COLLABORATING FOR BETTER OUTCOMES: EXPLORING THE LINK BETWEEN NURSE-NURSE COLLABORATION AND NURSE JOB SATISFACTION

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Abstract

As Registered Nurses (RNs) are crucial to delivering care, it is important to determine the factors which contribute to a healthy work environment for nurses and positive outcomes for patients. Past research has focused on the benefits of nurse-physician collaboration including improved nurse/ patient satisfaction and lower patient mortality. The few studies which have explored nurse-nurse collaboration have linked it with positive outcomes. To determine whether there is a relationship between nurse-nurse collaboration and nurse job satisfaction in the hospital setting, this correlational study involved a convenience/ snowball sample of RNs working in hospitals, who completed the two study instruments (Dougherty-Larson Nurse-Nurse Collaboration Instrument [DLNNCI] and McCloskey Mueller Satisfaction Scale [MMSS]). The results indicated a significant, positive correlation between nurse-nurse collaboration and nurse job satisfaction (r = .569, p<.01). Collaboration between nurses is associated with nurse job satisfaction and may contribute to the development of a healthy work environment.

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Chapter 1: Introduction

The Canadian health care system is currently facing the challenge of delivering quality care to an aging population with complex health needs (Sinha, 2012). As Registered Nurses (RNs) working in Canadian hospitals fill a critical role in the delivery of this care, it is important to explore how the environment in which these nurses work affects the outcomes of both the nurses and their patients. The concept of the work environment of nurses has been explored in the literature and the quality of these environments has been linked with outcomes for nurses, patients and organizations (Canadian Nurses Association [CNA], 2015). Healthy work environments for nurses are defined as "practice settings that maximize the health and well-being of the nurse, quality patient/ client outcomes, organizational performance and societal outcomes" (Registered Nurses' Association of Ontario [RNAO], 2006, p. 14). Several organizations have attempted to define the attributes of healthy or quality work environments for nurses and have noted that collaboration among nurses, and between nurses and individuals at all levels of the organization is required (American Association of Critical-Care Nurses, 2005; CNA, 2015; RNAO, 2006). Collaboration can be defined as "a joint and cooperative enterprise that integrates the individual perspectives and expertise of various team members" (Resnick & Bonner, 2003, p. 344) or "the process of working together to build consensus on common goals, approaches and outcomes" (RNAO, 2006, p. 61). Several studies have explored the collaboration which occurs between nurses and physicians and have noted a positive correlation between nurse-physician collaboration and nurse job satisfaction (Adams & Bond, 2000; Larrabee et al., 2003; Larrabee et al., 2004; Shannon, Mitchell, & Cain, 2002; Zangaro & Soeken, 2007), as

well as positive outcomes for patients in terms of a lower 30-day mortality rate (Estabrooks, Midodzi, Cummings, Ricker, & Giovannetti, 2005) and higher patient satisfaction scores (Larrabee et al., 2004) when nurses and physicians collaborate while a lack of collaboration between nurses and physicians has been associated with a lack of optimal pain management for patients (from the nurses' perspective) (Van Niekerk & Martin, 2003). Related studies on "teamwork" (a component of collaboration) have noted that a lack of teamwork among health care professionals in intensive care units was a factor in up to 32% of reported incidents which resulted in or had the potential to result in harm to the patient (Pronovost et al., 2006) and that mortality rates in the intensive care unit of various hospitals were better predicted by examining the unit's structure and observing how staff interacted, than considering the available equipment, the use of specialized treatment, the hospital's administrative structure or their teaching status (Knaus, Draper, Wagner, & Zimmerman, 1986). Similarly, a study by Rafferty, Ball, and Aiken (2001) noted that nurses who reported higher scores for interdisciplinary teamwork were significantly more likely to be satisfied with their jobs, were less likely to be planning to leave their current position and reported higher quality of care compared to nurses who reported low levels of teamwork. In addition, a study by McGillis Hall et al. (2001) found a positive association between the quality of communication (between the RNs and Registered Practical Nurses [RPNs], and between the nurses and other health care professionals), and both the patients' overall functional status after discharge and the patients' satisfaction with nursing care. This research emphasizes the importance of teamwork, communication and collaboration among health care professionals.

Despite the numerous research studies which have focused on collaboration between nurses and the multidisciplinary team, nurse-nurse collaboration has received far less attention in the literature. The few studies which have looked at this topic have noted that increased collaboration between nurses is associated with positive outcomes such as decreased length of stay for patients (Geary, Cale, Quinn, & Winchell, 2009), improved group cohesion among nurses (Dimeglio et al., 2005), improved communication between nurses (Fillmore, 2010; Geary et al., 2009; Negley, Ness, Fee-Schroeder, Kokal, & Voll, 2009) increased opportunities for staff education (Fillmore, 2010; Geary et al., 2009), improved staff knowledge (Fillmore, 2010; Geary et al., 2009; Negley et al., 2009; Stefaniak, 1998), and improved situational support for nurses (Stefaniak, 1998), while improved teamwork scores among nursing teams consisting of RNs, Licenced Practical Nurses [LPNs] and nurse assistants is associated with less missed nursing care (Kalisch & Lee, 2010). It is important to further explore the concept of nurse-nurse collaboration to determine how it relates to the development of healthy work environments for nurses and thus positive outcomes for patients, nurses and the overall health care system (RNAO, 2006).

In terms of outcomes of a healthy work environment which affect the nurse, job satisfaction is a topic which has been explored in some detail. Defined as “the degree of positive affect towards a job or its components” (Adams & Bond, 2000, pg. 538) or “an intrinsic feeling, with individual meaning” (Castaneda & Scanlan, 2014, pg. 130), job satisfaction is an important concept to explore in relation to nursing as it has been associated with positive outcomes such as improved pain outcomes as perceived by the patient (McGillis Hall et al., 2001), increased patient satisfaction with nursing care

(McGillis Hall et al., 2001) and the improved retention of nurses (Choi, Cheung, & Pang, 2013; Gurkova et al., 2013; Kuo, Lin, & Li, 2014; Larrabee et al., 2003; O'Brien-Pallas, Murphy, Shamian, Li, & Hayes, 2010; Smith, Hood, Waldman, & Smith, 2005; Tourangeau & Cranley, 2006). Improved retention of nurses is an important outcome as the need to orient new nurses due to the resignation of unsatisfied nurses is an unnecessary cost to the health care system and higher rates of nurse turnover have been associated with higher rates of medical errors and decreased nurse mental health status scores (O' Brien-Pallas et al., 2010). Thus, it is in the best interest of nurses, patients and society as a whole to explore the work environments of nurses and determine which components of the work environment are associated with improved nurse job satisfaction.

Purpose

The purpose of this study was to determine whether there is a relationship between nurse-nurse collaboration and nurse job satisfaction in the hospital setting.

Research Question

Is there a relationship between the degree of nurse-nurse collaboration and the degree of nurse job satisfaction as defined by RNs working in the hospital setting?

Study Hypothesis

In this study, I hypothesized that there would be a positive correlation between nurse-nurse collaboration (as measured on the Dougherty-Larson Nurse-Nurse Collaboration Instrument [DLNNCI]) and nurse job satisfaction (as measured by the McCloskey Mueller Satisfaction Scale [MMSS]).

Chapter 2: Literature Review

Concept of Collaboration

Collaboration is a term which is sometimes used interchangeably with "teamwork" or "communication" in the literature (Fewster-Thuente, 2011), although it is more complex than either of these concepts. Collaboration in the health care environment is not a single act but a process (D'amour, Ferrada-Videla, Rodriguez, & Beaulieu, 2005; Fewster-Thuente, 2011; Petri, 2010) and depends on individuals being able to communicate effectively and professionally. Communication must include conveying respect for the opinion of others, recognizing the ability and contribution of different individuals/ disciplines and being willing and able to share in the decision making process (Fewster-Thuente, 2011; Henneman, Lee, & Cohen, 1995; Leever et al., 2010; Nijhuis et al., 2007; Petri, 2010; Stefaniak, 1998). Each individual involved must be ready to collaborate in terms of educational preparation, maturity and prior experience (Henneman et al., 1995). They must also be competent and confident in their abilities and understand and accept their role within the team including recognizing their area of expertise as well as their professional boundaries (Fewster-Thuente, 2011; Henneman et al., 1995; Moore & Prentice, 2013; Nijhuis et al., 2007; Petri, 2010). Individuals must demonstrate trust and respect for other team members since collaboration is a non-hierarchical process in which power is based on knowledge or experience rather than one's particular role or job title (D'amour et al., 2005; Henneman et al., 1995; Moore, Prentice, & McQuestion, 2015; Petri, 2010). Members must participate equally and share responsibility for ensuring the team's goals are met (D'amour et al., 2005). Collaboration in the literature is also discussed in relation to

conflict. Using this perspective, collaboration is seen as an advanced skill in conflict resolution requiring reflection, self-awareness, the acknowledgment of the abilities of others, and the ability to negotiate needs, give/ receive feedback, discuss and resolve disagreements and reconcile (Hennemen et al., 1995). This relationship between collaboration and conflict is described by another author in terms of cause and effect: "poor collaboration is likely to be caused by, or to result in, conflict" (Leever et al., 2010, p. 613). The multiple attributes of collaboration reveal the complexity of this concept. Thus, while collaboration requires both teamwork and communication skills, there are additional prerequisites before collaboration can be said to be occurring.

Benefits of Collaboration between Nurses for Patients

Research on collaboration between nurses suggests a link between nurse-nurse collaboration and improved outcomes for patients. One study found that the quality of nurse-nurse communication (among RNs and RPNs) and communication between nurses and other health care professionals was positively linked with patients' functional ability at discharge, as well as patients' satisfaction with nursing care (McGillis Hall et al., 2001). An article by Kalisch and Xie (2014) described the results of multiple studies related to missed nursing care which was defined as "required standard nursing care that is not completed" (p. 875). One study by the researchers revealed that nursing teams (consisting of RNs, LPNs and nurse assistants) which scored higher for teamwork, had significantly lower (r = -.37, p<.01) reported missed nursing care (Kalisch & Lee, 2010). Similarly, a study by Blake (2012) which was conducted on RNs working in paediatric intensive care units in ten hospitals, noted an inverse relationship between central line infections and risk adjusted length of stay with collaboration and

communication among nurses and between nurses and physicians. Additional research has explored the concept of relational coordination which is defined as “a mutually reinforcing process of interaction between communication and relationships carried out for the purpose of task integration” (Gittell, 2002, p. 301). In one study, relational coordination among RNs working on the same unit was significantly associated with the nurses’ perception of the quality of nursing care (r = .25, p<.01) (Havens, Vasey, Gittell, & Lin, 2010). Research by Fillmore (2010) involved the implementation of mid-shift nursing rounds between the primary nurse (either RN or LPN) and a rounding nurse (generally the charge nurse) to increase collaboration between nurses in regards to the plan of care. The results of this study included improved communication and handover of important patient information, and increased opportunities for experienced nurses to provide education to their less experienced colleagues (Fillmore, 2010). These results were echoed in a study by Geary et al. (2009) in which the addition of daily rapid nursing rounds involving the bedside RN, case manager, unit manager, nurse educator and clinical nurse specialist resulted in a decreased length of stay for patients, increased knowledge of the bedside RN and increased communication and collaboration among nurses and between the nurse and the patient. This research supports a link between increased nurse-nurse collaboration and positive patient outcomes.

Nurse-Nurse Collaboration and the Work Environment

Research on collaboration has also shown that nurse-nurse collaboration is associated with an improvement in the work environment of nurses. A qualitative study by Negley et al. (2009) noted that improved collaboration between nurses led to

improved communication, the sharing of knowledge and information and the promotion of a cohesive work environment in which future collaboration could occur. Similarly, a qualitative study by Utriainen, Kyngas, and Nikkila (2011) involved creating a theoretical framework to describe the well-being of aging nurses and noted that their well-being depends on their "experiences of collaboration, cooperation and togetherness with other nurses in a supporting and caring workplace" (p. 1042). A related study by Stefaniak (1998) used a naturalistic approach to explore the concept of collaboration between RNs and discuss when it occurs in practice. The nurses in this study viewed collaboration as a situational support which was used to minimize or alleviate stress (Stefaniak, 1998). It occurred in response to an immediate problem, rather than being a process which was planned (Stefaniak, 1998). These results relate to an article by Brooks, Wilkinson, and Popkess-Vawter (1994) which discussed the concept of situational support which was defined as "individuals and groups who can be depended on to be advocates and to assist in solving problems" (p. 305). According to the authors, increased situational support can help nurses cope with stressful incidents (Brooks et al., 1994). Similarly, research on the implementation of nursing rounds has shown that this intervention may improve the work environment of nurses. The benefits of nursing rounds include providing opportunities for less experienced nurses to learn from their more experienced colleagues (Fillmore, 2010) and increased communication between nurses (Fillmore, 2010; Geary et al., 2009). This research suggests that improved nurse-nurse collaboration may be related to an improvement in the work environment of nurses.

The link between nurse-nurse collaboration and quality work environments is important as research has linked the work environment of nurses with nurse job satisfaction. Choi et al. (2013) surveyed RNs and found that how nurses' perceive their work environment is significantly related to their job satisfaction (r = .516, p<.001). Additionally, a study by Shannon et al. (2002) noted that RN scores for job satisfaction were significantly, positively correlated with their perception of unit quality (r =.851, p< .01). Similarly, research has demonstrated that when hospitals were grouped according to the quality of their work environments, nurses working in hospitals which had significantly better quality work environments (t = -5.29, p<.001), were 18% less likely to be dissatisfied with their jobs (p<.05) compared to nurses working in less quality work environments (Kelly, McHugh, & Aiken, 2011). Aiken et al. (2011) conducted a similar study on an international scale and noted that in seven of nine countries which were studied, nurses who were employed in hospitals with higher quality work environments were significantly less likely to report job dissatisfaction when compared to nurses working in lower quality work environments (p<.001). Thus the research on nurse-nurse collaboration suggests that improved collaboration between nurses may have a positive effect on the quality of their work environment, and the quality of the work environment of nurses is related to nurse job satisfaction.

Nurse Job Satisfaction and Relationships with Nursing Colleagues

Several studies have noted that nurse job satisfaction is affected by relationships with nursing colleagues. In a quantitative study by Dunn, Wilson, and Esterman (2005), nurses were asked to rate the aspects of their job which most contributed to their satisfaction or dissatisfaction. The results revealed that nurses' perception of the quality

of nursing care provided as well as their relationships with other nurses, were the most important factors which led to improved job satisfaction (Dunn et al., 2005). Similarly, McLennan (2005) asked a group of RNs to rate the aspects of their work which increased their job satisfaction and the response "colleagues" was identified by a third of the participants. These results were echoed in additional studies including a literature review of the factors which contribute to nursing job satisfaction which noted that good relationships with colleagues (both nursing and medical staff) contributed to improved nurse job satisfaction (Hayes, Bonner, & Pryor, 2010) as well as a study by Adams and Bond (2000) which found a positive correlation between nurse job satisfaction and the cohesion of the ward nursing team (r =.51, p<.001). Similarly, a study by Rodwell and Munro (2013) found a positive correlation between co-worker support and job satisfaction (r = .33, p<.05) among a sample of nurses and midwives in Australia, and a study by Tourangeau and Cranley (2006) noted that teamwork among nursing staff (RN and RPNs) was a significant predictor of the nurse's intention to remain in their current hospital until retirement. The importance of nurse-nurse relations was also studied by Peterson, McGillis Hall, O' Brien-Pallas, and Cockerill (2011) who used regression analysis and found that among new graduate RNs, support from coworkers was significantly, positively related to their job satisfaction (beta coefficient=0.25, p<.01). Similarly, research by Han, Trinkoff, and Gurses (2015) revealed that nurses who had colleagues or supervisors who were supportive, were significantly less likely to be dissatisfied with their jobs (p<.01) and significantly less likely to be planning to leave their current position (p<.01). In other research, one author conducted a meta-analysis on job satisfaction and noted a moderate correlation (mean correlation= .358) between

nurse job satisfaction and communication with peers (Blegen, 1993). Moreover, Purpora and Blegen (2015) conducted research relating to nurse peer relationships among RNs and found that peer relationship scores were significantly positively correlated with nurse job satisfaction (r = .614, p<.01). Additionally, a quantitative study by Cox (2003) used multiple regression analysis to test a model linking conflict, team performance and job satisfaction. The results revealed a significant negative correlation between conflict between RNs and job satisfaction (beta coefficient=-0.31, p<.001) (Cox, 2003). This research suggests a potential link between nurse-nurse collaboration and nurse job satisfaction as increased collaboration may be associated with improved nurse relations, and relationships between nurses are clearly tied with nurse job satisfaction.

Collaboration among Health Care Professionals and Nurse Job Satisfaction

Additional research suggests a direct link between collaboration among health care professionals in general and nurse job satisfaction. In terms of collaboration between nurses and physicians, research by Adams and Bond (2000) revealed a significant, positive correlation between nurse job satisfaction and collaboration with medical staff (r =.41, p<.001) while a study by Shannon et al. (2002) noted that RN scores for job satisfaction were significantly, positively correlated with their view of the amount of collaboration occurring between nurses and physicians (r =.726, p<.01). Similarly, a study by Larrabee et al. (2004) found a significant, positive correlation between RN-physician collaboration and RN job satisfaction (r = .46, p<.01), while a study by Rafferty et al. (2001) found a significant, positive correlation between nurses relationships with doctors and their job satisfaction (r = .238, p<.001). In addition, further regression analysis revealed that nurses who reported higher levels of interdisciplinary

teamwork were significantly more likely to be satisfied with their jobs and were significantly less likely to be planning to leave their current position (Rafferty et al., 2001). A meta-analysis by Zangaro and Soeken (2007) echoed these results as a moderate, positive association was noted between nurse-physician collaboration and nurse job satisfaction (effect size= 0.37), and a study by Larrabee et al. (2003) found that RN job satisfaction was significantly correlated with both collaboration between RNs and physicians (r = .47, p<.0001) and group cohesion (among colleagues in general) (r = .35, p<.001). In addition, a qualitative study by McNeese-Smith (1999) used content analysis to determine the factors which caused satisfaction and dissatisfaction in practice and almost 50% of the participants identified relations with co-workers (not necessarily nurses) as a factor which contributed to their job satisfaction. Taken together, this research provides evidence for a link between nurse-physician collaboration and nurse job satisfaction.

Nurse-Nurse Collaboration and Nurse Job Satisfaction

While the research linking nurse physician-collaboration to nurse job satisfaction is convincing, research on nurse-nurse collaboration and nurse job satisfaction is less definitive. A quasi-experimental, pre-test-post-test study by Dimeglio et al. (2005) tested the impact of a team building intervention on job satisfaction, nurse-nurse interaction, job enjoyment, group cohesion and nurse turnover. The intervention in this study involved having the RNs on the unit individually identify how well they were working together, after which they had a group meeting to discuss ways to improve group cohesion, teamwork and communication. Following the intervention, there were significant improvements for group cohesion (p<.001) while the improvement in the

satisfaction subscales and in reduced nurse turnover was not significant (Dimeglio et al., 2005). Similarly, a study by Latham, Hogan, and Ringl (2008) involved the development of a mentorship program where new RNs were mentored by senior bedside RNs. The program involved preparing the mentors for their role, guidance on concepts related to collaboration such as team building, communication, conflict resolution and cultural competency and providing mentors with ongoing support throughout the project. Several measures were taken at baseline and following project completion and the results revealed an improvement in hospital-wide patient satisfaction, nurse satisfaction, retention of nurses and patient safety indicators, although it is unclear if these outcomes were the result of the program alone or of multiple processes within the hospital (Latham et al., 2008). Another study by Almost, Doran, McGillis Hall, and Laschinger (2010) sampled acute care RNs in Ontario and found that a conflict management style which used collaboration and accommodation rather than avoidance and competition had a direct, positive effect on nurse job satisfaction. A study by Geary et al. (2009) found that nurse satisfaction improved following the implementation of nursing rounds, although satisfaction was only measured after the rounds had been implemented. Similarly, a study by Aitken, Burmeister, Clayton, Dalais, and Gardner (2011) used a pre-test, post-test design to examine the effect of implementing nursing rounds in the intensive care unit. The nursing rounds lasted approximately one hour in which time the care of two patients would be discussed. The patient's primary RN was responsible for presenting their patient's details to a group of their nursing colleagues (average of six nurses per session), after which the nurses would ask questions and discuss strategies to improve

care. The results revealed similar scoring for nursing job satisfaction both before and after the intervention although the majority of staff were supportive of nursing rounds and believed they should be continued (Aitken et al., 2011). Taken together, this research suggests that nurse-nurse collaboration and nurse job satisfaction may be related, but at present this relationship is unclear.

Summary

A review of the literature reveals a potential link between nurse-nurse collaboration and nurse job satisfaction although this relationship has not been directly explored (Figure 1). While nurse-physician collaboration has been linked with positive outcomes including improved nurse job satisfaction, less is known about nurse-nurse collaboration. Research on nurse-nurse collaboration suggests it is linked with positive outcomes including decreased length of stay for patients (Geary et al., 2009), improved group cohesion (Dimeglio et al., 2005), improved communication between nurses (Fillmore, 2010; Geary et al., 2009; Negley et al., 2009) increased opportunities for staff education (Fillmore, 2010; Geary et al., 2009), improved staff knowledge (Fillmore, 2010; Geary et al., 2009; Negley et al., 2009; Stefaniak, 1998), and improved situational support for nurses (Stefaniak, 1998), but it's relationship with nurse job satisfaction is presently unknown. It is important to explore the relationship between these two variables as nurse job satisfaction is related to positive outcomes for nurses, patients and organizations including improved pain outcomes as perceived by the patient (McGillis Hall et al., 2001), increased patient satisfaction with nursing care (McGillis Hall et al., 2001) and the improved retention of nurses (Choi et al., 2013; Gurkova et al., 2013; Kuo et al., 2014; Larrabee et al., 2003; O'Brien-Pallas et al., 2010; Smith et al.,

2005; Tourangeau & Cranley, 2006). In addition, as nurse-nurse collaboration is a component of a healthy work environment, nurse-nurse collaboration has the potential to contribute to positive outcomes for nurses, patients and organizations (RNAO, 2006). In the present study, I sought to address a gap in the literature by determining whether there is a relationship between nurse-nurse collaboration and nurse job satisfaction in the hospital setting.

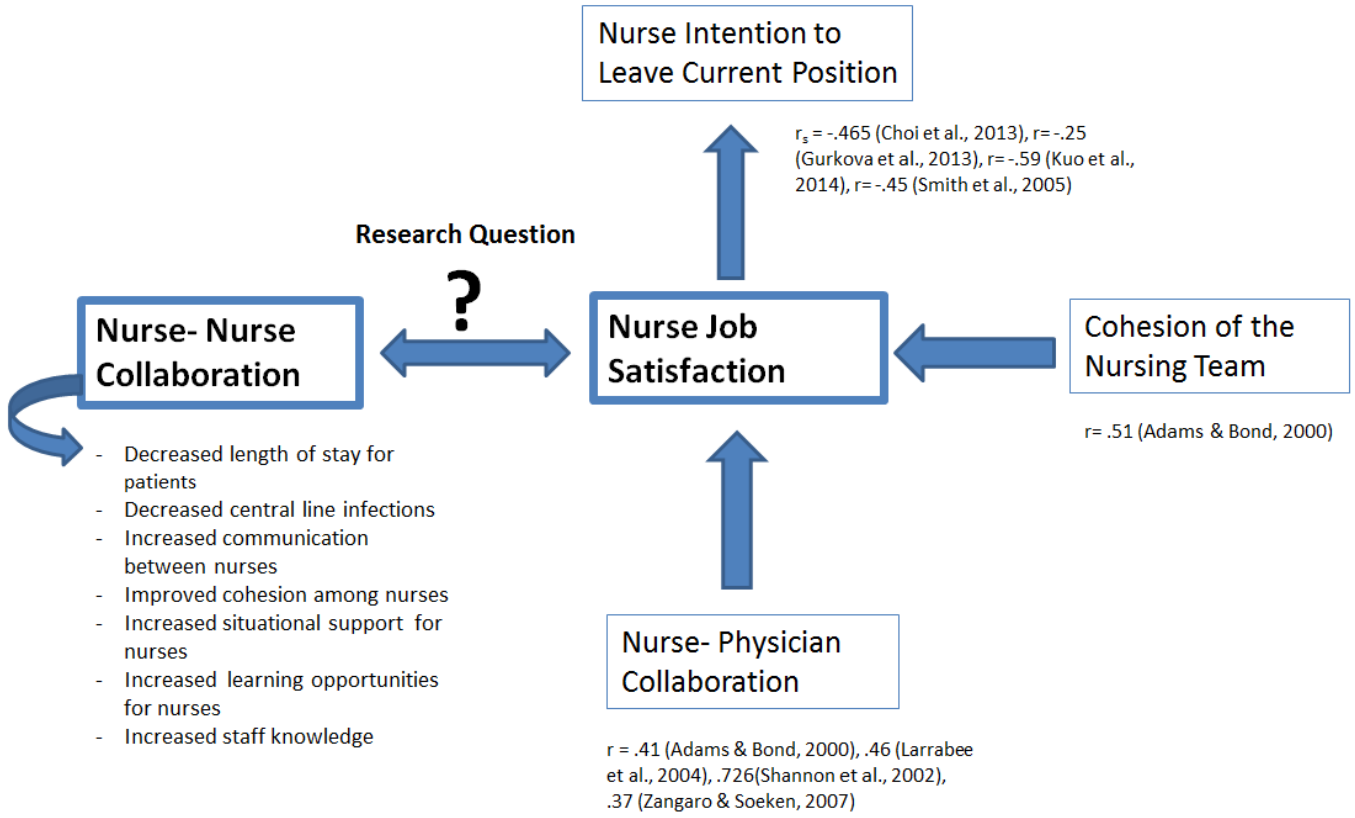

Figure 1. Relationship between the study variables and data from the literature review

Chapter 3: Method

Theoretical Framework

The theoretical framework which was used for this study is the Conceptual Model for Healthy Work Environments for Nurses which was described in the RNAO's Healthy Work Environments Best Practice Guideline titled "Collaborative Practice among Nursing Teams" (RNAO, 2006). The concept of a healthy work environment is "complex and multidimensional, comprised of numerous components and relationships among the components" (RNAO, 2006, p. 14). The RNAO's framework helps to simplify this concept by visualizing the factors which affect the creation of a healthy work environment for nurses as belonging to three categories: Physical/ Structural Policy components, Cognitive/ Psycho/ Socio/ Cultural components and Professional/ Occupational components. Each of these categories create an impact at the individual, organizational and systems level and their combination leads to outcomes for the nurse, patient/ client, organization and society (RNAO, 2006). A healthy work environment is one which promotes the health and wellness of the nurse, as well as positive outcomes for the patient, organization and society (RNAO, 2006). This model is applicable to all nurses regardless of which practice area they are working in (RNAO, 2006). As this study involved intradisciplinary collaboration, it explored the effect of nurse-nurse collaboration (part of Professional/ Occupational components at the organizational level which includes interactions between members of the same discipline) and how this collaboration is related to nurse job satisfaction (a nurse specific outcome) (RNAO, 2006).

Research Design

This study used a correlational design to determine if there was a relationship between nurse-nurse collaboration and nurse job satisfaction in the hospital setting. Two instruments were used: the DLNNCI (See Appendix A for the original version; Appendix B for the modified version used in this study) to measure the collaboration which occurs between nurses working in a hospital environment and the MMSS (See Appendix C for the original version; Appendix D for the modified version used in this study) to measure nurse job satisfaction. Descriptive data (Appendix E) were also gathered from the participants and included their approximate age, their gender, the highest education they had achieved both within and outside of nursing, the approximate length of time they had been working as a nurse, the approximate length of time they had been working in their current role and their primary area of practice. Data were gathered at one point in time.

Sampling Strategy and Recruitment

The target population for this study was RNs who were currently practicing as a staff nurse in a hospital in Ontario. In order to ensure that participants had sufficient knowledge and experience in their role, I recruited nurses who had been in their current position for at least three months and were working either full-time or part-time.

The decision was made to exclude RPNs from the sample as the title and role of RPNs differs across Canada and from country to country. In Ontario, RNs and RPNs have different educational preparation with RNs generally studying longer (College of Nurses of Ontario [CNO], 2014b) and requiring a baccalaureate degree (CNO, 2014a). While there is some overlap in terms of their competencies, there are also distinctions

between the two roles which affect their practice. In terms of direct patient care, the decision on whether to have an RN or RPN care for a specific patient is based on an assessment of the patient, the nurse and the environment (CNO, 2014b). In general, RPNs care for less complex patients with more predictable outcomes, consult their colleagues for clarification and work in environments with clear guidelines and where the RPN has access to multiple resources (CNO, 2014b).

In an effort to get a sufficient sample size to be able to identify a relationship between the study variables, a power analysis was conducted which estimated the approximate minimal sample size needed for this study at 46. This was based on a power of 0.8, an α of 0.05 and an estimate of an effect size of 0.4 (Cohen, 1988). The effect size was estimated based on previous research which examined the correlation between collaboration between physicians and nurses and nurse job satisfaction and found Pearson's *r* scores of .41 (Adams & Bond, 2000),.46 (Larrabee et al., 2004), .726 (Shannon et al., 2002), and .37 (Zangaro & Soeken, 2007), as well as research which found that cohesion among the nursing team was significantly, positively associated with job satisfaction (r = .51) (Adams & Bond, 2000). While 46 was a minimum, I aimed to collect as many surveys as possible within the data collection period to obtain a representative sample. I originally planned to collect data for one month, but extended the data collection period to six weeks in order to reach the calculated minimum sample size.

The sample for this study was obtained through convenience and snowball sampling. Participants were first approached by the principal investigator at two general meetings of the RNAO (a professional association which represents RNs, nurse

practitioners and nursing students in Ontario [RNAO, 2015]). If the participants met the inclusion criteria and were willing to participate, they were given the survey package which included the informed consent form (Appendix F), the revised versions of the MMSS and the DLNNCI, and the survey asking for descriptive information. Additional participants who met the inclusion criteria and were willing to participate were found within my personal network. The nurses from my personal network were also asked if they would further distribute surveys to RNs they knew who met the inclusion criteria. Nurses who were willing took between one and ten surveys to further distribute based on their preference. The inclusion criteria were explained to each participant and included on the front of each survey package for reference (See Appendix G for information on the front of each survey package).

Ethics

An application for ethics approval of this study was submitted to the York University Ethics board and approval was received in April 2015. Participants of this study were approached by the principle investigator to take part in the study and if they were willing and met the inclusion criteria, they were given a survey package to complete. Survey packages were distributed in legal sized envelopes so participants could seal the envelope when returning it to the principal investigator. The first page of the package given to participants was the informed consent form. This form included the study purpose, how data would be handled and the contact information of the principle investigator. Participants in this study were advised that participation was voluntary, that completing the package would take less than 15 minutes, that there were no anticipated risks or benefits to participating, that data would be collected by the principle

investigator and anonymously coded at all stages of data analysis to protect the participant's identity and that they had the option to withdraw from the study at any time. Participants were also notified that completed surveys would be stored in a locked cabinet for five years after study completion and then destroyed by shredding.

Data Collection Tools and Procedures

In this study, participants were asked to complete the DLNNCI, the MMSS and a short questionnaire to collect descriptive information. Permission to use both the DLNNCI (Appendix H) and the MMSS (Appendix I) was obtained from the authors.

The DLNNCI uses a four-point Likert scale to measure five domains of collaboration which were identified by the scale creators following a literature review: problem solving, communication, coordination, shared process and professionalism (Dougherty & Larson, 2010). The scale was adapted from tools which measure collaboration between nurses and physicians. The original scale consisted of 33 items but two additional items were added as suggested by a panel of experts giving the final scale 35 items (Dougherty & Larson, 2010). The minimum score on this scale is 35 and the maximum possible score is 140. The scale was first reviewed for content and construct validity by nursing faculty and then field tested on 76 staff nurses working in four intensive care units. The results generated a Cronbach's alpha score of .89 for the overall scale, but based on small to medium interscale correlations (r = .21-.61), the scale was found to only reliably measure the five domains of collaboration; not collaboration as a global concept (Dougherty & Larson, 2010). The Cronbach alpha scores for the subscales vary between .66 and .90 (Dougherty & Larson, 2010). A literature review revealed only two previous studies which have used this instrument:

one by the scale creator which explored nurse-nurse collaboration and emotional intelligence on nurses in the intensive care unit (Dougherty, 2009) and one which was administered to nursing students (Moore & Nahigian, 2013). As the present study involved RNs working on different units rather than just the intensive care unit, a revised version of this scale with alterations to items 2.1, 2.4, 2.5 and 3.8 was used to make it applicable to nurses working on any unit within a hospital. These changes were reviewed with Dr. Dougherty but she was not available to comment.

The MMSS uses a five-point Likert scale to assess the satisfaction of hospital staff nurses, whether new to the role or experienced (Mueller & McCloskey, 1990). The scale was originally designed in 1974 but the current version of the scale is based on revisions which were made following a study in the 1980s (Mueller & McCloskey, 1990). The scale has 31 items which are designed to gauge participant satisfaction in eight areas: extrinsic rewards, scheduling, family/work balance, co-workers, interaction, professional opportunities, praise/recognition, and control/responsibility (Mueller & McCloskey, 1990). Each item is scored from 1 to 5 with a 5 indicating a higher level of satisfaction (Mueller & McCloskey, 1990). The minimum score on this scale is 31 and the maximum possible score is 155. Moderate positive correlations between the subscales and other related variables (such as autonomy and intent to stay in current position) have been found which demonstrate construct validity (Mueller & McCloskey, 1990). The Cronbach alphas range from .52-.84 for the eight subscales and .89 for the global scale and test-retest correlations are consistent (Mueller & McCloskey, 1990). The MMSS has also been correlated with job satisfaction scales not specific to nursing to indicate criterion-related validity (Mueller & McCloskey, 1990). This scale was chosen

as it has been used widely in nursing research, including two studies included in the literature review of the present study (Gurkova et al., 2013; O' Brien-Pallas et al., 2010). In order to make this scale applicable to nurses working in Ontario, a revised version of this scale was used in which question 20 ("Opportunities to interact with faculty of the College of Nursing") was reworded to state "Opportunities to interact with nursing faculty". This change was reviewed with Dr. Moorhead, a professor at the University of Iowa, College of Nursing (who gave permission to use the scale) who confirmed that this change was acceptable.

The descriptive information which was collected for this study included the participant's approximate age, gender, highest education completed (both within nursing and outside of nursing), approximate years in nursing, approximate years in their current position and primary area of practice.

Chapter 4: Results

Data Analysis

In the six weeks of data collection I was able to distribute 66 surveys, 58 of which were completed and returned for a response rate of 88%. A total of 51 surveys were used in the data analysis phase. Three surveys were not used as they were not fully completed by the participants (one the informed consent was not signed, one the demographic data was not completed and one the DLNNCI was not completed) and four were removed as they were completed by RPNs rather than RNs. The data collected from the 51 completed surveys was entered into IBM Statistical Package for the Social Sciences (SPSS) Version 22 for analysis.

Description of the Data

Descriptive information of the participants (age, gender, highest education completed both within and outside of nursing, number of years in nursing, number of years in current position and primary area of practice) was collected and frequencies tabulated to enable further analysis. The descriptive information is summarized in Table 1 and discussed below.

Table 1: Frequency Distribution of Descriptive Information of Sample

Participant's Characteristics	Number	Percentage of Participants	Cumulative Percentage
Gender			
Female	50	98.0%	98.0%
Male	1	2.0%	100.0%
Age			
18-24	9	17.6%	17.6%
25-29	14	27.5%	45.1%
30-34	10	19.6%	64.7%
35-39	3	5.9%	70.6%
40-44	3	5.9%	76.5%
45-49	3	5.9%	82.4%
50-54	3	5.9%	88.3%
55-59	3	5.9%	94.2%
60-64	2	3.9%	98.1%
65+	1	2.0%	100.1%
Highest Education in Nursing			
Diploma	5	9.8%	9.8%
Undergraduate Degree	42	82.4%	92.2%
Graduate Degree	4	7.8%	100.0%
PhD	0	0.0%	100.0%
Highest Education Outside Nursing			
N/A	21	41.2%	41.2%
Diploma	10	19.6%	60.8%
Undergraduate Degree	19	37.3%	98.1%
Graduate Degree	1	2.0%	100.1%
PhD	0	0.0%	100.1%
Years Working as a Nurse			
Less than 1 year	2	3.9%	3.9%
1-5 years	23	45.1%	49.0%
5-10 years	12	23.5%	72.5%
11-20 years	6	11.8%	84.3%
20+ years	8	15.7%	100.0%
Years Working in Current Role			
Less than 1 year	3	5.9%	5.9%
1-5 years	27	52.9%	58.8%
5-10 years	11	21.6%	80.4%
11-20 years	6	11.8%	92.2%
20+ years	4	7.8%	100.0%
Primary Area of Practice			
ICU/CCU	2	3.9%	
ER	11	21.6%	
Rehab	2	3.9%	
Long-Term Care	0	0.0%	
Paediatrics	12	23.5%	
Mental Health	5	9.8%	
Medicine/ Surgery	6	11.8%	
Oncology	3	5.9%	
Palliative Care	0	0.0%	
Obstetrics	3	5.9%	
Outpatient Clinic	4	7.8%	
Other	3	5.9%	
Total Number of Participants	**51**		

Gender.

In terms of gender, the sample was comprised of 50 female (98%) and one male participant (2%).

Age.

The most common age range of the participants was between 25-29 years old (*n*= 14, 27.5%). Almost half of the participants were under the age of 30 (*n*= 23, 45.1%), and 64.7% of the participants (*n*=33) were under the age of 35.

Highest education in nursing.

In terms of education within nursing, 5 participants had a diploma in nursing (9.8%), a majority of the participants had an undergraduate degree in nursing (*n*= 42, 82.4%), and 4 had a Master's degree in nursing (7.8%).

Highest education outside nursing.

In regards to education outside of nursing, a majority of nurses responded "N/A" to this question (*n*= 21, 41.2%), 10 (19.6%) had a diploma outside nursing, 19 (37.3%) had an undergraduate degree outside of nursing, and 1 participant (2.0%) had a Master's degree outside nursing.

Years working as a nurse.

Regarding the length of time the participants had been working as a nurse, 2 participants (3.9%) had been nurses for less than one year, most participants responded that they had been working as a nurse for 1-5 years (*n*= 23, 45.1%), 12 (23.5

%) had been nurses for 5-10 years, 6 (11.8%) had been nurses 11-20 years, and 8 (15.7%) had been working as a nurse for more than 20 years.

Years working in current role.

In terms of the length of time the participants had been working in their current role, 3 participants (5.9%) responded that they had been in their current role for less than a year, 27 (52.9%) had been in their current role 1-5 years, 11 (21.6%) had been in their current role 5-10 years, 6 (11.8%) had been in their current role 11-20 years and 4 (7.8%) participants responded that they had been in their current role for more than 20 years.

Primary area of practice.

In response to the question "what is your primary area of practice?" the most common response was either paediatrics (*n*= 12, 23.5%) or the emergency room (*n*= 11, 21.6%). For the participants who responded "Other", 2 revealed that they were working on a telemetry unit and 1 was working in an operating room.

Comparison with General Population of RNs in Ontario

In order to determine whether the participants of the present study were representative of the general population of RNs in Ontario, the age and gender of the participants were compared with statistics gathered by the CNO in 2014. The CNO is the regulatory body for both RNs and RPNs in Ontario (CNO, 2015). The CNO's report describes the demographics of the 95, 787 RNs in Ontario who were registered in the General Class and were employed in a nursing position in Ontario in 2014 (CNO, 2015). The results of this comparison are displayed in Table 2.

Table 2 - Age and Gender Distribution Compared with CNO Statistics (2015)

	Percentage		Cumulative Percentage	
	Present Study	**CNO Statistics (CNO, 2015)**	**Present Study**	**CNO Statistics (CNO, 2015)**
Category				
Gender				
Female	98.0%	93.9%	98%	93.9%
Male	2.0%	6.1%	100%	100%
Age				
18-24	17.6%	4.1%	17.6%	4.1%
25-29	27.5%	10.0%	45.1%	14.1%
30-34	19.6%	9.5%	64.7%	23.6%
35-39	5.9%	9.7%	70.6%	33.3%
40-44	5.9%	12.2%	76.5%	45.5%
45-49	5.9%	13.7%	82.4%	59.2%
50-54	5.9%	14.0%	88.3%	73.2%
55-59	5.9%	13.0%	94.2%	86.2%
60-64	3.9%	9.1%	98.1%	95.3%
65+	2.0%	4.6%	100.1%	99.9%
TOTAL:	**100.1%**	**99.9%**	**100.1%**	**99.9%**

Based on data from the CNO's 2015 report, the sample in this study was skewed in several respects. In terms of gender, 6.1% of nurses in Ontario in 2014 were male (CNO, 2015) compared with only 2% in the present study. In addition, the largest age group of nurses in Ontario in 2014 was 50-54 years old, the average age was 45.4 years old and 23.6% of the nurses were under the age of 35 (CNO, 2015). This is markedly different from the sample obtained in the present study in which the largest age group was 25-29 years and 64.7% of participants were under the age of 35. This suggests that the sample used in the present study represents nurses who were considerably younger than the general population of RNs in Ontario.

The results of the questions regarding age, length of time in nursing and length of time in their present role suggest that the sample obtained in the present study represents a relatively young group of RNs with limited experience. This is based on the fact that 45.1% of the nurses who participated in this study were under the age of 30, 64.7% were under the age of 35, 3.9% had been nurses for less than one year, 49% had been working as a nurse for five years or less and 58.8% had been in their current role for five years or less. In addition, this sample may represent a relatively educated group of nurses as 90.2% reported that their highest education in nursing was an undergraduate or graduate degree and more than half of the participants (58.9%) had a diploma or degree outside of nursing.

Correlation between Descriptive Variables

In order to determine if there were any relationships between the age of the participants, their highest completed education within nursing and outside of nursing, the number of years they had been a RN and the number of years they had been in their current role, a Kendall's tau correlation was completed. This test was chosen as it is more accurate than Spearman's rho in determining rank-order correlations (Polit, 2010). The results are shown in Table 3.

Table 3 - Kendall's Tau Correlations for Descriptive Data

		Age	Highest Education in Nursing	Highest Education Other	Years in Nursing	Years in Current Role
Age	Correlation Coefficient	1.0				
	Significance (2 Tailed)					
Education Nursing	Correlation Coefficient	-.236	1.0			
	Significance (2 Tailed)	.052				
Education Other	Correlation Coefficient	-.012	-.046	1.0		
	Significance (2 Tailed)	.915	.722			
Years in Nursing	Correlation Coefficient	.734**	-.262*	-.190	1.0	
	Significance (2 Tailed)	.000	.039	.122		
Years in Current Role	Correlation Coefficient	.584**	-.291*	-.178	.825**	1.0
	Significance (2 Tailed)	.000	.023	.150	.000	

Note. *p<.05. ** p< .01.

Based on the findings of the Kendall's tau analysis, several significant correlations were found between the descriptive variables gathered. Age was significantly, positively correlated with both years in nursing (*tau*= .734, *p*<.001) and years in current role (*tau*= .584, *p*<.001). Years in nursing was also significantly, positively correlated with years in current role (*tau*= .825, *p*<.001). These correlations were expected as we would generally assume that older nurses have been in the profession longer than younger nurses, have been in their current position longer than younger nurses and that nurses who have been in the profession longer, have been in their current position longer than nurses who are new to the profession. The fact that years in nursing and years in current position are strongly correlated also suggests that this sample of nurses had stability in their roles, which suggests they were likely employed in permanent rather than contract positions. The Kendall's tau analysis also revealed a small but significant negative correlation between highest education in

nursing and both years in nursing (*tau*= -.262, *p*= .039) and years in current role (*tau*= -.291, *p*=.023). This suggests that nurses who were newer to the profession were more likely to have higher education than nurses who had been in nursing for longer. Additionally, this suggests that nurses with higher education in nursing were more likely to be relatively new to their current role.

Descriptive Statistics for the MMSS and the DLNNCI

The descriptive statistics for both the MMSS and the DLNNCI are displayed in Table 4.

Table 4 - MMSS and DLNNCI Descriptive Statistics

	Minimum Score	Maximum Score	Mean Score	Standard Deviation
MMSS Score	66	125	101.86	12.15
DLNNCI Score	75	128	99.70	10.89

Correlation between Nurse Job Satisfaction and Nurse-Nurse Collaboration

In order to determine the correlation between nurse-nurse collaboration and nurse job satisfaction, a Pearson's *r* coefficient was calculated for a significance criterion of $p < .05$. The Pearson's *r* was found to be .569 which was significant at the 0.01 level; thus the null hypothesis that there was no relationship between nurse-nurse collaboration and nurse job satisfaction was rejected, and the alternate hypothesis that there is a relationship between nurse-nurse collaboration and nurse job satisfaction is supported. This correlation analysis demonstrated that nurse-nurse collaboration was significantly, positively associated with nurse job satisfaction. As the effect size is greater than 0.5, this can be interpreted as a large effect size (Cohen, 1988). In

addition, the r^2 value was calculated to be 0.32 which suggests that 32% of the variability in job satisfaction scores can be explained in terms of nurse-nurse collaboration scores.

Post-hoc Power Analysis

Upon achieving these results, a power analysis was calculated using the effect size calculated from the Pearson's *r* (.569), the sample size of the study (*N*= 51), and the significance criterion of .05 (α). The program G*Power Version 3.1.9.2 was used for this analysis and determined that the power of the completed study was .99. This result confirms that the sample size of this study had sufficient power to test the relationship between the two study variables.

Correlations between DLNNCI Subscales and MMSS

As the DLNNCI was found to measure individual components of collaboration among nurses rather than the global concept of nurse-nurse collaboration (Dougherty & Larson, 2010), a Pearson's *r* was calculated to determine if there was a correlation between nurse job satisfaction and the subscales of the DLNNCI. The results of this analysis are displayed in Table 5. The results show a significant positive correlation ($p<.05$) between nurse job satisfaction and four of the five components of nurse-nurse collaboration as defined by the DLNNCI. For the subscale involving coordination, there was no significant correlation found ($p=.09$). This result supports the alternate hypothesis that nurse-nurse collaboration and nurse job satisfaction are linked.

Table 5 - Correlation between MMSS Scores and Scores for the Subscales of the DLNNCI

	DLNNCI Conflict Management	DLNNCI Communication	DLNNCI Shared Process	DLNNCI Coordination	DLNNCI Professionalism
MMSS	.441** p= .001	.400** p= .004	.339* p= .015	.240 p=.090	.397** p=.004

Note. *p< .05. ** p< .01.

Correlation between Descriptive Data and the MMSS/ DLNNCI

In order to determine whether any components of the descriptive data affected either the collaboration which occurs between nurses or their job satisfaction, a series of one-way *ANOVA* tests were completed. Before completing the *ANOVA* tests, a Levene's test for equality of variances was calculated and it was determined that there was a homogeneity of variances (p >.05) for the overall scores of both the MMSS and the DLNNCI.

In terms of the gender of the participants, there was no significant effect of gender on either DLNNCI [F (1, 49) = .044, p=.834] or MMSS scores [F (1, 49) = 2.909, p=.094]. In terms of age of the participants, there was no significant effect of age on either DLNNCI [F (9, 41) = .612, p=.780] or MMSS scores [F (9, 41) = 1.235, p=.301]. In regards to the highest education the participants had completed in nursing and outside of nursing, there was no significant effect of education on either DLNNCI [within nursing F (2, 48) = .332, p=.719, outside nursing F (3, 47) = .516, p= .673] or MMSS scores [within nursing F (2, 48) = .620, p=.542, outside nursing F (3, 47) = .682, p= .568]. In relation to how long the participants had been working as a nurse and how long they had been in their current position, there was no significant effect of experience on either

DLNNCI [years in nursing $F(4, 46)= .927$, $p=.456$, years in current position $F(4, 46)= .592$, $p= .670$] or MMSS scores [years in nursing $F(4, 46)= .717$, $p=.585$, years in current positon nursing $F(4, 46)= .519$, $p= .722$].

In terms of the area of primary practice, there was a significant effect of the participants' primary area of practice on both DLNNCI [F (9, 41) = 3.074, p=.007] and MMSS scores [F (9, 41) = 2.267, p=.036]. A Tukey's HSD (Honestly Significant Difference) test was then completed with a significance criterion of $p< .05$. Of the possible post hoc tests, I chose to use the Tukey's HSD as it is frequently used in nursing research, and results in more conservative p values than the Fisher's LSD (Least Significant Difference) test (Polit, 2010). The results revealed a significant difference between the DLNNCI scores for nurses in the emergency room and in paediatrics, with the average score on the DLNNCI being significantly higher for participants working in paediatrics (108.58) compared to participants working in the emergency room (90.7273, $p<.001$) (see Table 6). None of the results for the other areas of practice were significant, thus they were not included in this table. The results for the MMSS scores were also not significant ($p>.05$) so they were not included. These findings reveal that among the participants of this study, nurses working in paediatrics reported significantly more nurse-nurse collaboration than nurses working in the emergency room.

Table 6 -Tukey's HSD Test for DLNNCI Scores Based on Primary Area of Practice

Primary Area of Practice (I)	Primary Area of Practice (J)	Mean Difference (I-J)	Standard Error	Significance
ER	CCU/ICU	-7.77273	7.14414	.983
	Rehab	-16.27273	7.14414	.424
	Paediatrics	-17.85606	3.87942	.001**
	Mental Health	-10.67273	5.01266	.519
	Med/ Surg	-4.43939	4.71674	.994
	Oncology	-6.93939	6.05336	.976
	Obstetrics	-2.27273	6.05336	1.0
	Outpatient	-9.77273	5.42636	.731
	Other	-16.27273	6.05336	.212
Paediatrics	CCU/ICU	10.08333	7.09819	.914
	ER	17.85606	3.87942	.001**
	Rehab	1.58333	7.09819	1.0
	Mental Health	7.18333	4.94696	.903
	Med/ Surg	13.41667	4.64686	.142
	Oncology	10.91667	5.99909	.719
	Obstetrics	15.58333	5.99907	.251
	Outpatient	8.08333	5.36573	.882
	Other	1.58333	5.99907	1.0

Note. ** p<.01.

Analysis of Variables: Nurses Over 30 Years of Age vs. Nurses Under 30

As the distribution of nurses in this sample was approximately even in terms of nurses aged 18-29 (n=23, 45%) and nurses aged 30 and above (n= 28, 55%), these data were further analyzed to determine if there was any difference between the age of nurses (either 18-29 or 30 and above) and their scores on the MMSS and DLNNCI. After a Levene's test for equality of variances could not reject the null hypothesis that the variances between the two groups were equal for the MMSS and the DLNNCI (p= .36 and p= .56 respectively), two two-tailed independent group t tests were completed.

For the results of the MMSS, the t test revealed that the mean score on the MMSS for nurses aged 18-29 (*M*= 103.70) was not significantly different from the mean score on the MMSS for nurses aged 30 and above (*M*= 100.36), *t* (49) = .98*, p*=.33. Similarly, for the results of the DLNNCI scale, the t test revealed that the mean score on the DLNNCI for nurses aged 18-29 (*M*= 99.48) was not significantly different from the mean score on the DLNNCI for nurses aged 30 and above (*M*= 99.90), *t* (49) = -.13, *p*=.89. This reveals that in the present study, the age of the participants (in terms of being aged 18-29 or 30 and above) did not affect their scores on either the DLNNCI or the MMSS.

Chapter 5: Discussion

Nurse-Nurse Collaboration and Nurse Job Satisfaction

The results of the present study support the hypothesis that there is a positive correlation (r =.569, p<.01) between nurse-nurse collaboration and nurse job satisfaction in the hospital setting. Although this relationship had not been previously explored, a review of the literature suggested that nurse-nurse collaboration and nurse job satisfaction would be linked. This included studies which found a positive correlation between nurse job satisfaction and both the cohesion of the ward nursing team (Adams & Bond, 2000) and the relationships between nurses and their peers (Blegen, 1993), as well as research which demonstrated a significant, positive correlation between nurse-physician collaboration and nurse job satisfaction (Adams & Bond, 2000; Larrabee et al., 2003; Larrabee et al., 2004; Shannon et al., 2002; Zangaro & Soeken, 2007). The results of the present study strengthen our knowledge of the importance of collaboration among health care professionals in the hospital setting, and underline the need for further research to explore the concept of nurse-nurse collaboration, its relationship with healthy work environments for nurses and how improved nurse-nurse collaboration may benefit nurses, patients and organizations.

The results of the present study are also important as nurse job satisfaction has been linked with other variables which affect patient care. Previous research has linked improved job satisfaction among nurses with improved pain outcomes as perceived by the patient (McGillis Hall et al., 2001), increased patient satisfaction with nursing care (McGillis Hall et al., 2001) and the improved retention of nurses (Choi et al., 2013; Gurkova et al., 2013; Kuo et al., 2014; Larrabee et al., 2003; O'Brien-Pallas et al., 2010;

Smith et al., 2005; Tourangeau & Cranley, 2006). While the link between satisfaction and outcomes for patients is important, the link between job satisfaction and retention suggests numerous other benefits as higher rates of nurse turnover have been associated with higher rates of medical errors and decreased nurse mental health status scores (O' Brien-Pallas et al., 2010). Thus while nurses who collaborate with their fellow nurses may experience better outcomes in terms of improved job satisfaction, there may also be benefits for the patient in terms of better pain outcomes, improved satisfaction with care and less risk in terms of medical errors as well as benefits to the larger health care system in terms of a reduction in errors and the associated costs, and reduced costs related to nursing turnover.

The link between nurse-nurse collaboration and nurse job satisfaction ties into the larger discussion regarding healthy work environments for nurses and the relationship between healthy work environments and positive outcomes. The "Conceptual Model for Healthy Work Environments for Nurses" (RNAO, 2006, p.14) aims to conceptualize the numerous factors at the level of the individual, organization and society which interact and affect the creation of healthy work environments for nurses as well as the positive outcomes for nurses, patients, organizations and society. Nurse-nurse collaboration within this model is one of the Professional/ Occupational components at the organizational level with nurse job satisfaction being a nurse specific outcome (RNAO, 2006). Previous research supported a relationship between healthy work environments and positive outcomes for nurses as nurses working in hospitals with higher quality work environments were significantly less likely to report job dissatisfaction compared with nurses working in lower quality work environments (Aiken

et al., 2011; Kelly et al., 2011). The present study adds to this research as it demonstrates that improved collaboration between nurses (a component of a healthy work environment) is associated with improved nurse job satisfaction (a nurse specific outcome). While this study looked specifically at job satisfaction, the interconnected nature of the model suggests that since nurse-nurse collaboration is a component of a healthy work environment for nurses, nurse-nurse collaboration may be associated with positive outcomes not only for nurses, but also for patients, organizations and society as a whole. Further research on the relationship between nurse-nurse collaboration and the work environment of nurses, as well as nurse-nurse collaboration and other positive outcomes for nurses, patients and organizations is needed.

The results of this study also contribute to knowledge regarding the DLNNCI. The DLNNCI is currently the only scale which is specifically designed to explore collaboration between nurses and a review of the literature revealed it had only been used in two previous studies. As the DLNNCI had been shown to measure five subscales of nurse-nurse collaboration rather than nurse-nurse collaboration as a global concept (Dougherty & Larson, 2010), the relationship between nurse job satisfaction and the subscales of the DLNNCI was explored. The fact that the MMSS scores were significantly, positively correlated with four of the five subscales of the DLNNCI (conflict management, communication, shared process and professionalism), supports the link between nurse-nurse collaboration and nurse job satisfaction.

The fact that the relationship between the MMSS and the DLNNCI subscale of coordination was not significant ($p > .05$) is an unexpected finding in this study. The items in the DLNNCI which relate to coordination were adapted from research by

Shortell, Rousseau, Gillies, Devers, and Simons (1991) (Dougherty, 2009). Shortell et al. (1991) aimed to demonstrate the reliability and validity of an instrument to assess multiple measures within an intensive care unit. The instrument was completed by physicians and nurses working in the intensive care units of four hospitals and measured leadership, organizational culture, communication, coordination, problem solving/ conflict management and team cohesiveness (Shortell et al., 1991). The results revealed that coordination within the team was significantly correlated with team satisfaction (r = .45, p<.05) (Shortell et al., 1991). These results suggest that coordination between nurses might similarly be linked to nurse job satisfaction. This idea that coordination and nurse job satisfaction might be linked is reinforced by examining the coordination subscale. The coordination subscale used as part of the DLNNCI is composed of five items related to whether nurses discuss their patients' care with other nurses either informally or during daily rounds, and whether the nurses have access to written policies, procedures and treatment protocols (Dougherty & Larson, 2010). A review of the literature shows that the implementation of nursing rounds is associated with improved nurse satisfaction (Geary et al, 2009), and significantly increased interactions between nurses (p=.002) (Aitken et al., 2011). This further suggests that the subscale of the DLNNCI which measures coordination would be related to nurse job satisfaction. Thus, it is unclear why the subscale of coordination was not significantly linked with nurse job satisfaction but it may be that the relationship between these variables is not strong enough to be seen in the present study which used a small sample size. Further use of this scale on larger and more varied samples of nurses is recommended.

Links between the Descriptive Variables and the Study Variables

In addition to the main research question regarding nurse-nurse collaboration and nurse job satisfaction, this study also tested how the descriptive variables of the participants related to both nurse-nurse collaboration and nurse job satisfaction. The results of the present study did not find a significant correlation between age, gender, highest education completed (both within and outside of nursing), length of time working as a nurse, length of time in current position or primary area of practice with nurse job satisfaction. This result is similar to research by Adams and Bond (2000) which did not find a significant correlation between job satisfaction and age, level of education or number of years in their current role, Blegen (1993) which found no significant relationship between job satisfaction and years in current position, Cox (2003) which found no significant correlation between nurse job satisfaction and age, education or experience, Purpora and Blegen (2015) which did not find a correlation between job satisfaction and either age or years working as a hospital RN and O' Brien-Pallas et al. (2010) which noted that experience did not significantly affect job satisfaction among Canadian nurses. In contrast, some studies have noted small but significant correlations between these variables. A study by Gurkova et al. (2013) found small but significantly positive relationships between both age (r = .09, p<.01) and years in nursing (r = .08, p<.05) with job satisfaction while a meta-analysis by Blegen (1993) noted a low mean correlation between nurse job satisfaction and both age (.13), and education (-.07). In addition, a study by Purdy, Laschinger, Finegan, Kerr, and Olivera (2010) noted a significant correlation between job satisfaction and years in nursing (r = .20, p<.01) in a sample of RNs and RPNs working in Ontario and a study by Klaus, Ekerdt, and

Gajewski (2012) found that unit type was significantly related to nurse job satisfaction among some age groups of nurses. For example, among nurses aged 20-39 years old, nurses working in medical-surgical units were significantly more satisfied than those working in the emergency room (Klaus et al., 2012). This was similar to the results of a study of new graduate RNs by Peterson et al. (2011) which found that RNs working in both the emergency room and the intensive care unit were less satisfied than RNs working in other units within a hospital. It is unclear why these studies noted significant differences when the present study did not, but it may be that the sample size of the present study was not large or diverse enough to detect the presence of these correlations. Further research in this area is needed.

The present study similarly did not identify a significant correlation between age, gender, highest education completed (both within and outside of nursing), length of time working as a nurse or length of time in current position with nurse-nurse collaboration. This is similar to results by Dougherty (2009) in which gender, education in nursing, and experience in nursing did not significantly affect scores on the DLNNCI subscales. As a literature review revealed that only one other study has used the DLNNCI and it focused on nursing students (Moore & Nahigian, 2013), further use of this scale in nursing research is recommended.

The results of the present study did find a significant difference between nurse-nurse collaboration scores and primary area of practice with nurses whose primary of practice was paediatrics reporting significantly higher scores on the DLNNCI than nurses whose primary area of practice was the emergency room. As the DLNNCI was initially tested on nurses working in the intensive care unit and a literature review

revealed its use in only one other study which focused on nursing students, this is a new finding. It is unclear why this difference was observed in the present study but it may be related to the sampling strategy which included both convenience and snowball sampling. As some participants took surveys with them to further distribute surveys to their colleagues, it is possible that the majority of participants who responded from the emergency room belonged to the same unit and the participants who responded from paediatrics may also have been from the same unit. If this was the case, it is possible that these two units were different in some way which explains the difference in scores on the DLNNCI. Collaboration between nurses is a component of a healthy work environment and is thus influenced by numerous factors at the level of the individual, the organization and the larger society (RNAO, 2006). The literature has provided support for these interactions, suggesting that whether or not nurses collaborate depends on the individual nurse's attitude and personality (Henneman et al., 1995; Petri, 2010; Stefaniak, 1998), their communication skills (Henneman et al., 1995; Moore et al., 2015; Stefaniak, 1998), having trust and respect for one another (D'amour et al., 2005; Henneman et al., 1995; Moore & Prentice, 2013; Moore et al., 2015; Petri, 2010), having the opportunity to collaborate (Henneman et al., 1995; Moore et al., 2015; Stefaniak, 1998), having leadership on the unit which supports collaboration (Henneman et al., 1995; Moore & Prentice, 2013) and belonging to an organization which values collaboration (Henneman et al., 1995; Stefaniak, 1998). Research on staffing in hospital units has also found that both higher levels of nurse staffing and higher proportions of RNs within the mix of staff are significantly related to the teamwork on the unit ($\beta = .417$, $p < .05$ and $\beta = .436$, $p < .01$ respectively) (Kalisch & Lee, 2011).

Thus, it is unclear why the participants of the present study who worked in the emergency room reported significantly lower scores on the DLNNCI compared to nurses working in paediatrics, but a combination of factors may have been involved. Further research which compares nurse-nurse collaboration across multiple units is recommended.

Discussion of the Sample

The descriptive information gathered on the present sample revealed that the participants of this study were a relatively young, predominantly female and relatively inexperienced group of nurses compared to the current population of RNs working in Ontario. Whereas the average age of a nurse in Ontario in 2014 was 45.4 years (CNO, 2015), the majority of nurses in the present study were under the age of 35 and 49% had been working as a nurse for less than five years. This sample also represents a relatively educated group of nurses as 90.2% of the participants reported that their highest education in nursing was an undergraduate or graduate degree and 58.9% had a diploma or degree outside of nursing. This is markedly different from data from the CNA which surveyed its members in 2011 and found that for 57.3% of the RNs working in Canada, their highest education in nursing was a diploma (CNA, 2013). As the move from requiring a diploma to requiring a baccalaureate degree in nursing took place in 2005 (CNO, 2014a), it is expected that a sample of younger nurses would have a higher proportion of nurses with at least an undergraduate degree in nursing. In addition, although there is no comparison data available, RNs who work in both paediatrics and the emergency room appear to be overrepresented in this sample.

Although the sample used in this study is not representative of the population of nurses currently working in Ontario, it is still important to explore the findings related to the participants of this study. Almost half of the nurses in this sample (49%) had been in their positons for five years or less which suggests that the majority of nurses in this study were in the novice, advanced beginner or competent stages of skill acquisition (Benner, 2001). As novices and advanced beginners are still learning how to prioritize tasks and recognize worrying trends, they spend a considerable amount of time discussing their patients with other nursing staff including preceptors and educators (Benner, 2001). As these new nurses need to work closely with other nurses, they might value nurse-nurse collaboration more than nurses who are more independent when it comes to caring for their patients. The need of new nurses to collaborate with peers was discussed by Stefaniak (1998) as several nurses in her study were newer to their floor and needed to collaborate with their nursing peers regularly as they often had questions about care. This idea is refuted, however, by the fact that the present study did not reveal a significant relationship between either years in nursing or years in current role and nurse-nurse collaboration.

It is also interesting to note that 64.7% of the participants of this study were under the age of 35. This means that the majority of nurses in this study represent individuals from the Millennial generation (Hendricks & Cope, 2013). The term “Millennials” is used to describe people who were born between the years of 1980 and 2000 (Hendricks & Cope, 2013). In general, individuals born in this era are used to fast-paced lives and enjoy advances in technology (Stewart, 2006). Nurses from this generation value being able to share their ideas with the larger group (Hendricks &

Cope, 2013; Stewart, 2006), are comfortable working within teams and collaborating (Stewart, 2006), value support from their nursing colleagues (Dols, Landrum, & Wieck, 2010; Lavoie-Tremblay, O' Brien-Pallas, Gelinas, Desforges, & Marchionni, 2008) and appreciate receiving feedback/ recognition from their manager (Dols et al., 2010; Hendricks & Cope, 2013; Lavoie-Tremblay et al., 2008). The fact that Millennials work well within teams suggests that nurses of this age group might place a higher value on nurse-nurse collaboration than nurses from other generations. Contrary to this however, is the fact that there was no significant association between age and scores for the DLNNCI scale in the present study. Also, a qualitative study by Utriainen et al. (2011) which aimed to describe the well-being of aging nurses noted that their well-being depended on their "experiences of collaboration, cooperation and togetherness with other nurses in a supporting and caring workplace" (p. 1042). This suggests that although nurse-nurse collaboration may be important to nurses from the Millennial generation, it is also important to their older colleagues. Further research on collaboration between nurses including larger sample sizes and longitudinal studies may help clarify whether age and experience are related to nurse-nurse collaboration.

Nurse-Nurse Collaboration and RPNs

One interesting question which came up during the data collection phase of this study was whether RPNs could have been included as participants in this study. As that was not the initial aim of this study, and the role defined as RPN in Ontario is not universal throughout Canada, the decision was made to exclude RPNs from this study. I stressed to all potential participants that this survey was meant for RNs only and did not include four surveys in my data analysis which were inadvertently filled out by RPNs.

Although I did not intend to get RPNs to fill out my survey and did not use their data in this study, this could be an area for future study as RNs and RPNs work closely in many hospitals environments in Ontario. While the majority of research relating to nurse-nurse collaboration referred to RNs, several were conducted on RPNs in Ontario and a few included other roles within the health care environment. One such study was completed in Ontario by Tourangeau, Cranley, Laschinger, and Pachis (2010) and found that job satisfaction among long-term care staff (including RNs, RPNs, managers, non-professional workers such as Personal Support Workers and allied health workers such as Physical Therapists), was significantly correlated with both work group cohesion (r =.45, p<.01) and work group communication (r =.32, p<.01). Two American studies revealed similar relationships between collaboration/ teamwork and positive outcomes for nurses, patients and organizations. One study was completed by Kalisch, Curley, and Stefanov (2007) and involved an intervention to improve teamwork among RNs, LPNs, Certified Nurse Assistants and unit secretaries. The intervention included involving the entire staff in setting goals for improving teamwork and having a small group of staff work on the goals while keeping the rest of the staff informed of progress (Kalisch et al., 2007). Following the intervention, there was a significant decrease in the number of patient falls, a significant decrease in staff turnover and an improvement in patient satisfaction scores (Kalisch et al., 2007). In addition, a study by Kalisch, Lee, and Rochman (2010) noted that teamwork among nurses, assistive personal and unit secretaries was a significant predictor of job satisfaction. This research suggests that improving the relationships, communication and collaboration among all staff on a unit may have positive outcomes for the staff, their patients and the larger organization.

Limitations

While the results of the present study may further illuminate the concept of nurse-nurse collaboration, the limitations of this study must be considered. In terms of research design, one threat to the internal validity of this study is the correlational design which means that causal relationships cannot be explored (Polit & Beck, 2012). In terms of sampling, a limitation is the use of convenience/ snowball sampling in which participants were recruited from a general meeting of the RNAO and from my personal network. This sampling strategy is not ideal as the participants who are selected may not be representative of the larger population which can skew the results (Polit & Beck, 2012). In addition, as membership in the RNAO is not a requirement of RNs in Ontario, RNs at the RNAO general meeting represent a small subset of the total population of RNs currently working in Ontario. As the present sample was clearly not representative of the current population of RNs in Ontario, the ability to generalize the results of this study to RNs working in hospitals in Ontario is limited. Also, as this study was conducted solely on RNs working within hospitals in Ontario, these results cannot be generalized to the larger population of RNs working in Canada, or to RNs working in other countries. The small sample size used in this study is also a weakness as it limited the analysis which could be completed and may have also contributed to skewing the results as certain groups such as younger RNs and RNs working in either paediatrics or the emergency room were overrepresented in this sample. An additional weakness of this design is the use of scales which relied on self-report. This means that participants could have answered questions as they thought they should respond, rather than how they truly felt. Moreover, the cross-sectional nature of the research design is

also a potential weakness as it means that the data was true only for a certain point in time. This could skew the results if participants responded based on how they were feeling at that moment which was not true for them in general.

An additional weakness of this study was the use of the DLNNCI. This instrument has not been widely tested in the literature, was initially created and tested on nurses in the intensive care unit and was found to reliably test five domains of collaboration rather than the global concept of nurse-nurse collaboration (Dougherty & Larson, 2010). It is therefore unclear if this instrument is reliable when measuring nurse-nurse collaboration on other units within a hospital.

Implications for Practice

As nurse-nurse collaboration is significantly, positively correlated with nurse job satisfaction, it should be encouraged in the hospital environment. When it comes to determining how to support and encourage nurse-nurse collaboration in the hospital environment, the literature discusses several options. Some studies introduced specific interventions such as daily nursing rounds at the bedside to allow the primary nurse to discuss patient issues with other nurses (Fillmore, 2010; Geary et al., 2009) or having weekly nursing rounds which focus on only two patients at a time (Aitken et al., 2011), while others focused on strategies to improve the cohesion of the nursing team such as team meetings which emphasize team-building activities (Dimeglio et al., 2005), implementing a mentorship program (Latham et al., 2008) and improving the communication between nurses on different units (Negley et al., 2009). In addition to these specific interventions, the RNAO's Best Practice Guideline "Collaborative Practice among Nursing Teams" (2006) discusses general practices to improve collaboration

between nurses. Some of the recommendations of this document include that individual nurses should be ready and willing to collaborate with colleagues and seek out opportunities to do so; that nursing teams should have processes in place which support collaboration such as engaging team members in determining shared goals, having a policy which describes how conflict between nurses will be handled, and ensuring regular communication with all staff; and that organizations should work to create a culture of collaboration by making it part of their values, utilizing practice models which support collaboration and monitoring nurse and patient outcomes and how they relate to collaboration (RNAO, 2006). These and other interventions for promoting collaboration between nurses should be explored to determine how their implementation affects the amount of collaboration occurring between nurses as well as the associated outcomes for patients, nurses and organizations.

Implications for Research

One fact which is clear from the literature review on this topic is that there have been few studies which have explored the concept of nurse-nurse collaboration. Going forward, it would be useful to have the DLNNCI tested on larger groups of RNs and on samples obtained using different sampling strategies. Analysis on these larger samples should include examining whether nurse-nurse collaboration differs by primary area of practice and whether all five subscales of the DLNNCI are related to nurse job satisfaction to determine if the results of the present study are supported. In addition, studies which explore nurse-nurse collaboration among RNs and RPNs in Ontario could reveal how different kinds of nurses work together in practice and whether the collaboration between different kinds of nurses is related to outcomes for the nurses

involved as well as their patients and the larger organization. It would also be helpful to conduct a longitudinal study to test trends in nurse-nurse collaboration over time and how these scores relate to job satisfaction and retention. In addition, more studies are needed which explore the effect of specific interventions such as the institution of nursing rounds on nurse-nurse collaboration and multiple outcomes for nurses, patients and organizations in order to determine which interventions may lead to the largest benefit.

Conclusion

As the Canadian health care system faces the challenge of delivering quality to care to an aging population with complex health needs (Sinha, 2012), it will rely on RNs working in hospitals to provide quality patient care. Previous literature has demonstrated that the environments in which these nurses work may affect outcomes not only for the nurses, but also for patients, organizations and the larger society (RNAO, 2006). The present study sought to explore the relationship between one aspect of the work environment of nurses (nurse-nurse collaboration) and one outcome of a healthy work environment (nurse job satisfaction). As this study has demonstrated a link between nurse-nurse collaboration and nurse job satisfaction, these results contribute to the larger discussion regarding the importance of work environment of nurses and the positive outcomes which may occur when nurses work in quality environments. In addition, while the present study demonstrated that nurse-nurse collaboration is linked with positive benefits for nurses in terms of improved job satisfaction, previous research has demonstrated a link between nurse job satisfaction and nurse retention (Choi et al., 2013; Gurkova et al., 2013; Kuo et al., 2014; Larrabee et al., 2003; O'Brien-Pallas et al.,

2010; Smith et al., 2005; Tourangeau & Cranley, 2006) and high rates of nurse turnover have been linked with higher rates of medical errors (O' Brien-Pallas et al., 2010). This suggests that improving nurse-nurse collaboration may result in benefits not only for nurses, but also for patients, organizations and the health care system as a whole.

While nurse-nurse collaboration is a topic which has not received much attention in research, it is hoped that the present study will highlight the potential benefits of collaboration between nurses and lead to further research. Furthermore, as a review of the literature has revealed multiple ways in which collaboration between nurses can be supported and encouraged, it is hoped that individual nurses, nursing units and organizations will take steps to improve nurse-nurse collaboration in an effort to promote positive outcomes for nurses, patients, organizations and the larger health care system.

References

Adams, A., & Bond, S. (2000). Hospital nurses' job satisfaction, individual and organizational characteristics. *Journal of Advanced Nursing, 32*(3), 536-543. Retrieved from http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-2648

Aiken, L. H., Sloane, D. M., Clarke, S., Poghosyan, L., Cho, E., You, L., …Aungsuroch, Y. (2011). Importance of work environments on hospital outcomes in nine countries. *International Journal for Quality in Health Care, 23*(4), 357-364. doi: 10.1093/intqhc/mzr022

Aitken, L. M., Burmeister, E., Clayton, S., Dalais, C., & Gardner, G. (2011). The impact of nursing rounds on the practice environment and nurse satisfaction in intensive care: Pre-test post-test comparative study. *International Journal of Nursing Studies, 48*, 918-925. doi:10.1016/j.ijnurstu.2010.10.004

Almost, J., Doran, D. M., McGillis Hall, L., & Laschinger, H. K. S. (2010). Antecedents and consequences of intra-group conflict among nurses. *Journal of Nursing Management, 18*, 981-992. doi: 10.1111/j.1365-2834.2010.01154.x.

American Association of Critical-Care Nurses (2005). *AACN standards for establishing and sustaining healthy work environments: A journey to excellence*. Retrieved from www.aacn.org

Benner, P. (2001). *From Novice to Expert: Excellence and Power in Clinical Nursing Practice (Commemorative Edition)*. Upper Saddle River, NJ: Prentice-Hall.

Blake, N. T. (2012). *The relationship between the nurses' work environment and patient and nurse outcomes* (Doctoral dissertation). Retrieved from ProQuest Dissertation and Theses Database. (UMI No. 3510015)

Blegen, M. A. (1993). Nurses' job satisfaction: A meta-analysis of related variables. *Nursing Research, 42*(1), 36-41. Retrieved from http://journals.lww.com/nursingresearchonline/pages/default.aspx

Brooks, E., Wilkinson, J. M., & Popkess-Vawter, S. (1994). Promoting situational support for nurses in practice. *Journal of Nursing Scholarship, 26*(4), 305-307. doi: 10.1111/j.1547-5069.1994.tb00339.x

Canadian Nurses Association (2013). *2011 Workforce profile of Registered Nurses in Canada*. Retrieved from the CNA website: https://www.cna-aiic.ca/en

Canadian Nurses Association (2015). *Practice environments: Maximizing outcomes for clients, nurses and organizations*. Retrieved from the CNA website: https://www.cna-aiic.ca/en

Castaneda, G. A., & Scanlan, J. M. (2014). Job satisfaction in nursing: A concept analysis. *Nursing Forum, 49*(2), 130-138. doi: 10.1111/nuf.12056

Choi, S. P., Cheung, K., & Pang, S. M. (2013). Attributes of nursing work environment as predictors of registered nurses' job satisfaction and intention to leave. *Journal of Nursing Management, 21*, 429-439. doi: 10.1111/j.1365-2834.2012.01415.x

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (Second ed.).* Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

College of Nurses of Ontario (2014a). *Competencies for entry-level Registered Nurse practice*. Retrieved from the College of Nurses of Ontario website: http://www.cno.org/

College of Nurses of Ontario (2014b). *RN and RPN practice: The client, the nurse and the environment*. Retrieved from the College of Nurses of Ontario website: http://www.cno.org/

College of Nurses of Ontario (2015). *Membership statistics highlights 2014*. Retrieved from the College of Nurses of Ontario website: http://www.cno.org/

Cox, K. B. (2003). The effects of intrapersonal, intragroup, and intergroup conflict on team performance effectiveness and work satisfaction. *Nursing Administration Quarterly, 27*(2), 153-163. Retrieved from http://journals.lww.com/naqjournal/pages/default.aspx

D'amour, D., Ferrada-Videla, M., Rodriguez, L. S. M., & Beaulieu, M. D. (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care, 19(supplement 1)*, 116-131. doi: 10.1080/13561820500082529

DiMeglio, K., Padula, C., Piatek, C., Korber, S., Barrett, A., Ducharme, M.,… Corry, K. (2005). Group cohesion and nurse satisfaction: Examination of a team-building approach. *Journal of Nursing Administration, 35*(3), 110-120. Retrieved from http://journals.lww.com/jonajournal/Pages/default.aspx

Dols, J., Landrum, P., & Wieck, K. L. (2010). Leading and managing an intergenerational workforce. *Creative Nursing, 16*(2), 68-74. doi: 10.1891/1078-4535.16.2.68

Dougherty, M. B. (2009). *The relationship between emotional intelligence and nurse-nurse collaboration* (Doctoral dissertation). Retrieved from ProQuest Dissertation and Theses Database. (UMI No. 3348383)

Dougherty, M. B., & Larson, E. L. (2010). The nurse-nurse collaboration scale. *The Journal of Nursing Administration, 40*(1), 17-25. doi:10.1097/NNA.0b013e3181c47cd6

Dunn, S., Wilson, B., & Esterman, A. (2005). Perceptions of working as a nurse in an acute care setting. *Journal of Nursing Management, 13*, 22-31. doi: 10.1111/j.1365-2834.2004.00452.x

Estabrooks, C. A., Midodzi, W. K., Cummings, G. G., Ricker, K. L., & Giovannetti, P. (2005). The impact of hospital nursing characteristics on 30-day mortality. *Nursing Research, 54*(2), 74-84. Retrieved from http://journals.lww.com/nursingresearchonline/pages/default.aspx

Fewster-Thuente, L. (2011). *Working together toward a common goal: A grounded theory of nurse-physician collaboration* (Doctoral dissertation). Retrieved from ProQuest Dissertation and Theses Database. (UMI No. 3493577)

Fillmore, L. A. (2010). *Walking nursing rounds to improve nurse morale and patient satisfaction* (Doctoral dissertation). Retrieved from ProQuest Dissertation and Theses Database. (UMI No. 3451164)

Geary, S., Cale, D. D., Quinn, B., & Winchell, J. (2009). Daily rapid rounds: Decreasing length of stay and improving professional practice. *Journal of Nursing Administration, 39*, 293-298. doi: 10.1097/NNA.0b013e3181a72ab8

Gittell, J. H. (2002). Relationships between service providers and their impact on customers. *Journal of Service Research, 4*(4), 299-311. Retrieved from http://jsr.sagepub.com/content/4/4.toc

Gurkova, E., Soosova, M. S., Harokova, S., Ziakova, K., Serfelova, R., & Zamboriova, M. (2013). Job satisfaction and leaving intentions of Slovak and Czech nurses. *International Nursing Review, 60*, 112-121. doi: 10.1111/j.1466-7657.2012.01030.x

Han, K., Trinkoff, A. M., & Gurses, A. P. (2015). Work-related factors, job satisfaction and intent to leave the current job among United States nurses. *Journal of Clinical Nursing, 24*, 3224-3232. doi: 10.1111/jocn.12987

Havens, D. S., Vasey, J., Gittell, J. H., & Lin, W. T. (2010). Relational coordination among nurses and other providers: Impact on the quality of patient care. *Journal of Nursing Management, 18*, 926-937. doi: 10.0000/j.1365-2834.2010.01138.x.

Hayes, B., Bonner, A., & Pryor, J. (2010). Factors contributing to nurse job satisfaction in the acute hospital setting: A review of recent literature. *Journal of Nursing Management, 18*, 804-814. doi: 10.1111/j.1365-2834.2010.01131.x

Hendricks, J. M., & Cope, V, C. (2013). Generational diversity: What nurse managers need to know. *Journal of Advanced Nursing, 69*(3), 717-725. doi:

10.1111/j.1365–2648.2012.06079.x.

Henneman, E. A., Lee, J. L., & Cohen, J. I. (1995). Collaboration: A concept analysis. *Journal of Advanced Nursing, 21*, 103-109. doi: 10.1046/j.1365-2648.1995.21010103.x

Kalisch, B. J., Curley, M., & Stefanov, S. (2007). An intervention to enhance nursing staff teamwork and engagement. *Journal of Nursing Administration, 37*(2), 77-84. Retrieved from http://journals.lww.com/jonajournal/Pages/default.aspx

Kalisch, B. J., & Lee, K. H. (2010). The impact of teamwork on missed nursing care. *Nursing Outlook, 58*(5), 233-241. doi:10.1016/j.outlook.2010.06.004

Kalisch, B. J., & Lee, K. H. (2011). Nurse staffing levels and teamwork: A cross-sectional study of patient care units in acute care hospitals. *Journal of Nursing Scholarship, 43*(1), 82-88. doi: 10.1111/j.1547-5069.2010.01375.x

Kalisch, B. J., Lee, H., & Rochman, M. (2010). Nursing staff teamwork and job satisfaction. *Journal of Nursing Management, 18*, 938-947. doi:10.1111/j.1365-2834.2010.01153.x

Kalisch, B. J., & Xie, B. (2014). Errors of omission: Missed nursing care. *Western Journal of Nursing Research, 36*(7), 875-890. doi:10.1177/0193945914531859

Kelly, L. A., McHugh, M. D., & Aiken, L. H. (2011). Nurse outcomes in Magnet and non-Magnet hospitals. *Journal of Nursing Administration, 41*(10), 428-433. doi: 10.1097/NNA.0b013e31822eddbc

Klaus, S. F., Ekerdt, D. J., & Gajewski, B. (2012). Job satisfaction in birth cohorts of nurses. *Journal of Nursing Management, 20*, 461-471. doi: 10.1111/j.1365-2834.2011.01283.x

Knaus, W. A., Draper, E. A., Wagner, D. P, & Zimmerman, J. E. (1986). An evaluation of outcomes from intensive care in major medical centers. *Annals of Internal Medicine, 104*(3), 410-418. doi:10.7326/0003-4819-104-3-410

Kuo, H. T., Lin, K. C., & Li, I. C. (2014). The mediating effects of job satisfaction on turnover intention for long-term care nurses in Taiwan. *Journal of Nursing Management, 22*, 225-233. doi: 10.1111/jonm.12044

Larrabee, J. H., Janney, M. A., Ostrow, C. L., Withrow, M. L., Hobbs Jr., G. R., & Burant, C. (2003). Predicting Registered Nurse job satisfaction and intent to leave. *Journal of Nursing Administration, 33(5)*, 271-283. Retrieved from http://journals.lww.com/jonajournal/Pages/default.aspx

Larrabee, J. H., Ostrow, C. L., Withrow, M. L., Janney, M. A., Hobbs Jr., G. R., & Burant, C. (2004). Predictors of patient satisfaction with inpatient hospital nursing care. *Research in Nursing & Health, 27*, 254-268. doi: 10.1002/nur.20021

Latham, C. L, Hogan, M., & Ringl, K. (2008). Nurses supporting nurses: Creating a mentoring program for staff nurses to improve the workforce environment. *Nursing Administration Quarterly, 32*(1), 27-39. doi: 10.1097/01.NAQ.0000305945.23569.2b

Lavoie-Tremblay, M., O' Brien-Pallas, L., Gelinas, C., Desforges, N., & Marchionni, C. (2008). Addressing the turnover issue among new nurses from a generational viewpoint. *Journal of Nursing Management, 16*, 724-733. doi: 10.1111/j.1365-2934.2007.00828.x

Leever, A. M., Hulst, M. V. D., Berendsen, A. J., Boendemaker, P. M., Roodenburg, J. L. N., & Pols, J. (2010). Conflicts and conflict management in the collaboration between nurses and physicians-A qualitative study. *Journal of Interprofessional Care, 24*(6), 612-624. doi: 10.3109/13561820903550762

McGillis Hall, L., Doran, D. I., Baker, G. R , Pink, G. H., Sidani, S., O' Brien-Pallas, L., & Donner, G. J. (2001). *A study of the impact of nursing staff mix models and organizational change strategies on patient, system and nurse outcomes (Summary Report)*. Toronto, Canada: Faculty of Nursing, University of Toronto.

McLennan, M. (2005). Nurses' views on work enabling factors. *Journal of Nursing Administration, 35*(6), 311-318. Retrieved from http://journals.lww.com/jonajournal/Pages/default.aspx

McNeese-Smith, D. K. (1999). A content analysis of staff nurse descriptions of job satisfaction and dissatisfaction. *Journal of Advanced Nursing, 29*(6), 1332-1341. Retrieved from http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-2648

Moore, J., & Nahigian, E. (2013). Nursing student perceptions of nurse-to-nurse collaboration in dedicated education units and in traditional clinical instruction units. *Journal of Nursing Education, 52*(6), 346-350. doi:10.3928/01484834-20130509-01

Moore, J., & Prentice, D. (2013). Collaboration among nurse practitioners and registered nurses in outpatient oncology settings in Canada. *Journal of Advanced Nursing, 69*(7), 1574-1583. doi: 10.1111/jan.12017

Moore, J., Prentice, D., & McQuestion, M. (2015). Social interaction and collaboration among oncology nurses. *Nursing Research and Practice, 2015, 1-7. doi.org/10.1155/2015/248067*

Mueller, C. W., & McCloskey, J. C. (1990). Nurses' job satisfaction: A proposed measure. *Nursing Research, 39*(2), 113-117. Retrieved from http://journals.lww.com/nursingresearchonline/pages/default.aspx

Negley, K. D. F., Ness, S., Fee-Schroeder, K., Kokal, J., & Voll, J. (2009). Building a collaborative nursing practice to promote patient education: An inpatient and outpatient partnership. *Oncology Nursing Forum, 36*(1), 19-23. Retrieved from https://onf.ons.org/

Nijhuis, B. J. G., Reinders-Messelink, H. A.. de Blecourt, A. C. E., Olijve, W. G., Groothoff, J. W., Nakken, H., & Postema, K. (2007). A review of salient elements defining team collaboration in paediatric rehabilitation. *Clinical Rehabilitation, 21*, 195-211. doi:10.1177/0269215506070674

O'Brien-Pallas, L., Murphy, G. T., Shamian, J., Li, X., & Hayes, L. J. (2010). Impact and determinants of nurse turnover: A pan-*Canadian study. Journal of Nursing Management, 18*, 1073-1086. doi: 10.1111/j.1365-2834.2010.01167.x

Peterson, J., McGillis Hall, L., O'Brien-Pallas, L., & Cockerill, R. (2011). Job satisfaction and intentions to leave of new nurses. *Journal of Research in Nursing, 16*(6), 536-548. doi: 10.1177/1744987111422423

Petri, L. (2010). Concept analysis of interdisciplinary collaboration. *Nursing Forum, 45*(2), 73-82. doi: 10.1111/j.1744-6198.2010.00167.x

Polit, D. F. (2010). *Statistics and data analysis for nursing research* (2nd ed.). Upper Saddle River, NJ: Pearson Education Inc.

Polit, D. F., & Beck, C. T. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed.). Philadelphia, PA: Lippincott, Williams and Wilkins.

Pronovost, P. J., Thompson, D. A., Holzmueller, C. G., Lubomski, L. H., Dorman, T., Dickman, F., … Morlock, L. L. (2006). Toward learning from patient safety reporting systems. *Journal of Critical Care, 21*, 305-315. doi:10.1016/j.jcrc.2006.07.001

Purdy, N., Laschinger, H. K. S., Finegan, J., Kerr, M., & Olivera, F. (2010). Effects of work environments on nurse and patient outcomes. *Journal of Nursing Management, 18*, 901-913. doi: 10.1111/j.1365-2834.2010.01172.x

Purpora, C., & Blegen, M. A. (2015). Job satisfaction and horizontal violence in hospital staff registered nurses: the mediating role of peer relationships. *Journal of Clinical Nursing, 24*, 2286-2294. doi: 10.1111/jocn.12818

Rafferty, A. M., Ball, J., & Aiken, L. H. (2001). Are teamwork and professional autonomy compatible, and do they result in improved hospital care? *Quality in Health Care, 10*(Suppl II), 32-37. doi: 10.1136/qhc.0100032.

Registered Nurses' Association of Ontario (2006). *Healthy Work Environments Best Practice Guidelines: Collaborative Practice among Nursing Teams*. Retrieved from the RNAO website: http://rnao.ca/

Registered Nurses' Association of Ontario (2015). *Annual Report 2014-2015*. Retrieved from the RNAO website: http://rnao.ca/

Resnick, B., & Bonner, A. (2003). Collaboration: Foundation for a successful practice. *Journal of the American Medical Directors Association, 4*(6), 344-349. doi:10.1097/01.JAM.0000095256.98046.6A

Rodwell, J., & Munro, L. (2013). Well-being, satisfaction and commitment: The substitutable nature of resources for maternity hospital nurses. *Journal of Advanced Nursing, 69*(10), 2218-2228. doi: 10.1111/jan.12096.

Shannon, S. E., Mitchell, P. H., & Cain, K. C. (2002). Patients, nurses, and physicians have differing views of quality of critical care. *Journal of Nursing Scholarship, 34*(2), 173-179. doi: 10.1111/j.1547-5069.2002.00173.x

Shortell, S., M., Rousseau, D. M., Gillies, R. R., Devers, K. J., & Simons, T. L. (1991). Organizational assessment in intensive care units (ICUs): Construct development, reliability, and validity of the ICU nurse-physician questionnaire. *Medical Care, 29*(8), 709-726. Retrieved from http://www.jstor.org

Sinha, S. K. (2013). *Living longer, living well: Report submitted to the Minister of Health and Long-Term Care and the Minister Responsible for Seniors on recommendations to inform a seniors strategy in Ontario*. Retrieved from http://www.health.gov.on.ca/en/

Smith, H. L., Hood, J. N., Waldman, J. D., & Smith, V. L. (2005). Creating a favorable practice environment for nurses. *Journal of Nursing Administration, 35*(12), 525-532. Retrieved from http://journals.lww.com/jonajournal/Pages/default.aspx

Stefaniak, K. (1998). *Nurses collaborating with other nurses: When all else fails* (Doctoral dissertation). Retrieved from ProQuest Dissertation and Theses Database. (UMI No. 9831376)

Stewart, D. W. (2006). Generational mentoring. *The Journal of Continuing Education in Nursing, 37*(3), 113-120. Retrieved from http://www.healio.com/nursing/journals/jcen

Tourangeau, A. E., & Cranley, L. A. (2006). Nurse intention to remain employed: Understanding and strengthening determinants. *Journal of Advanced Nursing, 55*(4), 497-509. doi: 10.1111/j.1365-2648.2006.03934.x

Tourangeau, A., Cranley, L., Laschinger, H. K. S., & Pachis, J. (2010). Relationships among leadership practices, work environments, staff communication and outcomes in long-term care. *Journal of Nursing Management, 18*, 1060-1072. doi: 10.1111/j.1365-2834.2010.01125.x

Utriainen, K., Kyngas, H., & Nikkila, J. (2011). A theoretical model of ageing hospital nurses' well-being at work. *Journal of Nursing Management, 19*, 1037-1046. doi: 10.1111/j.1365-2834.2011.01263.x

Van Niekerk, L. M., & Martin, F. (2003). The impact of the nurse-physician relationship on barriers encountered by nurses during pain management. *Pain Management Nursing, 4*(1), 3-10. doi: 10.1053/jpmn.2003.4

Zangaro, G. A., & Soeken, K. L. (2007). A meta-analysis of studies of nurses' job satisfaction. *Research in Nursing & Health, 30*, 445-458. doi: 10.1002/nur.20202

Appendix A: DLNNCI

Dougherty-Larson Nurse-Nurse Collaboration Instrument

Please answer the questions based on your experience not how you believe the work should be. For each statement, place an X in the column, which represents your answer.

The columns are labeled: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD).

Statement	SD	D	A	SA
1.1.When nurses disagree, they will ignore the issue, pretending it will "go away"				
1.2. Nurses will withdraw from conflict				
1.3.All points of view will be carefully considered in arriving at the best possible solution of the problem				
1.4.All of the nurses will work hard to arrive at the best possible solution				
1.5.Disagreement between nurses will be ignored or avoided				
1.6. The nurses involved will not settle dispute until all are satisfied with the decision.				
1.7.Everyone contributes from their experience and expertise to produce a high quality solution				
2.1. It is easy for me to talk openly with the nurses in this ICU.				
2.2. Communication between nurses is very open				
2.3. I can think of the number of times that I received incorrect information from nurses on this unit				
2.4. I find it enjoyable to talk with nurses in this ICU				
2.5. It is often necessary for me to go back and check the accuracy of information that I have received from nurses in this ICU				
2.6. It is easy to ask advice from nurses in this unit				
2.7. The accuracy of information passed among nurses on this unit leaves much to be desired.				
2.8. I feel that certain nurses don't completely understand the information they receive				
3.1. I am able to make a lot of decisions on my own				
3.2. I am allowed to make decisions that affect me at work				
3.3. I am involved in making decisions about what happens in my work.				

3.4 I have a lot to say over what happens for patient care on my unit				
3.5.Nurses agree on goals for patient pain management on my unit.				
3.6.Nurses agree with patient safety goals for unit				
3.7. Nurses have the authority to stop procedures which violate patient safety standards for identification				
3.8.Nurses have the authority to stop a procedure which violates infection control standards for central line infections				
4.1 Nurses speak directly to each other regarding patient care issues				
4.2 Nurses will have ad hoc patient care meetings to discuss patient care issues.				
4.3 There are written evidence based treatment protocols				
4.4. There are daily staff rounds				
4.5 There are written policies and procedures regarding the coordination of care				
5.1 There is a respectful and cordial relationship among nurses				
5.2 There is a willingness of nurses to collaborate with each other				
5.3. Nurses have adequate knowledge of the drugs ordered for the patient on this unit				
5.4. Nurses have adequate knowledge of the disease process for patients on this unit				
5.5. Nurses have the technical skills necessary to provide safe care to patients on this unit.				
5.6. On this unit, nurses with more experience help to mentor and teach less experienced nurses.				
5.7. On this unit, nursing leadership supports collaboration				

Appendix B: Revised DLNNCI

Dougherty-Larson Nurse-Nurse Collaboration Instrument (Revised)

Please answer the questions based on your experience not how you believe the work should be. For each statement, place an X in the column, which represents your answer. The columns are labeled: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD).

Statement	SD	D	A	SA
1.1.When nurses disagree, they will ignore the issue, pretending it will "go away"				
1.2. Nurses will withdraw from conflict				
1.3.All points of view will be carefully considered in arriving at the best possible solution of the problem				
1.4.All of the nurses will work hard to arrive at the best possible solution				
1.5.Disagreement between nurses will be ignored or avoided				
1.6. The nurses involved will not settle dispute until all are satisfied with the decision.				
1.7.Everyone contributes from their experience and expertise to produce a high quality solution				
2.1. It is easy for me to talk openly with the nurses on this unit				
2.2. Communication between nurses is very open				
2.3. I can think of the number of times that I received incorrect information from nurses on this unit				
2.4. I find it enjoyable to talk with nurses on this unit				
2.5. It is often necessary for me to go back and check the accuracy of information that I have received from nurses on this unit				
2.6. It is easy to ask advice from nurses in this unit				
2.7. The accuracy of information passed among nurses on this unit leaves much to be desired.				
2.8. I feel that certain nurses don't completely understand the information they receive				
3.1. I am able to make a lot of decisions on my own				
3.2. I am allowed to make decisions that affect me at work				
3.3. I am involved in making decisions about what happens in my work.				

3.4 I have a lot to say over what happens for patient care on my unit				
3.5.Nurses agree on goals for patient pain management on my unit.				
3.6.Nurses agree with patient safety goals for unit				
3.7. Nurses have the authority to stop procedures which violate patient safety standards for identification				
3.8.Nurses have the authority to stop a procedure which violates infection control standards				
4.1 Nurses speak directly to each other regarding patient care issues				
4.2 Nurses will have ad hoc patient care meetings to discuss patient care issues.				
4.3 There are written evidence based treatment protocols				
4.4. There are daily staff rounds				
4.5 There are written policies and procedures regarding the coordination of care				
5.1 There is a respectful and cordial relationship among nurses				
5.2 There is a willingness of nurses to collaborate with each other				
5.3. Nurses have adequate knowledge of the drugs ordered for the patient on this unit				
5.4. Nurses have adequate knowledge of the disease process for patients on this unit				
5.5. Nurses have the technical skills necessary to provide safe care to patients on this unit.				
5.6. On this unit, nurses with more experience help to mentor and teach less experienced nurses.				
5.7. On this unit, nursing leadership supports collaboration				

Appendix C: MMSS

McCloskey/Mueller Satisfaction Scale (MMSS) Copyright 1989

How satisfied are you with the following aspects of your current job? Please circle the number that applies.

	Very Satisfied	Moderately Satisfied	Neither Satisfied nor Dissatisfied	Moderately Dissatisfied	Very Dissatisfied
1. Salary	5	4	3	2	1
2. Vacation	5	4	3	2	1
3. Benefits package (insurance, retirement)	5	4	3	2	1
4. Hours that you work	5	4	3	2	1
5. Flexibility in scheduling your hours	5	4	3	2	1
6. Opportunity to work straight days	5	4	3	2	1
7. Opportunity for part-time work	5	4	3	2	1
8. Weekends off per month	5	4	3	2	1
9. Flexibility in scheduling your weekends off	5	4	3	2	1
10. Compensation for working weekends	5	4	3	2	1
11. Maternity leave time	5	4	3	2	1
12. Child care facilities	5	4	3	2	1
13. Your immediate supervisor	5	4	3	2	1
14. Your nursing peers	5	4	3	2	1
15. The physicians you work with	5	4	3	2	1
16. The delivery of care method used on your unit (e.g. functional, team, primary)	5	4	3	2	1
17. Opportunities for social contact at work	5	4	3	2	1
18. Opportunities for social contact with your colleagues after work	5	4	3	2	1

	Very Satisfied	Moderately Satisfied	Neither Satisfied nor Dissatisfied	Moderately Dissatisfied	Very Dissatisfied
19. Opportunities to interact professionally with other disciplines	5	4	3	2	1
20. Opportunities to interact with faculty of the College of Nursing	5	4	3	2	1
21. Opportunities to belong to department and institutional committees	5	4	3	2	1
22. Control over what goes on in your work setting	5	4	3	2	1
23. Opportunities for career advancement	5	4	3	2	1
24. Recognition for your work from superiors	5	4	3	2	1
25. Recognition of your work from peers	5	4	3	2	1
26. Amount of encouragement and positive feedback	5	4	3	2	1
27. Opportunities to participate in nursing research	5	4	3	2	1
28. Opportunities to write and publish	5	4	3	2	1
29. Your amount of responsibility	5	4	3	2	1
30. Your control over work conditions	5	4	3	2	1
31. Your participation in organizational decision making	5	4	3	2	1

Appendix D: Revised MMSS

McCloskey/Mueller Satisfaction Scale (MMSS) Copyright 1989

How satisfied are you with the following aspects of your current job?
Please circle the number that applies.

	Very Satisfied	Moderately Satisfied	Neither Satisfied nor Dissatisfied	Moderately Dissatisfied	Very Dissatisfied
1. Salary	5	4	3	2	1
2. Vacation	5	4	3	2	1
3. Benefits package (insurance, retirement)	5	4	3	2	1
4. Hours that you work	5	4	3	2	1
5. Flexibility in scheduling your hours	5	4	3	2	1
6. Opportunity to work straight days	5	4	3	2	1
7. Opportunity for part-time work	5	4	3	2	1
8. Weekends off per month	5	4	3	2	1
9. Flexibility in scheduling your weekends off	5	4	3	2	1
10. Compensation for working weekends	5	4	3	2	1
11. Maternity leave time	5	4	3	2	1
12. Child care facilities	5	4	3	2	1
13. Your immediate supervisor	5	4	3	2	1
14. Your nursing peers	5	4	3	2	1
15. The physicians you work with	5	4	3	2	1
16. The delivery of care method used on your unit (e.g. functional, team, primary)	5	4	3	2	1
17. Opportunities for social contact at work	5	4	3	2	1
18. Opportunities for social contact with your colleagues after work	5	4	3	2	1
19. Opportunities to interact	5	4	3	2	1

	Very Satisfied	Moderately Satisfied	Neither Satisfied nor Dissatisfied	Moderately Dissatisfied	Very Dissatisfied
professionally with other disciplines					
20. Opportunities to interact with nursing faculty	5	4	3	2	1
21. Opportunities to belong to department and institutional committees	5	4	3	2	1
22. Control over what goes on in your work setting	5	4	3	2	1
23. Opportunities for career advancement	5	4	3	2	1
24. Recognition for your work from superiors	5	4	3	2	1
25. Recognition of your work from peers	5	4	3	2	1
26. Amount of encouragement and positive feedback	5	4	3	2	1
27. Opportunities to participate in nursing research	5	4	3	2	1
28. Opportunities to write and publish	5	4	3	2	1
29. Your amount of responsibility	5	4	3	2	1
30. Your control over work conditions	5	4	3	2	1
31. Your participation in organizational decision making	5	4	3	2	1

Appendix E: Descriptive Information

What is your current age?

- 18-24
- 25-29
- 30-34
- 35-39
- 40-44
- 45-49
- 50-54
- 55-59
- 60-64
- 65+

What is your gender?

- Male
- Female

What is the highest education you have achieved **in nursing**?

- Diploma in Nursing
- Degree in Nursing
- Masters in Nursing
- PhD in Nursing

What is the highest education you have achieved **outside of nursing**?

- Diploma
- Degree
- Masters
- PhD
- N/A

How long have you been working as a nurse?

- Less than 1 year
- 1-5 years
- 5-10 years
- 11-20 years
- More than 20 years

How long have you been working in your current position?

- Less than 1 year
- 1-5 years
- 5-10 years
- 11-20 years
- More than 20 years

What is your primary area of practice?

- Critical Care/ Intensive Care
- Emergency
- Rehab
- Long-term Care
- Paediatrics
- Mental Health
- Medicine/ Surgery
- Oncology
- Palliative Care
- Obstetrics
- Outpatient clinic
- Other Please specify: _____

Appendix F: Informed Consent Form

Study Name: Collaborating for Better Outcomes: Exploring the Link between Nurse-Nurse Collaboration and Nurse Job Satisfaction

Researchers:

Principle Investigator: Sinead Sheehan, BScN, RN, Masters of Science in Nursing Student at York University

Supervisor: Dr. Elsabeth Jensen, Graduate Program Director for York University School of Nursing,

Masters of Science in Nursing Program

Purpose of the Research: The purpose of this study is to determine whether there is a relationship the amount of collaboration which occurs between nurses and nurse job satisfaction. The data collected will be analyzed for a Master's thesis and may also be incorporated into a manuscript or poster presentation for dissemination.

What You Will Be Asked to do in the Research: You will be asked to complete a package which includes two surveys and a questionnaire which asks descriptive information (for example, gender, number of years in nursing, etc.). The survey questions are all in the form of multiple choice. For example, you will be given a phrase such as "Communication between nursing is very open" and asked whether you Strongly Agree, Agree, Disagree or Strongly Disagree with that statement. The package should take approximately 15 minutes to complete.

Risks and Discomforts: We do not foresee any risks or discomfort from your participation in this research.

Benefits of the Research and Benefits to You: We do not foresee any benefits from your participation in this research.

Voluntary Participation: Your participation in the study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer will not influence the nature of your relationship with York University either now, or in the future.

Withdrawal from the Study: You can stop participating in the study at any time, for any reason, if you so decide. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.

Confidentiality: All information you supply during the research will be held in confidence. Your name will not appear in any report or publication of the research. The only data collected will be the surveys which will be kept in a locked cabinet by the principle investigator and will only be accessible to the researchers of this study. Completed surveys will be stored in a locked cabinet for five years after study completion and then destroyed by shredding. Confidentiality will be provided to the fullest extent possible by law.

Questions about the Research? If you have questions about the research in general or about your role in the study, please feel free to contact Sinead Sheehan via e-mail. This research has been reviewed and approved by the Human Participants Review Sub-Committee, York

University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, York University.

Legal Rights and Signatures:

I *(fill in your name here)*, consent to participate in *the study "Collaborating for Better Outcomes: Exploring the Link between Nurse-Nurse Collaboration and Nurse Job Satisfaction"* conducted by *Sinead Sheehan, RN, BScN*. I have understood the nature of this project and wish to participate. I am not waiving any of my legal rights by signing this form. My signature below indicates my consent.

Signature _____ **Date** _____

Participant

Signature _____ **Date** _____

Principal Investigator

Appendix G: Information on the Front of Survey Packages

Eligibility Criteria for Participants

- ✓ Registered Nurses currently practicing as a staff nurse in a hospital in Ontario who have been in their position for at least three months and are working either full-time or part-time.

Please complete all 8 pages in the package:

- ✓ Informed Consent Form (Please sign and date, double sided)
- ✓ Descriptive Information (double sided)
- ✓ McCloskey/ Mueller Satisfaction Scale (double sided)
- ✓ Dougherty-Larson Nurse-Nurse Collaboration Instrument (double sided)

*Please return completed packages to Sinead Sheehan

Appendix H: Permission to Use the Dougherty-Larson Nurse-Nurse Collaboration Instrument

---- Original Message ----
From: "Dougherty, Mary
To:
Sent: Wed, Apr 30, 2014, 8:53 AM
Subject: Re: [EXTERNAL] Nurse Nurse Collaboration Scale

Sinead,
I'd be happy to do so but am on travel *nd unable to send. Please send e-mail next Tuesday to remind me and I will send then.
Mary B. Dougherty Ph.D, MBA

From: [redacted]
Sent: Wednesday, April 30, 2014 06:36 AM
To: Dougherty, Mary B.
Subject: [EXTERNAL] Nurse Nurse Collaboration Scale

Dr. Dougherty

My name is Sinead Sheehan and I am a student in the Masters of Science in Nursing program at York University in Toronto, Ontario.

For my Masters thesis, I have decided to look at collaboration in nurses. As one of my measurements, I was hoping to use your Nurse-Nurse Collaboration Scale on a population of Registered Nurses in Ontario. Would you be able to send me your Nurse-Nurse Collaboration Scale as well as the scoring of it. I would gladly share my results with you when the study is complete.

Thanks for your consideration,

Sinead Sheehan, BScN, RN

Appendix I: Permission to Use the McCloskey/ Mueller Satisfaction Scale

THE UNIVERSITY OF IOWA
COLLEGE OF NURSING

Permission to use form:

This gives permission to use the McCloskey/Mueller Satisfaction Scale (MMSS) to Sinead Sheehan for the purpose as stated in the request dated September 4, 2014.

The instrument may be reproduced in a quantity appropriate for this project.

Signed:

Sue Moorhead

Sue Moorhead, Associate Professor, College of Nursing

Date: September 22, 2014