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Examining the Relationships among Authentic Leadership, Interprofessional Collaboration, and Nurse Assessed Adverse Events: A Mediation Model

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Abstract

Adverse events that occur in healthcare settings may have serious negative implications for patients, families, health care providers, and healthcare organizations. There is a need for strong leadership to prevent and mitigate the damaging effects of adverse events. Authentic leaders have been shown to enhance interprofessional collaboration among healthcare providers and reduce the frequency of adverse events. The purpose of this study was to test the relationships among authentic leadership, interprofessional collaboration, and nurse assessed adverse events in a mediation model. A secondary analysis of 269 experienced registered nurses randomly selected from three provinces (Alberta, Nova Scotia, and Ontario) were included. A predictive non-experimental study design was used. Hayes' PROCESS version 3 SPSS macro for mediation analysis was used to test the hypothesized path model. There was a negative association between authentic leadership and nurse assessed adverse events via the indirect effect of interprofessional collaboration ($B = -.034$, 95% CI $[-.069, -.004]$). Furthermore, the mediation model accounted for 8% of the variance seen within nurse assessed adverse events. Study findings highlight the importance of healthcare leaders in advancing the patient safety agenda.

Keywords: authentic leadership, interprofessional collaboration, nurse assessed adverse events, nurses

Dedication

I dedicate this thesis to Anthony Saraceni and Frank and Lisa Safian

Acknowledgements

I would like to acknowledge my partner Anthony Saraceni. I wouldn't have been able to successfully pursue graduate education without his constant encouragement, patience, and support. Secondly, I would like to acknowledge my supervisor Dr. Carol Wong who encouraged me to pursue excellence in writing, who always answered questions openly and honestly, and who ultimately role modelled authentic leadership. I am honoured to contribute to Dr. Wong's legacy in authentic leadership research. I would also like to acknowledge my advisory member Dr. Michael Kerr who is the ultimate statistics guru and who was an important role model in my desire to complete a thesis. I would also like to thank my friends Edmund, Eleanor, and Alexis. Your academic support and comradery was much appreciated throughout the MScN program. The dinners out and laughs helped me to maintain a work-life balance throughout this process. Finally, I would like to thank my mom, dad, and sister for supporting my goal to complete my MScN.

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Chapter One

Introduction

Adverse events that occur in healthcare settings have negative effects on patients and families, healthcare professionals (Sirriyeh, Lawton, Gardner, & Armitage, 2010) and organizations (Canadian Institute for Health Information [CIHI], 2016b). Consequently, there is an increasing awareness of the occurrence of adverse events in Canada (CIHI, 2016a, 2016b). According to Baker et al. (2004), adverse events are defined as “unintended injuries or complications that result in disability at the time of discharge, a prolonged hospital stay, or death” (p. 326). Strong, relational leadership styles have been identified as a factor associated with reduced frequency of adverse events in healthcare settings via leader- follower relationships that promote feelings of trust, honesty, openness, and positivity (Capuano, Bokovoy, Hitchings, & Houser, 2005; Johnson, 2015; Paquet, Courcy, Lavoie-Tremblay, Gagnon, & Maillet, 2013; Wong, 2015; Wong & Cummings, 2007; Wong, Cummings, & Ducharme, 2013; Wong & Giallonardo, 2013). Authentic leadership is a form of relational leadership that has been linked to fewer adverse events via leader attributes such as self-awareness, relational transparency, balanced processing, and moral/ethical behaviour (Wong & Giallonardo, 2013). Authentic leadership has also been associated with enhanced interprofessional collaboration (IPC) among new graduate and experienced registered nurses (RNs; Laschinger & Smith, 2013; Regan, Laschinger, & Wong, 2016). The Canadian Interprofessional Health Collaborative ([CIHC], 2010) defined IPC as the professional relationship that develops between healthcare professionals and a patient/ family where shared healthcare decision-making occurs. Health professionals who emulate behaviours

such as communication, accountability, value, trust, and teamwork, as well as develop respectful relationships with patients and families are more likely to reduce the frequency of adverse events in healthcare settings (Kim, Barnato, Angus, Fleisher, & Kahn, 2010; Stutsky & Spence Laschinger, 2014) as well as enhance patient outcomes (Zwarenstein, Goldman, & Reeves, 2009). The relationships between authentic leadership, IPC, and nurse assessed adverse events were examined in this study.

Background

In 2004, the Canadian Adverse Events Study was the first national study that examined the incidence of adverse events specifically in Canadian hospitals (Baker et al., 2004). Approximately 3745 medical records of adults in 20 Canadian hospitals across five randomly selected provinces were audited by nurses, health professionals, and physicians, which revealed an adverse event rate of 7.5% (95% CI: 5.7-9.3; Baker et al., 2004). Moreover, audits revealed that 36.9% of adverse events were highly preventable (Baker et al., 2004). The Canadian Adverse Events Study revealed significant insights into the state of patient safety in Canada and contributed to a shift in healthcare policy among the government and healthcare organizations (Canadian Institutes of Health Research [CIHR], 2006).

Adverse Events in Healthcare

In 2002, the Canadian government budgeted over 50 million dollars to address incidents of patient safety through the creation of the Canadian Patient Safety Institute (CPSI; Baker et al., 2004). The CPSI aims to ensure safer healthcare for all Canadians via work with governments as well as healthcare organizations, leaders, and providers (CPSI, 2016). Annual reports and statistics from the CPSI as well as CIHI suggest the

alarming rates at which adverse events occur. In 2016, CIHI (2016a) found that between 2014-2015, 138,000 of all the hospitalizations in Canada involved preventable harm to patients, which equates to one in every 18 hospitalizations. Additionally, 20% of patients who experienced harmful events in Canadian hospitals suffered more than one type of harm (CIHI, 2016b). Findings of the CIHI (2016b) report suggested that there are 31 types of harm that may occur to patients during their hospital admission, which are categorized as healthcare/ medication associated conditions, healthcare-associated infections, patient accidents, and procedure-associated conditions. The World Health Organization ([WHO]; 2009) suggested that there are numerous antecedents and outcomes related to adverse events. Antecedents of adverse events include human factors (e.g. communication), system factors (e.g., healthcare environment), and external factors (e.g., legislative policies; WHO, 2009). Consequences of adverse events may be human, organizational, financial, and legal-related (WHO, 2009). Aiken et al. (2001) created the nurse assessed adverse events instrument to measure RNs' perceptions of the frequency at which adverse events (e.g. medication errors, nosocomial infections, complaints from patients and families, and patient falls with injuries) occur in their current area of work. This instrument has been used in a study of experienced RNs in Canada (Wong & Giallonardo, 2013). Ultimately, adverse events are harmful and negative experiences that may be prevented through authentic leadership (Wong & Giallonardo, 2013), IPC (Laschinger & Smith, 2013; Regan et al., 2016), and evidence-based healthcare (CIHI, 2016b).

Authentic Leadership

Frontline healthcare leaders play a foundational role in ensuring optimal and safe outcomes occur for patients receiving care (Laschinger & Leiter, 2006). Relational leadership styles have been associated with reduced frequency of adverse events (Capuano et al., 2005; Johnson, 2015; Paquet, et al., 2013; Wong & Cummings, 2007; Vogus & Sutcliffe, 2007; Wong et al., 2013; Wong & Giallonardo, 2013) and improved patient safety climates in healthcare settings (Vogus & Sutcliffe, 2007; Wong & Giallonardo, 2013). Specifically, authentic leadership is a relational form of leadership that is derived from the field of positive organizational psychology (Avolio, Gardner, Walumbwa, Luthans, & May, 2004; Luthans & Avolio, 2003). Authentic leadership theory is based on the premise of leader authenticity- that a leader is true to own values, is self-aware, genuine in social interactions, and ethical in decision-making (Avolio et al., 2004). Authentic leaders are positive, optimistic, hopeful, and trusting, which leads to positive leader-follower relationships and functional workplace relations (Avolio et al., 2004). The relationship between an authentic leader and follower occurs via personal identification whereby the follower self-identifies with the positive self-concepts of their authentic leader including attributes such as moral reasoning and optimism (Avolio et al., 2004). Walumbwa, Avolio, Gardner, Wernsing, and Peterson (2008) reported the psychometrics of a theory-based measure of authentic leadership, which is composed of four main elements. The components include: relational transparency (e.g., open and honest interactions when dealing with others), moral/ ethical conduct (e.g., acting according to personal beliefs and standards), balanced processing (e.g., objectively considering many views before deciding), and self-awareness (e.g., aware of personal

emotions; Walumbwa et al., 2008). Authentic leadership theory has been related to enhanced job satisfaction (Wong & Laschinger, 2013), trust in manager (Wong & Cummings, 2009), employee empowerment (Wong & Laschinger, 2013), IPC (Laschinger & Smith, 2013, Regan et al., 2016), and psychological well-being (Nelson et al., 2014).

Wong and Giallonardo (2013) examined the relationships among authentic leadership, nurses' trust in their manager, areas of worklife, and nurse-assessed adverse patient outcomes. Areas of worklife, which included workload, control, reward, community, values, and fairness, mediated the relationship between authentic leadership, nurses trust in the manager, and nurse assessed adverse events (Wong & Giallonardo, 2013). Nursing leaders who are trustworthy, optimistic, and genuine in their interactions with followers are more likely to enhance the degree of safety within their hospital units and influence the frequency at which adverse events occur. Similar studies, including two systematic reviews, have also identified that relational leadership styles are associated with a decreased frequency of adverse events and increased patient satisfaction (Wong, 2015; Wong & Cummings, 2007; Wong and Giallonardo, 2013).

Interprofessional Collaboration

Authentic leadership has also been related to enhanced communication and IPC among new graduate nurses (NGNs) who have less than two years of nursing experience (Laschinger & Smith, 2013), and experienced RNs who have greater than five years of nursing experience (Regan et al., 2016). The CIHC (2010) defined IPC as a “participatory, collaborative, and coordinated approach to shared decision-making around health and social issues” (p.11) among health professionals, a client, and their family.

Laschinger and Smith (2013) created an IPC scale, which is based on IPC literature and measures the degree to which nurses feel they collaborate with other health professionals, the value of IPC on their unit, respect of diverse health professional knowledge, understanding of roles in providing holistic patient care, and the patient's role in the healthcare team. NGNs who worked with an authentic leader and had access to empowering work conditions, which included access to information, support, resources, and opportunities to learn and grow within their professional role, were more likely to communicate effectively with other health professionals and participate in conversations regarding patient care within the interprofessional team (Laschinger & Smith, 2013). Moreover, NGNs felt respected and supported in their ability to interact within the interprofessional healthcare team leading to an enhanced sense of belonging and job satisfaction (Laschinger & Smith, 2013). Similarly, Regan et al. (2016) found that authentic leadership, structural empowerment, and professional practice environments, which includes elements of nurse control over decision-making and patient care, positive teamwork perceptions, and positive physician-nurse relationships, led to enhanced IPC among experienced RNs. Authentic leaders may play an important role in enhancing IPC among RNs by role modeling positive behaviours such as transparency and moral reasoning, as well as encouraging staff members to value and respect their coworkers' knowledge and skill in providing holistic patient care (Regan et al., 2016).

Enhanced communication and IPC are also independently related to patient safety within healthcare environments (Kim et al., 2010; Williams et al., 2007) as well as enhanced patient bio-psychosocial outcomes (Zwarenstein et al., 2009). Zwarenstein et al. (2009) suggested that the communication practices among healthcare professionals

impacts the quality of healthcare that patients receive. Historically, communication patterns among healthcare professionals have been strained due to hierarchical imbalances among providers and differences in personal identities, professional values, and in communication patterns (Delva, Jamieson, & Lemieux, 2008). Williams et al. (2007) found that poor communication among interprofessional surgical teams lead to a higher likelihood of adverse events occurring among surgical patients. For example, poor healthcare team communication and the delaying of proper patient care resulted in 77% of adverse events (Williams et al., 2007). Moreover, poor interprofessional communication led to 31% of serious adverse patient events, 21% of minor adverse events, 22% of near misses among surgical patients (Williams et al., 2007). In contrast, Kim et al. (2010) found that multidisciplinary team rounding, which included nurses, physicians, respiratory therapists, and pharmacists, led to decreased odds of mortality among intensive care unit (ICU) patients. Patients within the ICU were less likely to suffer adverse events such as medication errors when health professionals participated and collaborated to meet optimal patient outcomes (Kim et al., 2010). Ultimately, when health professionals collaborate and communicate effectively, patients receive safer care (Kim et al., 2010, Stutsky & Spence Laschinger, 2014). However, when communication is not timely, appropriate, or prioritized according to urgency, adverse patient events are more likely to occur, which threaten patient safety.

Experienced Registered Nurses

There is a crucial role for RNs within the interprofessional team and in ensuring patient safety. They represent the largest group of healthcare providers within Canada and work in diverse healthcare settings (CIHI, 2016c). It is important to consider staff

nurses' perspectives on the frequency and type of adverse events as by nature of their role, spend much of their time at the patient's bedside (Sochalski, 2001; Wong & Giallonardo, 2013). Studies have shown that staff nurses represent a valid and reliable group of health professionals in assessing adverse events among patients and families (McHugh & Stimpfel, 2012; Sochalski, 2001). CIHI (2016c) suggested mid-career experienced regulated nurses, typically have superior knowledge, skill, and judgment to work autonomously and support older and younger nurses in the workforce. Most RNs provide direct patient care (90%) and most work in busy and acute medical/surgical units (18%; Canadian Nurses Association [CNA], 2016). By nature of their role as bedside nurses, experienced RNs have most likely witnessed several instances of adverse events throughout their careers.

Purpose and Significance

Avolio et al.'s (2004) theory of authentic leadership provides a solid foundation for understanding the nature of the relationships between IPC and nurse assessed adverse events. Authentic leadership has been related to enhanced IPC among new graduate and experienced RNs (Laschinger & Smith, 2013; Regan et al., 2016) as well as a decrease in adverse events among the patient population (Wong & Giallonardo, 2013). Additionally, IPC has been related to a decrease in adverse events among patients and enhanced safety practices within healthcare environments (Kim et al., 2010; Stutsky & Spence Laschinger, 2014). It is important to uncover the nature of adverse events among patients seeking healthcare in Canada to prevent serious injury, prolonged lengths of stay, and mortality among patients. The purpose of this study was to examine the mediating effect of IPC on the relationship between authentic leadership and nurse assessed adverse

events among experienced RNs. Investigating the relationships among these variables will help advance the patient safety agenda, reduce financial and legal implications among healthcare organizations, and improve the quality of care for patients seeking healthcare in various settings.

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Chapter Two

Manuscript

Background and Significance

Patient safety is a concern to patients and families (Canadian Patient Safety Institute [CPSI], 2017), the Canadian government, and healthcare organizations in Canada (Canadian Institute for Health Information [CIHI], 2016b). People interacting with the healthcare system may trust that the care they receive will be safe, however this is not always the case. Findings of a recent report by CIHI (2016b) entitled, *Measuring Patient Harm in Canadian Hospitals*, suggested that patients in Canadian hospitals suffered harm in more than 138,000 different hospitalizations. Moreover, one in five hospitalizations resulted in more than one type of harm (CIHI, 2016b). Patient harm may result from the care they receive and may include the development of adverse events such as hospital-acquired infections, injuries with falls, medication errors, or procedure-related conditions (CIHI, 2016b). Baker and Norton (2004) defined adverse events as “unintended injuries or complications that result in disability at the time of discharge, a prolonged hospital stay, or death.” (p. 326). Adverse events are a result of healthcare mismanagement rather than the patient’s underlying disease, however not all adverse events may be avoided (Baker & Norton, 2004). The healthcare system is complex and requires the coordination of multiple health services, professionals, and environments to meet desired outcomes. This complex system potentiates the likelihood of error occurring within a patient’s admission.

Strong leadership has been proposed as a strategy to reduce the frequency of adverse events and prevent patient safety incidents from occurring (Anderson, Issel, &

McDaniel, 2003; Houser, 2003; Wong, 2015). Authentic leaders who are self-aware, make balanced decisions, have an internalized moral perspective, and who are transparent in their relationships, may be effective in addressing the issue of adverse events (Wong & Giallonardo, 2013). Avolio, Gardner, Walumbwa, Luthans, and May (2004) suggested that authentic leaders have qualities such as positive psychological capital, which includes elements of optimism and resilience, that lead to positive leader-follower relationships. These positive relationships may encourage registered nurses (RNs) to develop a greater sense of psychological safety within their environments, such as openly communicating with their leaders when they feel there is a threat to patient safety without the fear of retribution (Anderson et al., 2003). The enhanced communication practices between leaders and nurses also lead to enhanced trust and stronger relationships (Anderson et al., 2003). Examining the influence of authentic leadership on nurse assessed adverse events may lead to further insights into how healthcare leaders may improve the quality of patient care and enhance the safety culture within their units. Authentic leaders also play an essential role in generating attention towards effective team communication and interprofessional collaboration (IPC) among healthcare professionals to meet optimal health outcomes for patients.

Healthcare professionals who work in an interprofessional fashion, meaning they understand each other's roles, function well as a team, resolve conflict fairly, involve the patient and family in decision-making, and work as leaders to approach health and social issues (Canadian Interprofessional Health Collaborative [CIHC], 2010), are more likely to enhance the safety and quality of healthcare environments (Stutsky & Spence Laschinger, 2014). Components of IPC such as trust, leadership, information exchange,

communication, and connectivity (D'Amour, Goulet, Labadie, San Martín-Rodriguez, & Pineault, 2008; McGrail, Morse, Glessner, & Gardner, 2009) are similar to the components of relational styles of leadership such as authentic leadership. It is important to understand how the relationships between authentic leadership, IPC, and nurse assessed adverse events may improve leadership and collaborative healthcare practices as well as enhance patient safety practices via the integration of evidence-informed practices. Nurses are essential healthcare professionals that interact with numerous other healthcare professionals frequently, therefore they must become fluent in collaborating in an interprofessional manner within their work.

According to CIHI (2016a) there are 298,743 RNs in Canada. Nurses compose the largest group of healthcare professionals in Canada (CIHI, 2001), therefore they are most likely to witness the highest frequency of adverse events in Canadian healthcare organizations. Based on the number of hours spent working, experienced RNs will most likely have been witness to many adverse events in their careers. Thus, it is important to consider their insights regarding adverse events (McHugh & Stimpfel, 2012). Moreover, it is essential to consider the nursing perspective of adverse events because many publications have shown relationships among the occurrence of adverse events, unit safety culture, and nursing professional practice environments (Aiken, Smith, & Lake, 1994; Kazanjian, Green, Wong, & Reid, 2005; Laschinger & Leiter, 2006). Additionally, adverse events have been correlated with higher burnout including emotional exhaustion and depersonalization in the workplace (Laschinger & Leiter, 2006). Adverse events have a negative effect on patients and families and negative occupational repercussions for RNs.

There are several publications linking relational styles of leadership with improved patient safety (Capuano, Bokovoy, Hitchings, & Houser, 2005; Vogus & Sutcliffe, 2007; Wong & Giallonardo, 2013) as well as highlighting the value of teamwork and team communication practices to improving the safety climate in healthcare organizations (Stutsky & Spence Laschinger, 2014) and reducing adverse events (Ashcraft, Bordelon, Fells, George, Thombley, & Shirey, 2017; Manojlovich & DeCicco, 2007; Stutsky & Spence Laschinger, 2014; Vogus & Sutcliffe, 2007). However, there is limited published research on how IPC may mediate the relationship between authentic leadership and nurse assessed adverse events among experienced RNs. The purpose of this study was to test the mediating effect of IPC on the relationship between authentic leadership and nurse assessed adverse events among experienced RNs. Findings of the study may enhance the safety climate within healthcare organizations, and contribute to practices that may reduce the length of hospital admissions, reduce the mortality associated with adverse events, and reduce the financial costs associated with error.

Theoretical Framework

Luthans and Avolio (2003) suggested that authentic leadership is a process, which is rooted in positive psychological capacities and a highly-developed organizational context that supports the development of leaders and followers who have a strong sense of self-awareness and self-regulated positive behaviours. Authentic leaders have positive attributes and behaviours such as confidence, hope, optimism, resiliency, transparency, and morality (Luthans & Avolio, 2003). Authentic leadership is a positive relational style of leadership and is rooted in the field of positive organizational psychology, which

aims to study the positive traits that individuals possess (Luthans & Avolio, 2003). The basic premise of authentic leadership is authenticity- leaders who know themselves, stay true to themselves in social situations, interact transparently with others, and believe in their core values (Avolio et al., 2004). Gardner, Avolio, Luthans, May, and Walumbwa (2005) suggested that authentic leaders possess a high degree of self-awareness and self-regulation, which contributes to their authenticity in social interactions.

The four elements of authentic leadership include self-awareness, balanced processing, relational transparency, and an internalized moral perspective (Walumbwa et al., 2008). *Self-awareness* is an understanding of one's strengths and weaknesses and an understanding of how these qualities impact others (Walumbwa et al., 2008). The more self-aware a leader becomes, a deeper sense of personal understanding and meaning within the world is developed (Walumbwa et al., 2008). *Relational transparency* occurs when a leader is authentic in social interactions, including sharing personal thoughts and feelings (Walumbwa et al., 2008). The leader does not distort oneself in social situations and is always aware of how he or she comes across to others (Walumbwa et al., 2008). *Balanced processing* occurs when a leader objectively considers all aspects of a situation before deciding on a solution (Walumbwa et al., 2008). When a leader considers others' viewpoints in a situation, deeply-held convictions may be challenged (Walumbwa et al., 2008). Lastly, a leader with an *internalized moral perspective* has strong personal values and moral standards, which are displayed in behaviours regardless of differences or pressure in group, organizational, and societal norms (Walumbwa et al., 2008).

An important aspect of authentic leadership is the degree to which leaders influence their followers. Avolio et al. (2004) suggested that leaders influence their

followers via displays of positive emotions, trust, and behaviours such as openly discussing their vulnerabilities and emphasizing growth in followers in professional and social interactions. Personal identification with an authentic leader occurs when followers identify and self-define themselves by the positive self-concepts of their leader, which include moral reasoning as well as positive emotions and behaviours (Avolio et al., 2004). Authentic leaders who role model positive emotions such as hope, trust, and optimism as well as positive behaviours are more likely to generate engagement, motivation, satisfaction, commitment, and professional involvement among their followers by enhancing their attitudes and behaviours (Avolio et al., 2004). Authentic leadership also generates a strong sense of social identification among followers, which occurs when followers feel a strong sense of belonging to the group, which adds to their personal identity (Tajfel, 1972). Strong social identification among followers leads to the emergence of more leaders within the group who possess similar attributes and behaviours to their authentic leaders (Hogg, 2001). Moreover, Dirks and Ferrin (2002) suggested that followers who display positive attributes like their authentic leaders are more likely to remain professionally committed to their organization, display organizational citizenship behaviours, and be satisfied with their leaders. Additionally, followers are more likely to be enthusiastic about their work, feel psychologically engaged in their positions, and experience strong meaningfulness via acting on ethical behaviours in their positions (May, Chan, Hodges, & Avolio, 2003). Ultimately, authentic leaders serve their followers by helping them discover their strengths and potential as professionals and as future leaders (George, 2003; Luthans & Avolio, 2003).

Authentic leadership has been related to positive work climates (Nelson et al., 2014) as well as enhanced communication practices and IPC among health professionals (Laschinger & Smith, 2013; Regan, Laschinger, & Wong., 2016). When nurses feel supported by an authentic leader, they are more likely to perceive autonomy in decision-making, be self-actualized in the ability to grow in the organization, display effective interactions with diverse health professionals regarding patient care, and feel psychologically safe in transparently communicating with their immediate leaders when patient care is unsafe. Subsequently enhanced IPC and strong workgroup relationships among health professionals lead to fewer adverse events and safer patient care (Stutsky & Spence Laschinger, 2014).

Literature Review

In this integrative literature review, the conceptualization of each of the study concepts and the relationships among them are described. Searching these databases, CINAHL, ProQuest, PsychINFO, and Scopus, and using the keywords, “authentic leadership”, “interprofessional collaboration” and “adverse events”, research on the topic was examined. Search selection criteria included articles written in English for the time frame of 1998-2018. In the literature review, authentic leadership was defined and common variables associated with the theory were explored. Next, IPC was defined and the relationship between authentic leadership and IPC as well as IPC and adverse events were identified. Last, adverse events was defined and explored in relation to authentic leadership and IPC.

Authentic Leadership

Avolio et al. (2004) suggested that authentic leaders who have attributes such as hope, optimism, and resiliency were more likely to inspire their followers to exhibit these behaviours, subsequently creating positive and functional workplaces. Many outcomes have been associated with authentic leadership, which are cited within nursing and healthcare literature (Alilyyani, 2017). For example, authentic leadership has been associated with enhanced job satisfaction (Wong & Laschinger, 2013), work engagement (Bamford, Wong, & Laschinger, 2013; Stander, De Beer, & Stander, 2015), positive work climates, and psychological well-being (Nelson et al., 2014).

Authentic leadership has been related to enhanced work environment factors as well as supportive workgroup relationships and enriched practice environments. In a sample of nurses from Ontario and Quebec ($N= 406$) Nelson et al. (2014) found that authentic leadership was associated with increased nurse psychological well-being via work climate. In the mediation model, nurses who reported higher authentic leadership of managers also rated a more positive work climate ($\beta = .58, p < .001$), and in turn higher psychological well-being ($\beta = .23, p < .001$; Nelson et al., 2014). Nelson et al. (2014) suggested that nurses who rated their leaders higher on authentic leadership were more likely to feel respected at work, autonomous, and enabled to grow and develop within the organization. Similarly, in a random sample of Ontario RNs ($N= 723$), Laschinger and Fida (2015) found that manager authentic leadership had a direct positive effect on RNs' perceived structural empowerment ($\beta = .77, p < .01$) and on professional practice environments including increased autonomy, control, and nurse-physician collaboration ($\beta = .69, p < .01$). Ultimately, professional practice environment was positively associated

with nurse assessed quality of patient care ($\beta=.49, p<.01$; Laschinger & Fida, 2015). RNs who had access to the necessary resources to perform in their jobs as well as who sensed autonomy in decision making and effective collaboration with physicians were also more satisfied in their jobs and provided better patient care (Laschinger & Fida, 2015).

Similarly, in a sample of Ontario RNs ($N= 600$) working in acute and community-based healthcare environments, Wong and Laschinger (2013) found manager authentic leadership contributed to increased job satisfaction and self-rated job performance via the mediating role of structural empowerment. Authentic leadership had a direct positive association with structural empowerment ($\beta=.46, p<.01$), job satisfaction ($\beta=.41, p<.01$), and perceived job performance ($\beta=.17, p<.01$; Wong & Laschinger, 2013). When RNs reported support from their direct leader and were empowered in their roles, they may be more likely to assume greater responsibility for the care of their patients as well as ensure positive unit outcomes (Wong & Laschinger, 2013). The positive relationships among authentic leadership and work environment factors such as climate, empowerment, and support for professional practice are critical to the creation of sustainable and respectable interprofessional relationships, and in the delivery of safe healthcare.

Interprofessional Collaboration

The Canadian Interprofessional Health Collaborative (CIHC; 2010) defined IPC as “a partnership between a team of health providers and a client in a participatory, collaborative, and coordinated approach to shared decision-making around health and social issues” (p. 11). Essential elements of IPC include role clarification, team functioning, interprofessional conflict resolution, and collaborative leadership (CIHC, 2010). Health professionals must be aware of their unique roles and the roles of others as

this knowledge allows professionals to work to their full scope of practice, for workload to be equally and appropriately dispersed, as well as to achieve optimal patient health outcomes (CIHC, 2010). The role of the patient and family is important to IPC as the patient is an expert in their own lived experiences, therefore must be provided with the education, resources, and information to address their health issues (CIHC, 2010). Team functioning is also an integral component of IPC as health professionals working together are required to establish effective working relationships with elements of respect, value, trust, open communication, active listening, and cooperation (CIHC, 2010). Lastly, collaborative leadership is necessary in an IPC model as it promotes role and task accountability among team members (CIHC, 2010). Interprofessional collaboration is also related to positive work behaviours such as job satisfaction (Gaboury, Lapierre, Boon, & Moher, 2011), positive organizational outcomes such as improved patient care (Zwarenstein, Goldman, & Reeves, 2009), and enhanced patient outcomes such as decreased length of stay (Stutsky & Spence Laschinger, 2014).

An important relationship to examine is that of authentic leadership and IPC. Authentic leadership has been positively associated with IPC among nurses in two studies (Laschinger & Smith, 2013; Regan et al., 2016). Laschinger and Smith (2013) examined this relationship among new graduate nurses (NGNs; $N= 194$) and found that when authentic leaders created empowering work environments where NGNs can provide optimal care, they also feel they can collaborate more effectively with their healthcare team members leading to improved patient care. Laschinger and Smith (2013) developed a researcher-constructed scale of IPC which measures the effectiveness, value, respect of knowledge, role clarification, and patient involvement in IPC (Laschinger & Smith,

2013). Authentic leadership and structural empowerment were significantly associated with perceived quality of IPC among NGNs ($R^2 = .24$, $F = 29.55$, $p < .001$; Laschinger & Smith, 2013). Further regression analyses suggested that authentic leadership and structural empowerment explained a significant amount of variance ($R^2 = 9\% - 29\%$) among four out of the five individual items of the IPC scale used (Laschinger & Smith, 2013). NGNs perceived enhanced IPC when members of the interprofessional team respected their knowledge and when their relationships with other health team members were strong (Laschinger & Smith, 2013).

Regan et al. (2016) tested the influence of structural empowerment, authentic leadership, and professional practice environments on IPC among a random sample ($N = 220$) of experienced RNs working in staff nurse positions in Ontario, Canada. Higher structural empowerment, authentic leadership, and professional practice environments were associated with higher IPC among experienced RNs as all three variables predicted 45.2% of the variance seen in IPC ($R^2 = .452$, $F = 59.40$, $p < .001$). Findings of this study reinforced the importance of workplaces that have structural resources in place to support employees in their professional role and that authentic leaders may facilitate safe, autonomous, and supportive healthcare environments (Regan et al., 2016). An important element of authentic leadership is the aspect of relational leader-follower development (Avolio et al., 2004). If experienced RNs feel that they have the support of an authentic leader, they also report enhanced attitudes and behaviours associated with IPC.

IPC is an effective means to achieve sustainable health outcomes for patients and enhanced outcomes among health professionals and organizations. Stutsky & Spence Laschinger (2014) suggested a positive relationship between IPC and improved patient

safety in healthcare environments. Laschinger and Smith (2013) found that authentic leadership and structural empowerment among nurses led to higher perceived quality of IPC among nurses. Healthcare leaders have an important role in ensuring health professionals work in an interprofessional manner that is respectful of each health professional's unique knowledge and skills (Laschinger & Smith, 2013).

Interprofessional collaboration occurs when health professionals believe in the concept, are flexible, trusting, cooperative, and have strong communication skills as well as when workplaces are empowering and support structures are present (Stutsky & Spence Laschinger, 2014). With the proper personal, organizational, and leadership variables in place, IPC may lead to improved outcomes among patients and a decreased frequency of adverse events.

Adverse Events

Baker and Norton (2004) described adverse events as “unintended injuries or complications” (p. 326) that are a result of healthcare mismanagement or broader systems issues and that lead to prolonged hospital stay, disability, or death. Adverse events involve acts of omission, such as the failure to treat a disease, or acts of commission, such as poor performance of medical staff (Baker et al., 2004). Up to 51% of adverse events are preventable (Baker et al., 2004).

Aiken et al. (2001) developed a scale to measure nurse assessed adverse events based on an international study of nurses within five countries. The scale was developed from Sochalski's (2001) study of quality of care, nurse staffing, and patient outcomes and has been used in Canadian studies (Laschinger & Leiter, 2006; Wong & Giallonardo, 2013). Within the questionnaire, nurses are asked to report the incidence of adverse

events involving themselves or their patients in the past year (Aiken et al., 2001). Only nurses' reports of patient adverse outcomes involving medication errors, nosocomial infections, complaints from patients and families, and patient falls/ injuries were included in the present study. It is important to consider nurses' assessment of the incidence of adverse events since nurses comprise the largest group of health professionals in Canada (CIHI, 2001) and a majority work in direct patient care (Canadian Nurses Association [CNA], 2016). RNs working at the bedside spend most of their work hours providing direct patient care and are more likely to witness adverse events as well as understand the antecedents and outcomes of the harm to patients, therefore adding to the validity of their judgment. Additionally, McHugh and Stimpfel (2012) suggested that nurses are well-positioned to report on the quality of patient care as they oversee the patient care experience. Nurses build relationships with patients and families over time with repeated interactions at the bedside, therefore have a deep understanding of the means in which care is provided and how adverse events may occur (McHugh & Stimpfel, 2012).

Relational styles of leadership have been related to a decreased frequency of adverse events (Capuano et al., 2005; Johnson, 2015; Paquet, Courcy, Lavoie-Tremblay, Gagnon, & Maillet, 2013; Vogus & Sutcliffe, 2007; Wong et al., 2013; Wong & Giallonardo, 2013) and improved safety climates in healthcare environments (Vogus & Sutcliffe, 2007). In a sample of staff RNs ($N= 283$) working at a Pennsylvania-based hospital, Capuano et al. (2005) found that transformational leadership practices such as challenging the process, inspiring a shared vision, enabling others to act, modeling the way, and encouraging the heart, were inversely related to staff stability, that is, a lower turnover rate ($\beta= -2.678, p<.05$). In turn, turnover rate was inversely related to adverse

patient outcomes such as hospital-acquired pneumonia, hospital-acquired urinary tract infections, mortality, medication errors, and patient falls ($\beta = -.990, p < .05$; Capuano et al., 2005). Additionally, Paquet et al. (2013) found that manager support was associated with decreased medication errors in a sample of healthcare workers ($N = 243$) based in a Canadian health centre. Similarly, in a sample of healthcare workers ($N = 1,111$) in American hospitals, Vogus and Sutcliffe (2007) found that trust in leadership was associated with decreased medication errors.

In two systematic reviews of nursing leadership and patient outcomes, Wong and Cummings (2007) as well as Wong et al. (2013) found findings of 20 studies that suggested a relationship among relational leadership and adverse events. In a structural equation model, Houser (2003) identified that effective leadership, including elements of staff advocacy, perceptiveness, encouraging attitudes, and inspiring behaviours had a direct significant positive relationship with staff expertise ($\beta = 1.92, p < .05$), which then had a direct significant negative association with adverse patient outcomes ($\beta = -2.13, p < .05$) in a sample of American hospitals and nursing homes. Leaders who displayed positive attributes were more likely to retain experienced, qualified, and competent staff, who were subsequently less likely to make mistakes when caring for patients, thus decreasing the occurrence of adverse events (Houser, 2003). Tourangeau, Giovannetti, Tu, and Wood (2002) found that the retention of experienced RN staff and a richer skill mix of RNs was associated with reduced frequency of adverse events and 30-day mortality within teaching and community hospitals.

Similarities may be drawn from the relationships among transformational leadership, manager support, trust, and frequency of adverse events to authentic

leadership and the occurrence of adverse events. Positive leader attributes such as credibility and interpersonal skills as well as leaders who advocate for their staff, inspire others to perform to their best ability, and emulate high-quality work ethic are more likely to role model these behaviours to followers, retain experienced staff, and encourage teamwork among staff, subsequently contributing to fewer adverse events from occurring (Houser, 2003). Similarly, authentic leaders maintain credibility among their followers by being transparent in their thoughts and actions, being self-aware, displaying moral/ ethical reasoning, and considering multiple views before acting on a decision (Walumbwa et al., 2008).

In a cross-sectional survey, Wong and Giallonardo (2013) examined the relationships among authentic leadership, nurses' trust in their manager, areas of worklife, and nurse assessed adverse patient outcomes among Ontario-based RNs ($N=280$). They argued that nurses who have developed a sense of trust and safe interpersonal relationships with their managers are more likely to voice concerns related to breaches in patient safety as well as discuss practices that may improve patient safety. Findings showed the relationship between authentic leadership and nurse assessed adverse patient events was mediated by trust in manager ($\beta= -.27, p<.001$) and areas of worklife ($\beta= .26, p<.001$; Wong & Giallonardo, 2013). Additionally, authentic leadership had a negative indirect association with nurse assessed adverse events via areas of worklife ($\beta= -.12, p<.01$) and trust in manager had a small indirect association with nurse assessed adverse events via areas of worklife ($\beta= -.07, p<.01$). While a direct association between authentic leadership and nurse assessed adverse events was not identified, trust in manager and areas of worklife were mediators in this relationship (Wong & Giallonardo,

2013). Authentic leaders are more likely to enhance nurses' person-job match, which may lower the frequency of adverse events (Wong & Giallonardo, 2013).

In addition to authentic leadership, IPC has also been associated with adverse events. In a systematic review of the effect of IPC on professional practice and healthcare outcomes, Zwarenstein et al. (2009) suggested that the extent to which healthcare professionals work together may impact the quality of care that patients receive. If communication is fragmented among healthcare professionals then the care of patients may deteriorate and adverse events are more likely to occur (Williams et al., 2007). Williams et al. (2007) used semi-structured focus groups to study information transfer and communication patterns among interprofessional surgical teams within American hospitals. Poor healthcare team communication and the delaying of patient care resulted in 77% of patient-related incidents and poor interprofessional surgical communication led to 31% of serious adverse patient events, 21% of minor adverse events, and 22% of near misses (Williams et al., 2007). These findings suggest that IPC and communication are key factors in the safe care of patients in hospitals (Williams et al., 2007). Similarly, results from Lingard et al.'s (2004) observational study showed that ineffective team communication among surgical residents, attending surgeons, and nurses was frequently identified as a root cause of medical errors and adverse events among surgical patients. Moreover, Ashcraft et al. (2017) and Kim et al. (2010) found that interprofessional rounding on patients led to enhanced communication practices among health professionals and subsequently positive patient outcomes and decreased mortality.

Summary of the Literature

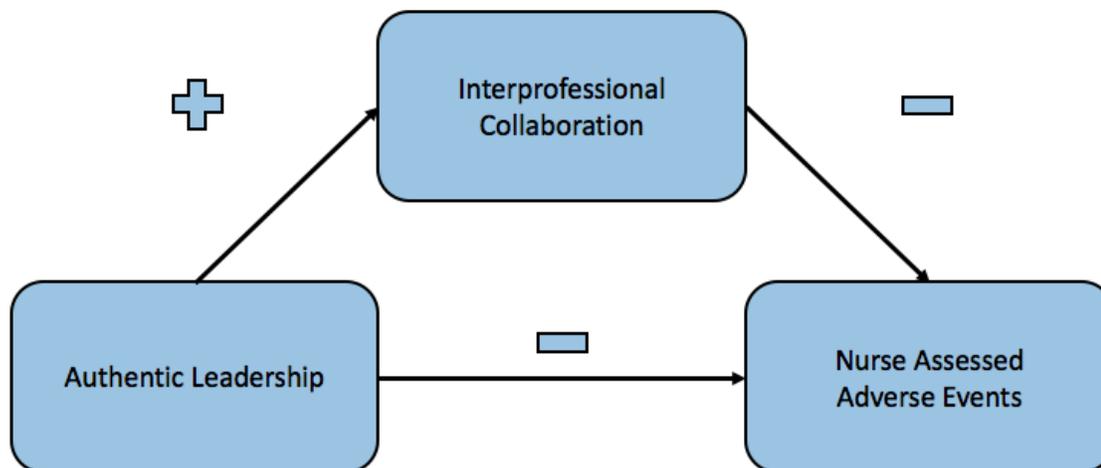
The relationship between authentic leadership and enhanced IPC was identified in a few studies (Laschinger & Smith, 2013; Regan et al., 2016). In particular, authentic leadership has been related to an increase in perceived IPC among experienced RNs (Regan et al., 2016). Wong and Giallonardo (2013) also identified a relationship between authentic leadership and a lower frequency of nurse assessed adverse events.

Interprofessional collaboration is an inclusive means by which health professionals work with a patient/ family to meet optimal health outcomes (CIHC, 2010). Collaboration among health practitioners and the patient may lead to a decrease in the frequency at which adverse events occur (Stutsky & Spence Laschinger, 2014). Healthcare professionals who have strong connections with their coworkers and who trust their immediate leader may feel more psychologically safe when communicating near misses, sharing incidences of error that may be prevented, as well as feel more confident having conversations regarding adverse events (Wong & Giallonardo, 2013). While there are some studies that examine the relationships among authentic leadership and IPC as well as between enhanced communication and adverse events, there were no studies that examine the mediating effect of IPC on the relationship between authentic leadership and nurse assessed adverse events among experienced RNs.

Hypotheses and Rationale

Based on a review of the literature, as well authentic leadership theory (Avolio et al., 2004) and IPC (Laschinger & Smith, 2013), a hypothesis was developed. The model in Figure 1 was developed and tested.

Figure 1

Hypothesized Model

Hypotheses:

- 1) Authentic leadership is negatively associated with nurse assessed adverse events.
- 2) Authentic leadership is positively associated with IPC.
- 3) Interprofessional collaboration is negatively associated with nurse assessed adverse events.
- 4) Interprofessional collaboration mediates the relationship between authentic leadership and nurse assessed adverse events.

Authentic leadership has been associated with enhanced IPC among NGNs and experienced nurses (Laschinger & Smith, 2013; Regan et al., 2016). When authentic leaders create empowering workplaces for staff, and when there is flexibility, autonomy, and potential for growth present in work environments, RNs are more like to collaborate effectively and provide optimal patient care (Laschinger & Smith, 2013; Regan et al., 2016). Relational leadership styles, including authentic leadership, have been associated

with a decreased frequency of adverse events and increased patient safety cultures in healthcare environments (Houser, 2003; Wong, 2015; Wong & Cummings, 2007; Wong et al., 2013; Wong & Giallonardo, 2013). Wong and Giallonardo (2013) found that when RNs had increased trust in their authentic leader, RNs were more likely to report a match in the six areas of worklife, which led to a decreased frequency of nurse assessed adverse events. Avolio et al. (2004) suggested that authentic leaders are honest, transparent, optimistic, self-aware, ethical, and considerate of diverse views when making important decisions. Authentic leaders who act according to their moral convictions and who are non-threatening to approach may be more likely to role model positive behaviours in their followers and allow followers to feel psychologically safe when reporting incidences of near misses, safety concerns within the healthcare unit, and adverse events (Wong & Giallonardo, 2013). Enhanced communication, collaboration, and interprofessional team rounding was also associated with enhanced safety practices among healthcare professionals and a decreased frequency of adverse events (Ashcraft et al. 2017; Stutsky & Spence Laschinger, 2014) and enhanced patient outcomes (Zwarenstein et al., 2009). Laschinger and Smith (2013) suggested that IPC must involve all health professionals and the patient as well as value, respect, and understanding of roles in collaboration. Based on the literature review, it was proposed that IPC will mediate the relationship between authentic leadership and nurse assessed adverse events among experienced RNs.

Methods

Design and Sample

A secondary analysis of cross-sectional data from the study entitled *The Protective Role of Authentic Leadership against Workplace Bullying, Early Career*

Burnout and Premature Turnover of New Graduate Nurses: A Longitudinal Study

(ALGN) by Laschinger, Wong, Finegan, and Fida (2015) was conducted. In the original longitudinal study, surveys were mailed to samples of NGNs and experienced RNs in Alberta, Nova Scotia, and Ontario at three separate time points of April 2015, November 2015, and November 2016. A random sample of 1200 experienced RNs with greater than three years of nursing experience at baseline were surveyed resulting in a baseline response rate of 39.8% ($N=478$). A predictive, non-experimental study design was used for the current study. The time 2 study data sample of experienced RNs ($N= 269$; 55.3% response rate) was used for analysis. Inclusion criteria of nurses in the current study included RNs with greater than three years of nursing experience, and current employment in a direct patient care environment. Nurses working in advanced practice, educator, or administrative roles were excluded. A power analysis was conducted to determine that the required sample size was adequate for the current study (Cohen, 1987; Kellar & Kelvin, 2013). Using G* Power 3.1 and based on a moderate effect size of .15, a beta of .80, an alpha of .05, and two predictors, the minimum number of participants needed for sufficient power was 68 using multiple regression (Faul, Erdfelder, Buchner, & Lang, 2009). Therefore, 269 experienced RNs was an appropriate sample size.

Sample Characteristics

The main study demographic statistics are displayed in Table 1. The number of years working at the current organization averaged 16.2 ($SD= 10.54$) and years working on the current hospital unit averaged 11.3 years ($SD= 9.45$). Just over half of the sample of RNs (144; 53.9%) were employed full-time and 103 RNs (38.6%) were employed part-time; this is similar to 2016 national statistics in which 60.7% of RNs were

employed full-time and hospitals were the highest employers of full-time RNs (58.2%; CIHI, 2016). Almost half of the sample had a baccalaureate degree (131; 49.2%), 117 RNs had a college diploma (44.0%) and only 18 RNs (6.8%) had a Master's degree. The largest number of RNs worked in medical-surgical units ($n=102$; 38.1%), which is representative of the general population of RNs in Canada (CIHI, 2016a).

Table 1

Study Demographic Statistics (N= 269)

Demographic		Frequency (<i>n</i>)	Valid Percent %
Sex	Female	249	92.9
	Male	19	7.1
Employment Status	Full-time	144	53.9
	Part-time	103	38.6
	Casual	20	7.5
Province	Nova Scotia	98	36.4
	Ontario	91	33.8
	Alberta	80	29.7
Education	College	117	44.0
	Baccalaureate	131	49.2
	Graduate Degree	18	6.8
Specialty Area	Medical-Surgical	102	38.1
	Critical Care	81	30.2
	Maternal-Child	33	12.3
	Mental Health	15	5.6
	Community	37	13.8
Demographics	<i>N</i>	Mean	SD
Age	268	47.32	10.86
Years in nursing	266	22.14	11.81
Years at current organization	226	16.18	10.54
Years on current unit	221	11.36	9.45

Instruments and Measures

Laschinger et al. (2014) used three standardized instruments to measure authentic leadership, IPC, and nurse assessed adverse events (Appendix A). Avolio, Gardner, and Walumbwa (2007) created the *Authentic Leadership Questionnaire (ALQ)*, which was used to measure followers' perceptions of their immediate leader's authentic leadership style. Laschinger and Smith (2013) created an IPC instrument, which measures key elements of interprofessional collaboration and Aiken et al. (2001) created the nurse assessed adverse events instrument to measure nurses' perceptions of the frequency of the occurrence of adverse events.

Authentic leadership. The ALQ has 16 items organized into four subscales, which measure one of the four components of authentic leadership. Items measuring each subscale were distributed as follows: self-awareness (four), relational transparency (five), balanced processing (three), and moral/ethical behaviour (four). Respondents were asked to rate how often their leaders display authentic leadership behaviours which are structured on a four-point Likert scale from one (not at all) to four (frequently, if not always). Each of the scores from the four subscales are averaged to yield subscale mean scores, which are then averaged for a total scale mean. Higher scores on the ALQ represent greater authentic leadership. Validity of the ALQ was determined through confirmatory factor analysis, which was completed using two independent samples from China and the United States (Walumbwa et al., 2008). Discriminant validity was achieved by the differentiation of authentic leadership from similar measures of leadership including ethical and transformational leadership (variance extracted ranged

from .52 to .67; Walumbwa et al., 2008). Reported Cronbach alphas of the ALQ subscales have ranged from .76 (internalized moral perspective) to .92 (self-awareness).

Interprofessional collaboration. Laschinger and Smith (2013) created the IPC scale to measure perceived collaboration among healthcare providers, patients, and families. The scale is based on previous research, which identified important elements of IPC (Kenaszchuk, Reeves, Nicholas, & Zwarenstein, 2010; Orchard, Curran, & Kabene, 2005). There are five items on the scale, which measure respondents' perceptions of effective collaboration on their hospital unit, value of IPC, respect of knowledge within interprofessional groups, understanding of roles in providing holistic patient care, and the patient's role in the interprofessional team. The items are averaged to form one overall score of IPC. The five-point Likert scale ranges from one (strongly disagree) to five (strongly agree). Higher scores are equivalent to higher IPC within the healthcare unit. Validity of the scale was achieved through an exploratory factor analysis in which principal components extraction and varimax rotation revealed a one-factor solution explaining 77.5% of the variance and all five items loading above .40 (Laschinger & Smith, 2013). Internal consistency and reliability was achieved through a reported acceptable Cronbach alpha value ($\alpha=.75$; Laschinger & Smith, 2013). Additional evidence of validity was supported by significant positive associations between IPC and authentic leadership and structural empowerment (Laschinger & Smith, 2013). Other studies have indicated acceptable reliability with a Cronbach alpha value $>.80$ (Regan et al., 2016).

Nurse assessed adverse events. Aiken et al. (2001) created the nurse assessed adverse events scale from the *International Survey of Hospital Staffing and Organization*

of Patient Outcomes study that examined the effects of organizational and human health resource changes on patient outcomes. The survey is composed of nurses' perceptions of two aspects: the frequency of patient-related adverse events which have occurred in the past year (four items) and the frequency of nurse-related adverse events in the workplace (two items). Only the patient-related adverse events were used in the current study. Each of the four items are rated on a four-point Likert scale ranging from one (never) to four (frequently). All four items are averaged to yield a total score. Internal reliability is acceptable with Cronbach alpha coefficients ranging from .75 (Laschinger & Leiter, 2006) and .81 (Wong & Giallonardo, 2013). The survey has been used in national studies of nurses (Aiken et al., 2001; Laschinger & Leiter, 2006; Sochalski, 2004). Laschinger and Leiter (2006) found that adverse events were strongly correlated with staffing ($r = -.30, p < .01$), emotional exhaustion ($r = .30, p < .01$), and depersonalization ($r = .34, p < .01$) in a sample of Canadian-based RNs. Sochalski (2004) reported that as quality of nursing care decreased from excellent to poor, the frequency of adverse patient events increased. Acceptable reliability has been found in another study with a Cronbach alpha coefficient of .75 (Laschinger & Leiter, 2006).

Demographic questionnaire. A demographic questionnaire was also included in the study to gather information related to gender, age, highest degree in nursing (college diploma, baccalaureate, Master's degree), employment status (full-time, part-time, casual) specialty area of work (medical-surgical, critical care, maternal child, mental health, community) as well as length of time working as an RN, working at a specific organization, and on a specific unit (Appendix A).

Data Collection

Data was gathered using a modified version of the Dillman Total Design Method (Dillman, 2007). At baseline (April 2015), each participant was mailed a survey package to their home address. Each participant received a \$2 Tim Hortons gift card as well as the opportunity to enter into a draw to win an iPad mini as an incentive to participate. Three weeks after the initial survey was mailed, nurses received a reminder postcard in the mail and after another three weeks, non-responding nurses were mailed a second copy of the survey package. Baseline respondents received mailed surveys at time two (November 2015) and the same Dillman procedure was followed. Ethical approval was received from the Research Ethics Board at Western University for the original study in 2014, which applied to the secondary analysis (Appendix C). A completed survey package returned to the principal investigator implied that consent was obtained.

Data Analysis

The Statistical Software Package for Social Sciences (SPSS), (version 25), was used to analyze the data for the study (IBM, 2017). The level of significance was set at $p < .05$ for all analyses. Missing data points were examined for amount and pattern. Since only 6 missing cells were present out of 269 total cases, the missing cases do not represent a limitation to the study as they represent less than 2% of the total sample. Descriptive statistics including means and standard deviations, as well as skewness and kurtosis were computed. Pearson correlations were used to examine the relationships among continuous demographics (e.g. age and experience) and the three main study variables including subscales. Independent t-test and analysis of variance (ANOVA) were applied to examine the relationships among the main study variables and gender,

years of nursing experience, employment status, and currently specialty area.

Relationships among the three main study variables were examined using Pearson correlations. Cronbach alpha coefficients were computed on the three main variables to assess internal consistency reliability.

The hypothesized mediation model was tested using the SPSS macro, PROCESS (version 3; Hayes, 2018). PROCESS Model 4 (for simple mediation) was used to test the role of IPC as a mediator between authentic leadership and nurse assessed adverse events. This software tool estimates the unstandardized coefficients of a model using ordinary least squares (OLS) regression. The mediation approach promoted by Baron and Kenny (1986) is historically important but not consistent with modern practice (Hayes, 2018). Modern practice emphasizes explicit estimation of the indirect effect, inferential tests of indirect effects, and a recognition that evidence of a statistically significant association between X and Y is not necessary to discuss and model intervening variable processes (Hayes, 2018; Hayes & Rockwood, 2017). In PROCESS the resampling procedure known as bootstrapping is used to assess indirect effects. PROCESS version 3 produces bootstrap confidence intervals using the percentile method. Bootstrapping generates an empirical approximation of the sampling distribution of a statistic by repeated random resampling of the available data and uses this distribution to calculate *p*- values and construct confidence intervals (5,000 resamples were taken for these analyses). When the value of zero is not found in the 95% confidence interval, it is determined that the indirect effect is significant different from zero.

Results

Descriptive Results

Table 2 contains the means, standard deviations, and reliability coefficients among the main study variables. The average overall score for the ALQ was moderate ($M= 2.34, SD= 1.01$) with self-awareness rated lowest ($M= 2.07, SD= 1.25$) and moral/ethical behaviour highest ($M=2.55, SD=1.02$). Regan et al. (2016) found a similar moderate ALQ score ($M= 2.28, SD= 1.04$) within their study of experienced staff nurses in Ontario, Canada. Additionally, Wong and Laschinger (2013) found a similar moderate ALQ score ($M= 2.35, SD= .98$) among a sample of Ontario RNs.

The overall average IPC score was moderately high ($M= 3.84, SD=.05$). Each item averaged from the lowest (patient involvement in the interprofessional team; $M= 3.76, SD= 1.04$) to the highest (belief that knowledge is respected by other health professionals when RNs participate in interprofessional groups; $M=3.95, SD= .89$). Regan et al. (2016) found a similar mean IPC score among experienced RNs in Ontario ($M= 3.79, SD= .85$).

The average overall score for Nurse Assessed Adverse Events Scale was moderately low ($M=2.03, SD= .67$). The four items also yielded scores below midpoint with the lowest mean for the frequency at which patients fall with injuries ($M=1.91, SD= .92$) and the highest mean associated with the frequency at which nurses receive complaints from patients and/or families ($M= 2.23, SD= .91$). Wong and Giallonardo (2013) found similar overall nurse assessed adverse events scores among nurses working in acute care Ontario hospitals ($M= 2.03, SD= .66$).

Relationships between Demographic Variables and Major Study Variables

Significant relationships were found between the demographic variables including highest degree in nursing education, total years of nursing, and the total years nursing in an organization and authentic leadership. One-way ANOVA showed significant differences in authentic leadership by highest education ($F_{(2, 261)}=3.99, p=.02$). The Tukey post-hoc revealed that nurses who had a college nursing diploma reported lower authentic leadership of their managers ($M= 2.15, SD=.10$) than nurses with a baccalaureate degree ($M= 2.50, SD= .97$). There were significant, weak, and negative Pearson correlations between authentic leadership and total years of nursing ($r= -.17, p=.01$) and total years of nursing in an organization ($r= -.14, p= .04$).

Additionally, significant relationships were found between highest degree in nursing, employment status, specialty area of work, and nurse assessed adverse events. ANOVA results revealed significant differences between nurse assessed adverse events and highest nursing education ($F_{(2, 261)}=3.378, p=.036$), employment status ($F_{(2, 262)}=4.266, p=.015$), and specialty area ($F_{(4, 261)}=8.239, p= <0.001$). Nurses who worked casual ($M= 2.43, SD= .70$) reported significantly higher adverse events than nurses who worked full-time ($M= 2.02, SD= .63$) or part-time ($M= 1.95, SD= .69$). Nurses who worked in community health ($M= 2.53, SD= .66$) reported higher adverse events than those who worked in medical-surgical ($M= 2.01, SD= .65$), critical care ($M= 1.97, SD= .62$), and maternal child ($M= 1.68, SD= .62$) units. Lastly, nurses with a graduate degree reported significantly higher adverse events ($M= 2.42, SD= .59$) than nurses with a college diploma in nursing ($M= 2.00, SD= .69$) or those with a baccalaureate degree in

Table 2

Means, Standard Deviations, Reliability Coefficients, and Correlation Matrix.

Variable	<i>M</i>	<i>SD</i>	α	1	2	3	4	5	6
1.ALQ	2.34	1.01	.97						
2. Relational Transparency	2.48	1.02	.91	.94**					
3. Balanced Processing	2.25	1.10	.89	.95**	.84**				
4. Moral/ Ethical Behaviour	2.55	1.02	.92	.93**	.86**	.84**			
5. Self-Awareness	2.07	1.15	.94	.95**	.85**	.89**	.82**		
6. IPC	3.84	.05	.86	.36**	.36**	.32**	.35**	.34**	
7.NAE	2.03	.67	.76	-.09	-.09	-.09	-.09	-.06	-.17**

* $p < 0.05$, two tailed ** $p < 0.01$, two-tailed, *M*=mean, *SD*= standard deviation, α = Cronbach's alpha

nursing ($M= 1.99$, $SD= .65$). No significant relationships between the demographic variables and IPC were found.

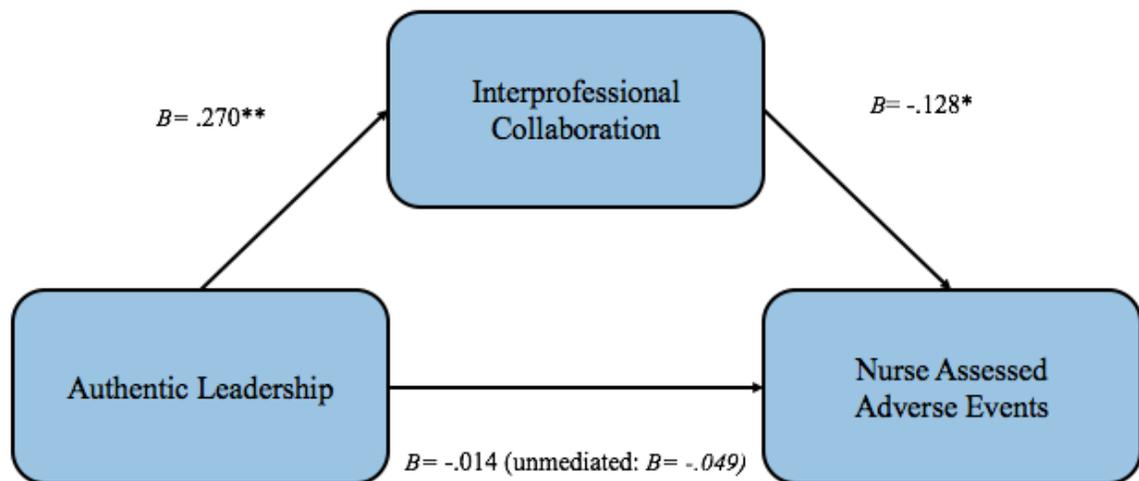
Test of Hypotheses

Four hypotheses were proposed regarding the relationships among the three main study variables within the mediation model. Two demographic variables were used as controls in this model (employment and education status) as they were significantly related to the outcome variable (nurse assessed adverse events) and they were theoretically important covariates in the relationships between authentic leadership, IPC, and nurse assessed adverse events. Specialty area of work was also significantly related to nurse assessed adverse events, however was not included as a covariate due to coding issues and the heterogeneity of the community health subgroup. Table 3 includes the unstandardized coefficients of the final mediation model and figure 2 shows the final model. Overall, authentic leadership, IPC, and the additional covariates contributed to 8% of the variance in nurse assessed adverse events. The unmediated direct effect between authentic leadership and nurse assessed adverse events was not significant ($B= -.049$, $p= .235$) and the mediated direct effect between authentic leadership and nurse assessed adverse events was also not significant ($B = -.014$, $p= .742$). The first hypothesis that stated authentic leadership is negatively associated with nurse assessed adverse events was not supported. There was a significant, positive association between authentic leadership and IPC ($B = .270$, $p<.001$), thus supporting the second hypothesis. There was a significant negative association between IPC and nurse assessed adverse events ($B = -.128$, $p= .025$), supporting the third hypothesis. The indirect effect of authentic leadership on nurse assessed adverse events through IPC ($B= -.034$, 95% CI [-

.069, -.004]) was significant, as the confidence interval does not cross zero. The fourth hypothesis that stated IPC mediates the relationship between authentic leadership and nurse assessed adverse events was supported.

Figure 2

Final Model



Note. $p < .001^{**}$, $p < .05^*$

Table 3

Coefficients of Final Model for Study Hypotheses (N=260)

Antecedent	Outcome					
	Interprofessional Collaboration			Nurse-Assessed Adverse Events		
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>
Authentic Leadership	.270	.045	<.001	-.014	.043	.742
Interprofessional Collaboration	---	---	---	-.128	.057	.025
Full-time vs part-time	-.138	.095	.146	-.079	.086	.357
Full-time vs. casual	-.247	.173	.155	.375	.156	.017
Diploma vs. BScN	.071	.095	.453	.053	.085	.533
Diploma vs. Master's	-.200	.183	.275	.430	.165	.010
Constant	3.253	.127	<.001	2.497	.216	<.001
	$R^2=.152$			$R^2=.081$		
	$F(5,254) = 9.094, p <.001$			$F(6, 253) = 3.738, p=.001$		

Additional Analysis

Table 2 contains the correlation matrix for all the main study variables. There was a significant, moderate, and positive correlation between IPC and authentic leadership ($r = .36, p < .001$). There were also significant, positive, moderate correlations between all authentic leadership subscales and IPC. The strongest correlation was between relational transparency and IPC ($r = .36, p < .001$), followed by moral/ethical behaviour ($r = .35, p < .001$), self-awareness ($r = .34, p < .001$), and balanced processing ($r = .32, p < .001$). Additionally, there was a significant, negative, weak correlation between IPC and nurse assessed adverse events ($r = -.17, p < .001$). There were no significant correlations found between authentic leadership and subscales, and nurse assessed adverse events.

Discussion

In this secondary analysis, the mediating effect of IPC on authentic leadership and nurse assessed adverse events was examined. Interprofessional collaboration mediated the relationship between authentic leadership and nurse assessed adverse events with the addition of education and employment status as covariates, supporting the fourth hypothesis. Ultimately, the mediation model accounted for 8% of the variance within nurse assessed adverse events.

The lowest authentic leadership subscale score was self-awareness, which was also the lowest subscale among Regan et al.'s (2016) study of experienced RNs. Walumbwa et al. (2008) described self-awareness as how a leader understands his or her meaning in the world and how this meaning impacts how they perceive themselves over time as well as how others understand them via relational exposure. Self-awareness

involves understanding personal strengths and weaknesses and how behaviours impact others (Walumbwa et al., 2008). Experienced RNs may have found it difficult to rate their immediate leaders' self-awareness due to a lack of understanding of how their leader makes their strengths and weaknesses transparent. It may be beneficial for healthcare leaders to participate in development programs where self-awareness may be enhanced. In contrast, the highest ALQ subscale score within the study was moral/ethical behaviour, which was similar to the findings in Regan et al.'s (2016) study. Walumbwa et al. (2008) described moral/ethical behaviour as the internalized moral values that leaders use to self-regulate in social interactions regardless of group, organizational or societal pressures that may threaten their integrity. Moral and ethical reasoning is a focal component of leadership traits that is evident within many leadership theories including authentic leadership, transformational leadership, and ethical leadership (Walumbwa et al., 2008). Healthcare leaders excelled at internalizing traits of morality including honesty, fairness, and integrity as well as enacting morality in their positions of leadership by role modeling values congruent with ethical behaviour despite uncertainties or pressure in the workplace (Walumbwa et al., 2008).

There was a significant positive association between authentic leadership and IPC. Moreover, each of the subscales of authentic leadership positively correlated with IPC, which suggested each component of an authentic leader is an important aspect to enhancing IPC among healthcare professionals. Results from this study parallel research on NGNs (Laschinger & Smith, 2013) and experienced RNs (Regan et al., 2016) regarding the positive relationship between authentic leadership and enhanced IPC. Laschinger and Smith (2013) found that authentic leaders who create empowering work

conditions for their staff are more likely to support NGNs in feeling confident when collaborating and communicating within the interprofessional team. Enhanced IPC subsequently led to safer nursing care provided to patients (Laschinger & Smith, 2013). Additionally, Regan et al. (2016) found that enhanced structural empowerment, authentic leadership, and professional practice environments led to higher perceived IPC among experienced RNs. Avolio et al. (2004) suggested that an important aspect of authentic leadership is the relational element of leader-follower development. Authentic leaders act as role models and catalysts for healthcare professionals to practice to their optimal ability (Avolio et al., 2004). Therefore, authentic leaders who role model effective IPC and who provide resources and support for staff in effective collaboration, are more likely to enhance the overall degree of collaboration, communication, respect of diverse knowledge, and involvement of patients and families within the healthcare unit.

Experienced RNs rated IPC as moderately high within their current area of work. There was also a significant negative association, albeit small, between IPC and nurse assessed adverse events. No studies were found that directly examined the effect of IPC on nurse assessed adverse events among experienced RNs. However, Williams et al. (2007) found that fragmented communication among healthcare providers led to a higher frequency of serious adverse events as well as near misses. Other studies have highlighted a relationship between enhanced communication in healthcare units and a lower frequency of adverse events (Ashcraft et al., 2017; Kim et al., 2010). Healthcare professionals who communicate, understand and respect diverse professional knowledge, and who involve the patient and family in healthcare decision-making are more likely to provide safer care to patients (Stutsky & Spence Laschinger, 2014).

Overall, experienced RNs perceived nurse assessed adverse events to occur infrequently, which was similar to findings within Wong and Giallonardo's (2013) study among experienced RNs. The highest mean score among the nurse assessed adverse events subscales was nurses receiving complaints from patients and/or families and the lowest mean score was the frequency at which patients fall with injuries. Findings in the study did not reveal any direct unmediated relationship between authentic leadership and nurse assessed adverse events. However, there was a significant indirect effect of authentic leadership on nurse assessed adverse events through IPC.

No other studies have examined the direct relationship between authentic leadership and nurse assessed adverse events, however Wong (2015) found studies highlighting an indirect relationship between relational styles of leadership and decreased adverse events. Relational leadership styles including transformational leadership and resonant leadership, have been indirectly associated with a decreased frequency of adverse events via a decrease in staff turnover, enhanced staff stability, and expertise (Capuano et al., 2005; Wong, 2015). Leader trust and support have also been identified as behaviors associated with a decrease in adverse events (Paquet, et al., 2013; Vogus and Sutcliffe, 2007). In addition, Wong and Giallonardo (2013) found that trust in manager and areas of worklife mediated the relationship between authentic leadership and nurse assessed adverse patient events. Leiter and Maslach (2002) developed the *Areas of Worklife Scale (AWS)* to measure person-job match in congruence with worklife in the areas of workload, control, reward, community, values, and fairness. Similarities may be drawn between the elements of IPC and AWS. Albeit no direct relationship between authentic leadership and the frequency of nurse assessed adverse events, there was an

indirect relationship between variables such as IPC, trust in manager, and areas of worklife as mediators. Wong (2015) highlighted the important indirect mechanisms through which relational leaders influence positive patient outcomes via influencing behaviours and attitudes, encouraging participation in unit functions, providing structural resources, and facilitating transparent communication. The current study adds to the research on the importance of leader authenticity in facilitating an environment in which the frequency of adverse events among patients may be lowered.

The significant indirect relationship between authentic leadership and nurse assessed adverse events via IPC suggests that authentic leaders' relational, positive characteristics play a pivotal role in decreasing the frequency of adverse events among patients. Authentic leaders act as role models and exert a positive influence on their followers (Avolio et al., 2004). There is a need for leaders who internalize and display attributes of authenticity in their practice to enhance positive attributes among followers' including optimism, confidence, and resiliency in their nursing practice (Avolio et al., 2004). Avolio et al. (2004) suggest that the personal and social identification that followers have with their leaders leads to hope, trust, and positive emotions, which then leads to enhanced follower attitudes such as commitment and engagement as well as behaviours such as enhanced job performance. Authentic leaders have the capacity to address organizational issues (George, 2003) via their positive influence on followers (Avolio et al., 2004).

Data analysis of the relationships between the demographic variables and main study variables revealed some significant relationships. There were significant differences in authentic leadership and nurse assessed adverse events as well as education

status. Therefore, education status was included as a covariate in the mediation model. Additionally, there were significant differences in nurse assessed adverse events and employment status. Therefore, employment status was also included as a covariate in the mediation model. There were significant differences in the mean nurse assessed adverse events score and specialty area of work. However, there was significant diversity among the subgroups within the specialty areas of work variables and particularly among the community health nurses. Therefore, this variable was not included as a covariate in the model.

Authentic leadership development programs have been established for leaders, which are based on action-learning principles (Baron, 2016; Baron & Parent, 2015). The programs have contributed to enhanced mindfulness and application of authentic leadership skills in the domains of self-awareness, relational transparency, and balanced processing of information and moderate development of skills within the internalized moral perspective in their everyday practices as middle managers within public and private organizations (Baron, 2016; Baron & Parent, 2015). Leaders who have advanced skills in authentic leadership are more likely to encourage employees to collaborate and communicate, subsequently leading to enhanced safety environments.

Limitations

The cross-sectional design used in the analysis allows for relationships among variables to be determined at one point in time however limits the ability to understand changes among relationships over time and the ability to determine causality (Polit & Beck, 2016). The original data was collected using self-reports by nurses, which may include response bias (Polit & Beck, 2016). The use of nurse assessed adverse outcomes,

which represent an estimate of adverse events might be subject to bias although McHugh and Stimpfel (2012) argued nurses' reports of care quality are reliable indicators of actual quality. Nurses' reports of the frequency of adverse events may be impacted by factors not included in this study such as staffing adequacy, patient condition, quality of care processes, nurse involvement in policy setting, and nursing model of care (Laschinger & Leiter, 2006). The sampling method of 400 nurses per each of the three provinces may have influenced representativeness in that provinces may have been under- or- over sampled. The sample of experienced RNs primarily worked in acute care environments, with few RNs working in community and mental healthcare environments. The sample was also limited to nurses with equal to or greater than three years of nursing experience based in three Canadian provinces. Few nurses worked in long-term care, home care, or ambulatory settings, therefore the ability to generalize results across multiple settings is limited. Additionally, the ability to generalize results to NGNs and nurses working in other Canadian provinces is limited by the sample chosen.

Conclusion

Avolio et al.'s (2004) theory of authentic leadership is an important leadership approach associated with increased IPC and decreased nurse assessed adverse events indirectly through IPC. Authentic leaders who make balanced decisions, are transparent, self-aware, and support moral/ethical viewpoints are more likely to create a work environment where professionals collaborate effectively. Healthcare professionals who collaborate effectively by valuing diverse roles within the healthcare team including the patient and family, are more likely to provide safer healthcare. The positive association between authentic leadership and IPC, and subsequently negative association with nurse

assessed adverse events suggests the need for further professional development and educational opportunities for healthcare leaders to advance their knowledge and applied skills in authentic leadership.

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Chapter Three

Discussion

This study tested the mediating effect of interprofessional collaboration (IPC) on the relationship between authentic leadership and nurse assessed adverse events among experienced registered nurses (RNs). The final mediation model supported three of the four hypotheses proposed. There was a significant positive relationship between authentic leadership and IPC and a significant negative relationship between IPC and nurse assessed adverse events. The relationship between authentic leadership and nurse assessed adverse events was mediated by IPC and the mediation model accounted for 8% of the variance within nurse assessed adverse events. There was no significant direct relationship found between authentic leadership and nurse assessed adverse events. The implications for theory and practice as well as the recommendations for future research are discussed below.

Implications for Theory

Avolio, Gardner, Walumbwa, Luthans, and May (2004) suggested that authentic leadership theory is based on the concept of true authenticity- that leaders continuously strive to stay true to themselves and their morals and values. The authenticity and deep personal identification of values and morals that leaders possess and understand within themselves, enhances their professional practice and the relationships they form with their followers (Avolio et al., 2004). Leaders influence others by exhibiting attributes of hope, trust, and positive emotions, which leads followers to enhance their work attitudes, such as commitment, and their work behaviours, such as job performance (Avolio et al., 2004). The personal and social identification that followers have with their leaders,

contributes to positive outcomes within staff and within the workplace (Avolio et al., 2004).

The relationship between authentic leadership and IPC within the study provided further theoretical significance to Avolio et al.'s (2004) theory of authentic leadership. Specifically, Avolio et al. (2004) suggested that the social identification that followers have with authentic leaders includes elements of prototypicality, social attraction, and identity salience. Authentic leaders who role model transparency, integrity, and uphold values across social situations are more likely to enhance accountability within followers as well as values, beliefs, and goals that align with the leader (Avolio et al., 2004). The relationship between authentic leadership and enhanced IPC was supported in the current study, as identified in the final mediation model. Avolio et al. (2004) suggested that authentic leaders are important role models for followers as their positive attitudes and behaviours are often mirrored among their followers. Therefore, authentic leaders who display positive attributes such as effective collaboration, value of communication, respect and understanding of diverse healthcare team member roles, as well as the involvement of the patient and family in healthcare decision-making, may enhance these attributes among their healthcare followers who practice in direct patient care environments. The relationship between authentic leadership and enhanced IPC has been identified in similar studies of experienced RNs as well as in studies of new graduate nurses (NGNs; Laschinger & Smith, 2013; Regan, Laschinger, and Wong, 2016). These studies identified that authentic leaders have an important role to play in ensuring staff collaborate and communicate effectively within healthcare environments by providing positive guidance as well as encouraging positive work relationships, a sense of

belonging, and job satisfaction (Laschinger & Smith, 2013; Regan et al., 2016). An authentic leader may act as an empowering and supportive means for nurses to feel their knowledge is respected in the workplace, that equity in communication is important, and that teamwork achieves optimal patient outcomes (Laschinger & Smith, 2013; Regan et al., 2016). In particular, experienced RNs may feel more confident and less threatened to participate in interprofessional groups when they have support from their authentic leader (Regan et al., 2016).

This study is the first known study to empirically test the mediating role of IPC on authentic leadership and nurse assessed adverse events among experienced RNs. The theoretical significance of authentic leadership theory within the mediation model is evident within the effect that authentic leadership had on IPC and subsequently on nurse assessed adverse events. The positive relationship between authentic leadership and patient/ organizational outcomes indirectly through IPC in the current study provides further theoretical significance to the importance of authentic leadership theory in enhancing patient safety and creating safer healthcare environments via healthcare staff behaviours and attitudes. Authentic leaders may play an important role in ensuring safer workplaces by acting as role models and in encouraging healthcare professionals to effectively communicate, collaborate, and respect one another's diverse roles in providing holistic patient care. Additionally, authentic leaders may act as role models in encouraging healthcare staff to respect the importance of the patient/family concerns regarding their unique health needs and adapting their practice as necessary to provide optimal patient care. Adverse events may occur because of hasty judgments made by healthcare providers as well as by patients/families in vulnerable conditions. However,

the more healthcare providers participate in safety organizing behaviours including communicating with their fellow colleagues related to concerns of medication doses, the potential for patients to acquire nosocomial infections, patients' overall health statuses, and the potential for falls, the less likely these adverse events and others may occur in acute healthcare settings. Subsequently, the current study provided further evidence to support the notion that when diverse healthcare professionals work harmoniously with one another and the patient/ family, fewer adverse events occur via safer healthcare practices.

No other studies have found a direct relationship between authentic leadership and nurse assessed adverse events, however few similar studies have highlighted the importance of authentic leadership and relational leadership styles in decreasing the frequency of adverse events and creating optimal organizational outcomes (Capuano, Bokovoy, Hitchings, & Houser, 2005; Wong, 2015; Wong & Cummings, 2007; Wong, Cummings, & Ducharme, 2013; Wong & Giallonardo, 2013). Wong and Giallonardo (2013) found that experienced RNs who enhance their collaboration and communication practices within the healthcare team are more likely to contribute to enhanced patient safety via behaviours such as encouraging diverse opinions, respecting diverse knowledge, interjecting when the plan of care does not feel right, and involving the patient and family in their care. Authentic leaders who exhibit behaviours such as transparency and balanced processing as well as encourage social identification among their followers are more likely to encourage nurses to feel psychologically safe when reporting incidences where errors or near misses occurred in the workplace (Wong & Giallonardo, 2013). Additionally, Vogus and Sutcliffe (2007) found that the trust that is

established between authentic leaders and their followers enhanced nurses' ability to improve their safety organizing behaviours such as reporting incidence of error. Authentic leaders who role model positive behaviours and who develop trusting relationships with followers are more likely to encourage followers to take risks in their practice that may lead to enhanced patient outcomes (Avolio & Gardner, 2005; Mayer & Gavin, 2005). Wong (2015) found that relational styles of leadership and trust in leadership were related to decreased adverse patient outcomes and lower patient mortality. In particular, relational leadership styles were associated most frequently with fewer medication errors and lower patient mortality (Wong, 2015).

Implications for Management, Clinical Practice, and Education

Authentic leadership. Results of this study highlight a significant relationship between authentic leadership and nurse assessed adverse events via the mediating effect of IPC. Authentic leaders have an important role to play within healthcare environments as they role model attributes and behaviours associated with exceptional practice for staff and act as confidants and use balanced processing techniques when staff share incidents of unsafe practice. Nurses who share similar values as their authentic leaders such as respect and understanding of knowledge within the interprofessional team and the importance of communication and collaboration with the patient and their family, subsequently reduce the frequency of adverse events from occurring within healthcare environments. This study corroborates similar research, albeit very few studies, published regarding the importance of authentic leaders' behaviours such as self-awareness, balanced processing, transparency, and moral/ethical reasoning in reducing

the frequency of adverse events through mediating variables such as trust in manager and areas of worklife (Wong & Giallonardo, 2013).

Based on results from this study as well as previous studies, there is a need for authentic leadership education and development opportunities for frontline healthcare leaders. Avolio and Gardner (2005) suggested that authentic leaders are essential elements in achieving sustainable business performance within organizations. Walumbwa, Avolio, Gardner, Wernsing, and Peterson (2008) suggested that authentic leaders and followers may be developed. Based on these two perspectives, authentic leadership training programs may be feasible opportunities to advance authenticity among leaders and positive effects among followers working within healthcare organizations. Two studies have highlighted positive effects of implementing authentic leadership programs for leaders in various Canadian public and private institutions (Baron, 2016; Baron & Parent, 2015). Both programs are based on action-learning principles, which involve a series of steps such as identification of a problem, involving a diverse group, questioning, reflecting, and listening, as well as acting on the problem, commitment to finding a solution, and involving a coach to help reach goals (Marquardt & Banks, 2010). Action learning involves principles of reflection and support from peers, which leads to the development of new insights and strategies to address problems within the workplace (Dillworth & Willis, 2003).

Study findings were positive in both studies as middle managers advanced their development of authentic leadership and mindfulness (Baron, 2016; Baron & Parent, 2015). Healthcare managers may be encouraged to advance their skills in the four aspects of authentic leadership through reflection of personal morals/values, development

of self-awareness, understanding of influence and impact, as well as via the identification and experimentation of new behaviours (Baron, 2016; Baron & Parent, 2015). Peer-coaching and practicing of skills in safe environments may serve as important mechanisms through which managers may gain skills in authentic leadership (Baron, 2016; Baron & Parent, 2015). Transferring skills from practice environments to authentic healthcare environments may facilitate the ease at which specific behaviours of authentic leadership may be applied. Moreover, healthcare managers may become increasingly self-aware by reflecting and enhancing their degree of mindfulness, which involves an understanding of how their personal convictions may affect the decisions and actions taken in response to an event (Baron, 2016). Mindfulness may lead to flexibility in decision making, which is an important aspect of balanced processing within authentic leadership theory.

Authentic leadership development may also start earlier at the undergraduate level. One study highlighted the success of implementing an authentic leadership program among a group of upper year nursing students ($N=18$) within a nursing baccalaureate program in the United States (Waite, McKinney, Smith-Glasgow, & Meloy, 2014). Nursing students who participated in the program gained authentic leadership skills such as developing self-awareness, managing emotions, identifying personal values, and the differences between being a manager and a leader (Waite et al., 2014). Ultimately nursing students become practicing NGNs who have the responsibility to nurse autonomously, advocate for patients, as well as respectfully collaborate with other healthcare professionals (Waite et al., 2014). Skills in authentic leadership that are developed at the baccalaureate level may be translated into future nursing practice.

Authentic leadership training programs designed and implemented for healthcare leaders may help to advance the degree of IPC among staff nurses. Authentic leaders have an important role to play in supporting and acknowledging the role of the experienced RNs within the interprofessional team in the workplace (Regan et al., 2016). Authentic leaders act as role models in effective collaboration to experienced RNs as they exhibit characteristics of respect of diverse sets of knowledge and clear communication (Regan et al., 2016). Subsequently, staff nurses who enhance their communication and collaboration are more likely to help reduce the frequency of adverse events from occurring among patients.

Interprofessional collaboration. There was a significant negative relationship between IPC and nurse assessed adverse events found within the study. Essential components of IPC include effective collaboration, value of IPC, knowledge respect, understanding of roles, and patient involvement in the IPC team (Laschinger & Smith, 2013). Healthcare professionals who effectively work with one another and with the patient and family are more likely to enhance the quality of care provided to patients and subsequently reduce the frequency of adverse events from occurring among patients (Stutsky & Spence Laschinger, 2014).

There is a need for interprofessional education (IPE) for healthcare providers to improve their IPC within the workplace and subsequently enhance the safety of patient care. The relationship between IPE and positive healthcare outcomes has been highlighted in numerous studies, however the heterogeneity of interventions and range of outcomes has made it difficult to streamline an effective IPE process for healthcare institutions to implement (Reeves, Perrier, Goldman, Freeth, & Zwarenstein, 2013). In

one study, Morey et al. (2002) found that instituting a training program to enhance teamwork among healthcare staff within emergency departments ($N=9$), led to enhanced emergency department performance, attitudes among staff, and fewer adverse events. The program was modeled after an aviation teamwork course that had previously yielded successful results in high-stress environments and included modules on team structure and climate, applying problem-solving strategies, communication within the team, execution of plans, management of workload, and improvement of team skills (Morey et al., 2002). The implementation of teamwork principles enhanced the behaviours and attitudes associated with teamwork in the emergency department and reduced the frequency of adverse events (Morey et al., 2002).

There is also a need for enhanced exposure to IPE among undergraduate nursing students. Interprofessional collaborative practices that are learned early on in undergraduate students' education may benefit the degree to which they feel comfortable with their professional role as well as with communicating and collaborating with diverse health professionals in the workplace. Hudson, Sanders, and Pepper (2013) completed an integrative review of studies related to IPE among baccalaureate nursing students, which aimed to examine the degree to which students are exposed to the four competency domains for interprofessional collaborative practice (values and ethics, roles and responsibilities, communication, and teamwork; Hudson et al., 2013). Similarly, Labrague, McEnroe–Petitte, Fronda, and Obeidat (2018) completed an integrative review of simulation-based IPE among undergraduate nursing students. In both studies, findings were positive as undergraduate nursing students advanced their competencies, self-efficacy, and affective behaviours in the four domains in primarily simulation and

seminar settings (Hudson et al., 2013; Labrague et al., 2018). Interprofessional education at the baccalaureate level is an important aspect of the curricula that must be further developed and implemented among universities and across various simulated healthcare settings including the community (Labrague et al., 2018). Undergraduate nursing students who are exposed to IPE best practices, may be more likely to successfully translate related knowledge and behaviours into their professional practice as NGNs in healthcare settings (Hudson et al., 2013).

Ultimately, authentic leaders have a crucial role to play in ensuring experienced RNs are supported in their workplace and feel that their role is important within the interprofessional healthcare team (Regan et al., 2016). Authentic leaders who are transparent with staff members and who explore many opinions before concluding are more likely to promote trust in their relationship with healthcare professionals (Wong & Giallonardo, 2013). Subsequently, IPC leads to enhanced patient safety (Stutsky & Spence Laschinger, 2014). Authentic leadership and IPE programs have led to improved behaviours among healthcare staff that are associated with enhanced patient safety environments in hospitals. Healthcare organizations may benefit from implementing programs where leaders could advance their authentic leadership attitudes and behaviours in self-awareness, transparency, balanced processing, and moral/ethical behaviour. Additionally, healthcare organizations and ultimately patients may benefit from IPE programs designed to enhance healthcare providers' ability to collaborate and communicate effectively with each other and with the patient/ family. Lastly, educational institutions may benefit their baccalaureate nursing students by providing them with education in authentic leadership and IPE so that their self-efficacy and behaviours

associated with relational leadership and IPC may be developed early in their education and translated into their professional practice.

Recommendations for Future Research

Avolio et al.'s (2004) theory of authentic leadership was supported in this study as authentic leadership had a significant negative indirect effect on nurse assessed adverse events through IPC as a mediating variable. However, only 8% of the variance of nurse assessed adverse events was explained in the mediation model. There is a potential for other mediators to have an influence on the relationship between authentic leadership and nurse assessed adverse events. Wong and Giallonardo (2013) highlighted a relationship between authentic leadership and a decreased frequency of nurse assessed adverse events via mediating variables including trust and areas of worklife (Wong & Giallonardo, 2013). Interprofessional collaboration, trust in manager, and areas of worklife have been identified as important mediators in the relationship between authentic leadership and nurse assessed adverse events. It may be recommended that future research examine other potential mediators in the relationship between authentic leadership and nurse assessed adverse events.

The importance of authentic leadership training programs was highlighted among two studies (Baron, 2016; Baron & Parent, 2015). The action learning principles employed for training managers in these studies led to enhanced attitudes and behaviours associated with authentic leadership including self-awareness, transparency, balanced processing, and moral/ethical behaviour among middle managers. However, these two studies were generalized to various leaders in public and private organizations that were based in Quebec. There is a need for studies examining the specific effect of authentic

leadership training programs for healthcare leaders across Canada and the positive healthcare outcomes that may be associated with these programs.

Additionally, there are many studies that have examined the effect of IPE among healthcare staff and positive healthcare outcomes. However, Reeves et al., (2013) suggested that the heterogeneity of these programs and the diverse outcomes that occurred limit the reliability of such educational programs. This study examined the means in which experienced RNs rated IPC to occur in their daily practice and in their current healthcare environments. There is a need for tailored IPE programs designed for RNs to examine the potential positive impact on healthcare outcomes and patient safety.

Lastly, the mediating role of IPC on the relationship between authentic leadership and nurse assessed adverse events was examined among experienced RNs working in specific care areas including medical-surgical, critical care, maternal child, mental health, and community health. It is recommended that the relationship between authentic leadership, IPC, and nurse assessed adverse events be examined in other healthcare organizations such as long-term care and public health and among different populations such as NGNs.

Conclusion

In this study, relationships between Avolio et al.'s (2004) theory of authentic leadership, Laschinger and Smith's (2013) model of IPC, and Aiken et al.'s (2001) model of nurse assessed adverse events were found. There was an indirect effect of authentic leadership on nurse assessed adverse events via the mediating influence of IPC. This study provided additional research to support the relationship between authentic leadership and a decreased frequency of nurse assessed adverse events in healthcare

environments. Adverse events are increasingly occurring in healthcare environments and have the potential to effect patients and families (Canadian Patient Safety Institute, 2017), healthcare professionals, and healthcare organizations (Canadian Institute for Health Information, 2016). There is a growing body of research highlighting the relationship between relational styles of leadership and adverse events as well as the relationship between IPC and adverse events. An understanding of the unique role that authentic leaders play in reducing adverse events via their attitudes, behaviours, and role modelling for staff may lead to improved safety for patients in healthcare environments. Experienced RNs who share similar values to their authentic leader and who transparently collaborate with other healthcare professionals as well as the patient and family, are more likely to facilitate better outcomes for their patients.

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APPENDIX A

Study Instruments

- A. 01 Authentic Leadership Questionnaire
- A. 02 Interprofessional Collaboration Scale
- A. 03 Nurse Assessed Adverse Events Scale
- A. 04 Demographic Questionnaire

Authentic Leadership Questionnaire Sample Items

(Avolio, Gardner, & Walumbwa, 2007)

Please rate how OFTEN your leader (immediate supervisor):

My manager:	Not at all	Once in a while	Sometimes	Fairly Often	Frequently, if not always
1. Says exactly what she or he means.	0	1	2	3	4
2. Demonstrates beliefs that are consistent with actions.	0	1	2	3	4
3. Solicits views that challenge her or his deeply held beliefs.	0	1	2	3	4
4. Seeks feedback to improve interactions with others.	0	1	2	3	4
5. Tells the hard truth.	0	1	2	3	4

Due to copyright reasons, only 5 items of the ALQ can be published in this thesis.

Legend
Self-awareness: 4
Balanced Processing: 3
Relational Transparency: 1, 5
Internalized Moral Perspective: 2

Interprofessional Collaboration Scale

(Laschinger & Smith, 2013)

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

	Strongly Disagree	Disagree	Hard to Decide	Agree	Strongly Agree
1. On my unit, all health professionals collaborate effectively to provide patient care.	1	2	3	4	5
2. Interprofessional collaboration is highly valued on my unit.	1	2	3	4	5
3. I believe my knowledge is respected by other health professionals when I participate in interprofessional groups.	1	2	3	4	5
4. Health professionals on my unit understand each other's role in providing holistic patient care.	1	2	3	4	5
5. On my unit, the patient is considered part of the health care team.	1	2	3	4	5

Nurse Assessed Adverse Events Scale

(Aiken, Clarke, Sloane, Sochalski, Busse, Clarke, ... & Shamian, 2001)

Over the past year, how often would you say each of the following incidents has occurred involving you or your patients?

	Never	Rarely	Occasionally	Frequently
1. Patient received wrong medication or dose.	1	2	3	4
2. Nosocomial infections.	1	2	3	4
3. Complaints from patients or their families.	1	2	3	4
4. Patient falls with injuries.	1	2	3	4

Demographic Questionnaire

1. **GENDER:** Female Male

2. **AGE** (in years): _____

3. **Did you attend a Compressed Time Frame/ Second Entry Baccalaureate Program?** Yes No

4. **Highest degree in Nursing:**
 - College Nursing Diploma BScN Graduate Degree

5. **Current employment status:**
 - Fulltime Part time Casual

6. **How long have you worked:**

As an RN:	____ Years	____ Months
As an RN at your current organization	____ Years	____ Months
As an RN on your current unit	____ Years	____ Months

7. **Specialty area of your current place of work/ unit:**
 - Medical-Surgical
 - Critical Care
 - Maternal-Child
 - Mental Health
 - Community Health
 - Other, please specify: _____

APPENDIX B

Letter of Information

Project Title: The Protective Role of Authentic Leadership against Workplace Bullying, Early Career Burnout and Premature Turnover of New Graduate Nurses: A Longitudinal Study

Principal Investigator:

Heather K. Laschinger, RN, PhD, FAAN, FCAHS, Professor at the Arthur & Sonia Labatt Family School of Nursing at the University of Western Ontario

SURVEY LETTER OF INFORMATION FOR EXPERIENCED NURSES

Invitation to Participate in Follow-up Survey

Thank you for responding to our survey! You are being invited to participate in a follow-up survey examining newly graduated registered nurse experiences in the workplace. Although we recognize that you are no longer a new graduate we would like to hear your feedback in order to help us more accurately understand the current nursing work environment through the lens of an experienced nurse.

Purpose of the Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding participation in this research.

Purpose of the Study

The purpose of this study is to describe new graduate nurses' worklife experiences in Canadian health care settings during the first three years of practice. This study will examine the role of leadership behaviours in preventing burnout and bullying and resulting job and career satisfaction and turnover intentions. We would also like to gain a better understanding of the current nursing work environment through the lens of experienced nurses across the country.

Inclusion Criteria

In order to participate in this research project you must be a practicing registered nurse who has graduated before January 1st, 2012.

Study Procedures

If you agree to participate, you will be asked to complete the included survey consisting of questions examining the influence of leadership on your experiences at work. It is anticipated that the entire task will take approximately 20 minutes of your time. Once you have completed your survey, please place it in the self-addressed envelope provided and put it in the mail. If you choose to participate you will receive a follow-up survey in approximately 8 months to continue to track your experience over time.

Possible Risks and Harms

There are no known or anticipated risks associated with participating in this study. There is a chance that you may feel uncomfortable answering questions about your work

environment on the survey. Care will be taken to ensure confidentiality of survey data and we will respect your privacy. Also, you will not have to answer any questions if you feel uncomfortable. You may refer to your Employee Assistance Plan representative if you need to talk to someone further about these issues.

Possible Benefits

We cannot guarantee you any direct benefits as a result of your participation in this study. However, this study will show how leadership influences new graduate and experienced nurses' experiences of bullying and burnout, and how these factors affect new graduate nurse satisfaction and intentions to remain in their jobs and the profession within the first three years of practice. This information can be used to retain a satisfied and engaged workforce.

In addition, further knowledge of the value and benefits of authentic leadership development across Canada will be discussed. As a result, this information can be used to inform policy and organizational initiatives that will attract and retain new graduate nurses. A summary of findings from the final report will be made available to participants on the HKL research website at the following link: <http://publish.uwo.ca/~hkl/chair/index.html>

Compensation

You have received a \$2 Tim Hortons card as a token of appreciation for your time to complete the questionnaire. You may keep the enclosed \$2 Tim Hortons card whether or not you choose to complete the survey. In addition, you have the opportunity to participate in a draw to win one of three iPad Minis. Please respond to the ballot provided in the survey package.

Voluntary Participation

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions or withdraw from the study at any time with no effect on your future employment or study compensation.

Confidentiality and Privacy

As a participant you will be given a personal identification number (PIN) that will be used to link your data from each year. The researchers at The University of Western Ontario will link study PINs to your name only for the purposes of distributing information letters and surveys to you for this particular study. Data will be sent directly to Western with only the PIN as the identifier. All participant names and assigned PINs will be destroyed as soon as the data collection is complete. The survey distribution will consist of the survey included here, a reminder letter in four weeks to non-respondents, and finally a second distribution of the survey asking non-respondents to complete the survey if they haven't yet done so.

All data collected will remain confidential and accessible only to the investigators of this study. If the results are published, your name will not be used. If you choose to withdraw from this study, your data will be removed and destroyed from our database.

Representatives of The University of Western Ontario Health Sciences Research Ethics Board may contact you or require access to your study-related records to monitor the conduct of the research.

Contacts for Study Questions or Problems

If you require any further information regarding this research project or your participation in the study you may contact Dr. Heather Laschinger.

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics.

Consent

Completion of the survey is indication of your consent to participate.

Sincerely,

Heather K. Spence Laschinger, RN, PhD, FAAN, FCAHS
Distinguished University Professor
Nursing Research Chair in Health Human Resource Optimization
Arthur Labatt Family School of Nursing

This letter is yours to keep for future reference.

APPENDIX C

Letters of Approval

- C. 01 Western University Health Science Research Ethics Board
- C. 02 Permission for use of the Authentic Leadership Questionnaire



**Western
Research**

Research Ethics

**Western University Health Science Research Ethics Board
HSREB Delegated Initial Approval Notice**

Principal Investigator: Dr. Heather Laschinger
Department & Institution: Health Sciences/Nursing, Western University

HSREB File Number: 105448

Study Title: The Protective Role of Authentic Leadership against Workplace Bullying, Early Career Burnout and Premature Turnover of New Graduate Nurses: A Longitudinal Study

Sponsor: Social Sciences and Humanities Research Council

HSREB Initial Approval Date: August 07, 2014

HSREB Expiry Date: July 31, 2017

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Instruments	Quantitative Survey	2014/06/06
Instruments	Qualitative instrument	2014/06/06
Recruitment Items	Recruitment poster for qualitative interviews	2014/06/06
Letter of Information & Consent	LOI and Consent forms - Qualitative Interview	2014/06/06
Letter of Information & Consent	Appendix D - LOI and CONSENT THE PROTECTIVE ROLE OF AUTHENTIC LEADERSHIP -Survey - 15.07.2014 Revised LOI - Clean copy	2014/07/15
Western University Protocol		2014/07/31

The Western University Health Science Research Ethics Board (HSREB) has reviewed and approved the above named study, as of the HSREB Initial Approval Dated above.

HSREB approval for this study remains valid until the HSREB Expiry Date noted above, conditional to timely submission and acceptance of HSREB Continuing Ethics Review. If an Updated Approval Notice is required prior to the HSREB Expiry Date, the Principal Investigator is responsible for completing and submitting an HSREB Updated Approval Form in a timely fashion.

The Western University HSREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use Guideline for Good Clinical Practice Practices (ICH E6 R1), the Ontario Personal Health Information Protection Act (PHIPA, 2004), Part 4 of the Natural Health Product Regulations, Health Canada Medical Device Regulations and Part C, Division 5, of the Food and Drug Regulations of Health Canada.

Members of the HSREB who are named as investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.

Ethics Officer, on behalf of Dr. Joseph Gilbert, HSREB Chair

Ethics Officer to Contact for Further Information

<u> </u> Erika Bueh	<u> </u> Grace Kelly	<u> </u> L. Rhys McNeil	<u> </u> Vikki Tren
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This is an official document. Please retain the original in your files.



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To whom it may concern,

This letter is to grant permission for the above named person to use the following copyright material;

Instrument: Authentic Leadership Questionnaire (ALQ)

Authors: Bruce J. Avolio, William L. Gardner, and Fred O. Walumbwa

Copyright: © Copyright © 2007 Authentic Leadership Questionnaire (ALQ) by Bruce J. Avolio, William L. Gardner, and Fred O. Walumbwa. All rights reserved in all medium. □

for his/her thesis research.

Five sample items from this instrument may be reproduced for inclusion in a proposal, thesis, or dissertation.

The entire instrument may not be included or reproduced at any time in any other published material.

Sincerely,

Robert Most
Mind Garden, Inc.
www.mindgarden.com

Curriculum Vitae

Name: Vanessa M. Safian

Post-Secondary Education and Degrees: Western University
London, ON, Canada
2016-2018 MScN

Queen's University
Kingston, ON, Canada
2009-2013 BScN

Related Work Experience: London Health Sciences Centre,
London, ON
Registered Nurse:

- Acute Medicine (February 2014-June 2014)
- Inpatient paediatrics July 2014-August 2015
- Paediatric Emergency August 2015- present)
- Nursing Resource Team: Paediatric Sub-specialty (September 2018- to present)

Western University, London, ON
Teaching Assistant, September-December 2017

Western University, London, ON
Lecturer, September 2018- to present

Professional Memberships: College of Nurses of Ontario

Registered Nurses Association of Ontario

Sigma Theta Tau: Iota Omicron Chapter