off value was set at .40 (Matsunaga, 2010).

4.3.1 Authentic leadership questionnaire. A second-order CFA was conducted for *Authentic Leadership Questionnaire*. Items loaded on their respective factors and loaded on a second-order factor of overall authentic leadership. Initial CFA results showed that the factor, balanced processing, had a negative and non-significant residual variance (-.010, $p = .635$), which is known as a Heywood case (Kline, 2016). A Heywood case is a parameter estimate with an illogical value, such as a negative residual variance (Kline, 2016). A negative residual variance may be attributed to the small sample size (Chen, Bollen, Paxton, Curran, & Kirby, 2001). The negative residual variance was fixed to zero because it was non-significant (Chen et al., 2001). A second CFA model revealed a good fit for the data: $\chi^2 (101) = 185.273$, $p < .001$; CFI = .963; TLI = .957; RMSEA = .069 (CI = .053, .085); SRMR = .031. The factor loadings of items (Table 4) on their respective factors as well as subscales loadings (Table 5) on the second-order factor of overall authentic leadership were greater than .40. The first factor,

relational transparency consisted of five items that had loadings ranging between .702 and .810. The second factor, internalized moral perspective, consisted of four items that had significant loadings ranging from .774 to .871. Balanced processing, the third factor, had three indicators that had strong factor loadings (.794– .839). Finally, self-awareness, the fourth factor being characterized by four items with loadings ranging between .822 and .882. Figure 4 presents the measurement model for the *Authentic Leadership Questionnaire.*

Table 4

Standardized Factor Loadings for Authentic Leadership Questionnaire

Latent factor	**Item Exact wording**	**Item**	**λ**	***SE***	***p***
Relational Transparency	Says exactly what he or she means	*TR1*	.722	.040	< .001
	Admits mistakes when they are made	*TR2*	.768	.034	< .001
	Encourages everyone to speak their mind	*TR3*	.810	.029	< .001
	Tells you the hard truth	*TR4*	.702	.042	< .001
	Displays emotions exactly in line with feelings	*TR5*	.704	.041	< .001
Internalized Moral Perspective	Demonstrates beliefs that are consistent with actions	*MOR1*	.871	.021	< .001
	Makes decisions based on his or her core values	*MOR2*	.785	.032	< .001
	Asks you to take positions that support your core values	*MOR3*	.774	.033	< .001
	Makes difficult decisions based on high standards of ethical conduct	*MOR4*	.840	.025	< .001
Balanced Processing	Solicits views that challenge his or her deeply held positions	*BAL1*	.794	.030	< .001
	Analyzes relevant data before coming to a decision	*BAL2*	.827	.026	< .001
	Listens carefully to different points of view before coming to conclusions	*BAL3*	.839	.025	< .001
Self-awareness	Seeks feedback to improve interactions with others	*SA1*	.856	.023	< .001
	Accurately describes how others view his or her capabilities	*SA2*	.822	.027	< .001
	Knows when it is time to reevaluate his or her position on important issues	*SA3*	.863	.022	< .001
	Shows he or she understands how specific actions impact others	*SA4*	.882	.020	< .001

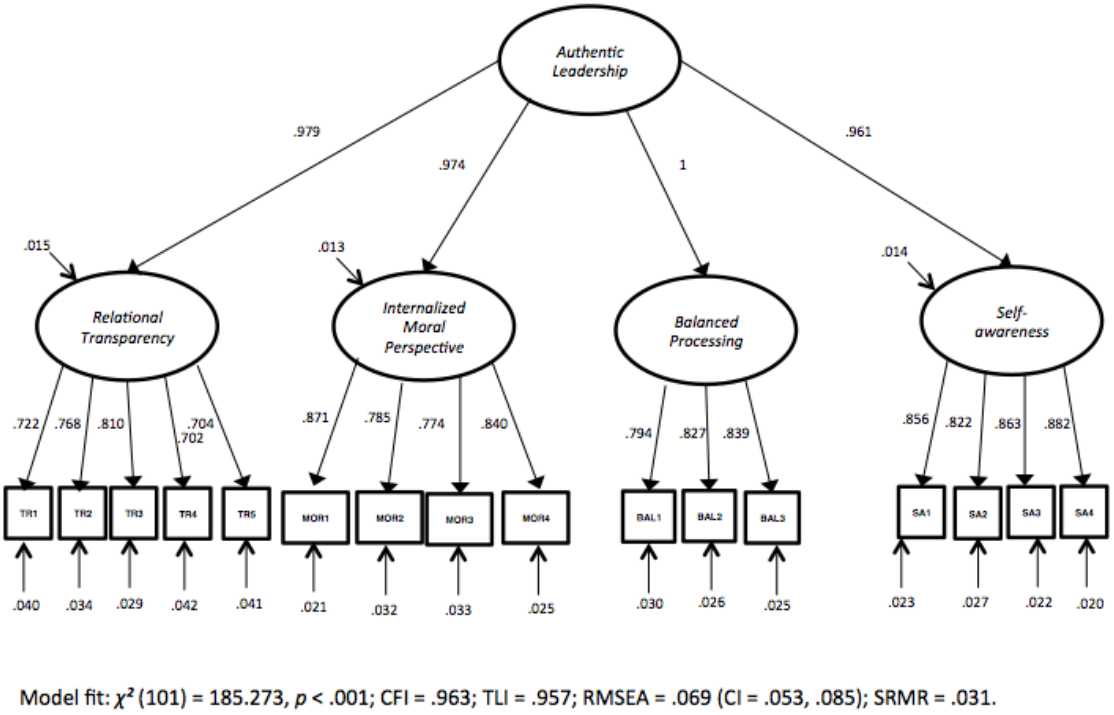


Figure 4. Measurement Model for The Authentic Leadership Questionnaire

Table 5

Standardized Factor Loadings for The Four Factors of Authentic Leadership

Second–order Latent Variable	First-order Latent variable	λ	*SE*	*p*
Authentic Leadership	*Relational Transparency*	.979	.015	< .001
	Internalized Moral Perspective	.974	.013	< .001
	Balanced Processing	1.000	.000	0
	Self-awareness	.961	.014	< .001

4.3.2 Personal identification scale. A first-order CFA was conducted for the *Personal Identification Scale* by allowing items to load on the scale. The model showed a poor fit (χ^2 (35) = 130.019, p < .001; CFI = .968; TLI = .961; RMSEA = .125 (CI = .102,

.148); SRMR = .049). More specifically, the chi-square was statistically significant suggesting that the sample covariate matrix and model covariate matrix were not similar. Also, the model did not yield adequate fit for the RMSEA value, which was above the recommended value of .08. The RMSEA value greater than .80 may be attributed to the small sample size (Kenny & McCoach, 2003). However, CFI and TLI values were higher than the recommended value of .90, which indicated an acceptable fit. Additionally, SRMR value was lower than .10 suggesting a good fit.

The factor loadings (Table 6) were examined, which showed that PI1 and PI2 had factor loadings of .306 and .175 respectively, which is lower than .40. As a result, these items were removed from subsequent analyses leaving eight items in the scale.

Table 6

Standardized Factor Loadings for Personal Identification Scale

Item Exact wording	**Item**	**λ**	***SE***	***p***
When someone criticizes the manager, it feels like a personal insult.	*PI1*	.306	.070	< .001
I am very interested in what others think about the manager.	*PI2*	.175	.074	< .001
I view the success of the manager as my own success.	*PI3*	.527	.056	< .001
I am proud to tell others that he/she is the manager of my unit.	*PI4*	.887	.018	< .001
I praise the manager, when speaking with friends, as someone who is good to work for.	*P15*	.902	.016	< .001
I highly identify with the manager of this unit.	*PI6*	.896	.016	< .001
It is important for me to see myself as an employee of this manager.	*PI7*	.848	.023	< .001
The manager is a role model for me.	*PI8*	.937	.011	< .001
The values of the manager are similar to my values.	*PI9*	.914	.014	< .001
I consider the manager as a symbol of success and achievement	*PI10*	.915	.014	< .001

A rerun of the CFA on the shorter scale revealed that the model did not improve (χ^2 (20) = 92.945, p < .001; CFI = .954; TLI = .935; RMSEA = .144 (CI = .115, .175); SRMR = .027). More specifically, the chi-square was significant indicating that the

sample covariate matrix and model covariate matrix were not similar. The RMSEA value was above the .08, which may be attributed to the small sample size (Kenny & McCoach, 2003). Although CFI and TLI values decreased, the values were higher than .90, which indicated an acceptable fit. SRMR value was lower than .10 also indicating a good fit. Table 7 provides a comparison of the fit statistics for the initial personal identification model and the final model. Evaluation of the pattern of items loadings indicates that all items had loadings greater than .40 (Table 8).

Table 7

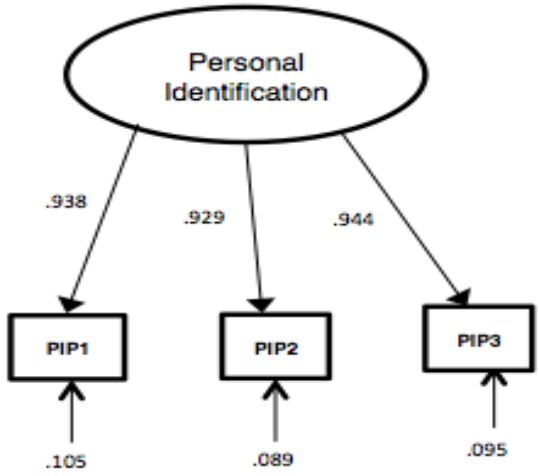
Comparison of Model Fit for the Personal Identification Measurement Models

Model	X^2	***df***	***p***	**CFI**	**TLI**	**# of Items**	**RMSEA 95% CI**	**SRMR**
Initial Model	130.019	35	< .001	968	961	10	.125 [.102, .148]	.049
Final Model	92.945	20	< .001	.954	.935	8	.144 [.115, .175]	.027

Table 8

Standardized Factor Loadings for Final Measurement Model of the Personal Identification Scale

Item	**λ**	***SE***	***p***
PI3	.524	.056	< .001
PI4	.886	.018	< .001
P15	.902	.016	< .001
PI6	.896	.016	< .001
PI7	.847	.023	< .001
PI8	.939	.011	< .001
PI9	.914	.014	< .001
PI10	.914	.014	< .001



Model fit: $\chi^2(0) = 0$, $p < .001$; CFI = 1.000; TLI = 1.000; RMSEA = 0; SRMR = 0

Figure 5 Measurement Model for The Personal Identification Scale

Three item parcels were created as follow: parcel1 included PI8, PI4 and PI5; parcel2 consisted of PI10, PI6, and PI3; and parcel3 comprised of PI9 and PI7. A CFA was performed on the *Personal Identification Scale* by allowing the three parcels to load on the latent factor of personal identification (Figure 5). The model fit was: $\chi^2(0) = 0$, $p < .001$; CFI = 1.000; TLI = 1.000; RMSEA = 0; SRMR = 0, suggesting that the model is just identified. A just-identified model means that there are just enough data points to estimate each parameter in the model (Kenny & Milan, 2012). Table 9 provides factor loadings for the three parcels.

Table 9

Standardized Factor Loadings for The Three Parcels of Personal Identification Scale

Parcels	λ	*SE*	*p*
PIP1	.938	.105	< .001
PIP2	.929	.089	< .001
PIP3	.944	.095	< .001

4.3.3 Organizational identification scale. A second-order CFA was conducted for the *Organizational Identification Scale* by allowing items to load on their respective factors and allowing factors to load on a second-order factor of overall *Organizational Identification*. Initial CFA results showed that the factor, a sense of organizational belonging and membership, had a negative and non-significant residual variance (-.046, *p* = .377), suggesting a Heywood case (Kline, 2016). According to Chen et al. (2001) a negative residual variance may be caused by small sample size. In the second CFA, the negative non-significant residual was fixed to zero (Chen et al., 2001). The CFA model (Figure 6) showed an acceptable fit for the data: $\chi^2(7) = 19.162$, $p = .007$; CFI= .979; TLI = .955; RMSEA = .100 (CI = .048, .154); SRMR = .026. More specifically, the chi-square was significant suggesting that the sample covariate matrix and model covariate matrix were not similar. The values of CFI and TLI were greater than .90 indicating a good fit. RMSEA value was above .08, which may be attributed to the small sample size (Kenny & McCoach, 2003). SRMR value was lower than .10 indicating a good fit. Evaluation of the pattern of items loadings indicates that all items had strong loadings (Table 10). Table 11 provides subscale loadings on the second-order factor of overall *Organizational Identification* suggesting that subscales had strong loadings.

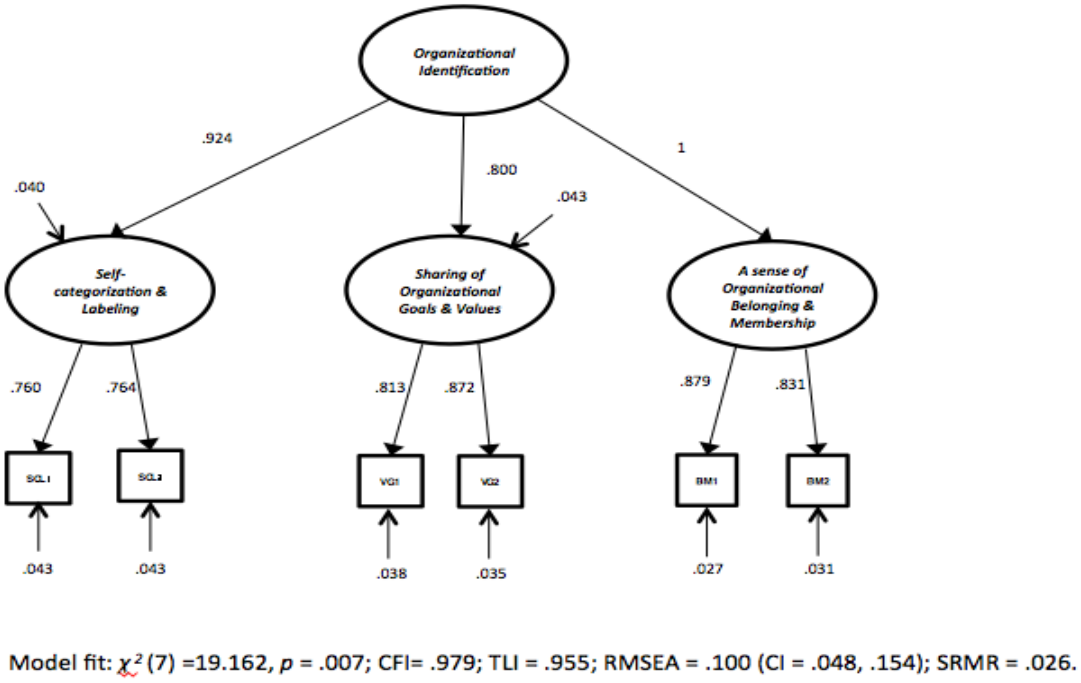


Figure 6. Measurement Model for The Organizational Identification Scale

Table 10

Standardized Factor Loadings for Measurement Model of the Organizational Identification Scale

Latent factor	Item Exact wording	Item	λ	*SE*	*p*
Self-categorization & Labeling	My employment in the organization is a big part of who I am	*SCL1*	.760	.043	< .001
	I consider myself an organization person	*SCL2*	.764	.043	< .001
Sharing of Organizational Goals & Values	What the organization stands for is important to me	*VG1*	.813	.038	< .001
	I share the goals and values of the organization	*VG2*	.872	.035	< .001
A sense of Organizational Belonging & Membership	My membership with the organization is important to me	*BM1*	.879	.027	< .001
	I feel strong ties with the organization	*BM2*	.831	.031	< .001

Table 11

Standardized Factor Loadings of The Three Factors of Organizational Identification Scale

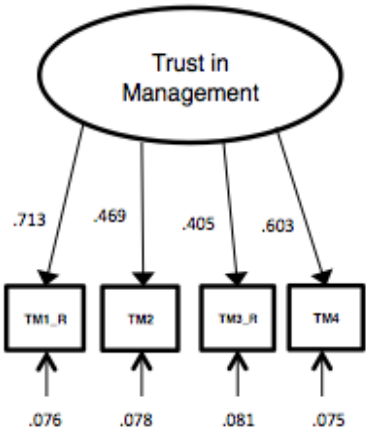
Second–order Latent Variable	First-order Latent variable	λ	*SE*	*p*
Organizational Identification	*Self-categorization & Labeling*	.924	.040	< .001
	Sharing of Organizational Goals & Values	.800	.043	< .001
	A sense of Organizational Belonging & Membership	1.000	.000	0

4.3.4 Trust in management scale. A first-order CFA was conducted by allowing the five items to load on the *Trust in Management Scale*. The results revealed that the initial model had a satisfactory fit (χ^2 (5) = 6.780, p = .237; CFI = .984; TLI = .968; RMSEA = .045 (CI = .000, .121); SRMR = .032). All items had factor loadings ranging between moderate to strong except for TM9, which had a factor loading of .387 (see Table 12). Subsequently, TM9 was deleted and CFA was rerun. The second model (Figure 7) showed a better fit: (χ^2 (2) = 2.963, p = .227; CFI = .990; TLI = .969; RMSEA = .022(CI = .000, .168); SRMR = .052). Table 13 lists the comparison of fit statistics for initial and final models and Table 14 provides the factor loadings of the four indicators in the final model.

Table 12

Standardized Factor Loadings for Initial Measurement Model of the Trust in Management Scale

Item Exact wording	Item	λ	*SE*	*p*
If I had my way, I wouldn't let my manager have any influence over issues that are important to me.	*TM1_R*	.710	.069	< .001
I would be willing to let my manager have complete control over my future in this organization.	*TM2*	.446	.077	< .001
I really wish I had a good way to keep an eye on my manager.	*TM3_R*	.413	.079	< .001
I would be comfortable giving my manager a task or problem, which was critical to me, even if I could not monitor her/his actions.	*TM4*	.695	.070	< .001
If someone questioned my manager's motives, I would give her/him the benefit of the doubt.	*TM9*	.387	.079	< .001



Model fit: χ^2 (2) = 2.963, *p* =.227; CFI = .990; TLI = .969; RMSEA = .022(CI = .000, .168) ; SRMR = .052

Figure 7. Measurement Model for The Trust in Management Scale

Table 13

Comparison of Model Fit for Trust in Management Measurement Models

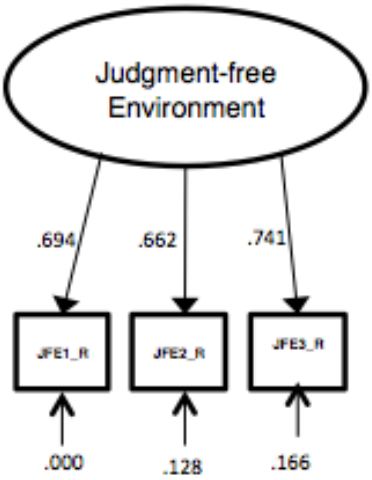
Model	X^2	*df*	*p*	CFI	TLI	# of Items	RMSEA 95% CI	SRMR
Initial Model	6.780	5	.24	.984	.968	5	.045[.000, .121]	.032
Final Model	2.963	2	.23	.990	969	4	.022[.000, .168]	.052

Table 14

Standardized Factor Loadings for Final Measurement Model of the Trust in Management Scale

Item	λ	*SE*	*p*
TM1_R	.713	.076	< .001
TM2	.469	.078	< .001
TM3_R	.405	.081	< .001
TM4	.683	.075	< .001

4.3.5 Judgment-free environment subscale. A first-order CFA was conducted for the subscale by allowing its three items to load on it. The analysis revealed the model (Figure 8) is a just-identified model: χ^2 (0) = 0, p < .001; CFI = 1.000; TLI = 1.000; RMSEA = 0; SRMR = 0. Factor loadings are presented in Table 15.



Model fit: χ^2 (0) = 0, p < .001; CFI = 1.000; TLI = 1.000; RMSEA = 0; SRMR = 0

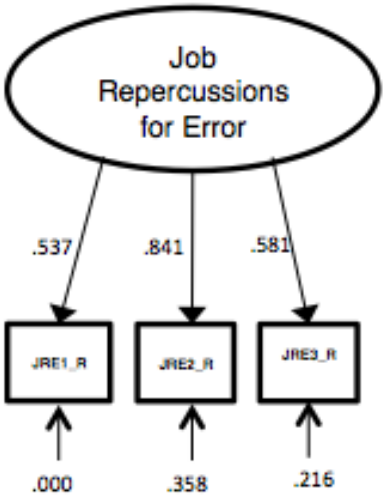
Figure 8. Measurement Model for The Judgment-free Environment Subscale

Table 15

Standardized Factor Loadings for Measurement Model of the Judgment-free Environment

Item Exact wording	Item	λ	*SE*	*p*
Others make you feel like a bit of a failure when you make an error	*JFE1_R*	.694	.000	< .001
If a staff member makes a serious error my manager will think that staff is incompetent	*JFE2_R*	.662	.128	< .001
My co-worker will lose respect for a staff member if they know he or she has made a serious error	*JFE3_R*	.741	.166	< .001

4.3.6 Job repercussions of error subscale. A first-order CFA was performed on the three items of the subscale by allowing them to load on the subscale. The results showed that the model is a just-identified model: $\chi^2(0) = 0$, $p < .001$; CFI = 1.000; TLI = 1.000; RMSEA = 0; SRMR = 0. The loadings range from modest to strong (Figure 9). Table 16 provides the factor loadings for items of job repercussion of error.



Model fit: $\chi^2(0) = 0$, $p < .001$; CFI = 1.000; TLI = 1.000; RMSEA = 0; SRMR = 0

Figure 9. Measurement Model for The Job Repercussions of Error Subscale

Table 16

Standardized Factor Loadings for Measurement Model of the Job Repercussions of Error

Item Exact wording	Item	λ	*SE*	*p*
Making a serious error would limit a person's career opportunities around here	*JRE1_R*	.537	.000	< .001
If someone makes a serious error he/she worries that he/she will face disciplinary action from management	*JRE2_R*	.841	.358	< .001
Making a serious error may cause a staff member to lose his/her job	*JRE3_R*	.581	.216	< .001

4.3.7 Error orientation questionnaire. A second-order CFA was conducted to assess the factor structure of the three-factor model of the 15-item EOQ. Initial CFA results suggested that the factor, covering up error, had a negative and non-significant residual variance (-.095, $p = .679$), which suggest the presence of a Heywood case (Kline, 2016). A small sample size may cause a negative residual variance (Chen et al., 2001). Chen and colleagues (2001) recommended fixing the negative non-significant residual variance to zero to obtain a proper parameter estimate. A second order CFA was conducted after fixing the factor covering up error at zero; the results suggested that the model had an acceptable fit ($\chi^2(88) = 138.412$, $p < .001$; CFI = .909; TLI = .892; RMSEA = .057 (CI = .038, .075); SRMR = .066). Table 17 provides the standardized factor loadings for the EOQ and Table 18 presents factor loadings for the three subscales. After assessing the factor loading of each indicator, it was evident that EOCOM3, EOSTR4_R, and EOCOV6_R had loadings lower than 0.40, therefore, these three items were deleted. A second-order CFA was performed on the 12-item EOQ (Figure 10), which indicated a slightly better model fit ($\chi^2(52) = 89.290$, $p < .001$; CFI = .926; TLI = .906; RMSEA = .064 (CI = .041, .086); SRMR = .057). Table 19 shows the comparison between model fit for both initial and final measurement models of EOQ. Factor loadings of the twelve items were above the minimum threshold value of .40 (Table 20). Table 21

was examined to determine whether the three factors that constitute the scale explain the latent variable of EOQ, it was noted that the factor loading of the error communication subscale was high (.739), while the error strain subscale had a low loading of .386. Additionally, the residual variance of the covering up error subscale was fixed to zero, which means that the first-order factor covering up error is a perfect indicator for the second order factor (Muthén, 2006). The results suggest that the second-order factor is not indirectly measured through the indicators of the error strain subscale (Kline, 2016). Therefore, it was decided to include the subscales as separate endogenous variables in the structural model.

Table 17

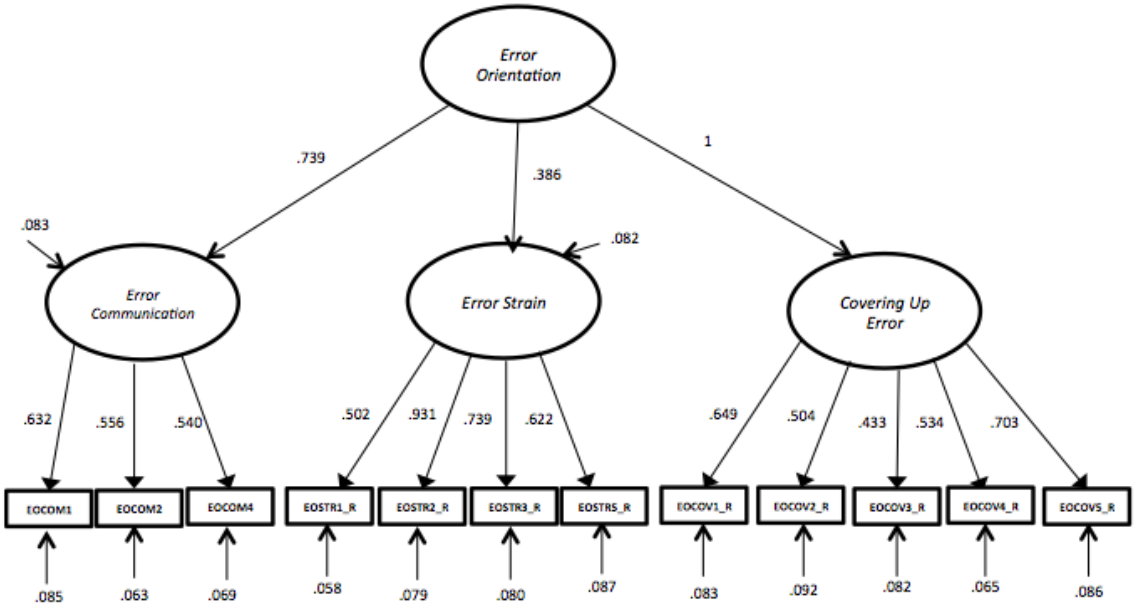
Standardized Factor Loadings for Measurement Model of Error Orientation Questionnaire

Latent factor	**Item Exact wording**	**Item**	**λ**	***SE***	*p*
Error Communication	When I make a mistake at work, I tell others about it in order that they do not make the same mistake	*EOCOM1*	.571	.078	< .001
	If I cannot rectify an error by myself, I turn to my colleagues	*EOCOM2*	.638	.075	< .001
	If I cannot manage to correct a mistake, I can rely on others	*EOCOM3*	.360	.088	< .001
	When I have done something wrong, I ask others, how I should do it better	*EOCOM4*	.569	.073	< .001
Error Strain	I find it stressful when I err	*EOSTR1_R*	.506	.064	< .001
	I am often afraid of making mistakes	*EOSTR2_R*	.921	.035	< .001
	I feel embarrassed when I make an error	*EOSTR3_R*	.747	.045	< .001
	If I make a mistake at work, I "lose my cool" and become angry	*EOSTR4_R*	.306	.074	< .001
	While working, I am concerned that I could do something wrong	*EOSTR5_R*	.625	.051	< .001
Covering Up Error	Why mention a mistake when it isn't obvious?	*EOCOV1_R*	.643	.061	< .001
	It is disadvantageous to make one's mistakes public	*EOCOV2_R*	.501	.069	< .001
	I do not find it useful to discuss my mistakes	*EOCOV3_R*	.448	.073	< .001
	It can be useful to cover up mistakes	*EOCOV4_R*	.530	.067	< .001
	I rather keep my mistakes to myself	*EOCOV5_R*	.716	.056	< .001
	Employees who admit to their errors make a big mistake	*EOCOV6_R*	.291	.080	< .001

Table 18

Standardized Factor Loadings for The Three Factors of Error Orientation Questionnaire

Second–order Latent Variable	First-order Latent variable	λ	*SE*	*p*
Error Orientation	*Error Communication*	.657	.089	< .001
	Error Strain	.381	.083	< .001
	Covering Up Error	1.000	.000	< .000



Model Fit: χ^2 (52) = 89.290, p < .001; CFI = .926; TLI = .906; RMSEA = .064 (CI = .041, .086); SRMR = .057.

Figure 10. Measurement Model for The Error Orientation Questionnaire

Table 19

Comparison of Model Fit for Error Orientation Questionnaire Measurement Models

Model	X^2	*df*	*p*	CFI	TLI	# of Items	RMSEA 95% CI	SRMR
Initial Model	138.412	88	< .001	.909	.892	15	.057[.038, .075]	.066
Final Model	89.290	52	< .001	.926	906	12	.064[.041, .086]	.057

Table 20

Standardized Factor Loadings for Final Measurement Model of Error Orientation Questionnaire

Latent factor	Item Exact wording	Item	λ	*SE*	*p*
Error Communication	When I make a mistake at work, I tell others about it in order that they do not make the same mistake	*EOCOM1*	.632	.085	< .001
	If I cannot rectify an error by myself, I turn to my colleagues	*EOCOM2*	.556	.063	< .001
	When I have done something wrong, I ask others, how I should do it better	*EOCOM4*	.540	.069	< .001
Error Strain	I find it stressful when I err	*EOSTR1_R*	.502	.058	< .001
	I am often afraid of making mistakes	*EOSTR2_R*	.931	.079	< .001
	I feel embarrassed when I make an error	*EOSTR3_R*	.739	.080	< .001
	While working, I am concerned that I could do something wrong	*EOSTR5_R*	.622	.087	< .001
Covering Up Error	Why mention a mistake when it isn't obvious?	*EOCOV1_R*	.649	.083	< .001
	It is disadvantageous to make one's mistakes public	*EOCOV2_R*	.504	.092	< .001
	I do not find it useful to discuss my mistakes	*EOCOV3_R*	.433	.082	< .001
	It can be useful to cover up mistakes	*EOCOV4_R*	.534	.056	< .001
	I rather keep my mistakes to myself	*EOCOV5_R*	.703	.08	< .001

Table 21

Standardized Factor Loadings for The Three Factors of Error Orientation Questionnaire

Second–order Latent Variable	First-order Latent variable	λ	*SE*	*p*
Error Orientation	*Error Communication*	.739	.083	< .001
	Error Strain	.386	.082	< .001
	Covering Up Error	1.000	.000	0

4.4 Measurement Results: Reliability Analysis

Reliability analysis was conducted for all measures used in the current study (Table 22). For *Authentic Leadership Questionnaire*, the Cronbach's α values were .93 (overall), .92 (self-awareness), .86 (relational transparency), .90 (internalized moral perspective), and .86 (balanced processing). The 8-item *Personal Identification Scale*

demonstrated a good Cronbach's alpha value (.97). In this study, the subscales of *Organizational Identification Scale* revealed good internal consistency: Cronbach's α of .73 (self-categorization and labeling), .83 (sharing of organizational goals and values), .84 (sense of organizational belonging and membership), and .89 (overall). The 4-item *Trust in Management Scale* showed an acceptable Cronbach's alpha value of .70. *Judgment-free Environment and Job Repercussions of Error* showed good Cronbach's alpha values (.74 and .70 respectively). *Error Communication* had a Cronbach's α value of .59. *Error Strain* had a Cronbach's α value of .78. Finally, *Covering Up Error* had Cronbach's α of .71. The low Cronbach's alpha estimate for error communication may reflect the reduced number of items included in the current study. The original error communication subscale consisted of four items (see Table 14); item EOCOM1and EOCOM4 referred to communicating errors to co-workers, and EOCOM2 and EOCOM3 referred to seeking help from colleagues to manage errors. However, item EOCOM3 was not retained in the subscale, which may have influenced Cronbach's alpha for the error communication scale.

4.5 Descriptive Statistics

Table 22 shows the results of descriptive statistics of the main study variables. Review of results showed that on average new graduate nurses' perceptions of their manager's authentic leadership behaviours was moderate (M = 2.52, SD = 0.91). Means of the ALQ subscales were clustered around the midpoint of the scale. The relational transparency was rated the highest (M = 2.67, SD = 0.89) and self-awareness was rated the lowest (M = 2.30, SD = 1.06). New graduate nurses' personal identification with their manager was moderate (M = 3.91, SD = 1.62) and organizational identification was also

moderate (M = 3.71, SD = 0.75). Participants rated sharing organizational goals and values the highest (M = 3.85, SD = 0.78), while sense of attachment, belonging, and membership of the organization was rated the lowest (M = 3.60, SD = 0.89). New graduate nurses rated their trust in the manager as moderate (M = 3.03, SD = 0.67). They perceived their unit to have a moderate judgement-free environment (M = 3.27, SD = 0.86) and job repercussions of error was also moderate (M = 3.08, SD = 0.80). Further, participants reported moderately high levels of error communication (M = 4.09, SD = 0.59), low covering up error (M = 4.04, SD = 0.70) and moderate error strain (M = 2.62, SD = 0.84).

Table 22

Descriptive Statistics for Main Study Variables

Items	Range	# of items	Mean	SD	*Cronbach's Alpha*	Skewness	Kurtosis
Authentic leadership	**0-4**	**16**	**2.52**	**0.91**	**.93**	**-.474**	**-.475**
Self-awareness	0-4	4	2.30	1.06	.92	-.311	-.755
Balanced processing	0-4	3	2.45	1.02	.86	-.395	-.626
Relational Transparency	0-4	5	2.67	0.89	.86	-.692	-.116
Internalized moral perspective	0-4	4	2.63	0.92	.90	-.575	-.129
Personal Identification	**1-7**	**8**	**3.91**	**1.62**	**.97**	**-.164**	**-1.01**
Organizational Identification	**1-5**	**6**	**3.71**	**0.75**	**.89**	**-.565**	**.113**
Self-categorization and labeling	1-5	2	3.68	0.89	.73	-.632	-.078
Sharing organizational goals and values	1-5	2	3.85	0.78	.83	-.725	.666
Sense of attachment, belonging, and membership of the organization	1-5	2	3.60	0.89	.84	-.414	-.143
Trust in The Manager	**1-5**	**4**	**3.03**	**0.67**	**.70**	**-.144**	**-.328**
Judgment-free Environment	**1-5**	**3**	**3.27**	**0.86**	**.74**	**-.275**	**-.117**
Job Repercussions of Error	**1-5**	**3**	**3.08**	**0.80**	**.70**	**-.038**	**.090**
Error Communication	**1-5**	**3**	**4.09**	**0.59**	**.59**	**-.711**	**.184**
Error Strain	**1-5**	**4**	**2.62**	**0.84**	**.78**	**.717**	**.156**
Covering Up Error	**1-5**	**5**	**4.04**	**0.70**	**.71**	**-.442**	**-.732**

Bold font denotes main study variables

4.6 Correlation Analysis

In this section, correlations between major study variables are reviewed (Table 23). The *p* value for all significant relationships was set at < .05. Authentic leadership was significantly and positively related to personal identification with the leader (*r* = .82), organizational identification (*r* = .20), trust in the manager (*r* = .67) judgment-free environment (*r* = .28), and job repercussions of error (*r* = .30). However, authentic leadership was not significantly correlated with error communication (*r* = .12), error strain (*r* = -.05), and covering up error (*r* = .05). Personal identification was significantly associated with organizational identification (*r* = .29), trust in the manager (*r* = .71), judgment-free environment (*r* = .24), and job repercussions of error (*r* = .30). Personal identification was not significantly correlated with error communication (*r* = .09), error strain (*r* = -.03), and covering up error (*r* = .11). Organizational identification was significantly and positively associated with trust in the manager (*r* = .25), judgment-free environment (*r* = .29), job repercussions of error (*r* = .25), error strain (*r* = .16), and covering up error (*r* = .23). Organizational identification was not significantly related to error communication (*r* = .11). Trust in the manager was significantly correlated with judgment-free environment (*r* = .30), job repercussions of error (*r* = .34), and covering up error (*r* = .15). Trust in the manager was not significantly correlated with error communication (*r* = .12) or error strain (*r* = -.07). Judgment-free environment was significantly related to job repercussions of error (*r* = .58), error communication (*r* = .24), and covering up error (*r* = .24). However, Judgment-free environment was not related significantly to error strain (*r* = .14). Job repercussions of error was significantly correlated with error communication (*r* = .16), error strain (*r* = .16), and covering up error

(r = .28). Error communication was significantly correlated with covering up error (r = .32) but was not significantly correlated with error strain (r = .01). There was a significant correlation between error strain and covering up error (r = .26.)

4.7 Relationship among Demographics and Major Study Variables

The impact of new graduate nurses' years of experience and area of speciality on major study variables was examined. As mentioned in Chapter 3, new graduate nurses' years of experience had a non-normal distribution (see Appendix D). Therefore, Spearman's correlation analysis was conducted to examine the influence of new graduate nurses' years of experience on their error communication, error strain, and covering up error. Spearman's correlation analysis is a non-parametric test used to determine if two variables are correlated when one or more assumptions of Pearson correlation are violated, such as a non-normal distribution (Kellar & Kelvin, 2013). Spearman's correlation analysis suggested that years of experience had a non-significant association with new graduate nurses' error communication ($r_{s=}$ -.003, p = .970) and covering up error ($r_{s=}$ .096, p = .208). However, there was a weak and positive correlation between years of experience and error strain ($r_{s=}$ .195, p = .010), suggesting that when new graduate nurses' years of experience increase they are less afraid of making mistakes or their emotional reactions towards errors are less negative. Given the small sample size and weak association between error strain and years of experience, new graduate nurses' years of experience was not used as a control in the SEM.

A one-way ANOVA was performed to examine the impact of nursing area of specialty on new graduate nurses' error communication, error strain, and covering up error. Results showed that specialty area was not significantly associated with error

communication ($p < .05$) [$F(5) = .576$, $p = .718$], error stain ($p < .05$) [$F(5) = .501$, $p = .775$], and covering up error ($p < .05$) [$F(5) = .895$, $p = .486$]. Therefore, no controls were used in testing the model.

Table 23

Correlations of Main Study Variables

Scale/Subscale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Authentic Leadership	-														
2. SA	.93*	-													
3. BP	.93*	.85*	-												
4. RT	.92*	.81*	.81*	-											
5. IMP	.93*	.81*	.84*	.85*	-										
6. Personal Identification	.82*	.81*	.74*	.75*	.76*	-									
7. Organizational Identification	.20*	.15*	.21*	.19*	.20*	.29*	-								
8. SCL	.20*	.15*	.19*	.19*	.21*	.27*	.88*	-							
9. SOGV	.15*	.13	16*	.17*	.17*	.24*	.83*	.56*	-						
10. SBM	.17*	.137	.19*	.14	.16*	.25*	.91*	.73*	.67*	-					
***11.* Trust in the Manager**	.67*	.65*	.62*	.62*	.61*	.71*	.25*	.23*	.19*	.22*	-				
12. Judgment-free environment	.28*	.29*	.22*	.30*	.26*	.24*	.29*	.27*	.23*	.27*	.30*	-			
13. Job Repercussions of Error	.30*	.29*	.27*	.31*	.26*	.30*	.25*	.25*	.17*	.22*	.34*	.58*	-		
14. Error Communication	.12	.12	.16*	.08	.10	.09	.11	.04	.18*	.07	.12	.24*	.16*	-	
15. Error Strain	-.05	.11	.00	-.02	-.08	-.03	.16*	.04	.24*	.15*	-.07	.14	.16*	.01	-
16. Covering Up Error	.05	.05	.08	.00	.05	.11	.23*	.19*	.19*	.22*	.15*	.24*	.28*	.32*	.26*

*Significant, p< 0.05.

SA= Self-awareness, BP= Balanced processing, RT.= Relational transparency, IMP= Internalized moral perspective, SCL= Self-categorization and labeling, SOGV= Sharing organizational goals and values, SBM= Sense of attachment, belonging, and membership of the organization

4.8 Testing the Revised Hypothesized Model

4.8.1 The structural model. The overall model fit of a partially latent structural regression model was tested using SEM. The revised hypothesized model is presented in Figure 11. Authentic leadership and organizational identification were modeled as latent variables measured by their respective subscales. Personal identification was modeled as a latent variable measured by its three parcels, while trust in the manager was modeled as a latent variable measured by its four items. Judgment-free environment and job repercussions of error were the only two subscales *of Canadian Patients Safety Climate Scale* that were included as separate variables in the structural model. Judgment-free environment, job repercussions of error, error communication, error strain, and covering up error were specified as observed variables in the structural model because this statistical technique is recommended when testing a complex model with small sample size (von der Heidt, & Scott, 2007). Recall from Chapter three that a partially latent structural regression model is one in which at least one variable in the structural model is a single indicator, that is, an observed variable that is a single indicator for a construct (Kline, 2011). Accounting for measurement error is not a concern for observed endogenous variables in partially latent structural regression models because it is manifested through their disturbances (i.e., account for measurement error and omitted causes; Kline, 2011, 2016).

The hypotheses of the current study were revised based on the results of data collection which yielded a smaller than desired sample size and the measurement model analysis which suggested some changes in the specific variables used: (a) judgment-free environment and job repercussions of error were used as two aspects of patient safety

climate instead of the total CAN-PSC scale and (b) willingness to report errors was measured by three individual attitudes towards errors subscales (error communication, error strain and covering up error). The following hypotheses were tested in the structural model:

1. Authentic leadership of managers is positively related to new graduate nurses' personal identification with their manager.
2. Authentic leadership of managers is positively associated with new graduate nurses' organizational identification.
3. Personal identification mediates the relationship between authentic leadership and organizational identification.
4. Personal identification with the manager is positively associated with the trust in the manager.
5. Organizational identification is positively associated with the trust in the manager.
6. Trust in the manager is positively associated with judgment free environment and job repercussions of error.
7. Judgment free environment is positively associated with error communication, error strain, and covering up error.
8. Job repercussions of error is positively associated with error communication, error strain, and covering up error.

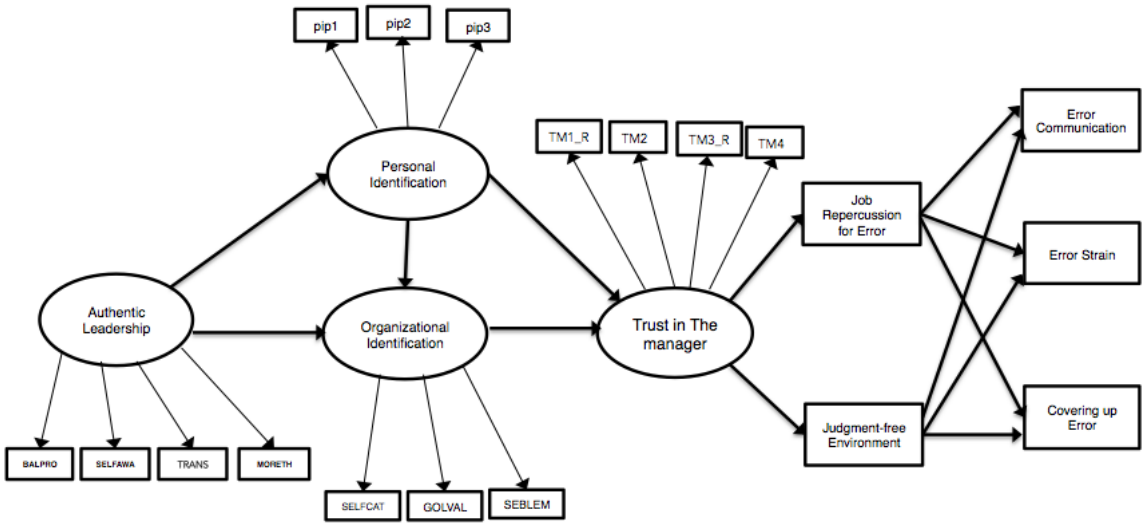
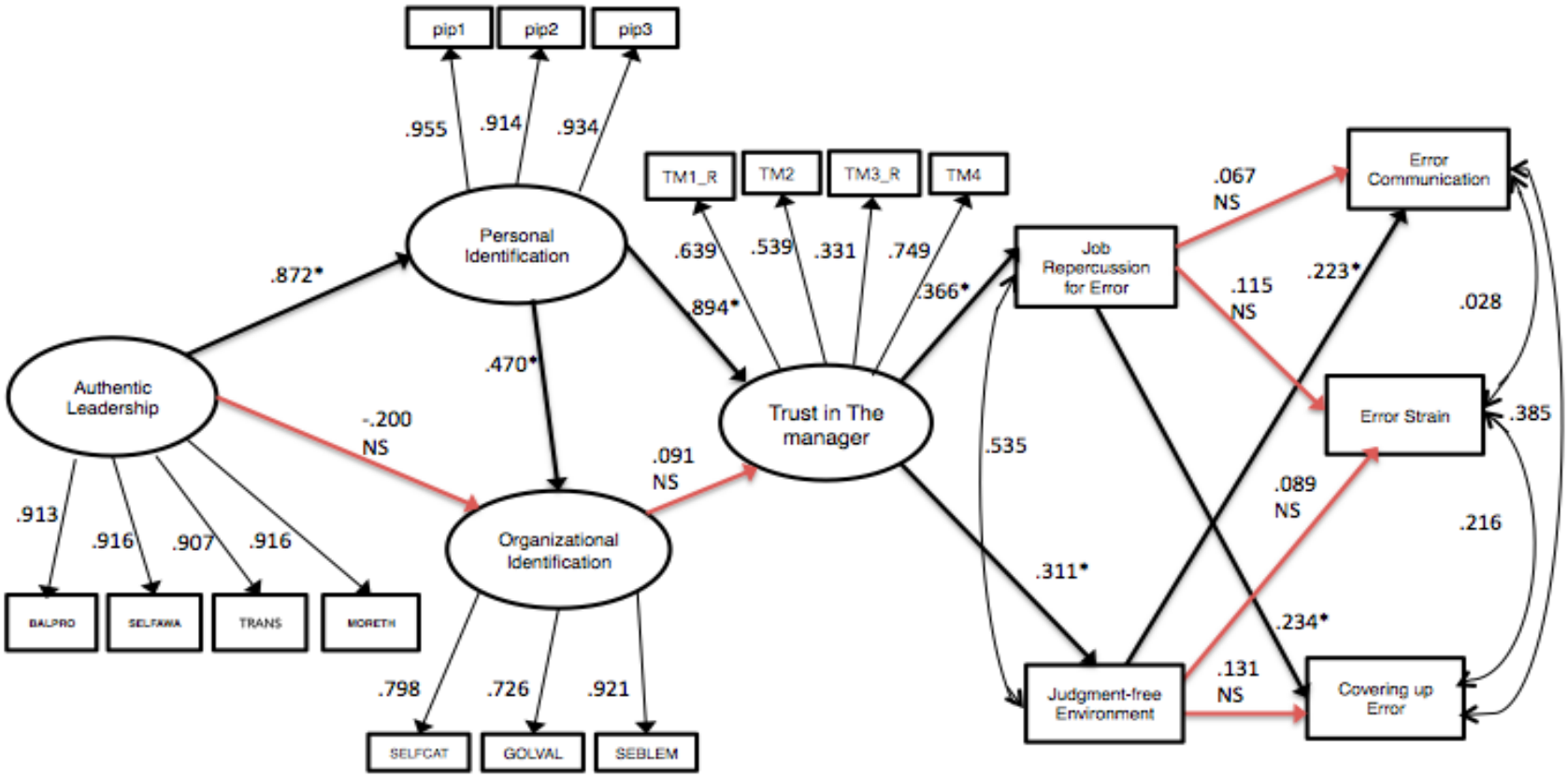


Figure 11. Revised Hypothesized Model

4.8.1.1 Assessment of model fit. The revised hypothesized model revealed an acceptable fit for the data: $\chi^2(140) = 253.248$, $p < .001$; CFI = .950 TLI = .938; RMSEA = .068(CI = .054, .081); SRMR = .060. More specifically, the chi-square was significant, $\chi^2(df = 140) = 253.248$, $p < .001$, suggesting that the sample covariance matrix and the model covariance matrix were different. The RMSEA was lower than .08, with a value of .068(CI = .054, .081) suggesting a reasonable fit (Kline, 2011). Further, the CFI (= .950) and TLI (= .938) values were higher than .90, which indicated an acceptable fit (Borsci, Federici, & Lauriola, 2009; Kline, 2011). The SRMR value was below .10 with a value of .060 indicating a good fit (Kline, 2005). Figure 12 illustrates the standardized beta coefficients between study variables in the revised hypothesized model. An examination

of modification indices revealed that the model fit could not be substantially improved, therefore, model re-specification was not considered.



Model fit: χ^2 (140) = 253.248, p < .001; CFI = .950 TLI = .938; RMSEA = .068(CI = .054, .081); SRMR = .060
Not: *Significant; NS = non-significant, p <.05
Black lines: Significant paths; Red lines: Non-significant paths

Figure 12. Standardized beta coefficients between study variables

4.8.1.2 Estimation of path coefficients. Analysis of parameter estimates were conducted on the revised hypothesized model (see Figure 12), and results including unstandardized coefficients (*B*), standardized coefficients (β), standard error (*SE*), significance level (*p*-value), and 95% confidence intervals (*CI*) for the direct and indirect paths are reported in Table 24 and Table 25 respectively.

Authentic leadership had a significant direct effect on personal identification (β = .872, $p < .001$). Personal identification had a significant direct effect on organizational identification (β = .470, p = .010) and trust in the manager (β = .894, $p < .001$). Trust in the manager had a significant direct effect on judgment-free environment (β = .311, $p <$ .001) and job repercussions of error (β = .366, $p < .001$). Judgment-free environment had a significant effect on error communication (β = .223, p = .012) and job repercussions of error had a significant effect on cover up error (β = .234, p = .007). However, the paths from authentic leadership to organizational identification and organizational identification to trust in the manager were not significant. In addition, the direct paths from judgment-free environment to error strain and covering up error, along with the direct paths from job repercussions of error to error communication and error strain were not significant.

Authentic leadership had a significant and positive indirect effect on error communication through personal identification, trust in the manager, and judgment-free environment (β = .054, p = .033). Authentic leadership had a significant and positive indirect effect on covering up error through personal identification, trust in the manager, and job repercussions of error (β = .067, p = .019). Authentic leadership also had a significant and positive indirect effect on judgment-free environment through personal

identification and trust in the manager (β = .243, p < .001). Authentic leadership had a significant and positive indirect effect on job repercussions of error through personal identification and trust in the manager (β = .285, p < .001). Authentic leadership had a significant and positive indirect effect on trust in the manager through personal identification (β = .779, p < .001). In addition, authentic leadership had a significant and positive indirect effect on organizational identification through personal identification and trust in the manager (β = .410, p = .010).

Personal identification had a significant positive indirect effect on error communication through trust in the manager and judgment-free environment (β = .062, p = .033). Personal identification had a significant and positive indirect effect on covering up error through trust in the manager and job repercussions of error (β = .076, p = .018). Personal identification had a significant and positive indirect effect on judgment-free environment and job repercussions of error through trust in the manager (β = .278, p < .001) and (β = .327, p < .001) respectively. Finally, trust in the manager had a significant and positive indirect effect on error communication through judgment-free environment (β = .069, p = .033) and on error covering up through job repercussions of error (β = .086, p = .018).

Table 24

Direct Effects of Final Model

	B	***SE***	***β***	***p***	***95% CI (lower band)***	***95% CI (upper band)***
AL -> PI	1.884*	.022	.872*	< .001	.836	.909
AL -> OI	-.175	.184	-.200	.278	-.502	.103
PI -> OI	.190*	.181	.470*	.010	.172	.768
PI -> Trust	.371*	.041	.894*	< .001	.809	.978
OI -> Trust	.094	.064	.091	.158	-.037	.219
Trust-> JUDGF	.368*	.069	.311*	< .001	.189	.434
Trust -> JOBREP	.404*	.063	.366*	< .001	.248	.484
JUDGF->ERRCOM	.146*	.059	.223*	.012	.078	.369
JUDGF-> ERRSTR	.077	.079	.089	.330	-.061	.240
JUDGF-> ERRCOV	.095	.064	.131	.135	-.013	.276
JOBREP-> ERRCOM	.047	.063	.067	.455	-.081	.225
JOBREP-> ERRSTR	.107	.085	.115	.207	-.035	.266
JOBREP-> ERRCOV	.181*	.068	.234*	.007	.091	.376
JOBREP with JUDGF	.328	.054	.535	< .001	.445	.625
ERRCOM with ERRSTR	.011	.030	.028	.707	-.096	.153
ERRCOM with ERRCOV	.123	.026	.385	< .001	.279	.491
ERRSTR with ERRCOV	.093	.033	.216	.003	.097	.355

*Significance = $p < .05$

AL, Authentic Leadership; PI, Personal Identification; OI, Organizational Identification; Trust, Trust in The Manager; JUDGF, Judgment-free Environment; JOBREP, Job Repercussions of Error; ERRCOM, Error Communication; ERRSTR, Error Strain; ERRCOV, Covering Up Error

Table 25

Indirect Effects of Final Model

	B	***SE***	***β***	***p***	***95% CI (lower band)***	***95% CI (upper band)***
Authentic Leadership to Error Communication						
AL ->PI-> Trust-> JUDGF->ERRCOM	.038*	.015	.054*	.033	.012	.096
AL ->OI-> Trust-> JUDGF ->ERRCOM	-.001	.001	-.001	.409	-.004	.001
AL ->PI-> Trust-> JOBREP-> ERRCOM	.013	.015	.019	.460	-.024	.062
AL ->OI-> Trust-> JOBREP->ERRCOM	.000	.000	.000	.567	-.002	.001
AL ->PI-> OI-> Trust-> JUDGF >ERRCOM	.002	.001	.003	.278	-.001	.007
AL ->PI-> OI-> Trust->	.001	.001	.001	.522	-.001	.003

JOBREP>ERRCOM						
Personal Identification to Error Communication						
PI-> Trust-> JUDGF-> ERRCOM	.020*	.017	.062*	.033	.014	.110
PI-> Trust-> JOBREP-> ERRCOM	.007	.017	.022	.460	-.027	.071
PI-> OI-> Trust-> JUDGF-> ERRCOM	.001	.002	.003	.277	-.002	.007
PI-> OI-> Trust-> JOBREP ->ERRCOM	.000	.001	.001	.522	-.002	.004
Organizational Identification to Error Communication						
OI-> Trust-> JUDGF-> ERRCOM	.005	.003	.006	.251	-.003	.015
OI-> Trust-> JOBREP-> ERRCOM	.002	.002	.002	.514	-.003	.008
Trust in The Manager to Error Communication						
Trust-> JUDGF -> ERRCOM	.054*	.019	.069*	.033	.016	.123
Trust-> JOBREP-> ERRCOM	.019	.019	.025	.460	-.030	.079
Authentic Leadership to Error Strain						
AL ->PI-> Trust-> JUDGF->ERRSTR	.020	.017	.022	.344	-.016	.059
AL ->OI-> Trust-> JUDGF -> ERRSTR	.000	.001	-.001	.515	-.002	.001
AL ->PI-> Trust-> JOBREP-> ERRSTR	.030	.020	.033	.233	-.012	.077
AL ->OI-> Trust-> JOBREP-> ERRSTR	-.001	.001	-.001	.468	-.003	.001
AL ->PI-> OI-> Trust-> JUDGF-> ERRSTR	.001	.001	.001	.449	-.001	.003
AL ->PI-> OI-> Trust-> JOBREP-> ERRSTR	.001	.001	.002	.377	-.001	.005
Personal Identification to Error Strain						
PI-> Trust-> JUDGF-> ERRSTR	.011	.020	.025	.344	-.018	.068
PI-> Trust-> JOBREP-> ERRSTR	.016	.023	.038	.222	-.013	.089
PI-> OI-> Trust-> JUDGF-> ERRSTR	.001	.001	.001	.449	-.001	.004
PI-> OI-> Trust-> JOBREP -> ERRSTR	.001	.002	.002	.377	-.002	.005
Organizational Identification to Error Strain						
OI-> Trust-> JUDGF -> ERRSTR	.003	.002	.003	.437	-.003	.008
OI-> Trust-> JOBREP-> ERRSTR	.004	.003	.004	.360	-.003	.011
Trust in The Manager to Error Strain						
Trust-> JUDGF -> ERRSTR	.028	.022	.028	.344	-.020	.076

Trust-> JOBREP-> ERRSTR	.043	.026	.042	.222	-.015	.099
Authentic Leadership to Covering Up Error						
AL ->PI-> Trust-> JUDGF->ERRCOV	.024	.014	.032	.162	-.006	.069
AL ->OI-> Trust-> JUDGF -> ERRCOV	-.001	.001	-.001	.450	-.002	.001
AL ->PI-> Trust-> JOBREP-> ERRCOV	.051*	.018	.067*	.019	.020	.114
AL ->OI-> Trust-> JOBREP-> ERRCOV	-.001	.001	-.002	.399	-.005	.001
AL ->PI-> OI-> Trust-> JUDGF-> ERRCOV	.001	.001	.002	.349	-.001	.004
AL ->PI-> OI-> Trust-> JOBREP-> ERRCOV	.002	.002	.003	.261	-.001	.008
Personal Identification to Covering Up Error						
PI-> Trust-> JUDGF-> ERRCOV	.013	.016	.036	.161	-.006	.079
PI-> Trust-> JOBREP-> ERRCOV	.027*	.021	.076*	.018	.023	.130
PI-> OI-> Trust-> JUDGF-> ERRCOV	.001	.001	.002	.348	-.001	.005
PI-> OI-> Trust-> JOBREP -> ERRCOV	.001	.002	.004	.260	-.002	.009
Organizational Identification to Covering Up Error						
OI-> Trust-> JUDGF -> ERRCOV	.003	.002	.004	.339	-.003	.010
OI-> Trust-> JOBREP-> ERRCOV	.007	.004	.008	.232	-.003	.019
Trust in The Manager to Covering Up Error						
Trust-> JUDGF -> ERRCOV	.035	.018	.041	.161	-.007	.089
Trust-> JOBREP-> ERRCOV	.073*	.023	.086*	.018	.026	.145
Authentic Leadership to Judgment-free Environment						
AL ->PI-> Trust-> JUDGF	.258*	.054	.243*	< .001	.146	.339
AL ->OI-> Trust-> JUDGF	-.006	.006	-.006	.381	-.016	.005
AL ->PI-> OI-> Trust-> JUDGF	.012	.008	.012	.228	-.004	.027
Personal Identification to Judgment-free Environment						
PI-> Trust-> JUDGF	.137*	.061	.278*	< .001	.169	.387
PI-> OI-> Trust-> JUDGF	.007	.010	.013	.266	-.005	.031
Organizational Identification to Judgment-free Environment						
OI-> Trust-> JUDGF	.034	.024	.028	.195	-.008	.064
Authentic Leadership to Job Repercussion for Error						
AL ->PI-> Trust-> JOBREP	.282*	.050	.285*	< .001	.191	.379
AL ->OI-> Trust-> JOBREP	-.007	.006	-.007	.374	-.019	.006

AL ->PI-> OI-> Trust-> JOBREP	.014	.009	.014	.215	-.004	.032
Personal Identification to Job Repercussion for Error						
PI-> Trust-> JOBREP	.150*	.057	.327*	< .001	.327	.432
PI-> OI-> Trust-> JOBREP	.007	.010	.016	.214	-.005	.036
Organizational Identification to Job Repercussions of Error						
OI-> Trust-> JOBREP	.038	.025	.033	.182	-.008	.074
Authentic Leadership to Trust The Manager						
AL ->PI-> Trust	.699*	.043	.779*	< .001	.709	.850
AL ->OI-> Trust	-.016	.020	-.018	.362	-.051	.015
AL ->PI-> OI-> Trust	.034	.029	.037	.191	-.010	.084
Personal Identification to Trust The Manager						
PI-> OI-> Trust	.018	.033	.043	.190	-.011	.097
Authentic Leadership to Organizational Identification						
AL ->PI-> OI	.358*	.160	.410*	.010	.147	.673

*Significance = $p < .05$

AL, Authentic Leadership; PI, Personal Identification; OI, Organizational Identification; Trust, Trust in The Manager; JUDGF, Judgment-free Environment; JOBREP, Job Repercussions of Error; ERRCOM, Error Communication; ERRSTR, Error Strain; ERRCOV, Covering Up Error

4.9 Summary of Overall Findings

A second–order CFA was employed to estimate the measurement models for *Authentic Leadership Questionnaire, Organizational Identification, and Error Orientation Questionnaire.* A first-order CFA was performed to assess factor loadings and goodness of fit for *Personal Identification Scale, Trust in Management, Judgement-free Environment,* and *Job Repercussions of Error.* The revised hypothesized model revealed an acceptable fit for the data. The model provided full support or partial support for six of eight specific hypotheses explored in this study. Standardized path coefficients were described as well as indirect effects for the structural model. A summary of the study hypotheses testing results are provided in Table 26.

Table 26

Summary of Hypotheses Testing

	Study Hypothesis	**Supported or Unsupported**
#1	Authentic leadership of managers is positively related to new graduate nurses' personal identification with their manager.	Supported
#2	Authentic leadership of managers is positively associated with new graduate nurses' organizational identification	Unsupported
#3	Personal identification mediates the relationship between authentic leadership and organizational	Supported
#4	Personal identification with the manager is positively associated with the trust in the manager	Supported
#5	Organizational Identification is positively associated with the trust in the manager	Unsupported
#6	Trust in the manager is positively associated with judgment free environment and job repercussions of error	Supported
#7	Judgment free environment is positively associated with error communication, error strain, and covering up error	Partially Supported
#8	Job repercussions of error is positively associated with error communication, error strain, and covering up error	Partially Supported

CHAPTER 5: Discussion

5.1 Introduction

The purpose of this study was to investigate the influence of authentic leadership on new graduate nurses' personal identification with the leader, organizational identification, trust in the manager, climate factors of judgment-free environment and job repercussions of error, error communication, error strain, and covering up error. In the current study, the sample consisted of 175 new graduate nurses working in acute care settings across Ontario. A second–order CFA was conducted to estimate the measurement models for *Authentic Leadership Questionnaire, Organizational Identification,* and *Error Orientation Questionnaire.* A first-order CFA was employed to assess factor loadings and goodness of fit for *Personal Identification Scale*, *Trust in Management Scale*, and *Judgement-free Environment* and *Job Repercussions of Error Subscales.* The hypothesized model was revised based on the relatively small sample size and the of measurement model analysis which suggested some changes in the variables used. The revised hypothesized model was tested using a partially latent structural regression model.

In this chapter, a discussion of the study findings and related implication is provided. Limitations, and implications for theory, leadership practices and nursing education are also offered. Recommendations for future research are presented. Finally, the chapter ends with an overall summary.

5.2 Descriptive Analysis of The Data

In the current study, new graduate nurses perceive their managers to be moderately authentic ($M = 2.52$, $SD = 0.91$). This finding is consistent with previous

studies (Fallatah et al., 2016; Laschinger, Borgogni, Consiglio, & Read, 2015; Laschinger, Wong, & Grau, 2013; Read, & Laschinger, 2013). The highest rating of new graduate nurses' views of the manager's authentic leadership was associated with the manager's relational transparency, while the lowest rating was in regard to the manager's ability to express self-awareness. The results suggest that when the managers display openness and clarity in sharing information and disclosing their true thoughts, motives, and feelings, they enable followers to identify managers' authentic leadership behaviours (Walumbwa et al., 2008). Lower scores of self-awareness may have resulted from the infrequent interactions that new graduate nurses have with their manager. More specifically, 28 % (n = 49) of participants reported seeing or meeting their managers between 1-2 times a month and 1-2 times in six months, while 64.4% (n = 113) reported seeing their manager every day or 1-2 times a week. Additionally, 6.3% of new graduate nurses reported that they met/saw their manager 1-2 times a year. It is possible that new graduate nurses' infrequent contact with their manager might have be a result of decreased managers' visibility in the unit due to the manager's wide span of control (Wong et al., 2010). Therefore, our findings may support the notion that visible leadership and frequent interaction are important approaches to develop quality relationship with new graduate nurses (Munn, 2016).

New graduate nurses' ratings of their degree of personal identification with the leader were moderately high (M = 3.91, SD = 1.62). In comparison to Wong and colleagues' study (2010), the current result is higher than ratings of experienced nurses' personal identification with their authentic leaders (M = 3.49, SD = 1.46). In addition, new graduate nurses reported their organizational identification moderately high (M =

3.71, *SD* = 0.75), which was similar to a previous study (*M* = 3.32, *SD* = .76; Edwards & Peccei, 2007). The highest scores of organizational identification related to the respondents' sharing of organizational goals and values. As newcomers to the organization, new graduate nurses assess the organization's values, beliefs, and goals and find whether what the organization stands for is similar to those of their own. The process of identifying the shared organizational goals and values contributed to new graduate nurses' organizational identification. However, new graduate nurses gave low ratings regarding their sense of attachment, belonging, and membership with the organization. According to Edwards and Peccei (2007) a sense of belonging and membership indicates the importance that an individual attaches to his or her organizational membership. Furthermore, a sense of attachment, belonging and membership with the organization reflects an affective component of organizational identification, whereas sharing of organizational values and goals reflects the cognitive component of organizational identification (Edwards & Peccei, 2007). Perhaps, as the survey respondents learn about the organization and adapt to their new role and workplace culture, they engage cognitively in identifying similarities between their own goals and values and those of the organization, which stimulates their organizational identification. However, new graduate nurses, as new hires, may require a longer period of time for their emotional element of organizational identification to be triggered (Edwards, 2005; Edwards & Peccei, 2007); as such, they only categorize themselves as a member of the organization and engage emotionally only after they feel pride in belonging to the organization. This process involves examining what differentiates the organization from others (Ashforth & Male, 1989; Tajfel & Turner, 1986), and subsequently encourages them to achieve

organization's goals and maintain its values, which contribute to the organization success (Edwards, 2005; Haslam & Ellemers, 2005).

In the current study, new graduate nurses reported relatively moderate levels of trust in the manager. In comparison to past studies, the current study findings were slightly lower (M = 3.03, SD = 0.67) than trust in the manager scores for experienced nurses (M = 3.26, SD = 0.63; Wong et al., 2010), and manufacturing employees (M = 3.21, SD = 0.77; Mayer & Gavin, 2005). Perhaps the trust scores were affected by the type and frequency of new graduate nurses' interactions with their managers. The process for trust development and rationale for why new graduate nurses decide to place their trust in their managers requires further investigation.

In this study, respondents' ratings of the enabling communication subscales (judgment-free environment and job repercussions of error) dimensions of patient safety climate in their unit were similar to a previous study of healthcare providers across Canada (Ginsburg & Oore, 2015). Our results suggest that perhaps the norms and attitudes within the organization were supportive for improving patient safety. When leaders provide staff the opportunity to talk about how errors occurred, discuss ways to prevent their reoccurrence, and provide information regarding changes in practice based on incident reporting, leaders are likely to foster a safety climate (Thompson et al., 2011). These actions facilitate learning from errors in order to prevent their reoccurrence, which lead staff to not fear the consequences of reporting errors on their job.

New graduate nurses rated error communication in their units moderately high (M = 4.09, SD = 0.59), which is comparable to Hofmann and Mark's (2006) result (M = 3.81, SD = 0.29). In the current study, the mean score for covering up error was

moderately high (M = 4.04, SD = 0.70) and higher than the result of a previous study involving part-time students (M = 2.27, SD = 0.69; Rybowiak et al., 1999). In the current study, the covering up error subscale was reverse scored, meaning higher scores on covering up error signify low tendency to cover up error, if one should occur. On the other hand, Rybowiak et al. (1999) did not reverse the scores of covering up error in their study, indicating that lower scores signify low tendency to cover up error when errors occur. Although opposite scaling was used for items in these studies the degree to which nurses and students' intent to covering up error is fairly similar in both.

Additionally, the mean scores for error strain (M = 2.62, SD = 0.84) was slightly higher than in Rybowiak et al.'s (1999) results (M = 2.51, SD = 0.79). In the current study, the error strain subscale was reverse scored, meaning that lower scores on error strain signify strain meaning that the participants do fear the occurrence of error or may express negative emotions when errors occur. On the other hand, Rybowiak et al. (1999) did not reverse the scores of error strain subscale in their study, indicating that lower scores on the subscales signify low strain, if any, and suggest that students do not fear committing errors and they do not show negative emotions when errors occur. Although opposite scaling was used for items in these studies the degree of nurses and students' error strain is fairly similar in both.

In this study, perhaps new graduate nurses are willing to engage in discussion about errors that occur on their units, and they intend to reveal their mistakes but they do fear committing clinical errors and they may show negative emotions when an error occurs. It is possible that these findings reflect positive patient safety climates within new graduate nurses' workplaces. According to affective event theory, employees react

emotionally to events occurring in their workplace, and these reactions strongly affect their work attitudes and behaviours (Weiss & Cropanzano, 1996). In particular, when an individual experiences a positive response to errors from his or her manager and colleagues, his or her reaction to the occurrence of error will be less negative (Rybowiak et al., 1999; Van Dyck et al., 2005). It seems that new graduate nurses who engage in open communication about errors, seek help to rectify an error, and rely on others to help mitigate the consequences of errors are more likely to have positive attitudes toward error reporting (Crigger & Meek, 2007; Lee, Yang, Chen, 2016). One important consequence of a blame-free work environment is that new graduate nurses are not afraid to report errors and less likely to have negative emotions towards the occurrences of errors which subsequently may increase their willingness to report errors. Thus, there is the possibility that new graduate nurses who work on nursing units that promote open communication about errors, are not afraid to reveal errors but they do react with negative emotions when incidents occur. New graduate nurses fear making practice mistakes due to their limited knowledge and skills (Murray et al., 2017). This in turn may influence their attitudes toward error reporting and subsequently influence their willingness to report errors.

5.3 The Hypothesized Model

5.3.1 Hypothesis 1: authentic leadership and personal identification with the leader.

Support was found for the relationship between authentic leadership and new graduate nurses' personal identification with their leader. This finding is consistent with authentic leadership theory and previous research, supporting the notion that authentic leadership can positively influence new graduate nurses' personal identification with the leader. It has been proposed that the authentic leader possesses the ability to base his/her

decision-making on balanced processing, exemplifies high moral perspective, is open in communication with others, and demonstrates self-knowledge and an understanding of how his or her actions affect others (Avolio et al., 2004). By doing so, the authentic leader is more likely to build social relationships with followers that are based on integrity, fairness, and respect (Avolio et al., 2004). The leader subsequently encourages followers to recognize the similarities between their beliefs, values, and goals and those of the leader (Kark et al., 2003) and then further serves as a role model, thereby eliciting personal identification among his or her followers (Avolio et al., 2005). In the current study, authentic leadership was related to personal identification (r = .82), which was stronger than the association between authentic leadership and personal identification of the leader among employees of health care organization (r = .47, Liu et al., 2018). In nursing research, Wong and colleagues' (2010) study showed that authentic leadership was significantly related to nurses' personal identification with the leader. The current study adds to past research and offers empirical support for authentic leadership theory by emphasizing the effect of authentic leadership on followers' personal identification with the leader.

5.3.2 Hypothesis 2: authentic leadership and organizational identification. In the final model, the data showed no significant relationship between authentic leadership and new graduate nurses' organizational identification. This finding was interesting because authentic leadership theory proposes that authentic leaders foster the development of organizational identification among their followers (Avolio et al., 2004). This proposition is also supported by social identity theory, which postulates that the leader-follower relationship is significant in facilitating the development of

organizational identification among employees (Mael &Ashforth, 1998). Our finding is consistent with a previous study by Wong et al. (2010) which also found that authentic leadership only influenced nurses' social identification with the workgroup through personal identification with the leader. Similarly, Dechawatanapaisal (2018) reported that nursing managers who engaged in high-quality exchanges with nurses were likely to stimulate nurses' sense of identification with the organization. Although this hypothesis was based on some prior empirical evidence, this result was not surprising. Newly hired graduate nurses may not spend sufficient time with their managers and/or may not interact with their managers on a daily basis and thus, experience fewer opportunities to develop attachment with the organization. According to Wong et al. (2010) regular contact with and visibility of the nursing manager are two important factors strengthen the effects of the manager's authentic leadership behaviours in triggering identification among nurses. Because that the relationship between authentic leadership and organizational identification has not been widely explored, future research examining the direct influence of authentic leadership on new graduate nurses' organizational identification may offer further insight into how the leadership processes and organizational identification evolve over time.

5.3.3 Hypothesis 3: personal identification mediates the relationship between authentic leadership and organizational identification. The results revealed that there was a significant indirect effect of authentic leadership on organizational identification through personal identification with the leader. This result is inconsistent with authentic leadership theory which proposed that authentic leaders directly influence the development of followers' social identification with a collective, such as the organization

(Avolio et al., 2004). However, previous research has found that leaders may have an indirect influence on followers' social identification, such as organizational identification through their impact on followers' personal identification with the leader (e.g., Kark et al., 2003; Wong et al., 2010). Our results suggest that when the nursing manager demonstrates authentic leadership behaviours, new graduate nurses are likely to discover the congruence between their beliefs and values and those of their manager through their degree of personal identification with their manager. Subsequently, this process contributes to identification with the organization. Therefore, personal identification with the leader is a key mechanism through which authentic leaders influence new graduate nurses' organizational identification.

5.3.4 Hypothesis 4: personal identification and trust in the manager. As hypothesized, personal identification with the manager was shown to be positively and significantly related to trust in the manager. This result adds to the evidence indicating that followers who personally identify with their authentic leader have an increased tendency to trust their leader (Avolio et al., 2004). Specifically, followers who believe that their leader's words and actions reflect high ethical principles, integrity, and fairness (Dirks & Ferrin, 2002) are willing to accept risk (Mayer, Davis, & Schoorman, 1995). In nursing, only one study has demonstrated the importance of personal identification in engendering trust in the nursing manager among nurses (Wong et al., 2011). Our findings add to the literature by showing that new graduate nurses' decision to trust their manager may be linked to their degree of personal identification with the authentic leadership behvaiours of the manager.

5.3.5 Hypothesis 5: organizational identification and trust in the manager.

Contrary to expectations, new graduate nurses' organizational identification was not significantly associated with trust in the manager. Authentic leaders are more likely to engender trust among their followers because they interact with them in an open and truthful manner (Ilies et al., 2005), leading to increased trust in the leader (Dirks & Ferrin, 2002). Perhaps, it makes sense to expect that during their transition journey, new graduate nurses may focus primarily on building their knowledge and experience. They might come to define themselves in terms of the characteristics they share with the organization over time, as they understand and appreciate what the organization stands for. In addition, the more often new graduate nurses interact with their authentic leader, the more likely it is that they will develop trust in their leader. Our findings are supported by the work of Wong and colleagues (2010). Wong et al. (2010) found that the direct path from nurses' social identification with the work group to trust was not significant. The failure to find a significant relationship between new graduate nurses' organizational identification and trust in the manager suggests the need for more research using longitudinal research designs to assess for the development of trust over time.

5.3.6 Hypothesis 6: trust in the manager and judgment-free environment and job repercussions of error. As expected, significant relationships were found between trust in the manager and judgment-free environment and job repercussions of errors. Our results suggest that the fundamental role trust in the manager plays in creating aspects of a positive patient safety climate. More specifically, leaders have the ability to develop work conditions that put priority on patient safety (Vogus, Sutcliffe, & Weick, 2010). When managers are able to react in a non-punitive manner and de-emphasize blame and

negative consequences for nurses reporting errors, managers are more likely to engender trust among nurses (Auer et al., 2014). As a result, nurses are more likely to perceive clinical incidents as learning opportunities and strive to prevent their reoccurrence in the future (Auer et al., 2014). Additionally, managers who exemplify their commitment to patient safety, acknowledge and discuss errors so their reoccurrence can be prevented (Thompson et al., 2011). They encourage staff to identify patient safety threats by openly communicating their beliefs and values about patient safety, and act in accordance with these beliefs and values (Auer et al., 2014). Therefore, managers strengthen staff members' trust in them by creating a non-punitive and blame-free work environment. This result is in line with a past study that lent support to the positive link between trust in management and nurses' perceptions of patient safety climate (Auer et al., 2014).

5.3.7 Hypothesis 7: judgment-free environment and error communication, error strain and covering up error. Partial support for hypothesis 7 was found. Specifically, a significant positive relationship was found between judgment-free environment and error communication. Surprisingly, the relationships between judgment-free environment and error strain and covering up error were not significant. Additionally, the correlation between judgment-free environment and error strain was non-significant.

The significant relationship between judgment-free environment and error communication is similar to Munn's (2016) finding that nurses who believe that their units have strong leader support for safety, manage errors appropriately, and focus on learning from mistakes are more likely to communicate incidents occurring in their unit. Farnese et al. (2019) also found that nursing managers who exhibited authentic leadership

behaviours created a work environment that placed priority on identifying and recovering from errors by facilitating open communication, seeking help from others, and learning from incidents. In this work environment, nurses perceived that the occurrence of care slips and errors decreased (Farnese et al., 2019). Additionally, nurses' positive attitudes toward errors were associated with their medication error communication behaviours (Unver et al., 2012). Thus, if the nursing unit is perceived to have a judgment-free environment, new graduate nurses may feel free to discuss errors with their managers and colleagues in order to learn from errors and prevent their reoccurrence.

The lack of significant relationships between judgment-free environment and error strain and covering up errors is contrary to past studies that found support for these relationships (Crigger, 2005; Crigger & Meek, 2007; Johnstone & Kanitsaki 2006; Kingston et al., 2004). The findings may be explained by the decreased visibility of frontline managers because of managers' large span of control (Wong et. al., 2010), which may limit their daily interactions with new graduate nurses. The lack of manager's visibility may limit his/her influence on new graduate nurses perceptions of their work environment. Another possible explanation is that new graduate nurses in the current study had a short tenure on their units which may have influenced their views about the unit work environment. Tenure, the length of time a nurse has worked on a specific nursing unit, is a key factor in acquiring knowledge and skills that are specific to a particular unit or team in which a nurse may work (Munn, 2016). Additionally, the longer nurses work on their unit, the more likely they are to develop stronger relationships with their colleagues (Meyer, 2014). In the current study, the majority of new graduate nurses worked on their current unit for 1.66 (*SD* = 1.04) years. It is possible that new graduate

nurses' short tenure on their unit may have influence on the depth of their knowledge about their work environment as well as the strength of relationships new graduate nurses have with their colleagues, which in turn may influence their perceptions of their work environment.

5.3.8 Hypothesis 8: job repercussions of error and error communication, error strain and covering up error. Partial support was found for hypothesis 8 because job repercussions of error was positively and significantly associated with covering up error. However, non-significant relationships were found between job repercussions of error and both error communication and error strain. In addition, job repercussions had weak significant correlations with error communication, error strain, and covering up errors.

The findings from this study demonstrated that new graduate nurses' perceptions of non-punitive responses toward errors in their unit positively predicted the extent to which they intend to reveal an error if one should occur. This finding is consistent with prior research that demonstrated a positive relationship between overall patient safety climate at the unit level and the intention to reveal errors (Hofmann & Mark, 2006; Munn, 2016). Thus, if the work environment is perceived to promote non-punitive and blame-free responses to safety threats, new graduate nurses are more likely to reveal errors.

Although significant relationships between job repercussions of error and error communication were shown in previous studies involving experienced nurses (Drake, 2016; Hung, Lee, Liang, & Chu, 2016; Lin & Ma, 2009; Munn, 2016; Pfeiffer et al., 2010), these relationships were not supported in the current study. The findings may be

explained by the fact that new graduate nurses have the fear of making practice mistakes despite their manager and colleagues' positive response to errors (Murray et al., 2017). In Murray and colleagues' (2017) study, some new graduate nurses experienced internal conflict to ask for help and struggled to speak up when witnessing experienced nurses delivering care that did not follow patient safety practices. It may be inferred that as new graduate nurses move into practice, their fear of making errors is heightened and their ability to speak up or seek help are may not be related to how errors viewed in their unit.

5.3.9 Indirect effects. In this section, a description of the indirect effects is presented to provide a better understanding of the relationships among the variables in the revised hypothesized model. Indirect effects indicate the effect a variable has on another through a specific pathway (Read, 2016). Authentic leadership was found to have an indirect effect on error communication (through personal identification, trust in the manager, and judgment-free environment) and covering up errors (through personal identification, trust in the manager, and job repercussions of error). Authentic leadership was also found to have an indirect effect on both judgment-free environment and job repercussions of error (through personal identification, and trust in the manager), and trust (through personal identification). Our results reinforce the importance of the indirect mechanisms by which the leader influences positive outcomes. The results highlight the importance of personal identification in strengthening the influence of authentic leadership on new graduate nurses' perceptions of error communication, covering up errors, judgement-free environment, job repercussions of error and trust in the manager. Additionally, trust in the manager is another process used by authentic leaders to exert their influence on new graduate nurses' attitudes towards error reporting and views of

their work environment. The findings align with Wong and colleagues' (2013) systematic review finding, which demonstrated that relational leadership styles, such as authentic leadership, indirectly contribute to nurse and patient outcomes through several processes that improve the work environment and nurses' attitudes and behaviours.

The finding from this study demonstrated that personal identification had indirect effects on error communication (through trust in the manager, and judgment-free environment), and covering up errors (through trust in the manager, and job repercussions of error). Additionally, personal identification had an indirect effect on judgment-free environment and job repercussions of error (through trust in the manager). These findings suggest that personal identification with the leader is an important mechanism through which personal identification with the leader impacts new graduate nurses' trust in the manager and their perception of positive safety climate. These findings also contribute to the body of identification literature (e.g., Kark et al., 2003; Kark & Shamir, 2002; Wong et al., 2010) by showing that personal identification could have indirect effects on follower outcomes.

Finally, trust in the manager was found to have an indirect effect on error communication (through judgment-free environment). This finding shows that trust in the manager is an important factor in creating a work environment that facilitates open and safe discussions about errors, which may contribute positively to new graduate nurses' attitudes toward error reporting. This finding lends additional support to previous research findings (e.g., Auer et al, 2014; Cox, Jones, & Collinson, 2006) that showed when trust in the manager is established, followers perceive their work environment to

have a strong safety climate, which subsequently improves their communication about errors and increases their commitment toward safety and continuous improvement.

5.4 Implications

5.4.1 Implications for theory. The findings of this study have four theoretical implications. First, the study's findings provided empirical supports for several of the propositions outlined in authentic leadership theory (Avolio et al., 2004). More specifically, we found that authentic leadership is positively associated with new graduate nurses' personal identification with the leader, which in turn mediated the relationship between authentic leadership and organizational identification and trust in the leader. In addition, results suggested that trust in the manager was positively related to new graduate nurses' perceptions of specific dimensions of patient safety climate, judgment-free environment and job repercussions of error, which subsequently influenced their attitudes towards error reporting.

Second, the findings of this study advance our understanding of social identity theory through examining the influence of authentic leadership on organizational identification through personal identification with the leader. Ashforth and Mael (1989) concluded that the development of employees' social identification is not solely influenced by the organization but also from the type of interaction they have with other group members. Findings may suggest that for organizational identification to take place, new graduate nurses' need first to identify the similarities between their values, beliefs and goals and those of the authentic leader. Then, new graduate nurses perceive the match between authentic leaders behaviours and the organization's mission, norms and values, which subsequently leads them to identify with the organization.

Third, this study also extends the large body of research on identification, by examining the influence of identification on trust in the manager among new graduate nurses. In nursing, there has been little evidence to support the relationship between personal identification in the manager and trust in that manager. Additionally, findings from this study suggest that personal identification with the leader is a possible mechanism by which authentic leaders may influence new graduate nurses' trust in the manager and specific dimensions of patient safety climate, judgment-free environment and job repercussion. Additionally, it also appears that authentic leaders may indirectly influence new graduate nurses' attitudes towards error reporting by strengthening their personal identification with the leader.

Fourth, the current study contributes to the growing body of empirical evidence showing the relationship between trust in the manager and nurses' perceptions of patient safety climate in their unit (Auer et al, 2014; Cox, Jones, & Collinson, 2006). More specifically, this study examined the influence of trust in the manager on new graduate nurses' views of specific dimensions of patient safety climate, judgment-free environment and job repercussions of error. Our findings suggest that trust in the manager is a key factor in influencing new graduate nurses' perceptions of their work environment. More specifically, when managers' actions reflect their commitment to patient safety by focusing on nurses' concerns regarding safety, taking actions on safety issues, and using reported incidents as learning opportunities, they are more likely to foster new graduate nurses' trust in them, which enhances new graduate nurses' perceptions of patient safety climate in their units (Auer et al, 2014).

5.4.2 Implications for leadership practice. The findings from this study suggest various strategies that healthcare organizations can implement to improve the work culture and ultimately delivery better and safer patient care. Specifically, the results showed that authentic leadership behaviours were related to new graduate nurses' personal identification with the leader, which subsequently influenced new graduate nurses' organizational identification as well as their trust in the manager. Authentic leadership scholars have suggested that the development of authentic leadership is an important approach to achieving desirable outcomes (Avolio & Gardner, 2005). Investing in a structured, professional leadership-training and development program focused on building authentic leadership dimensions among nursing managers must be a priority for healthcare organizations (Laschinger et al., 2012). Self-awareness is one of the core components of authentic leadership (Gardner et al. 2005). Additionally, self-knowledge (knowledge about one's personal characteristics and values) and self-consistency (consistency between one's value and actions) were found to be two key antecedents of perceived authentic leadership (Peus, Wesche, Streicher, Braun, & Frey, 2012). Therefore, the development of self-awareness, self-knowledge, and self-consistency skills should be included in the authentic leadership programs.

Recently, Frasier (2019) designed and pilot tested a leadership program that focused on building authentic leadership, with an emphasis on increasing managers' self-awareness and self-regulation. The program included learning sessions coupled with reflective techniques and peer support. The author found a significant increase in authentic leadership behaviours demonstrated in both nursing managers' self-rated and nurses' direct-report assessments. Furthermore, Baron (2016) demonstrated that a

leadership development program that is created based on the action learning principle could foster the development of authentic leadership behaviours among managers. The training program was delivered over three years and consisted of lessons on authentic leadership theory and applying leadership skills to real projects, activities, and experiments. These studies highlight the importance of investing in authentic leadership development programs.

Personal identification with the leader appears to be an essential mechanism by which authentic leaders influence new graduate nurses. Specifically, the results of the current study demonstrated that when determining how to influence new graduate nurses' organizational identification, managers should consider triggering new graduate nurses' personal identification with the leader. Managers can strengthen new graduate nurses' personal identification with the leader by being accessible, defining roles and expectations, exhibiting openness and transparency, encouraging alternative ways of thinking and doing, and using mistakes as learning opportunities (Ashforth, Schinoff, & Roger, 2016). In addition, organizations may find it beneficial to assess the ability of managers to influence staff members' personal identification with the leader. To strengthen new graduate nurses' personal identification with the leader, managers should exhibit authentic leadership behaviours and act as role models. Managers' ability to engender and maintain personal identification with their followers should become a focus of managers' competency assessments and performance appraisals.

Another important finding of this study is the ability of authentic leaders to engender trust among new graduate nurses through personal identification. Authentic leadership theory indicates that when a leader's actions reflect high moral standards, self-

awareness, balanced processing of information, transparency, integrity, fairness and honesty, they have the potential to engender trust among followers (Avolio et al., 2004; Gardner et al., 2005). When managers exhibit authentic leadership characteristics, they role model these behaviours as norms and expectations from each staff. This is likely to build and maintain trust in the manager among nurses (Avolio et al., 2004; Gardner et al., 2005). Therefore, organizations can increase new graduate nurses' trust in their manager through training programs (Wilson, 2012).

In the current study, positive perceptions of judgment-free environment and non-punitive responses to errors were linked to positive attitudes toward errors. When recruiting and selecting individuals for leadership positions, organizations should invest in a leadership orientation program (Wilson, 2012) that provides not only knowledge and skills related to their organization function, but also the skills necessary for managing relationships and influencing behaviours. In particular, by learning to incorporate positive and constructive responses toward errors in everyday practices, managers may be best equipped to enhance staff's perceptions toward errors.

Our findings indicated a positive relationship between judgment-free environment and error communication, and job repercussions of error and covering up errors. This may suggest that in order to positively influence new graduate nurses' attitudes toward errors, efforts should be focused on creating a work environment that encourages positive conversations regarding incidents and what actions that could have been taken to prevent their occurrence (Munn, 2016; Vogus & Sutcliffe, 2007b). Managers should actively engage staff in decision-making regarding safety issues, consider nurses' suggestions to

improve patient safety, and promote the positive benefits of error reporting through non-punitive approach toward incidents (Thompson et al., 2011).

5.4.3 Implications for nursing education. Results from this study may guide nurse educators in providing formal education regarding patient safety and subsequently influence nursing students' attitudes and behaviours towards error reporting. Nursing students should be encouraged to discuss incidents that occurred during their clinical placement and simulation exercises. The discussion should focus on understanding the cause of errors, the correct actions nursing student need to take to manage errors including reporting it. Thus, encouraging nursing students to develop positive attitudes and behaviours towards error reporting. Additionally, the study findings suggested that work environment that is perceived to have judgment-free and non-punitive responses towards error reporting are important for new graduate nurses to engage in error communication and reveal errors. Therefore, the characteristics of leaders and the work environments that place priority on positive responses toward error reporting could be incorporated into theory-based courses and clinical placements.

5.5 Limitations

The current study has several limitations that must be acknowledged. The first major limitation is the use of a cross-sectional design where study variables were measured at one point in time, which limits casual inferences (Levin, 2006; Polit & Beck, 2012). However, the theoretical base for study hypotheses and covariation among study variables provide some explanatory importance to findings (Polit & Beck, 2012).

The study was also limited by selection sample bias. Although a random sample was obtained from the CNO, not every new graduate nurse working in an acute care

setting across Ontario had an equal chance of being selected for the sampling frame (Wilson, 2012). Two reasons led to this bias: (1) random names were selected from a list of registered new graduate nurses who provided their consent to the CNO to participate in research; and (2) only new graduate nurses who provided the CNO with their current mailing address were able to receive the survey packages if they were randomly selected. It is difficult to conclude whether new graduate nurses who were included in the sample were different from those who refuse to give their consent to participate in research or those who did not participate. Therefore, the inference from this study may not necessarily be generalized to all new graduate nurses working in acute care sittings across Ontario.

A poor response rate (15.8%) for completed surveys and small sample size limits the generalizability of study findings. Comparison of the study sample characteristics with 2016 new graduate statistics from the Ontario College of Nurses showed some differences limiting representativeness. The average age of the sample was slightly older (27.16 years) than the average age of new graduate nurses in Ontario (26.3; CNO, 2016). Additionally, 48.6% of all new graduate nurses in Ontario worked part-time, while 42.5% worked full-time (CNO, 2016), while approximately 64% and 34.7% of the current sample was employed in full-time and part-time positions respectively.

Additionally, the relatively small sample size restricted examining other dimensions of patient safety climate that were included in the CAN-PSCS and only two subscales (judgment-free environment and job repercussions of error) were included in the analyses. The low sample size also prevented modeling judgment-free environment and job repercussions of error as latent variables in the analysis of the structural model.

Therefore, a partially latent structural regression model was used to test the hypothesized model.

The use of self-reported measures may increase response bias, and more specifically, social desirability. Social desirability occurs when participants deny socially unfavorable traits or behaviors and claim socially favorable ones (Nederho, 1985). To reduce response bias, new graduate nurses were assured in the letter of information that their data will remain confidential, and that a code would be assigned for each survey and no personal information would be disclosed in the survey. Additionally, mailing the survey packages to participants' homes increased the confidence that they would complete the questionnaire in private without the influence of their colleagues (Patrick, 2010, Podsakoff & Organ, 1986).

Common method variance (CMV) is a possible limitation associated with self-reported surveys (Polit & Beck, 2012). When self-report questionnaires are used to collect data at the same time from the same participants there is an increased risk for CMV. Podsakoff, MacKenzie, and Podsakoff (2012) explained that procedures to control CMV might not be effective in studies that assess participants' perceptions about a phenomenon. More specifically, the aim of the present study was to assess new graduate nurses' perceptions of their manager's authentic leadership behaviors, personal identification with the leader, organizational identification, trust in the leader, climate factors of judgment-free environment and job repercussions of error, error communication, error strain, and covering up error. It would have been impossible to obtain this information from different sources, such as colleagues or managers. This study followed Spector's (2006) recommendation to use well-designed, validated, multi-

item psychometric measures to minimize potential CMV biases. Additionally, different response anchors were used across measured constructs to reduce any potential CMV bias (Barden, Steensma, & Lyles, 2005).

5.6 Suggestions for Further Research

Based on the results of the present study, several potential avenues for research are identified. Previous studies have found support for the direct relationships between authentic leadership and organizational identification, and organizational identification and trust in the manager. The current study did not find significant relationships among these variables. As mentioned previously, the low response rate in the current study may have influenced the results; therefore, future studies could replicate this study with a larger sample.

Additional research is needed to examine new graduate nurses' actual error reporting behaviours that may expand our understanding about patient safety culture in healthcare organizations (Vogus & Sutcliff, 2007b). A previous study found that nurses' error reporting attitudes was linked to their error reporting intention, which ultimately contributed to their actual error reporting behaviours (Hung, Chu, Lee, & Hsiao, 2016). Future research should investigate the link between new graduate nurses' attitudes toward error reporting and their intention to report errors and combine that with information about the total number of incidents that are formally reported.

Studies employing qualitative research methods are also needed to provide a deeper exploration of safety climate, leadership practices and new graduate nurses' error reporting attitudes and behaviours. Similar methods could be applied to examine new graduate nurses' experience with error reporting, which may be beneficial in determining

motivators and barriers associated with error reporting. Future research could also consider a longitudinal research design to examine the causal association between authentic leadership and outcomes (Alilyyani, Wong, & Cummings, 2018; Wong & Walsh, 2019). A longitudinal study would more appropriately examine the role of authentic leaders in influencing new graduate nurses' attitudes toward error reporting over a long period of time. Additionally, how authentic leaders exert their influence on new graduate nurses' personal identification with the leader, organizational identification, trust in the manager and patient safety climate should be investigated using a temporal component. Future research should also consider employing longitudinal designs to assess the development of trust in the manager among new graduate nurses.

It would be interesting to explore the effects of authentic leaders, organizational identification, trust in the manager and patient safety climate on new graduate nurses' attitudes towards error reporting from various perspectives, such as the frontline manager's perspective. New graduate nurses are the best group to rate their own perceptions of their managers' leadership practices, organizational identification, willingness to be vulnerable to their manager, and patient safety climate. However, nursing managers can provide additional information regarding patient safety climate and new graduate nurses' error reporting attitudes. In addition, studies examining authentic leadership and new graduate nurses' attitudes towards error reporting should also include the perspective of patients and their families on how safe they consider the care they receive to be.

Additional research is needed to broaden our understanding on how authentic leaders influence new graduate nurses work-related attitudes and behaviours. For

example, evidence of other possible mechanisms by which authentic leaders affect new graduate nurses' error reporting attitudes and behaviour is required. Further studies on the influence of authentic leadership on new graduate nurses who are providing direct patient care in a variety of clinical sittings, such as community and long-term care are strongly recommended.

5.7 Conclusion

The current research has broadened our understanding of the link between authentic leadership and new graduate nurses' willingness to report errors. The results suggested that authentic leadership is a significant factor influencing new graduate nurses' personal identification with the leader, which in turn had a positive effect on their organizational identification and trust in the manager. The finding also suggested that trust in the manager influenced new graduate nurses' perceptions of two components of patient safety climate: judgment-free environment and job repercussion of error. This finding demonstrates that engendering trust in the manager in new graduate nurses plays a vital role in improving their views of the safety climate in their work environment. The results suggested that judgment-free environment influenced new graduate nurses' error communication and job repercussions of error influenced their tendency to reveal errors if they occur. Additionally, the results supported the mediating effects of personal identification with the leader upon the relationship between authentic leadership and organizational identification. This finding supports the notion that personal identification with the leader is a valuable mechanism by which authentic leaders influence new graduate nurses' work attitudes and behaviours.

Although several limitations were presented, the results of this study have important implication for theory, leadership practices, and nursing education. Findings of the study provide directions for future research that may build on current knowledge about the effects of authentic leadership on new graduate nurses' work environment as well as their work-related attitudes and behaviours.

References

Akerjordet, K., & Severinsson, E. (2008). Emotionally intelligent nurse leadership: A literature review study. *Journal of Nursing Management, 16*(5), 565-577. doi:10.1111/j.1365-2834.2008.00893.x

Alilyyani, B., Wong, C. A., & Cummings, G. (2018). Antecedents, mediators, and outcomes of authentic leadership in healthcare: A systematic review. *International Journal of Nursing Studies, 83*, 34-64. doi:10.1016/j.ijnurstu.2018.04.001

Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of Occupational Psychology, 63*, 1-18. doi: 10.2307/256294.

Allison, P. D. (2003). Missing data techniques for structural equation modeling. *Journal of abnormal psychology*, *112*(4), 545. doi:1 0.1037/0021-843X.112.4.545

Almutary, H. H., & Lewis, P. A. (2012). Nurses' willingness to report medication administration errors in Saudi Arabia. *Quality Management in Healthcare, 21*(3), 119-126. doi: 10.1097/QMH.0b013e31825e86c8

Ashforth, B. E., Harrison, S. H., & Corley, K. G. (2008). Identifications in organizations: An examination of four fundamental questions. *Journal of Management, 34*(3), 325-374. doi:10.1177/0149206308316059.

Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review, 14*(1), 20-39. Doi: 10.5465/AMR.1989.4278999.

Ashforth, B. E., Schinoff, B. S., & Rogers, K. M. (2016). "I identify with her,""I identify with him": Unpacking the dynamics of personal identification in organizations. *Academy of Management Review*, *41*(1), 28-60. doi: 10.5465/amr.2014.0033

Auer, C., Schwendimann, R., Koch, R., De Geest, S., & Ausserhofer, D. (2014). How hospital leaders contribute to patient safety through the development of trust. *Journal of Nursing Administration*, *44*(1), 23-29. doi:10.1097/NNA.0000000000000017

Avolio, B. J., & Bass, B. M. (1995). Individual consideration viewed at multiple levels of analysis: A multi-level framework for examining the diffusion of transformational leadership. *The Leadership Quarterly, 6*(2), 199-218. doi: 10.1016/1048-9843(95)90035-7

Avolio, B. J., & Gardner, W. L. (2005). Authentic leadership development: Getting to the root of positive forms of leadership. *The Leadership Quarterly, 16*(3), 315-338. doi:10.1016/j.leaqua.2005.03.001.

Avolio, B. J., Gardner, W. L., Walumbwa, F. O., Luthans, F., & May, D. R. (2004). Unlocking the mask: A look at the process by which authentic leaders impact follower attitudes and behaviors. *The Leadership Quarterly, 15*(6), 801-823. doi:10.1016/j.leaqua.2004.09.003.

Avolio, B. J., & Luthans, F. (2006). The high impact leader: moments matter in accelerating authentic leadership development. New York, NY: McGraw-Hill.

Avolio, B. J., & Walumbwa, F. O. (2006). Authentic leadership: Moving HR leaders to a higher level, 273-304. Emerald Group Publishing Limited. doi:10.1016/S07427301(06)25007-2

Bae, S., Mark, B., & Fried, B. (2010). Impact of nursing unit turnover on patient outcomes in hospitals. *Journal of Nursing Scholarship : An Official Publication of Sigma Theta Tau International Honor Society of Nursing / Sigma Theta Tau, 42*(1), 40-49. doi:10.1111/j.1547-5069.2009.01319.x

Baernholdt, M., & Mark, B. A. (2009). The nurse work environment, job satisfaction and turnover rates in rural and urban nursing units. *Journal of Nursing Management, 17*(8), 994-1001. doi:10.1111/j.1365-2834.2009.01027.x

Bandalos, D. L. (2002). The effects of item parceling on goodness-of-fit and parameter estimate bias in structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal, 9*(1), 78-102. doi:10.1207/S15328007SEM0901_5

Barach, P., & Small, S. D. (2000). Reporting and preventing medical mishaps: lessons from non-medical near miss reporting systems. *British Medical Journal, 320*(7237), 759. doi: 10.1016/S1553-7250(08)34068-9

Barden, J. Q., Steensma, H. K., & Lyles, M. A. (2005). The influence of parent control structure on parent conflict in vietnamese international joint ventures: An organizational justice-based contingency approach. *Journal of International Business Studies, 36*(2), 156-174. doi:10.1057/palgrave.jibs.8400121

Baron, L. (2016). Authentic leadership and mindfulness development through action learning. *Journal of Managerial Psychology, 31*(1), 296-311. doi:10.1108/JMP-04-2014-0135

Bartel, C. A. (2001). Social comparisons in boundary-spanning work: Effects of community outreach on members' organizational identity and identification. *Administrative Science Quarterly*, *46*(3), 379-413. doi:10.2307/3094869.

Bass, B. M. (1985). Leadership: Good, better, best. *Organizational Dynamics, 13*(3), 26-40. doi:10.1016/0090-2616(85)90028-2

Benn, J., Koutantji, M., Wallace, L., Spurgeon, P., Rejman, M., Healey, A., & Vincent, C. (2009). Feedback from incident reporting: information and action to improve patient safety. *Quality and Safety in Health Care, 18*(1), 11-21. doi: 10.1136/qshc.2007.024166

Benner, P. (1984). *From novice to expert: Excellence and power in clinical nursing practice*. Menlo Park, CA: Addison-Wesley.

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*(3), 588. Doi: 10.1037/0033-2909.88.3.588

Berkow, S., Virkstis, K., Stewart, J., & Conway, L. (2008). Assessing new graduate nurse performance. *The Journal of Nursing Administration, 38*(11), 468-474. doi:10.1097/01.NNA.0000339477.50219.06

Beyer, J. M., & Hannah, D. R. (2002). Building on the past: Enacting established personal identities in a new work setting. *Organization Science, 13*(6), 636-652.doi: 10.1287/orsc.13.6.636.495

Bierly, P. E., & Spender, J. C. (1995). Culture and high reliability organizations: The case of the nuclear submarine. *Journal of Management, 21*(4), 639-656. doi: 10.1016/0149-2063(95)90003-9

Birkeland Nielsen, M., Eid, J., Mearns, K., & Larsson, G. (2013). Authentic leadership and its relationship with risk perception and safety climate. *Leadership & Organization Development Journal, 34*(4), 308-325. doi: 10.1108/LODJ-07-2011-0065

Blau, P. M. (1964). *Exchange and power in social life.* New York: Wiley.

Blegen, M. A., Goode, C. J., Park, S. H., Vaughn, T., & Spetz, J. (2013). Baccalaureate education in nursing and patient outcomes. *Journal of Nursing Administration, 43*(2), 89-94. doi: 10.1097/NNA.0b013e31827f2028

Blegen, M. A., Vaughn, T. E., & Goode, C. J. (2001). Nurse experience and education: Effect on quality of care. *JONA: The Journal of Nursing Administration, 31*(1), 33-39. doi:10.1097/00005110-200101000-00007

Bollen, K. A. (1990). Overall fit in covariance structure models: Two types of sample size effects. *Psychological Bulletin, 107*(2), 256-259. doi:10.1037/0033-2909.107.2.256

Borsci, S., Federici, S., & Lauriola, M. (2009). On the dimensionality of the system usability scale: A test of alternative measurement models. *Cognitive Processing, 10*(3), 193-197. doi:10.1007/s10339-009-0268-9

Boston-Fleischhauer, C. (2008). Enhancing healthcare process design with human factors engineering and reliability science, part 2: Applying the knowledge to clinical documentation systems. *The Journal of Nursing Administration, 38*(2), 84-89. doi:10.1097/01.NNA.0000295637.03216.26

Boychuk-Duchscher, J. B. (2008). A process of becoming: The stages of new nursing graduate professional role transition. *Journal of Continuing Education in Nursing, 39*(10), 441-450. doi:10.3928/00220124-20081001-03

Brewer, M. B. (1981). Ethnocentrism and its role in interpersonal trust. In D. T. Campbell, D. T., Brewer M. B. & Collins E. B. (Eds), *Scientific inquiry and the social sciences: A volume in honor of donald T. campbell* (pp. 214-231). San Francisco: Jossey-Bass.

Buhi, E. R., Goodson, P., & Neilands, T. B. (2008). Out of sight, not out of mind: Strategies for handling missing data. *American Journal of Health Behavior, 32*(1), 83. doi:10.5993/AJHB.32.1.8

Burke, C. S., Sims, D. E., Lazzara, E. H., & Salas, E. (2007). Trust in leadership: A multi-level review and integration. *The Leadership Quarterly, 18*(6), 606-632. doi: 10.1016/j.leaqua.2007.09.006

Butler, B. S., & Gray, P. H. (2006). Reliability, mindfulness, and information systems. *Management Information System Quarterly*, 211-224. Retrieved from: http://www.jstor.org/stable/25148728

Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications and programming.* Mahwah, NJ: Lawrence Erlbaum

Byrne, B. M. (2013). *Structural equation modeling with EQS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum

Caldwell, C., & Hayes, L. A. (2007). Leadership, trustworthiness, and the mediating lens. *Journal of Management development*, *26*(3), 261-281. doi: 10.1108/02621710710732155.

Cameron, K. S., Dutton, J. E., & Quinn, R. E. (2003). *Positive organizational scholarship: Foundations of a new discipline*. San Francisco, CA: Berrett-Koehler.

Canadian Institute for Health Information (2016). *Measuring patient harm in Canadian hospitals.* (978-1-77109-515-0) Retrieved from Canadian Institute for Health Information: https://secure.cihi.ca/free_products/cihi_cpsi_hospital_harm_en.pdf

Cannon, M. D., & Edmondson, A. C. (2001). Confronting failure: Antecedents and consequences of shared beliefs about failure in organizational work groups. *Journal of Organizational Behavior*, *22*(2), 161-177. doi: 10.1002/job.85

Carmeli, A., Atwater, L., & Levi, A. (2011). How leadership enhances employees' knowledge sharing: The intervening roles of relational and organizational identification. *The Journal of Technology Transfer*, *36*(3), 257-274. doi:10.1007/s10961-010-9154-y

Carmeli, A., Brueller, D., & Dutton, J. E. (2009). Learning behaviours in the workplace: The role of high-quality interpersonal relationships and psychological safety. *Systems Research and Behavioral Science*, *26*(1), 81-98. doi: 10.1002/sres.932

Carmeli, A., Cohen-Meitar, R. A. V. I. T., & Elizur, D. (2007). The role of job challenge and organizational identification in enhancing creative behavior among employees in the workplace. *The Journal of Creative Behavior*, *41*(2), 75-90. doi:10.1002/j.2162-6057.2007.tb01282.x

Carroll, J. S., & Rudolph, J. W. (2006). Design of high reliability organizations in health care. *Quality and Safety in Health Care*, *15*(suppl 1), i4-i9. doi: *10.1136/qshc.2005.015867*

Casey, K., Fink, R. R., Krugman, A. M., & Propst, F. J. (2004). The graduate nurse experience. *Journal of Nursing Administration*, *34*(6), 303-311. doi: 10.1097/00005110-200406000-00010

Cattell, R. B., & Burdsal Jr, C. A. (1975). The radial parcel double factoring design: A solution to the item-vs-parcel controversy. *Multivariate Behavioral Research*, *10*(2), 165-179. doi: 10.1207/s15327906mbr1002_3

Chassin, M. R., & Loeb, J. M. (2011). The ongoing quality improvement journey: next stop, high reliability. *Health Affairs*, *30*(4), 559-568. doi: 10.1377/hlthaff.2011.0076

Chen, F., Bollen, K. A., Paxton, P., Curran, P. J., & Kirby, J. B. (2001). Improper solutions in structural equation models: Causes, consequences, and strategies. *Sociological Methods & Research*, *29*(4), 468-508. doi:10.1177/0049124101029004003

Cheney, G. (1983). The rhetoric of identification and the study of organizational communication. *Quarterly Journal of Speech*, *69*(2), 143-158. doi:10.1080/00335638309383643

Cheng, C. Y., Liou, S. R., Tsai, H. M., & Chang, C. H. (2015). Job stress and job satisfaction among new graduate nurses during the first year of employment in

Taiwan. *International Journal of Nursing Practice*, *21*(4), 410-418. doi: 10.1111/ijn.12281

Cho, S. (2001). Nurse staffing and adverse patient outcomes: A systems approach. *Nursing Outlook, 49*(2), 78-85. doi:10.1067/mno.2001.114381

Christianson, M. K., Sutcliffe, K. M., Miller, M. A., & Iwashyna, T. J. (2011). Becoming a high reliability organization. *Critical Care*, *15*(6), 1. doi: 10.1186/cc10360

Chuang, Y. T., Ginsburg, L., & Berta, W. B. (2007). Learning from preventable adverse events in health care organizations: development of a multilevel model of learning and propositions. *Health Care Management Review*, *32*(4), 330-340. doi:10.1097/01.HMR.0000296790.39128.20

Church, A. T., & Burke, P. J. (1994). Exploratory and confirmatory tests of the big five and tellegen's three- and four-dimensional models. *Journal of Personality and Social Psychology*, *66*(1), 93-114. doi:10.1037//0022-3514.66.1.93

Cole, M. S., & Bruch, H. (2006). Organizational identity strength, identification, and commitment and their relationships to turnover intention: does organizational hierarchy matter? *Journal of Organizational Behavior*, *27*(5), 585-605. doi: 10.1002/job.378

College of Nurses of Ontario (2016). *Nursing Exams Report 2016.* Retrieved from: http://www.cno.org/globalassets/2-howweprotectthepublic/statistical-reports/nursing-registration-exams-report-2016.pdf

Colquitt, J. A., Scott, B. A., & LePine, J. A. (2007). Trust, trustworthiness, and trust propensity: A meta-analytic test of their unique relationships with risk taking and job performance. *Journal of Applied Psychology, 92*(4), 909-927. doi:10.1037/0021-9010.92.4.909

Comrey, A. L. & Lee, H. B. (1992). A first course in factor analysis (2nd edition). Hillsdale, NJ: Lawrence Erlbaum Associates.

Conger, J. A., & Kanungo, R. N. (1998). *Charismatic leadership in organizations*. Thousand Oaks, CA: Sage Publications.

Connaway, L. S., & Radford, M. L. (2017). *Research Methods in Library and Information Science* (Sixth ed.). Denver, Colorado: Libraries Unlimited.

Cooper, C. D., Scandura, T. A., & Schriesheim, C. A. (2005). Looking forward but learning from our past: Potential challenges to developing authentic leadership theory and authentic leaders. *The Leadership Quarterly*, *16*(3), 475-493. doi:10.1016/j.leaqua.2005.03.008

Cox, S., Jones, B., & Collinson, D. (2006). Trust relations in High-Reliability organizations. *Risk Analysis, 26*(5), 1123-1138. doi:10.1111/j.1539-6924.2006.00820.x

Coxen, L., Van der Vaart, L., & Stander, M. W. (2016). Authentic leadership and organisational citizenship behaviour in the public health care sector: The role of workplace trust. *SA Journal of Industrial Psychology*, *42*(1), 1-13. doi:10.4102/sajip.v42i1.1364

Crigger, N. J. (2005). Pharmaceutical promotions and conflict of interest in nurse practitioner's decision making: the undiscovered country. *Journal of the American Academy of Nurse Practitioners*, *17*(6), 207-212. doi:10.1111/j.1041-2972.2005.00034.x

Crigger, N. J., & Meek, V. L. (2007). Toward a Theory of Self-Reconciliation Following Mistakes in Nursing Practice. *Journal of Nursing scholarship, 39*(2), 177-183. doi:10.1111/j.1547-5069.2007.00164.x

Cummings, G. G., MacGregor, T., Davey, M., Lee, H., Wong, C. A., Lo, E., ... & Stafford, E. (2010). Leadership styles and outcome patterns for the nursing workforce and work environment: a systematic review. *International Journal of Nursing Studies, 47*(3), 363-385. doi: 10.1016/j.ijnurstu.2009.08.006

Davidson, B. A. (2014). *Examining the relationship between non-cognitive skills and leadership: The influence of hope and grit on transformational leadership behavior.* Retrieved from ProQuest Dissertations Publishing. (Accession No. 3671681).

Denison, D. R. (1996). What is the difference between organizational culture and organizational climate? A native's point of view on a decade of paradigm wars. *Academy of Management Review*, *21*(3), 619-654. doi:10.5465/AMR.1996.9702100310

Dechawatanapaisal, D. (2018). Nurses' turnover intention: The impact of leader-member exchange, organizational identification and job embeddedness. *Journal of Advanced Nursing, 74*(6), 1380-1391. doi:10.1111/jan.13552

DeVellis, R. F. (2012). *Scale development: Theory and applications.* Thousand Oaks, CA: SAGE Publications.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method.* (3rd ed.). Hoboken, NJ: John Wiley & Sons.

Diment, K., & Garrett-Jones, S. (2007). How demographic characteristics affect mode preference in a Postal/Web mixed-mode survey of australian researchers. *Social Science Computer Review, 25*(3), 410-417. doi:10.1177/0894439306295393

Dirik, H. F., & Seren Intepeler, S. (2017). The influence of authentic leadership on safety climate in nursing. *Journal of Nursing Management*. doi: 10.1111/jonm.12480

Dirks, K. T., & Ferrin, D. L. (2002). Trust in Leadership: Meta-analytical findings and implications for research and practice. *Journal of Applied Psychology, 87*(4), 611-628. doi: 10.1037/0021-9010.87.4.611

Donaldson, L. (2000). An organisation with a memory: report of an expert group on learning from adverse events in the NHS. *Norwich, United Kingdom: Stationery Office*.

Drake, D. (2015). *Nurse leader behaviour and patient safety.* Retrieved from ProQuest Dissertations Publishing. (Accession No. 3705594).

Duchscher, J. (2009). Transition shock: the initial stage of role adaptation for newly graduated Registered Nurses. *Journal of Advanced Nursing, 65*(5), 1103–1113. https://doi.org/10.1111/j.1365-2648.2008.04898.x

Dukerich, J. M., Golden, B. R., & Shortell, S. M. (2002). Beauty is in the eye of the beholder: The impact of organizational identification, identity, and image on the cooperative behaviors of physicians. *Administrative Science Quarterly*, *47*(3), 507-533. doi:10.2307/3094849

Dutton, J. E., Dukerich, J. M., & Harquail, C. V. (1994). Organizational images and member identification. *Administrative Science Quarterly*, *39*(2), 239-263. doi: 10.2307/2393235

Ebright, P. R., Urden, L., Patterson, E., & Chalko, B. (2004). Themes surrounding novice nurse near-miss and adverse-event situations. *JONA: The Journal of Nursing Administration, 34*(11), 531-538. doi:10.1097/00005110-200411000-00010

Edwards, M. R. (2005). Organizational identification: A conceptual and operational review. *International journal of management reviews*, *7*(4), 207-230.doi: 10.1111/j.1468-2370.2005.00114.x

Edwards, M. R., & Peccei, R. (2007). Organizational identification: Development and testing of a conceptually grounded measure. *European Journal of Work and Organizational Psychology*, *16*(1), 25-57. doi: 10.1080/13594320601088195

Ellemers, N. (2012). The group self. *Science, 336*(6083), 848-852. doi: 10.1126/science.1220987

Emanuel, L., Berwick, D., Conway, J., Combes, J., Hatlie, M., Leape, L., ... & Walton, M. (2008). What exactly is patient safety? In K. Henriksen, J. B. Battles, M. A.

Keyes, & M. L. Grady (Eds.). *Advances in patient safety: new directions and alternative approaches*. *AHRQ Publication*.

Epitropaki, O., Kark, R., Mainemelis, C., & Lord, R. G. (2017). Leadership and followership identity processes: A multilevel review. *The Leadership Quarterly, 28*(1), 104-129. doi:10.1016/j.leaqua.2016.10.003

Epitropaki, O., & Martin, R. (2005). The moderating role of individual differences in the relation between transformational/transactional leadership perceptions and organizational identification. *The Leadership Quarterly*, *16*(4), 569-589. doi: 10.1016/j.leaqua.2005.06.005

Ericksen, J., & Dyer, L. (2005). Toward a strategic human resource management model of high reliability organization performance. *The International Journal of Human Resource Management, 16*(6), 907-928. doi:10.1080/09585190500120731

Fallatah, F., Laschinger, H. K., Read, E.A. (in press). The effects of authentic leadership, organizational identification, and occupational coping self-efficacy on new graduate nurses' job turnover intentions in Canada. *Nursing Outlook, 65*(2), 172-183. doi:10.1016/j.outlook.2016.11.020

Farag A, Blegen M, Gedney-Lose A, Lose D, Perkhounkova Y. Voluntary Medication Error Reporting by ED Nurses: Examining the Association With Work Environment and Social Capital. *Journal of Emergency Nursing*. 2017;43:246.doi: 10.1016/j.jen.2016.10.015

Farag, A., Lose, D., & Gedney-Lose, A. (2018). Nurses' safety motivation: Examining predictors of nurses' willingness to report medication errors. *Western Journal of Nursing Research,00*(0). doi:10.1177/0193945918815462

Farag, A., Tullai-McGuinness, S., Anthony, M. K., & Burant, C. (2017). Do leadership style, unit climate, and safety climate contribute to safe medication practices? *JONA: The Journal of Nursing Administration, 47*(1), 8-15. doi:10.1097/NNA.0000000000000430

Farnese, M. L., Zaghini, F., Caruso, R., Fida, R., Romagnoli, M., & Sili, A. (2019). Managing care errors in the wards: The contribution of authentic leadership and error management culture. *Leadership & Organization Development Journal, 40*(1), 17-30. doi:10.1108/LODJ-04-2018-0152

Fasolino, T., & Snyder, R. (2012). Linking nurse characteristics, team member effectiveness, practice environment, and medication error incidence. *Journal of Nursing Care Quality, 27*(2), E9-E16. doi:10.1097/NCQ.0b013e318241da17

Flin, R., Mearns, K., O'Connor, P., & Bryden, R. (2000). Measuring safety climate: Identifying the common features. *Safety Science, 34*(1), 177-192. doi:10.1016/S0925-7535(00)00012-6

Flin, R., & Yule, S. (2004). Leadership for safety: industrial experience. *Quality and Safety in Health Care*, *13*(suppl 2), ii45-ii51. doi:10.1136/qshc.2003.009555

Force, M. V., Deering, L., Hubbe, J., Andersen, M., Hagemann, B., Cooper-Hahn, M., & Peters, W. (2006). Effective strategies to increase reporting of medication errors in hospitals. *Journal of Nursing Administration*, *36*(1), 34-41. doi:10.1097/00005110-200601000-00009

Foreman, P., & Whetten, D. A. (2002). Members' identification with multiple-identity organizations. *Organization Science, 13*(6), 618-635. doi: 10.1287/orsc.13.6.618.493

Fox, J. T. (2011). *The impact of personal and organizational identification on the process of teacher trust development within the context of principal authentic leadership.* Retrieved from ProQuest Dissertations Publishing. (Accession No. 3492699).

Frasier, N. (2019). Preparing nurse managers for authentic leadership: A pilot leadership development program. *The Journal of Nursing Administration, 49*(2), 79-85. doi:10.1097/NNA.0000000000000714

Fredrickson, B. L. (2003). The value of positive emotions. *American Scientist, 91*(4), 330. doi:10.1511/2003.26.865

Frederickson, H. G., & LaPorte, T. R. (2002). Airport security, high reliability, and the problem of rationality. *Public Administration Review, 62*(s1), 33-43. doi:10.1111/1540-6210.62.s1.7

Friese, C. R., Earle, C. C., Silber, J. H., & Aiken, L. H. (2010). Hospital characteristics, clinical severity, and outcomes for surgical oncology patients. *Surgery, 147*(5), 602-609. doi:10.1016/j.surg.2009.03.014

Fuchs, S., & Edwards, M. R. (2012). Predicting pro-change behaviour: The role of perceived organisational justice and organisational identification. *Human Resource Management Journal, 22*(1), 39-59. doi:10.1111/j.1748-8583.2011.00167.x

Gardiner, I., & Sheen, J. (2016). Graduate nurse experiences of support: A review. *Nurse Education Today, 40,* 7–12. doi:10.1016/j.nedt.2016.01.016

Gardner, W. L., Avolio, B. J., Luthans, F., May, D. R., & Walumbwa, F. (2005). “Can you see the real me?” A self-based model of authentic leader and follower development. *The Leadership Quarterly*, *16*(3), 343-372. Doi: 0.1016/j.leaqua.2005.03.003

Gardner, W. L., Fischer, D., & Hunt, J. G. J. (2009). Emotional labor and leadership: A threat to authenticity? *The Leadership Quarterly, 20*(3), 466-482. doi: 10.1016/j.leaqua.2009.03.011

Gardner, W. L., & Schermerhorn, J. R., Jr. (2004). Unleashing individual potential: Performance gains through positive organizational behavior and authentic leadership. *Organizational Dynamics, 33*(3), 270. doi: 10.1016/j.orgdyn.2004.06.004

Gerbing, D. W., & Anderson, J. C. (1985). The effects of sampling error and model characteristics on parameter estimation for maximum likelihood confirmatory factor analysis. *Multivariate Behavioral Research, 20*(3), 255-271. doi: 10.1207/s15327906mbr2003_2

Giallonardo, L. M., Wong, C. A., & Iwasiw, C. L. (2010). Authentic leadership of preceptors: Predictor of new graduate nurses' work engagement and job satisfaction. *Journal of Nursing Management, 18*(8), 993-1003. doi:10.1111/j.1365-2834.2010.01126.x

Ginsburg, L. R., Tregunno, D., Norton, P. G., Mitchell, J. I., & Howley, H. (2013). 'Not another safety culture survey': using the Canadian patient safety climate survey (Can-PSCS) to measure provider perceptions of PSC across health settings. *British Medical Journal Quality & Safety, 23*(2), 162-170. doi: 10.1136/bmjqs-2013-002220

Goldman, B. M., & Kernis, M. H. (2002). The role of authenticity in healthy psychological functioning and subjective well-being. *Annals of the American Psychotherapy Association, 5*(6), 18. Retrieve from: http://go.galegroup.com.proxy1.lib.uwo.ca/ps/i.do?p=AONE&u=lond95336&id=GALE|A95844662&v=2.1&it=r&sid=summon&authCount=1

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60*, 549-576. doi: 10.1146/annurev.psych.58.110405.085530

Grewal, R., Cote, J. A., & Baumgartner, H. (2004). Multicollinearity and measurement error in structural equation models: Implications for theory testing. *Marketing Science, 23*(4), 519-529. doi: 10.1287/mksc.1040.0070

Hair, J. F. (2006). *Multivariate data analysis* (6th ed.). Upper Saddle River, N.J: Pearson Prentice Hall.

Halpin, Y., Terry, L., & Curzio, J. (2017). A longitudinal, mixed methods investigation of newly qualified nurses' workplace stressors and stress experiences during transition. *Journal of Advanced Nursing, 73*(11), 2577–2586. doi:10.1111/jan.13344

Harris, M., Loxton, D., Wigginton, B., & Lucke, J. (2015). Recruiting Online: Lessons From a Longitudinal Survey of Contraception and Pregnancy Intentions of Young Australian Women. *American Journal of Epidemiology*, *181*(10), 737–746. doi:10.1093/aje/kwv006

Harter, S. (2002). Authenticity. In C. R. Snyder & S. Lopez (Eds.), Handbook of positive psychology (pp. 382-394). Oxford, United Kingdom: Oxford University Press.

Haslam, S. A., & Ellemers, N. (2005). Social identity in industrial and organizational psychology: Concepts, controversies and contributions. In G. P. Hodgkinson (Ed.), *International review of industrial and organizational psychology* (pp. 39 –118). Chichester, England: Wiley.

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1994). *Emotional contagion*. Cambridge, England: Cambridge University Press.

Heck, R. H., & Thomas, S. L. (2015). *An introduction to multilevel modeling techniques: MLMand SEM approaches using Mplus*. New York: Routledge.

Hewitt, T. A., & Chreim, S. (2015). Fix and forget or fix and report: a qualitative study of tensions at the front line of incident reporting. *British Medical Journal Quality & Safety*, *24*(5), 303-310. doi:10.1136/bmjqs-2014-003279

Hobgood, C., Xie, J., Weiner, B., & Hooker, J. (2004). Error identification, disclosure, and reporting: Practice patterns of three emergency medicine provider types. *Academic Emergency Medicine*, *11*(2), 196-199. doi:10.1111/j.1553-2712.2004.tb01435.x

Hobman, E. V., Jackson, C. J., Jimmieson, N. L., & Martin, R. (2011). The effects of transformational leadership behaviours on follower outcomes: An identity-based analysis. *European Journal of Work and Organizational Psychology*, *20*(4), 553-580. doi: 10.1080/1359432X.2010.490046

Hofmann, D. A., & Mark, B. (2006). An investigation of the relationship between safety climate and medication errors as well as other nurse and patient outcomes. *Personnel Psychology*, *59*(4), 847-869. doi: 10.1111/j.1744-6570.2006.00056.x

Hogg, M. A., & Hains, S. C. (1996). Intergroup relations and group solidarity: Effects of group identification and social beliefs on depersonalized attraction. *Journal of*

Personality and Social Psychology, *70*(2), 295-309. doi: 10.1037/0022-3514.70.2.295

Hogg, M. A., & Terry, D. J. (2000). Social contextual influences on attitude-behaviour correspondence, attitude change, and persusion. In D. J. Terry and M. A. Hogg (Ed.), *Attitudes, behaviour, and social context* (pp. 1-9). Mahwah, NJ: Lawrence Erlbaum.

Hogg, M. A., & Terry, D. J. (2001). *Social Identity Processes in Organizational Contexts.* Philadelphia, PA: Psychology Press.

Hogg, M. A., Terry, D. J., & White, K. M. (1995). A tale of two theories: A critical comparison of identity theory with social identity theory. *Social Psychology Quarterly, 58*(4), 255-269.

Holtz, B. C., & Harold, C. M. (2008). When your boss says no! The effects of leadership style and trust on employee reactions to managerial explanations. *Journal of Occupational and Organizational Psychology*, *81*(4), 777-802. doi: 10.1348/096317907X251569

Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. Retrieved from: http://arrow.dit.ie/cgi/viewcontent.cgi?article=1001&context=buschmanart

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: a Multidisciplinary Journal*, *6*(1), 1-55. doi:10.1080/10705519909540118

Hung, C. C., Chu, T. P., Lee, B. O., & Hsiao, C. C. (2016). Nurses' attitude and intention of medication administration error reporting. *Journal of Clinical Nursing*, *25*(3-4), 445-453. doi: 10.1111/jocn.13071

Hung, C. C., Lee, B. O., Liang, H. F., & Chu, T. P. (2016). Factors influencing nurses' attitudes and intentions toward medication administration error reporting. *Japan Journal of Nursing Science*. *13*(3), 345-354. doi: 10.1111/jjns.12113

Huston, C. (2008). Preparing nurse leaders for 2020. *Journal of Nursing Management*, *16*(8), 905-911. doi: 10.1111/j.1365-2834.2008.00942.x

Iacobucci, D. (2010). Structural equations modeling: Fit indices, sample size, and advanced topics. *Journal of Consumer Psychology*, *20*(1), 90-98. doi:10.1016/j.jcps.2009.09.003

IBM Corp. (2013) IBM SPSS Statistics for Windows 23.0. Armonk: NY: IBM Corp

Ilies, R., Morgeson, F. P., & Nahrgang, J. D. (2005). Authentic leadership and eudaemonic well-being: Understanding leader–follower outcomes. *The Leadership Quarterly, 16*(3), 373-394. doi:10.1016/j.leaqua.2005.03.002

Institute of Medicine (2004). *Keeping Patients Safe*. Washington, DC: National Academy Press.

Institute of Medicine (2010). *The Future of Nursing: Leading Change, Advancing Health*. Retrieved from http://www.nap.edu/catalog.php?record_id=12956

Institute of Medicine (2011). *The Future of Nursing: Focus on Education*. Retrieved from http://www.iom.edu/Reports/2010/The-Future-of-Nursing-Leading-Change-Advancing-Health/Report-Brief-Education.aspx

Jackson, D. L. (2003). Revisiting sample size and number of parameter estimates: Some support for the N: q hypothesis. *Structural Equation Modeling, 10*(1), 128-141. doi: 10.1207/S15328007SEM1001_6

James, J. T. (2013). A new, evidence-based estimate of patient harms associated with hospital care. *Journal of Patient Safety, 9*(3), 122-128. doi: 10.1097/PTS.0b013e3182948a69

Johnson, M. P., Roth, J. W., & Jenkins, P. R. (2011). Evidence-based transition to practice: developing a model for North Carolina. *North Carolina Medical Journal*, *72*(4), 282-284. Retrieved from: http://classic.ncmedicaljournal.com/archives/?72406

Johnstone, M. J., & Kanitsaki, O. (2006). The ethics and practical importance of defining, distinguishing and disclosing nursing errors: a discussion paper. *International Journal of Nursing Studies, 43*(3), 367-376. doi: 10.1016/j.ijnurstu.2005.04.010

Jung, D. I., & Avolio, B. J. (2000). Opening the black box: An experimental investigation of the mediating effects of trust and value congruence on transformational and transactional leadership. *Journal of Organizational Behavior*, 949-964. doi: 10.1002/1099-1379(200012)21:8<949::AID-JOB64>3.0.CO;2-F

Kail, R. V. (2007). Longitudinal evidence that increases in processing speed and working memory enhance children's reasoning. *Psychological Science*, *18*(4), 312-313. Retrieved from: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.848.9399&rep=rep1&type=pdf

Kane-Urrabazo, C. (2006). Management's role in shaping organizational culture. *Journal of Nursing Management, 14*(3), 188-194. doi:10.1111/j.1365-2934.2006.00590.x

Kantar, L. D. (2012). Clinical practice of new nurse graduates in lebanon: Challenges and perspectives through the eyes of preceptors. *The Journal of Continuing Education in Nursing, 43*(11), 518. doi:10.3928/00220124-20120801-62

Kark, R., & Dijk, D. V. (2007). Motivation to lead, motivation to follow: The role of the self-regulatory focus in leadership processes. *The Academy of Management Review, 32*(2), 500-528. doi:10.5465/AMR.2007.24351846

Kark, R., Shamir, B., & Chen, G. (2003). The two faces of transformational leadership: Empowerment and dependency. *Journal of Applied Psychology, 88*(2), 246-255. doi:10.1037/0021-9010.88.2.246

Katz-Navon, T. A. L., Naveh, E., & Stern, Z. (2005). Safety climate in health care organizations: A multidimensional approach. *Academy of Management Journal*, *48*(6), 1075-1089. doi: 0.5465/AMJ.2005.19573110

Kellar, S., & Kelvin, E. A. (2013). Organizing, displaying, and describing data. *Munro's Statistical Methods for Health Care Research.* Philadelphia, PA: Lippincott, Williams, & Wilkins.

Kelman, H. C. (1958). Compliance, identification, and internalization: Three processes of attitude change. *The Journal of Conflict Resolution, 2*(1), 51-60. doi:10.1177/002200275800200106

Kelman, H. C. (1961). Processes of opinion change. *Public Opinion Quarterly, 25*(1), 57-78. doi:10.1086/266996

Kernis, M. H. (2003). Toward a conceptualization of optimal self-esteem. *Psychological Inquiry, 14*(1), 1-26. Retrieved from: http://www.jstor.org.proxy1.lib.uwo.ca/stable/1449033

Kernis, M. H., & Goldman, B. M. (2006). A multicomponent conceptualization of authenticity: Theory and research. In P. Z. Mark (Ed.), Advances in experimental social psychology (Vol. 38, pp. 283-357). San Diego, CA: Academic Press.

Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review, 110*(2), 265-284. doi:10.1037/0033-295X.110.2.265

Kenny, D. A., & McCoach, D. B. (2003). Effect of the number of variables on measures of fit in structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal, 10*(3), 333-351. doi:10.1207/S15328007SEM1003_1

Kenny, D. A., Milan, S., (2012). Handbook of structural equation modeling. In Hoyle, R., D.Kaplan, G. Marcoulides, & S. West (Eds), *Identification: a nontechnical discussion of a technical issue*. New York : Guilford Press.

Kim, J., An, K., Kim, M. K., & Yoon, S. H. (2007). Nurses' perception of error reporting and patient safety culture in Korea. *Western Journal of Nursing Research, 29*(7), 827-844. doi:10.1177/0193945906297370

Kingston, M. J., Evans, S. M., Smith, B. J., & Berry, J. G. (2004). Attitudes of doctors and nurses towards incident reporting: a qualitative analysis. *Medical Journal of Australia,181,* 36-39. Retrieved from: https://www.mja.com.au/journal/2004/181/1/attitudes-doctors-and-nurses-towards-incident-reporting-qualitative-analysis

Kirch, D. G., & Boysen, P. G. (2010). Changing the culture in medical education to teach patient safety. *Health Affairs (Project Hope), 29*(9), 1600-1604. doi:10.1377/hlthaff.2010.0776

Kishton, J. M., & Widaman, K. F. (1994). Unidimensional versus domain representative parceling of questionnaire items: An empirical example. *Educational and Psychological Measurement, 54*(3), 757-765. doi:10.1177/0013164494054003022

Kline, R. B. (2011). *Principles and practice of structural equation modeling*. (3rd ed.). New York, NY: The Guilford Press

Kline, R. B. (2015). *Principles and practice of structural equation modeling*. (4th ed.). New York, NY: The Guilford Press

Kline, R. B. (2016). *Methodology in the social sciences. Principles and practice of structural equation modeling (4th ed.).* New York, NY: Guilford Press.

Kohn, L. T., Corrigan, J., & Donaldson, M. S. (2000). *To err is human: Building a safer health system*. Washington, DC: National Academy Press

Kramer, M. (1985). Why does reality shock continue? J. C. McCloskey and H. K. Grace (Eds.), *Current Issues in Nursing* (pp. 891–903). Blackwell Scientific, Malden, Mass, USA.

Kreiner, G. E., & Ashforth, B. E. (2004). Evidence toward an expanded model of organizational identification. *Journal of Organizational Behavior, 25*(1), 1-27. doi:10.1002/job.234

Künzle, B., Kolbe, M., & Grote, G. (2010). Ensuring patient safety through effective leadership behaviour: A literature review. *Safety Science, 48*(1), 1-17.doi: 10.1016/j.ssci.2009.06.004

Lam, T. Y., & Maguire, D. A. (2012). Structural equation modeling: Theory and applications in forest management. *International Journal of Forestry Research, 2012,* 1-16. doi:10.1155/2012/263953

LaPorte, T. R., & Consolini, P. M. (1991). Working in practice but not in theory: Theoretical challenges of "high-reliability organizations". *Journal of Public Administration Research and Theory, 1*(1), 19-48. Retrieved from: https://journals-scholarsportal-info.proxy1.lib.uwo.ca/pdf/10531858/v01i0001/19_wipbnittcoo.xml

Laschinger, H. K. S. (2004). Hospital nurses' perceptions of respect and organizational justice. *The Journal of Nursing Administration, 34*(7-8), 354-364. doi:10.1097/00005110-200407000-00009

Laschinger, H. K. S., Borgogni, L., Consiglio, C., & Read, E. (2015). The effects of authentic leadership, six areas of worklife, and occupational coping self-efficacy on new graduate nurses' burnout and mental health: A cross-sectional study. *International Journal of Nursing Studies, 52*(6), 1080-1089.

Laschinger, H. K. S., Grau, A. L., Finegan, J., & Wilk, P. (2010). New graduate nurses' experiences of bullying and burnout in hospital settings. *Journal of Advanced Nursing, 66*(12), 2732-2742. doi:10.1111/j.1365-2648.2010.05420.x

Laschinger, H. K. S., & Leiter, M. P. (2006). The impact of nursing work environments on patient safety outcomes: The mediating role of burnout engagement. *Journal of Nursing Administration, 36*(5), 259-267. doi:10.1097/00005110-200605000-00019

Laschinger, H. K., Wong, C. A., & Grua, A.L., (2012). Authentic leadership, empowerment and burnout: a comparison in new graduates and experienced nurses. *Journal of Nursing Management, 21*(3), 541-552. doi: 10.1111/j.1365-2834.2012.01375.x

Lavoie-Tremblay, M., Wright, D., Desforges, N., Gélinas, C., Marchionni, C., & Drevniok, U. (2008). Creating a healthy workplace for New-Generation nurses. *Journal of Nursing Scholarship, 40*(3), 290-297. doi:10.1111/j.1547-5069.2008.00240.x

Lee, Y. H., Yang, C. C., & Chen, T. T. (2016). Barriers to incident-reporting behavior among nursing staff: A study based on the theory of planned behavior. *Journal of Management & Organization, 22*(01), 1-18. doi: 10.1017/jmo.2015.8

Leroy, H., Palanski, M. E., & Simons, T. (2012). Authentic leadership and behavioral integrity as drivers of follower commitment and performance. *Journal of Business Ethics, 107*(3), 255-264. doi:10.1007/s10551-011-1036-1

Leveson, N., Dulac, N., Marais, K., & Carroll, J. (2009). Moving beyond normal accidents and high reliability organizations: A systems approach to safety in complex systems. *Organization Studies, 30*(2-3), 227-249. doi:10.1177/0170840608101478

Levin, K. A. (2006). Study design III: Cross-sectional studies. *Evidence-Based Dentistry, 7*(1), 24-25. doi:10.1038/sj.ebd.6400375

Lewis, J.D., & Weigert, A. (1985). Trust as a social reality. *Social Forces, 63*, 967-985. doi: 10.1093/sf/63.4.967

Lillis, J., Levin, M. E., & Hayes, S. C. (2011). Exploring the relationship between body mass index and health-related quality of life: A pilot study of the impact of weight self-stigma and experiential avoidance. *Journal of Health Psychology, 16*(5), 722-727. doi:10.1177/1359105310388321

Lin, Y., & Ma, S. (2009). Willingness of nurses to report medication administration errors in southern taiwan: A cross-sectional survey. *Worldviews on Evidence-Based Nursing / Sigma Theta Tau International, Honor Society of Nursing, 6*(4), 237-245. doi:10.1111/j.1741-6787.2009.00169.x

Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83*(404), 1198-1202.

Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling: A Multidisciplinary Journal, 9*(2), 151-173. doi:10.1207/S15328007SEM0902_1

Liu, Y., Fuller, B., Hester, K., Bennett, R. J., & Dickerson, M. S. (2018). Linking authentic leadership to subordinate behaviors. *Leadership & Organization Development Journal, 39*(2), 218-233. doi:10.1108/LODJ-12-2016-0327

Liu, W., Zhu, R., & Yang, Y. (2010). I warn you because I like you: Voice behavior, employee identifications, and transformational leadership. *The Leadership Quarterly, 21*(1), 189-202. doi:10.1016/j.leaqua.2009.10.014

Luthans, F. (2002a). The need for and meaning of positive organizational behavior. *Journal of Organizational Behavior, 23*(6), 695-706. doi:10.1002/job.165

Luthans, F. (2002b). Positive organizational behavior: Developing and managing psychological strengths. *The Academy of Management Executive, 16*(1), 57-72. doi: 10.5465/AME.2002.6640181

Luthans, F., & Avolio, B. J., (2003). Authentic leadership: a positive development approach. In K. S. Cameron, J. E. Dutton & R. E. Quinn (Eds.), *Positive Organizational Scholarship: foundation of a new discipline* (pp. 259-261). San Francisco, CA: Berrett-Koehler

Luthans, F., & Youssef, C. M. (2004). Human, social, and now positive psychological capital management: Investing in people for competitive advantage. *Organizational Dynamics, 33*(2), 143. doi:1 0.1016/j.orgdyn.2004.01.003

Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). *Psychological capital: Developing the human competitive edge* (p. 3). Oxford: Oxford University Press.

Mael, F., & Ashforth, B. E. (1992). Alumni and their alma mater: A partial test of the reformulated model of organizational identification. *Journal of Organizational Behavior, 13*(2), 103-123. doi:10.1002/job.4030130202

Mael, F. A., & Ashforth, B. E. (1995). loyal from day one: Biodata, organizational identification, and turnover among newcomers. *Personnel Psychology, 48*(2), 309-333. doi:10.1111/j.1744-6570.1995.tb01759.x

Mael, F. A., & Tetrick, L. E. (1992). Identifying organizational identification. *Educational and Psychological Measurement, 52*(4), 813-824. doi:10.1177/0013164492052004002

Marsh, H. W. (2007). Application of confirmatory factor analysis and structural equation modeling in sport/exercise psychology. In G. Tenenbaum & R. C. Eklund (Eds.), Handbook of sport psychology (3rd ed., pp. 774–798). Hoboken, NJ: Wiley.

Maslach C. & Leiter M.P. (1997). *The Truth About Burnout: How Organizations Cause Personal Stress and What to Do About It*. San Francisco, CA: Jossey-Bass.

Matsunaga, M. (2010). How to factor-analyze your data right: Do's, don'ts, and how-to's. *International Journal of Psychological Research, 3*(1), 97. doi:10.21500/20112084.854

May, D. R., Chan, A. Y., Hodges, T. D., & Avolio, B. J. (2003). Developing the moral component of authentic leadership. *Organizational Dynamics, 32*(3), 247-260. doi:10.1016/S0090-2616(03)00032-9

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *The Academy of Management Review, 20*(3), 709-734. doi:10.1037/e574802013-344

Mayer, R. C., & Gavin, M. B. (2005). Trust in management and performance: Who minds the shop while the employees watch the boss? *The Academy of Management Journal, 48*(5), 874-888. oi:10.5465/amj.2005.18803928

McFadden, K. L., Henagan, S. C., & Gowen, C. R. (2009). The patient safety chain: Transformational leadership's effect on patient safety culture, initiatives, and outcomes. *Journal of Operations Management, 27*(5), 390-404.doi: 10.1016/j.jom.2009.01.001

McAllister, D.J. (1995). Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. *The Academy of Management Journal, 38*(1), 24-59. doi: 10.2307/256727

Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods, 17*(3), 437-455. doi:10.1037/a0028085

Mearns, K. J., & Flin, R. (1999). Assessing the state of organizational safety—culture or climate? *Current Psychology, 18*(1), 5-17. doi:10.1007/s12144-999-1013-3

Mellor, P., & Greenhill, J. (2014). A patient safety focused registered nurse transition to practice program. *Contemporary Nurse*, *47*(1-2), 51–60. https://doi.org/10.1080/10376178.2014.11081906

Merrill, K. C. (2015). Leadership style and patient safety: Implications for nurse managers. *JONA: The Journal of Nursing Administration, 45*(6), 319-324. doi:10.1097/NNA.0000000000000207

Meyer MN. (2014). *Factors associated with newly graduated nurses' intent to leave current position in U.S. acute care hospitals: A descriptive research study using secondary data analysis.* Retrieved from ProQuest Dissertations Publishing. (Accession No. 3634254).

Meyer, J. P., & Herscovitch, L. (2001). Commitment in the workplace: Toward a general model. *Human Resource Management Review*, *11*(3), 299-326. doi:10.1016/S1053-4822(00)00053-X

Miao, Q., Eva, N., Newman, A., & Schwarz, G. (2019). Public service motivation and performance: The role of organizational identification. *Public Money & Management*, *39*(2), 77-85. doi: 10.1080/09540962.2018.1556004

Millar, M. M., & Dillman, D. A. (2011). Improving response to web and mixed-mode surveys. *Public Opinion Quarterly*, *75*(5), 390-404. doi: *0.1093/poq/nfr003*

Mohan, Y., Cornejo, M., Sidell, M., Smith, J., & Young, D. (2017). Re-recruiting young adult women into a second follow-up study. *Contemporary Clinical Trials Communications*, *5*(C), 160–167. doi: 10.1016/j.conctc.2017.02.006

Monaghan, T. (2015). A critical analysis of the literature and theoretical perspectives on theory–practice gap amongst newly qualified nurses within the United Kingdom. *Nurse Education Today, 35*(8), e1–e7. doi:10.1016/j.nedt.2015.03.006

Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior, 14*, 224-247. doi: 10.1016/0001-8791(79)90072-1

Munn, L. T. (2016). *Team dynamics and learning behavior in hospitals: A study of error reporting by nurses.* Retrieved from ProQuest Dissertations Publishing. (Accession No. 10119733).

Murray, M., & Sundin, D. (2017). New graduate registered nurses' knowledge of patient safety and practice: a literature review. *Journal of Clinical Nursing*. Advance online publication. doi: 10.1111/jocn.13785

Murray, M., Sundin, D., & Cope, V. (2018). The nexus of nursing leadership and a culture of safer patient care. *Journal of Clinical Nursing, 27*(5-6), 1287-1293. doi:10.1111/jocn.13980

Murray, M., Sundin, D., & Cope, V. (2019). New graduate nurses' understanding and attitudes about patient safety upon transition to practice. *Journal of Clinical Nursing,* doi:10.1111/jocn.14839

Muthén, B.O. (2006, February 19). Negative residual variance (online forum comment). Message posted to http://www.statmodel.com/discussion/messages/9/572.html

Muthén, L.K. & Muthén, B.O. (2012). *Mplus User's Guide.* (Seventh Edition). Los Angeles, CA: Muthén & Muthén.

Mwangi, C. A. G., Cabrera, A. F., & Kurban, E. R. (2019). Connecting school and home: Examining parental and school involvement in readiness for college through multilevel SEM. *Research in Higher Education,* 1-23. doi:10.1007/s11162-018-9520-4

Nasser, F., & Takahashi, T. (2003). The effect of using item parcels on ad hoc goodness-of-fit indexes in confirmatory factor analysis: An example using sarason's reactions to tests. *Applied Measurement in Education, 16*(1), 75-97. doi:10.1207/S15324818AME1601_4

Nederhof, A. J. (1985). Methods of coping with social desirability bias: A review. *European Journal of Social Psychology, 15*(3), 263-280. doi:10.1002/ejsp.2420150303

Needleman, J. (2013). Increasing acuity, increasing technology, and the changing demands on nurses. *Nursing Economic, 31*(4), 200. Retrieved from: http://go.galegroup.com.proxy1.lib.uwo.ca/ps/i.do?p=AONE&u=lond95336&id=GALE|A341687289&v=2.1&it=r&sid=summon&authCount=1

Noble, D. J., & Pronovost, P. J. (2010). Underreporting of patient safety incidents reduces health care's ability to quantify and accurately measure harm

reduction. *Journal of Patient Safety*, *6*(4), 247-250. doi: 10.1097/PTS.0b013e3181fd1697

Nour, V., & Williams, A. (2019). “Theory Becoming Alive”: The Learning Transition Process of Newly Graduated Nurses in Canada. *Canadian Journal of Nursing Research, 51*(1), 6–13. doi:10.1177/0844562118771832

Ole Borgen, S. (2001). Identification as a trust-generating mechanism in cooperatives. *Annals of Public and Cooperative Economics, 72*(2), 209-228. doi: 10.1111/1467-8292.00165

Organ, D. W., & Ryan, K. (1995). a meta-analytic review of attitudinal and dispositional predictors of organizational citizenship behavior. *Personnel Psychology*, *48*(4), 775-802. doi:10.1111/j.1744-6570.1995.tb01781.x

Osborne, J., Blais, K., & Hayes, J. S. (1999). Nurses' perceptions: When is it a medication error? *The Journal of Nursing Administration, 29*(4), 33-38. doi:10.1097/00005110-199904000-00011.

O'Shea, M., & Kelly, B. (2007). The lived experiences of newly qualified nurses on clinical placement during the first six months following registration in the republic of ireland. *Journal of Clinical Nursing, 16*(8), 1534-1542. doi:10.1111/j.1365-2702.2006.01794.x

Ottewill, M. (2003). The current approach to human error and blame in the NHS. *British Journal of Nursing*, *12*(15), 919-924. doi: 10.12968/bjon.2003.12.15.11419

Page, A. (Ed.). (2004). *Keeping patients safe: Transforming the work environment of nurses*. Washington, D.C.: National Academies Press.

Patrick, A. W. (2010). *The effect of nursing leadership and structural empowerment on staff nurse clinical leadership (*(Doctoral dissertation). Retrieved from ProQuest Dissertations Publishing. (NR73389).

Payne, R., & Clark, M. (2003). Dispositional and situational determinants of trust in two types of managers. *The International Journal of Human Resource Management, 14*(1), 128-138. doi:10.1080/0958519021015855 6.

Pedhazur, E. J., & Schmelkin, L. P. (1991). *Measurement, design, and analysis: An integrated approach.* Hillsdale, NJ: Lawrence Erlbaum Associates

Perrow, C. (1999). Organizing to reduce the vulnerabilities of complexity. *Journal of Contingencies and Crisis Management, 7*(3), 150-155. doi:10.1111/1468-5973.00108

Peterson, C. (2000). The future of optimism. *American Psychologist, 55*(1), 44. doi: 10.1037/0003-066X.55.1.44

Peus, C., Wesche, J. S., Streicher, B., Braun, S., & Frey, D. (2012). Authentic leadership: An empirical test of its antecedents, consequences, and mediating mechanisms. *Journal of Business Ethics, 107*(3), 331-348. doi:10.1007/s10551-011-1042-3

Pfeiffer, Y., Manser, T., & Wehner, T. (2010). Conceptualising barriers to incident reporting: a psychological framework. *Qual Saf Health Care, 19*(6), e60-e60. doi:10.1136/qshc.2008.030445

Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *The Leadership Quarterly, 1*(2), 107-142. doi: 10.1016/1048-9843(90)90009-7

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology, 63*(1), 539-569. doi:10.1146/annurev-psych-120710-100452

Polit, D. F., & Beck, C. T. (2013). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed.). Philadelphia, PA: Lippincott Williams & Wilkins

Potylycki, M. J., Kimmel, S. R., Ritter, M., Capuano, T., Gross, L., Riegel-Gross, K., & Panik, A. (2006). Nonpunitive medication error reporting: 3-year findings from one hospital's primum non nocere initiative. *The Journal of Nursing Administration, 36*(7-8), 370-376. doi:10.1097/00005110-200607000-00010

Pratt, M. (1998). Central questions in organizational identification. In D. A. Whetten & P. C. Godfrey (Eds.), *Identity in organizations: building theory through conversations* (pp.171-206). Thousand Oaks, CA: Sage Publications.

Pratt, M. G. (2001). Social identity dynamics in modern organizations: An organizational psychology / organizational behavior perspective. In M. A. Hogg, & D. J. Terry (Eds.), *Social Identity Processes in Organizational Contexts* (pp. 13-30). Philadelphia: Psychology Press.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717. doi: 10.3758/BF03206553.

Pronovost, P. J., Berenholtz, S. M., Goeschel, C. A., Needham, D. M., Sexton, J. B., Thompson, D. A., ... & Hunt, E. (2006). Creating high reliability in health care organizations. *Health Services Research, 41*(4p2), 1599-1617. doi:10.1111/j.1475-6773.2006.00567.x

Purling, A., & King, L. (2012). [Review of *A literature review: graduate nurses' preparedness for recognising and responding to the deteriorating patient*]. *Journal of Clinical Nursing*, *21*(23-24), 3451–3465. doi: 10.1111/j.1365-2702.2012.04348.x

Qu, R., Janssen, O., & Shi, K. (2015). Transformational leadership and follower creativity: The mediating role of follower relational identification and the moderating role of leader creativity expectations. *Leadership Quarterly, 26*(2), 286-299. doi:10.1016/j.leaqua.2014.12.004

Rasmussen, J. (2003). The role of error in organizing behaviour. *British Medical Journal Quality & Safety*, *12*(5), 377-383. doi: 10.1136/qhc.12.5.377

Read, E. A. (2016). *Nurses' Workplace Social Capital: Development and Validation of a Self-report Questionnaire* (doctoral dissertation). Retrieved from https://ir.lib.uwo.ca/etd/3767

Read, E., & Laschinger, H. K. (2013;2015;). Correlates of new graduate nurses' experiences of workplace mistreatment. *JONA: The Journal of Nursing Administration*, *43*(4), 221-228. doi:10.1097/NNA.0b013e3182895a90

Reason, J., 1990. Human Error. New York, NY: Cambridge University Press.

Reason, J. (1998). Achieving a safe culture: theory and practice. *Work & Stress*, *12*(3), 293-306. doi: 10.1080/02678379808256868

Reason, J. (2001). Understanding adverse events: the human factor. In C. Vincent (Ed.), *Clinical risk management* (9-30). London, England: BMJ Books

Reason, J. (2000). Human error: Models and management. *BMJ: British Medical Journal*, *320*(7237), 768-770. doi:10.1136/bmj.320.7237.768

Reason, J. (2004). Beyond the organisational accident: the need for "error wisdom" on the frontline. *Quality and Safety in Health Care*, *13*(suppl 2), ii28-ii33. doi: 10.1136/qshc.2003.009548

Rego, A., Sousa, F., Marques, C., & e Cunha, M. P. (2014). Hope and positive affect mediating the authentic leadership and creativity relationship. *Journal of Business Research*, *67*(2), 200-210. doi: 10.1016/j.jbusres.2012.10.003

Rerup, C. (2005). Learning from past experience: Footnotes on mindfulness and habitual entrepreneurship. *Scandinavian Journal of Management*, *21*(4), 451-472. doi:10.1016/j.scaman.2005.09.010

Riketta, M. (2005). Organizational identification: A meta-analysis. *Journal of Vocational Behavior*, *66*(2), 358-384. doi:10.1016/j.jvb.2004.05.005

Roberts, K. H. (1993). Cultural characteristics of reliability enhancing organizations. *Journal of Managerial Issues*, 165-181. Retrieved from:https://www-jstor-org.proxy1.lib.uwo.ca/stable/40603976?seq=3 - page_scan_tab_contents

Roberts, K. H., & Libuser, C. (1993). From bhopal to banking: Organizational design can mitigate risk. *Organizational Dynamics, 21*(4), 15-26. doi:10.1016/0090-2616(93)90030-5

Rotter, J. B. (1967). A new scale for the measurement of interpersonal trust. *Journal of Personality, 35*(4), 651-665. doi: 10.1111/j.1467-6494.1967.tb01454.x

Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management. the Academy of Management Review, 23*(3), 393.

Rowin, E. J., Lucier, D., Pauker, S. G., Kumar, S., Chen, J., & Salem, D. N. (2008). Does error and adverse event reporting by physicians and nurses differ?. *The Joint Commission Journal on Quality and Patient Safety, 34*(9), 537-545. doi: 10.1016/S1553-7250(08)34068-9

Runciman, W. B., Roughead, E. E., Semple, S. J., & Adams, R. J. (2003). Adverse drug events and medication errors in Australia. *International Journal for Quality in Health Care*, *15*(suppl_1), i49-i59. doi: 10.1093/intqhc/mzg085

Rushton, J. P., Brainerd, C. J., & Pressley, M. (1983). Behavioral development and construct validity: The principle of aggregation. *Psychological Bulletin, 94*(1), 18-38. doi:10.1037/0033-2909.94.1.18

Ryan, R. M., & Deci, E. L. (2003). On assimilating identities to the self: A self determination theory perspective on internalization and integrity within cultures. In M. R. Leary & J. P Tangney (Eds.), Handbook of self and identity (pp. 253-272). New York, NY: Guilford Press.

Rybowiak, V., Garst, H., Frese, M., & Batinic, B. (1999). Error orientation questionnaire (EOQ): Reliability, validity, and different language equivalence. *Journal of Organizational Behavior, 20*(4), 527-547. doi:10.1002/(SICI)1099-1379(199907)20:4<527::AID-JOB886>3.0.CO;2-G

Sammarco, J. J. (2005). Operationalizing normal accident theory for safety-related computer systems. *Safety Science, 43*(9), 697-714. doi: 1 0.1016/j.ssci.2005.03.001

Sammer, C. E., Lykens, K., Singh, K. P., Mains, D. A., & Lackan, N. A. (2010). What is patient safety culture? A review of the literature. *Journal of Nursing Scholarship, 42*(2), 156. doi:10.1111/j.1547-5069.2009.01330.x

Schaubroeck, J. M., Peng, A. C., & Hannah, S. T. (2013). Developing trust with peers and leaders: Impacts on organizational identification and performance during entry. *Academy of Management Journal, 56*(4), 1148-1168. Doi: 10.5465/amj.2011.0358

Schelbred, A. B., & Nord, R. (2007). Nurses' experiences of drug administration errors. *Journal of Advanced Nursing, 60*(3), 317-324. doi: 10.1111/j.1365-2648.2007.04437.x

Schumacker, R. E., & Lomax, R. G. (2016). *A beginner's guide to structural equation modeling* (Fourth ed.). New York, NY: Routledge.

Scott, E. S., Engelke, M. K., & Swanson, M. (2008). New graduate nurse transitioning: necessary or nice?. *Applied Nursing Research, 21*(2), 75-83. doi: 10.1016/j.apnr.2006.12.002

Sears, K., O'Brien-Pallas, L., Stevens, B., & Murphy, G. T. (2016). The relationship between nursing experience and education and the occurrence of reported pediatric medication administration errors. *Journal of Pediatric Nursing, 31*(4), e283-e290. doi:10.1016/j.pedn.2016.01.003

Seligman, M. E. P. (1999). The president's address. American Psychologist, 54(8), 559-562. doi:10.1037/0003-066X.54.8.537

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*(1), 5-14. doi:10.1037/0003-066X.55.1.5

Sexton, J. B., Helmreich, R. L., Neilands, T. B., Rowan, K., Vella, K., Boyden, J., . . . Thomas, E. J. (2006). The safety attitudes questionnaire: Psychometric properties, benchmarking data, and emerging research. *Bio Med Central Health Services Research, 6*(1), 44-44. doi:10.1186/1472-6963-6-44

Shamir, B., House, R. J., & Arthur, M. B. (1993). The motivational effects of charismatic leadership: A self-concept based theory. *Organization Science, 4*(4), 577-594. doi:10.1287/orsc.4.4.577

Shamir, B., Zakay, E., Breinin, E., & Popper, M. (1998). Correlates of charismatic leader behavior in military units: Subordinates' attitudes, unit characteristics, and superiors' appraisals of leader performance. *The Academy of Management Journal, 41*(4), 387-409. doi:10.2307/257080

Shorey, H. S., Snyder, C. R., Yang, X., & Lewin, M. R. (2003). The role of hope as a mediator in recollected parenting, adult attachment, and mental health. *Journal of Social and Clinical Psychology*, *22*(6), 685-715. doi: 10.1521/jscp.22.6.685.22938

Shrivastava, S., Sonpar, K., & Pazzaglia, F. (2009). Normal accident theory versus high reliability theory: A resolution and call for an open systems view of accidents. *Human Relations, 62*(9), 1357-1390. doi:10.1177/0018726709339117

Singer, S., Meterko, M., Baker, L., Gaba, D., Falwell, A., & Rosen, A. (2007). Workforce perceptions of hospital safety culture: development and validation of the patient safety climate in healthcare organizations survey. *Health Services Research, 42*(5), 1999-2021.doi: 10.1111/j.1475-6773.2007.00706.x

Sirriyeh, R., Lawton, R., Gardner, P., & Armitage, G. (2010). Coping with medical error: a systematic review of papers to assess the effects of involvement in medical errors on healthcare professionals' psychological well-being. *Quality and Safety in Health Care, 19*(6), 1-8. doi: 10.1136/qshc.2009.035253

Skalle, P., Aamodt, A., & Laumann, K. (2014). Integrating human related errors with technical errors to determine causes behind offshore accidents. *Safety Science, 63*, 179. doi:10.1016/j.ssci.2013.11.009

Sluss, D. M., & Ashforth, B. E. (2007). Relational identity and identification: defining ourselves through work relations. *Academy of Management Review, 32*(1), 9–32. doi:10.5465/amr.2007.23463672

Sluss, D. M., & Ashforth, B. E. (2008). How relational and organizational identification converge: Processes and conditions. *Organization Science, 19*(6), 807-823. doi:10.1287/orsc.1070.0349

Sluss, D. M., Ployhart, R. E., Cobb, M. G., & Ashforth, B. E. (2012). Generalizing newcomers' relational and organizational identifications: Processes and prototypicality. *Academy of Management Journal, 55*(4), 949-975. doi: 10.5465/amj.2010.0420

Smidts, A., Pruyn, A. T. H., & Van Riel, C. B. (2001). The impact of employee communication and perceived external prestige on organizational identification. *Academy of Management journal, 44(5), 1051-1062. doi: 10.2307/3069448*

Smith, T. D., & McMillan, B. F. (2001). A Primer of Model Fit Indices in Structural Equation Modeling. Retrieved from: http://files.eric.ed.gov/fulltext/ED449231.pdf

Snaebjornsson, I. M., & Vaiciukynaite, E. (2016). Emotion contagion in leadership: Followercentric approach. *Business and Economic Horizons, 12*(2), 53-62. doi:10.15208/beh.2016.05

Snyder, C. R. (Ed.). (2000). *Handbook of hope: Theory, measures, and applications*. San Diego, CA: Academic press.

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., ... & Harney, P. (1991). The will and the ways: development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, *60*(4), 570. doi: 10.1037/0022-3514.60.4.570

Snyder, C. R., Rand, K. L., & Sigmon, D. R. (2005). Hope theory: A member of the positive psychology family. In C.R. Snyder & S. J. Lopez (Eds.), Handbook of positive psychology (pp. 257-276). London, England: Oxford University Press.

Sorra, J. S., & Dyer, N. (2010). Multilevel psychometric properties of the AHRQ hospital survey on patient safety culture. *BMC Health Services Research, 10*(1), 199-199. doi:10.1186/1472-6963-10-199

Spector, P. E. (2006). Method variance in organizational research truth or urban legend? *Organizational Research Methods, 9*(2), 221-232. doi:10.1177/1094428105284955

Squires, M. A. E., Tourangeau, A. N. N., Laschinger, H. K., & Doran, D. (2010). The link between leadership and safety outcomes in hospitals. *Journal of Nursing Management*, *18*(8), 914-925.doi: 10.1111/j.1365-2834.2010.01181.x

Stage, F. K., Carter, H. C., & Nora, A. (2004). Path analysis: An introduction and analysis of a decade of research.*The Journal of Educational Research, 98*(1), 5-12. doi:10.3200/JOER.98.1.5-13

Steffens, N. K., Haslam, S. A., & Reicher, S. D. (2014). Up close and personal: Evidence that shared social identity is a basis for the 'special relationship that binds followers to leaders. *The Leadership Quarterly*, *25*(2), 296-313. doi:10.1016/j.leaqua.2013.08.008

Stump, L. S. (2000). Re-engineering the medication error-reporting process: removing the blame and improving the system. *American journal of health-system pharmacy*, *57*(4), S10. doi:10.1197/jamia.M1740

Stumpf, P. G. (2007). Voluntary review of quality of care peer review for patient safety. *Best Practice & Research Clinical Obstetrics & Gynaecology*, *21*(4), 557-564. doi: 10.1016/j.bpobgyn.2007.02.010

Tabachnick, B. G., & Fidell, L. S.(2013). *Using multivariate statistics.* (6th ed.) New York: Harper and Row.

Tajfel, H. (1978). Differentiation between social groups: Studies in the social psychology of intergroup relations. London, England: Oxford Academic Press.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–47). Monterey, CA: Brooks/Cole.

Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *Psychology of intergroup relations*, (pp. 276-293). Chicago, IL : Nelson-Hall Publishers.

Thompson, D. N., Hoffman, L. A., Sereika, S. M., Lorenz, H. L., Wolf, G. A., Burns, H. K., ... & Ramanujam, R. (2011). A relational leadership perspective on unit-level safety climate. *Journal of Nursing Administration, 41*(11), 479-487. doi:10.1097/NNA.0b013e3182346e31

Tice, D. M., & Wallace, H. M. (2003). The reflected self: Creating yourself as (you think) others see you. In M.R. Leary & J. P. Tangney (Eds), *Handbook of self and identity*, (pp. 91-105). New York, NY: Guilford Press.

Tolk, J. N., Cantu, J., & Beruvides, M. (2015). High reliability organization research: A literature review for health care. *Engineering Management Journal, 27*(4), 218-237. doi:10.1080/10429247.2015.1105087

Tourangeau, A. E., Doran, D. M., Hall, L. M., O'Brien Pallas, L., Pringle, D., Tu, J. V., & Cranley, L. A. (2007). Impact of hospital nursing care on 30-day mortality for acute medical patients. *Journal of Advanced Nursing, 57*(1), 32-44. doi:10.1111/j.1365-2648.2006.04084.x

Trinkoff, A. M., Le, R., Geiger-Brown, J., Lipscomb, J., & Lang, G. (2006). Longitudinal relationship of work hours, mandatory overtime, and on-call to musculoskeletal problems in nurses. *American Journal of Industrial Medicine, 49*(11), 964-971. doi:10.1002/ajim.20330

Turner, J. C. (1991). *Social influence*. Buckingham, England: Open University Press

Ulanimo, V. M., O'Leary-Kelley, C., & Connolly, P. M. (2007). Nurses' perceptions of causes of medication errors and barriers to reporting. *Journal of Nursing Care Quality, 22*(1), 28-33. doi:10.1097/00001786-200701000-00007

Unver, V., Tastan, S., & Akbayrak, N. (2012). Medication errors: perspectives of newly graduated and experienced nurses. *International Journal of Nursing Practice, 18*(4), 317-324.doi: 10.1111/j.1440-172X.2012.02052.x

van Dick, R. (2004). My job is my castle: Identification in organizational contexts. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology*, (pp.171-204). West Sussex, England: John Wiley & Sons.

Van Dick, R., Christ, O., Stellmacher, J., Wagner, U., Ahlswede, O., Grubba, C., . . . Tissington, P. A. (2004). Should I stay or should I go? explaining turnover intentions

with organizational identification and job satisfaction. *British Journal of Management, 15*(4), 351-360. doi:10.1111/j.1467-8551.2004.00424.x

van Dick, R., Drzensky, F., & Heinz, M. (2016). Goodbye or identify: Detrimental effects of downsizing on identification and survivor performance. *Frontiers in Psychology, 7*, 771. doi:10.3389/fpsyg.2016.00771

Van Dyck, C., Frese, M., Baer, M., & Sonnentag, S. (2005). Organizational error management culture and its impact on performance: a two-study replication. *Journal of Applied Psychology, 90*(6), 1228-1240. doi: 10.1037/0021-9010.90.6.1228

van Knippenberg, B., van Knippenberg, D., De Cremer, D., & Hogg, M. A. (2004). Leadership, self, and identity: A review and research agenda. *The Leadership Quarterly, 15*(6), 825-856. doi:10.1016/j.leaqua.2004.09.002

Van Knippenberg, D., & Van Leeuwen, E. (2001). Organisational identity after a merger: Sense of continuity as key. In M. A. Hogg & D. J. Terry (Eds.), *Social identity processes in organizational contexts,* (pp. 249-300). Ann Arbor, MI: Sheridan Books.

Van Knippenberg, D., & Sleebos, E. (2006). Organizational identification versus organizational commitment: Self-definition, social exchange, and job attitudes. *Journal of Organizational Behavior, 27*(5), 571-584. doi:10.1002/job.359

Venette, S. J. (2003). *Risk communication in a high -reliability organization: APHIS PPQ's inclusion of risk in decision making.* Retrieved from ProQuest Dissertations Publishing. (Accession No. 3094674).

Vogus, T. J., & Sutcliffe, K. M. (2007a). The safety organizing scale: Development and validation of a behavioral measure of safety culture in hospital nursing units. *Medical Care, 45*(1), 46-54. doi:10.1097/01.mlr.0000244635.61178.7a

Vogus, T. J., & Sutcliffe, K. M. (2007b). The impact of safety organizing, trusted leadership, and care pathways on reported medication errors in hospital nursing units. *Medical Care, 45*(10), 997–1002. doi: 10.1097/MLR.0b013e318053674

Vogus, T. J., & Sutcliffe, K. M. (2011). The impact of safety organizing, trusted leadership, and care pathways on reported medication errors in hospital nursing units. *The Journal of Nursing Administration, 41*(7/8 Suppl), S25-S30. doi:10.1097/NNA.0b013e318221c368

Vogus, T. J., Sutcliffe, K. M., & Weick, K. E. (2010). Doing no harm: enabling, enacting, and elaborating a culture of safety in health care. *The Academy of Management Perspectives, 24*(4), 60-77. doi:10.5465/AMP.2010.24.4.3652485.a

von der Heidt, T. & Scott, D.R., (2007, December),. 'Partial aggregation for complex structural equation modelling (SEM) and small sample sizes: an illustration using a multi-stakeholder model of cooperative interorganisational relationships (IORs) in product innovation. Paper presented to the 21st ANZAM 2007 Conference, Sydney.

Wachter, R. M. (2004). The end of the beginning: Patient safety five years after'to err is human'. *Health affairs, 23*, W4. doi:10.1377/hlthaff.w4.534

Wagner, L. M., Harkness, K., Hébert, P. C., & Gallagher, T. H. (2012). Nurses' perceptions of error reporting and disclosure in nursing homes. *Journal of Nursing Care Quality, 27*(1), 63-69. doi:10.1097/NCQ.0b013e318232c0bc

Wakefield, J. G., & Jorm, C. M. (2009). Patient safety—a balanced measurement framework. *Australian Health Review, 33*(3), 382-389. doi: 10.1071/AH090382

Walker, D. A., & Smith, T. J. (2017). Computing robust, bootstrap-adjusted fit indices for use with nonnormal data. *Measurement and Evaluation in Counseling and Development*, *50*(1), 1-7. doi: 10.1177/0748175616671365

Walumbwa, F. O., Avolio, B. J., Gardner, W. L., Wernsing, T. S., & Peterson, S. J. (2008). Authentic leadership: Development and validation of a theory-based measure. *Journal of Management, 34*(1), 89-126. doi:10.1177/0149206307308913

Walumbwa, F. O., & Lawler, J. J. (2003). Building effective organizations: Transformational leadership, collectivist orientation, work-related attitudes and withdrawal behaviours in three emerging economies. *The International Journal of Human Resource Management, 14*(7), 1083-1101. doi:10.1080/0958519032000114219

Webster, C. S., & Anderson, D. J. (2002). A practical guide to the implementation of an effective incident reporting scheme to reduce medication error on the hospital ward. *International Journal of Nursing Practice, 8*(4), 176-183. doi:10.1046/j.1440-172X.2002.00368.x

Weick, K., & Sutcliffe, K. (2001). *Managing the Unexpected: Assuring High Performance in an Age of Complexity*, San Francisco: Jossey-Bass.

Weick, K. E., & Sutcliffe, K. M. (2003). Hospitals as cultures of entrapment: A re-analysis of the bristol royal infirmary. *California Management Review, 45*(2), 73-84. doi:10.2307/41166166

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2008). Organizing for high reliability: Processes of collective mindfulness. *Crisis management, 3*(1), 81-123. doi:10.1.1.465.1382&rep=rep1

Weiss, H. M., & Cropanzano, R. (1996). Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work. In B. M., Staw & L. L., Cummings (Eds.) *Research in organizational behavior: An annual series of analytical essays and critical reviews* (pp. 1-74). Ottawa, Canada: Agricultural Institute of Canada

Westbrook, J., Rob, M., Woods, A., & Parry, D. (2011). Errors in the administration of intravenous medications in hospital and the role of correct procedures and nurse experience. *British Medical Journal Quality & Safety, 20,* 1027–1034. doi: 10.1136/bmjqs-2011-000089

Williams, J., & MacKinnon, D. P. (2008). Resampling and distribution of the product methods for testing indirect effects in complex models. *Structural Equation Modeling, 15*(1), 23-51. doi: 10.1080/10705510701758166

Wilson, B. J. (2012). *Exploring determinants of registered nurses' trust in their managers*. Retrieved from ProQuest Dissertations Publishing. (Accession No. NR97225).

Wolf, Z. R., & Hughes, R.G. (2008). Error Reporting and Disclosure. In: R. G., Hughes (ED.), *Patient Safety and Quality: An Evidence-Based Handbook for Nurses.* Retrieved from: https://ncbi.nlm.nih.gov/books/NBK2652/

Wong, C. A., & Cummings, G. G. (2007). The relationship between nursing leadership and patient outcomes: a systematic review. *Journal of Nursing Management, 15*(5), 508-521. doi: 10.1111/j.1365-2834.2007.00723.x

Wong, C. A., & Cummings, G. G. (2009). The influence of authentic leadership behaviors on trust and work outcomes of health care staff. *Journal of Leadership Studies, 3*(2), 6-23. doi: 10.1002/jls.20104

Wong, C. A., Cummings, G. G., & Ducharme, L. (2013). The relationship between nursing leadership and patient outcomes: a systematic review update. *Journal of Nursing Management, 21*(5), 709-724. doi: 10.1111/jonm.12116

Wong, C. A., & M. Giallonardo, L. (2013). Authentic leadership and nurse-assessed adverse patient outcomes. *Journal of Nursing Management, 21*(5), 740-752. doi:10.1111/jonm.12075

Wong, C. A., & Laschinger, H. K. (2013). Authentic leadership, performance, and job satisfaction: the mediating role of empowerment. *Journal of Advanced Nursing, 69*(4), 947-959. doi: 10.1111/j.1365-2648.2012.06089.x.

Wong, C. A., Laschinger, H. K. S., & Cummings, G.G. (2010) Authentic leadership and nurses' voice behaviour and perceptions of care quality. *Journal of Nursing Management, 18*(8): 889-900. doi:10.1111/j.1365-2834.2010.01113.x

Wong, C. A., & Walsh, E. J. (2019). Reflections on a decade of authentic leadership research in healthcare. *Journal of Nursing Management,* doi:10.1111/jonm.12861

Woolley, L., Caza, A., & Levy, L. (2011). Authentic leadership and follower development: Psychological capital, positive work climate, and gender. *Journal of Leadership & Organizational Studies, 18*(4), 438-448. doi:10.1177/1548051810382013

Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist*, *34*(6), 806-838. doi: 10.1177/0011000006288127

Yukl, G. (1999). An evaluative essay on current conceptions of effective leadership. *European Journal of Work and Organizational Psychology*, *8*(1), 33-48. doi:10.1080/135943299398429

Yukl, G. (2010). *Leadership in organizations*. Upper Saddle River, NJ: Prentice Hall

Zeffane, R. (2010). Towards a two-factor theory of interpersonal trust: A focus on trust in leadership. *International Journal of Commerce and Management*, *20*(3), 246-257. doi: 10.1108/10569211011076938

Zohar, D. (1980). Safety climate in industrial organizations: Theoretical and applied implications. *Journal of Applied Psychology, 65*(1), 96-102. doi:10.1037//0021-9010.65.1.96

Zohar, D. (2000). A group-level model of safety climate: testing the effect of group climate on microaccidents in manufacturing jobs. *Journal of Applied Psychology*, *85*(4), 587. doi:10.1037//0021-9010.85.4.587

Western
Arthur Labatt Family
School of Nursing

APPENDIX A

Letter of Information/Consent

Project Title: The effects of authentic leadership on new graduate nurses' organizational identification, trust in the manager, patient safety climate, and willingness to report errors
Principal Investigator: Carol A. Wong, RN, PhD
Student Investigator: Fatmah Fallatah, PhD(c)

Dear Nursing Colleague,

I would like to invite you to participate in a research project I am conducting as part of the program requirements for my Doctorate of Philosophy in Nursing at Western University.

Why is the researcher doing this study?

Error reporting by nurses has been identified as an important approach to improving or redesigning the healthcare system to deliver safer and better quality care to the public. However, few studies have investigated the role of leadership on nurses' error reporting attitudes. It is proposed that authentic leadership can encourage new graduate nurses to report errors by influencing their organizational identification, trust in the manager, and patient safety climate.
Results of this study will provide valuable insights into the extent of new graduate nurses' willingness to report errors. In addition, it will also shed light on whether personal identification with the leader is a potential mechanism for nursing managers to create a blame-free and positive environment where error reporting is viewed as an opportunity for both individuals and the organization to learn.

How will the researchers do the study?

I have enclosed a questionnaire that elicits some demographic information, your opinion on your manager, work attitudes, work behaviour, work environment, and patient care. You are being invited to participate in this study because you indicated a willingness to be contacted for research purposes on your annual College of Nurses of Ontario registration. A random sample of 1275 Registered Nurses with less than three years experience in providing direct patient care in Ontario hospitals has been invited to participate in this study.

What will I be asked to do?

Your participation in this research is entirely voluntary. Your decision whether to take

part in the study will not affect your employment, promotion, or your relationship with your manager, colleagues, and organization. The enclosed questionnaire should take approximately 20 minutes to complete. Completion and return of the enclosed questionnaire indicates your consent to participate in the study. If you do choose to participate, please use the enclosed pre-addressed stamped envelope to return the questionnaire to the research office. You may also complete the survey electronically on the following website:

https://uwo.eu.qualtrics.com/jfe/form/SV_06NVsZWgHOlN7Cd

Can I withdraw from the study?

You may refuse to participate, refuse to answer any of the questions, or withdraw from the study at any time without penalty. If at any time you would like to withdraw from the study, please contact me and your data will be removed from the files. If you do not wish to participate, you may choose to take no further action or return the blank questionnaire in the self-addressed stamped envelope provided. If you choose to take no further action you will be sent two additional invitations to participate; however, if you return a blank questionnaire, you will not be contacted again

How will my privacy be protected?

If you do choose to participate, your responses will be kept strictly confidential. The questionnaire forms contain no identifiers (such as your full name, home mailing address, and postal code) that link you to any specific response. A personal identification number is assigned to each questionnaire package to monitor response rates and send reminders to participants who have not returned the questionnaire package. A list that connects your personal identification numbers with your name, address, and postal code will be stored separately from your questionnaire in an external hard drive that is encrypted with Veracrypt encryption software. The hard drive will be stored in a locked cabinet in a locked office accessible only to the investigator.
There is also a risk of privacy breach occurring due to personal information being accidently lost or stolen. To mitigate this risk, the laptop that will store the participant information, will be password protected and encrypted with *Veracrypt* Encryption. All hard-copy data will be stored in a locked filing cabinet accessible only to the study investigator. In accordance with Western University policy, data will be retained for seven years, after which all study data will be destroyed using confidential shredding devices. The questionnaire results will be reported in summary form only and the data compiled will only be used for research purposes. If the results of the study are published, your name will not be used and no information that discloses your identity will be released. However, representatives of the Western University Human Research Ethics Board may contact you or require access to your study- records to monitor the conduct of the research.

What are the risks of the study?

There are no known or expected risks associated with participation in this study. However, you may find it difficult to answer some questions about your work experiences. You are free to not answer any question (s) you like.

What are the benefits of the study?

There are no direct benefits to participating in this research. However, your participation may help us advance knowledge related to nurse managers' authentic leadership, staff nurses' work environments, and nurses' willingness to report errors.

Will the study cost me anything and, if so, how will I be reimbursed?
You will incur no costs if you choose to participate in this study. As a small token of my appreciation, all returned questionnaires are eligible to be entered into a draw for a $500 Visa gift card. The draw will take place at the end of data collection, approximately 8 weeks after it is initiated.

How will I be informed about the study results?

If you are interested in receiving the results of this study, please indicate your interest in the space provided on your questionnaire package. I would be happy to send you a copy of the results.

Will the data be used in subsequent studies?

These data may be used in subsequent studies, in publications and in presentations.

What if I have study questions or problems?

If you have any questions, please feel free to contact me at XXX. My research supervisor Dr. Carol Wong is also available at the University of Western Ontario at XXX or XXX. Should you have any questions about the conduct of this study or your rights as a research subject, you can contact the Office of Human Research Ethics, Western University at (519) 661-3036 or ethics@uwo.ca.
Thank you very much for considering my request.
Sincerest Regards,

Fatmah Fallatah PhD(c)
Arthur Labatt Family School of Nursing
Doctoral Candidate
Western University

Dr. Carol Wong RN PhD
Arthur Labatt Family School of Nursing
Professor, School of Nursing
Western University

APPENDIX B

Study Instruments

AUTHENTIC LEADERSHIP QUESTIONNAIRE

Walumbwa et al., 2008

The following survey items refer to your immediate manager's leadership style, as you perceive it. Judge how frequently each statement fits his or her leadership style using the following scale:

0= Not at all	1= Once in a while	2= Sometimes	3= Fairly often	4= Frequently, if not always

RT	1.	says exactly what he or she means	0	1	2	3	4
RT	2.	admits mistakes when they are made	0	1	2	3	4
RT	3.	encourages everyone to speak their mind	0	1	2	3	4
RT	4.	tells you the hard truth	0	1	2	3	4
RT	5.	displays emotions exactly in line with feelings	0	1	2	3	4
IMR	6.	demonstrates beliefs that are consistent with actions	0	1	2	3	4
IMR	7.	makes decisions based on his or her core values	0	1	2	3	4
IMR	8.	asks you to take positions that support your core values	0	1	2	3	4
IMR	9.	makes difficult decisions based on high standards of ethical conduct	0	1	2	3	4
BP	10.	solicits views that challenge his or her deeply held positions	0	1	2	3	4
BP	11.	analyzes relevant data before coming to a decision	0	1	2	3	4
BP	12.	listens carefully to different points of view before coming to conclusions	0	1	2	3	4
SA	13.	seeks feedback to improve interactions with others	0	1	2	3	4
SA	14.	accurately describes how others view his or her capabilities	0	1	2	3	4
SA	15.	knows when it is time to reevaluate his or her position on important issues	0	1	2	3	4
SA	16.	shows he or she understands how specific actions impact others	0	1	2	3	4

RT= relational transparency, IMP= internalized moral perspective, BP= balanced processing, SA= self-awareness

PERSONAL IDENTIFICATION SCALE

Kark et al. (2003)

The following sentences refer to the nursing manager of the unit in which you work. Please indicate the extent to which you agree with each sentence using the following scale (from 1=strongly disagree to 7=strongly agree):

1= Strongly Disagree	2	3	4	5	6	7= Strongly Agree

1.	When someone criticizes the manager, it feels like a personal insult.	1	2	3	4	5	6	7
2.	I am very interested in what others think about the manager.	1	2	3	4	5	6	7
3.	I view the success of the manager as my own success.	1	2	3	4	5	6	7
4.	I am proud to tell others that he/she is the manager of my unit.	1	2	3	4	5	6	7
5.	I praise the manager, when speaking with friends, as someone who is good to work for.	1	2	3	4	5	6	7
6.	I highly identify with the manager of this unit.	1	2	3	4	5	6	7
7.	It is important for me to see myself as an employee of this manager.	1	2	3	4	5	6	7
8.	The manager is a role model for me.	1	2	3	4	5	6	7
9.	The values of the manager are similar to my values.	1	2	3	4	5	6	7
10.	I consider the manager as a symbol of success and achievement	1	2	3	4	5	6	7

ORGANIZTIONAL IDENTIFICATION SCALE
Edwards & Peccei (2007)

Please rate the extent to which you agree with the following:

1= Strongly Disagree	2	3	4	5= Strongly Agree

Self.cat &label	1.	My employment in the organization is a big part of who I am	1	2	3	4	5
Self.cat &label	2.	I consider myself an organization person	1	2	3	4	5
Value &goals	3.	What the organization stands for is important to me	1	2	3	4	5
Value &goals	4.	I share the goals and values of the (organization)	1	2	3	4	5
Belong. & mem.	5.	My membership with the (organization) is important to me	1	2	3	4	5
Belong. & mem.	6.	I feel strong ties with the (organization)	1	2	3	4	5

Self.cat &label= Self-categorization and labeling, Value &goals= Sharing organizational goals and values, Belong. & mem.= Sense of attachment, belonging, and membership of the organization

TRUST MANAGEMENT SCALE
Mayer& Gavin (2005)

Think about your nursing manager. For each statement, select the number that best describes how much you agree or disagree with each statement:

1= Disagree Strongly	2= Disagree	3= Neither Agree or Disagree	4= Agree	5= Agree Strongly

1.	If I had my way, I wouldn't let my manager have any influence over issues that are important to me. **R**	1	2	3	4	5
2.	I would be willing to let my manager have complete control over my future in this organization.	1	2	3	4	5
3.	I really wish I had a good way to keep an eye on my manager. **R**	1	2	3	4	5
4.	I would be comfortable giving my manager a task or problem, which was critical to me, even if I could not monitor her/his actions.	1	2	3	4	5
5.	I would tell my manager about mistakes I've made on the job, even if she/he could damage my reputation.	1	2	3	4	5
6.	I would share my opinion about sensitive issues with my manager even if my opinion were unpopular.	1	2	3	4	5
7.	I am afraid of what my manager might do to me at work. **R**	1	2	3	4	5
8.	If my manager asked why a problem happened, I would speak freely even if I were partly to blame.	1	2	3	4	5
9.	If someone questioned my manager's motives, I would give her/him the benefit of the doubt.	1	2	3	4	5
10.	If my manager asked me for something, I respond without thinking about whether it might be held against me.	1	2	3	4	5

Some items reverse scored=R

CANADIAN PATIENT SAFTEY CLIMATE SCALE

Ginsburg et al., 2014

For the following statements, please indicate if you "strongly disagree", "disagree", "agree", or "strongly agree." If you are unsure of your answer mark “Neutral”.

1= Disagree Strongly	2= Disagree	3= Neither Agree or Disagree	4= Agree	5= Agree Strongly

IF	1.	If someone points out a potentially serious patient safety incident, management will look into it	1	2	3	4	5
JFE	2.	Others make you feel like a bit of a failure when you make an error **R**	1	2	3	4	5
IF	3.	Staff are usually given feedback about changes put into place based on incident reports	1	2	3	4	5
SL	4.	On this unit, the supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures	1	2	3	4	5
SL	5.	On this unit, the supervisor/manager seriously considers staff suggestions for improving patient safety	1	2	3	4	5
ULC	6.	On this unit, when a serious error occurs, we think about it carefully	1	2	3	4	5
ULC	7.	On this unit, after a serious error has occurred, we think about how it came about and how to prevent the same mistake in the future	1	2	3	4	5
ULC	8.	On this unit, when a serious error occurs, we analyze it thoroughly	1	2	3	4	5
ULC	9.	On this unit, after a serious error has occurred, we think long and hard about how to correct it	1	2	3	4	5
OL	10.	Senior management has a clear picture of the risk associated with patient care	1	2	3	4	5
OL	11.	Patient safety decisions are made at the proper level by the most qualified people	1	2	3	4	5
OL	12.	Senior management provides a climate that promotes patient safety	1	2	3	4	5
OL	13.	Senior management considers patient safety when program changes are discussed	1	2	3	4	5
JFE	14.	If a staff member makes a serious error my manager will think that staff is incompetent **R**	1	2	3	4	5
JRE	15.	Making a serious error would limit a person’s career opportunities around here **R**	1	2	3	4	5
JFE	16.	My co-worker will lose respect for a staff member if they know he or she has made a serious error **R**	1	2	3	4	5
IF	17.	If a staff member reports a patient safety incident, someone usually follows up to get more information from that person	1	2	3	4	5
JRE	18.	If someone makes a serious error he/she worries that he/she will face disciplinary action from management **R**	1	2	3	4	5
JRE	19.	Making a serious error may cause a staff member to lose his/her job **R**	1	2	3	4	5

OL = Organizational (senior) leadership support for safety, IF = Incident follow up, SL= Supervisory leadership for safety, ULC = Unit learning culture, JFE= Judgment-free environment, JRE = job repercussions of error

Some items reverse scored=R

ERROR ORIENTATION QUESTIONNAIRE

Rybowiak et al. (1999)

This part of the questionnaire comprises items containing a statement concerning errors in work situations. For each item you can select one of the answers that best applies to *you*. Please do not think too long before answering, we are interested in your first response. It is assumed that you have some work experience and refer to it. If this is not the case, please try to empathise. Keep in mind that there are no "right" or "wrong" responses. We are interested in the extent to which these statements apply to you, *not* the extent you *wish* they would apply to you.

1= Not at all	2= A bit	3= Neither a bit nor a lot	4= A lot	5= Completely

Com	1. When I make a mistake at work, I tell others about it in order that they do not make the same mistake	1	2	3	4	5
Com	2. If I cannot rectify an error by myself, I turn to my colleagues	1	2	3	4	5
Strain	3. I find it stressful when I err **R**	1	2	3	4	5
Com	4. If I cannot manage to correct a mistake, I can rely on others	1	2	3	4	5
Covering	5. Why mention a mistake when it isn't obvious? **R**	1	2	3	4	5
Com	6. When I have done something wrong, I ask others, how I should do it better	1	2	3	4	5
Covering	7. It is disadvantageous to make one's mistakes public **R**	1	2	3	4	5
Covering	8. I do not find it useful to discuss my mistakes **R**	1	2	3	4	5
Covering	9. It can be useful to cover up mistakes **R**	1	2	3	4	5
Strain	10. I am often afraid of making mistakes **R**	1	2	3	4	5
Strain	11. I feel embarrassed when I make an error **R**	1	2	3	4	5
Covering	12. I rather keep my mistakes to myself **R**	1	2	3	4	5
Covering	13. Employees who admit to their errors make a big mistake **R**	1	2	3	4	5
Strain	14. If I make a mistake at work, I "lose my cool" and become angry **R**	1	2	3	4	5
Strain	15. While working I am concerned that I could do something wrong **R**	1	2	3	4	5

Com= Error Communication, Strain= Error Strain, Covering = Covering Up Error. **Some items reverse scored=R**

DEMOGRAPHIC QUESTIONS

1. Age (In years) _____
2. Gender: _____
3. Date of Graduation (Month, Year)_____
4. Highest Degree Obtained in Nursing:

   ☐ Bachelors Degree in Nursing ☐ Master's Degree in Nursing
   ☐ College Nursing Diploma ☐ Other: _____

5. Other degree outside nursing: _____
6. Your current employment status on this unit: ☐ Full-Time ☐ Part-Time ☐ Casual
7. Is your employment: ☐ Permanent ☐ Temporary
8. Are you working permanent shift?
   a) ☐ Yes ☐ No
   b) If yes, ☐ Day-shift ☐ Night-shift
9. How many hours do you work (not including overtime)
   a) In an normal work week: _____ hours
   b) In the past week: _____ hours
10. Overtime hours worked per week_____ (average)
11. How long have you worked as an RN:
    a) In your profession? _____ year _____ months
    b) In your current hospital? _____ year _____ months
    c) On your current unit? _____ year _____ months
12. Your current area of specialty:

    ☐ Medical-Surgical ☐ Critical Care
    ☐ Maternal-Child ☐ Mental Health
    ☐ Community Health ☐ Long Term Care ☐ Other, _____

13. What is the position title of the person to whom you report?

    _____ (e.g., manager, coordinator, etc.)

14. How long have you reported to this person? _____ years _____ months

15. How frequently do you see/meet with your manager on average?
    ☐ every day
    ☐ once or twice a week
    ☐ once or twice a month
    ☐ once or twice in 6 months

- ☐ once or twice a year
- ☐ other- please specify: _____

14a. Have you ever witnessed a medical error (an incorrect action which may or may not results in harm to a patient)? ☐ yes ☐ no

14b. If yes, would you please describe the incident and how it was handled

_____
_____
_____

15a. Have you ever made a medical error? ☐ yes ☐ no

15b. If yes, would you please describe the incident and how you handled it

_____
_____
_____
_____

16. If you made a mistake, but you caught and corrected it before affecting the patient, how likely are you to report this?
    - ☐ Not likely
    - ☐ Somewhat unlikely
    - ☐ Neither likely nor unlikely
    - ☐ Somewhat likely
    - ☐ Very likely

17. If you made a mistake, but the mistake has no potential to harm the patient, how likely are you to report this?
    - ☐ Not likely
    - ☐ Somewhat unlikely
    - ☐ Neither likely nor unlikely
    - ☐ Somewhat likely
    - ☐ Very likely

18. If you made a mistake that could harm the patient, but does not, how likely are you to report this?
    - ☐ Not likely
    - ☐ Somewhat unlikely
    - ☐ Neither likely nor unlikely
    - ☐ Somewhat likely
    - ☐ Very likely

APPENDIX C

Reminder Letter (week 3)

Western
Arthur Labatt Family
School of Nursing

The effects of authentic leadership on new graduate nurses' organizational identification, trust in the manager, and willingness to report errors

Dear Registered Nurse Colleague,

Three weeks ago, you were invited to participate in a research project that aims to understand the ways immediate nursing managers influence new graduate nurses' willingness to report errors. The questionnaire enclosed with the invitation asked questions about your opinion, your current job, your unit, and your frontline manager's leadership practices. If you have already completed and returned the questionnaire, please accept our thanks. If not, please consider helping us in conducting this important study by completing the questionnaire. Your participation in the study will assist us in obtaining accurate results that will guide the development of strategies to enhance nurses' willingness to report errors. Additionally, you have the choice to complete the questionnaire in an electronic format. If you select to complete the questionnaire electronically, please access it on the following website:

https://uwo.eu.qualtrics.com/jfe/form/SV_06NVsZWgHOlN7Cd

If you have any questions regarding the study, or you did not receive the questionnaire, or it has been misplaced, please contact Fatmah Fallatah at telephone: XXX-XXX-XXXX or email: XXXX

If you have any questions or concerns about your rights as a subject in this study, please contact the Office of Research Ethics by telephone: (519) 661-3036 or email: ethics@uwo.ca.

Thank you very much for considering to participate in this study.
Sincerely,
Fatmah Fallatah
Doctoral student
Arthur Labatt Family School of Nursing, Western University,
Phone: XXX-XXXXXXX, Email: XXXX

APPENDIX D

Missing Data Analysis

Table 28

Missing Data Pattern per Item

Measure	Items	N	Mean	*SD*	Missing	
					Count	Percent
Authentic Leadership Questionnaire	TR1	174	2.87	.985	4	2.2
	TR2	173	2.51	1.194	5	2.8
	TR3	174	2.78	1.157	4	2.2
	TR4	173	2.79	1.144	5	2.8
	TR5	174	2.47	1.116	4	2.2
	MOR1	174	2.53	1.089	4	2.2
	MOR2	172	2.72	1.012	6	3.4
	MOR3	169	2.57	1.127	9	5.1
	MOR4	171	2.78	1.032	7	3.9
	BAL1	169	2.27	1.079	9	5.1
	BAL2	172	2.63	1.130	6	3.4
	BAL3	173	2.55	1.222	5	2.8
	SA1	174	2.42	1.326	4	2.2
	SA2	171	2.22	1.156	7	3.9
	SA3	170	2.18	1.158	8	4.5
	SA4	173	2.49	1.144	5	2.8
Personal Identification Scale	PI1	175	3.18	1.711	3	1.7
	PI2	175	4.32	1.612	3	1.7
	PI3	175	3.49	1.742	3	1.7
	PI4	175	4.37	1.928	3	1.7
	PI5	175	4.35	2.009	3	1.7
	PI6	175	3.78	1.850	3	1.7
	PI7	175	3.70	1.786	3	1.7
	PI8	175	3.80	1.939	3	1.7
	PI9	174	3.99	1.778	4	2.2
	PI10	175	3.92	1.868	3	1.7
Organizational Identification	SCL1	175	3.84	.975	3	1.7
	SCL2	175	3.53	1.005	3	1.7

Scale	VG1	175	3.84	.876	3	1.7
	VG2	175	3.87	.814	3	1.7
	BM1	175	3.78	.892	3	1.7
	BM2	175	3.45	1.009	3	1.7
Trust in	TM1	174	2.57	1.119	4	2.2
Management	TM2	175	1.95	.970	3	1.7
Scale	TM3	175	2.42	1.019	3	1.7
	TM4	175	3.23	1.113	3	1.7
	TM9	175	3.33	.893	3	1.7
Judgment-free	JFE1	177	2.90	1.108	1	.6
Environment	JFE2	176	2.36	.969	2	1.1
Subscale	JFE3	176	2.94	1.120	2	1.1
Job	JRE1	176	2.60	1.015	2	1.1
Repercussions of	JRE2	175	3.28	1.032	3	1.7
Error	JRE3	176	2.87	1.053	2	1.1
Error	EOCOM1	176	3.74	.978	2	1.1
Communication	EOCOM2	177	4.44	.705	1	.6
Subscale	EOCOM3	176	4.10	.886	2	1.1
	EOCOM4	177	4.11	.780	1	.6
Covering-up	EOCOV1	175	1.99	1.017	3	1.7
Error Subscale	EOCOV2	177	2.50	1.139	1	.6
	EOCOV3	177	1.82	1.016	1	.6
	EOCOV4	176	1.55	.806	2	1.1
	EOCOV5	177	2.45	1.107	1	.6
	EOCOV6	176	1.40	.794	2	1.1
Error Strain	EOSTR1	174	4.51	.758	4	2.2
Subscale	EOSTR2	177	3.69	1.187	1	.6
	EOSTR3	176	3.89	1.115	2	1.1
	EOSTR4	176	1.45	.806	2	1.1
	EOSTR5	177	3.37	1.228	1	.6

Table 29

Missing Data Pattern per Cases

Cases	# Missing	% Missing	JFE1	EOCOM2	EOCOM4	EOCOV2	EOCOV3	EOSTR2	EOCOV5	EOSTR5	JFE2	JRE1	JFE3	JRE3	JRE2	EOCOM1	EOCOM3
1757	1	1.7															
3341	1	1.7															
1672	2	3.4													M		
3661	1	1.7															
4367	1	1.7													M		
1742	1	1.7															
2255	1	1.7															
2471	1	1.7															
1097	1	1.7															
3051	1	1.7															
2859	1	1.7															
2970	1	1.7															
2025	1	1.7															
1449	1	1.7														M	
1838	1	1.7													M		
1217	1	1.7															M
2878	1	1.7															
2481	2	3.4															
2363	5	8.6															
3049	4	6.9															
1835	8	13.8															
2353	16	27.6															
1760	10	17.2									M	M	M	M	M		
1831	37	63.8															
2649	37	63.8															
2150	37	63.8															

Cases	# Missing	% Missing	EOCOV4	EOSTR3	EOCOV6	EOSTR4	EOCOV1	EOSTR1	PI6	PI7	PI8	PI10	SCL1	SCL2	VG1	VG2	BM1
1757	1	1.7			M												
3341	1	1.7															
1672	2	3.4															
3661	1	1.7															
4367	1	1.7															
1742	1	1.7		M													
2255	1	1.7					M										
2471	1	1.7					M										
1097	1	1.7															
3051	1	1.7				M											
2859	1	1.7						M									
2970	1	1.7						M									
2025	1	1.7						M									
1449	1	1.7															
1838	1	1.7															
1217	1	1.7															
2878	1	1.7															
2481	2	3.4															
2363	5	8.6															
3049	4	6.9															
1835	8	13.8															
2353	16	27.6															
1760	10	17.2															
1831	37	63.8							M	M	M	M	M	M	M	M	M
2649	37	63.8							M	M	M	M	M	M	M	M	M
2150	37	63.8							M	M	M	M	M	M	M	M	M

Cases	# Missing	% Missing	BM2	TM2	TM3	TM4	TM9	PI5	PI4	PI1	P13	SA1	TR3	TR5	MOR1	TR1	TR4
1757	1	1.7															
3341	1	1.7															
1672	2	3.4															
3661	1	1.7															
4367	1	1.7															
1742	1	1.7															
2255	1	1.7															
2471	1	1.7															
1097	1	1.7															
3051	1	1.7															
2859	1	1.7															
2970	1	1.7															
2025	1	1.7															
1449	1	1.7															
1838	1	1.7															
1217	1	1.7															
2878	1	1.7															
2481	2	3.4															
2363	5	8.6															
3049	4	6.9															
1835	8	13.8															
2353	16	27.6										M	M	M	M	M	M
1760	10	17.2															
1831	37	63.8	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
2649	37	63.8	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
2150	37	63.8	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
																	M

Cases	# Missing	% Missing	BAL3	BAL2	SA4	TR2	PI9	TM1	MOR3	SA2	SA3	MOR4	BAL1	MOR3
1757	1	1.7												
3341	1	1.7												M
1672	2	3.4											M	M
3661	1	1.7											M	
4367	1	1.7												
1742	1	1.7												
2255	1	1.7												
2471	1	1.7												
1097	1	1.7									M			
3051	1	1.7												
2859	1	1.7												
2970	1	1.7												
2025	1	1.7												
1449	1	1.7												
1838	1	1.7												
1217	1	1.7												
2878	1	1.7												
2481	2	3.4												
2363	5	8.6		M								M		M
3049	4	6.9										M	M	M
1835	8	13.8												M
2353	16	27.6	M	M	M	M			M	M	M			
1760	10	17.2		M	M	M				M	M	M	M	M
1831	37	63.8	M	M	M	M	M	M	M	M	M	M	M	M
2649	37	63.8	M	M	M	M	M	M	M	M	M	M	M	M
2150	37	63.8	M	M	M	M	M	M	M	M	M	M	M	M

*M denote missing data

APPENDIX E

Assumption of Normality for Years of Experience

Table 30

Descriptive Statistics for Years of Experience

	Mean	SD	Skewness	Kurtosis
Years of Experience	1.66	1.04	1.30	6.94

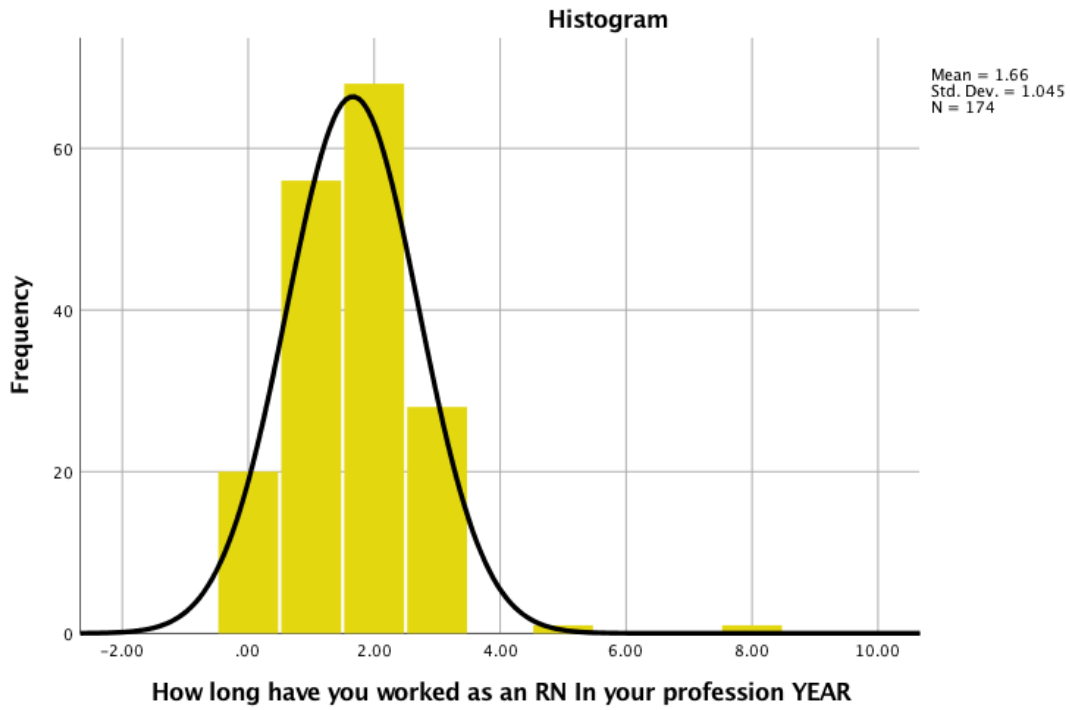


Figure 13. Histogram of years

Curriculum Vitae

Name: **Fatmah Fallatah**

Education/Degree:

Western University
London, Ontario, Canada
Doctor of Philosophy in Nursing (in progress)

Queen's University
Kingston, Ontario
Masters of Science in Nursing
2010-2012

King Saud University
Riyadh, Saudi Arabia
Bachelor of Nursing Science
2000-2004

Scholarships:

King Abdullah Scholarship
2008-2013

King Abdullah Scholarship
2014-2020

Related Work Experience:

Research Assistant
Western University
2014-2016

Publications:

Fallatah, F., Laschinger, H. K., & Read, E. A. (2017). The effects of authentic leadership, organizational identification, and occupational coping self-efficacy on new graduate nurses' job turnover intentions in Canada. *Nursing outlook*, *65*(2), 172-183.

Fallatah, F. & Laschinger, H.S. (2016). The Influence of Authentic Leadership and Supportive Professional Practice Environments on New Graduate Nurses' Job Satisfaction, *Journal of Research in Nursing*.

Fallatah, F. & Edge, D. S. (2015). Social Support Needs of Families: The Context of Rheumatoid Arthritis. *Applied Nursing Research*, 28, 180-185.