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NURSE SATISFACTION AND INTERPROFESSIONAL INTERACTIONS: THE IMPACT  
OF NURSES' PROFESSIONAL RELATIONSHIPS ON JOB SATISFACTION

By

KATRINA ROBINSON

A Thesis

Presented in Partial Fulfillment of Requirements for the

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## ABSTRACT

**Purpose:** The purpose of this study was to identify the relationship between nurses' interprofessional interactions and nurses' job satisfaction.

**Methods:** The study design utilized was a cross sectional retrospective analysis of survey results within a healthcare system. The Job Enjoyment Scale (JES) was used to measure job satisfaction and the Interprofessional Scale was used to measure interactions between nurses and specific disciplines (nursing, physicians, Advanced Practice Registered Nurses [APRN's], pharmacists, therapists, and social workers). Pearson correlation coefficient analysis was computed to assess the relationship between JES and interprofessional variables at the unit level.

**Results:** Results suggested a significant positive correlation between nurse satisfaction and overall interprofessional interaction, as well as significant positive correlation between nurse satisfaction and each specific discipline except for APRN's, for which a significant correlation was not found.

**Implications:** The data used in this retrospective study was collected during the COVID-19 pandemic. Thus, the results suggest the presence of positive interprofessional interactions during the unprecedented and challenging pandemic. Despite the challenges presented by the Covid-19 pandemic, positive interprofessional interactions among team members have a great impact on the job satisfaction of nurses.

## **CHAPTER 1: INTRODUCTION**

### **Introduction**

Nurses who are satisfied in their job are more likely to remain in their position, which is crucial during a time when the nursing workforce must grow to meet increasing demands (Haddad et al., 2022). Many factors impact job satisfaction; however, the strong team-centered attribute of nursing is unique from other professions. Nursing is a profession that requires strong teamwork by its' members to support the best delivery of care to patients. Every communication, non-verbal exchange, and team-driven event such as performing a procedure or running a code, is an interaction or series of interactions among team members. The professional interaction that occurs among members of a team plays a vital role in how well the team functions.

### **Background**

Nurse job satisfaction is a relevant and important issue to address because low job satisfaction among nurses contributes to an increase in nurse turnover, which negatively affects the healthcare organization as well as the delivery of care to patients (Dahlke et al., 2018). As the healthcare community hopes for a post-pandemic world on the heels of the COVID-19 pandemic, it is more crucial than ever before to retain nurses in the workforce. Many nurses have left their positions or left the profession entirely as a result of the pandemic. The shortage of nurses preceded the onset of the pandemic and has been exacerbated by the effects of COVID-19 on healthcare workers, including nurses. Job satisfaction is a key factor in nurses' decision to stay in their job and in the profession, so it is necessary to identify what contributes to nurses' satisfaction with their job so that nurses and nursing leaders can create an environment where nurses thrive and desire to stay.

The culture on a unit is largely impacted by the interactions of team members. Some units are known within a facility for their excellent teamwork, while others have a reputation for the very opposite. Staff nurses, nurse leaders such as nurse managers, assistant managers and charge nurses, and members of various clinical disciplines all work closely with one another to deliver patient care and must rely on one another every day in order to deliver quality patient care. Nursing is not a profession in which individuals work independently; nursing is a profession that requires constant interaction not only with patients and family members, but with coworkers as well. When an emergent situation occurs on a unit with a great team, nurses will quickly identify where assistance is needed, roles will be defined, additional members of the healthcare team will be notified, and team members will work together with fluidity towards a common goal. Team members must trust one another to be able to react to situations quickly and efficiently and delegate tasks appropriately.

Morale among nurses and nursing teams plummeted during the COVID-19 pandemic, with nurses being expected to care for new populations of patients, patients of higher acuity, and operate with inadequate staff to deliver quality patient care (Marzilli, 2021). As the healthcare community moves forward with cautious hope that they have seen the worst of this disease, nurses can continue to remain engaged and driven in the profession by recognizing what brings them job satisfaction.

## **Purpose**

Nurses have not navigated the unexpected journey of a global pandemic as individuals, but as members of the healthcare community, which is comprised of team members who work together every day. Working on the front lines through this dark time caused even the most experienced, most confident, and most intelligent nurses to evaluate, question, and even doubt



their role and their value as a team member. Nurses interact with members of many disciplines as a part of a multidisciplinary team on a daily basis when providing patient care; the scope of this study will address nurse-nurse interactions as well as interactions between nurses and physicians, APRN's, pharmacists, therapists and social workers at the unit level.

Professional interactions that are healthy contribute to a culture of trust, and the teams that found their way to the other side of the pandemic are likely those that share a culture of trust. The nurses who stayed in their position did so because they had a reason or reasons to stay that outweighed the uncertainty, exhaustion, risk, and moral distress they were faced with each day. The nurses who did not leave their team to accept a travel assignment or a new role had a reason to stay and continue to work as a team member even when other opportunities and financial incentives were readily available. This leads one to consider what keeps nurses satisfied enough in their jobs to stay in their position.

Healthy work environments are influential in nurse job satisfaction, and there are many factors that contribute to a healthy work environment (Wei et al, 2018). Skilled communication, true collaboration, effective decision-making, appropriate staffing, meaningful recognition, and authentic leadership are accepted standards of a healthy work environment (AACN, 2016). Communication and collaboration are important aspects of the interactions between team members; interactions involve more than just the content of information that is shared between team members, but also how people relate to one another, the work they observe, and the non-verbal conversational cues delivered during interactions.

The purpose of this research is to determine what the relationship is between professional interaction among the healthcare team and nurse job satisfaction. Identifying the impact that

professional interaction with team members has on job satisfaction will support efforts to improve nurse retention and develop strong healthcare teams.

### **Research Question**

The research question this study seeks to answer is, *is there a relationship between interprofessional interaction among team members and nurse job satisfaction?* Nurses who work in a hospital setting do not work in isolated silos; they are part of a team with a common goal, and they interact often with other members of the healthcare team. Nurses communicate with physicians to receive orders, discuss changes in clinical status, and discuss the plan of care for their patients, and nurses interact and collaborate with other nurses continuously when providing direct patient care. Healthcare teams include many disciplines; this study will address nurses, physicians, Advanced Practice Registered Nurses (APRN's), pharmacists, therapists and social workers as members of the healthcare team. This is not a comprehensive collection of potential members of the interprofessional team; however, the available data limited this study to the inclusion of these disciplines.

### **Theoretical Framework**

The framework that will be used to guide this research is the *Framework for Interprofessional Teamwork for Health and Social Care* (Reeves et al., 2010). The framework was created and introduced by Reeves and colleagues as a conceptual approach to understanding interprofessional teamwork and the attributes that drive it. One of the measures that will be addressed in this study is the interprofessional interactions between nurses and physicians.

The Framework for Interprofessional Teamwork for Health and Social Care is built upon four primary factors, or components, that influence interprofessional team interactions: relational,

processual, organizational, and contextual. The data which will be utilized in this study only capture the relational component, which will be the focus of this study. Communication, team stability, trust and respect are several elements that contribute to team processes and relationships on a healthcare team. This framework was selected to guide this study because the impact of professional interactions between team members on nurses' job satisfaction can be better understood by recognizing what attributes contribute to positive team member interactions.

### ***Definitions***

**Bonferroni Correction:** When a lot of correlations are conducted, some relationships occur by chance. To mitigate this, Bonferroni correction is applied. The Bonferroni correction reduces the alpha level for the analysis, thus reducing the likelihood of making a Type I error (false positive); it is based on the number of times each variable is used.

**Correlation Coefficient ( $r$ ):** Ranges from -1 to 1; describes to the strength and direction of the relationship between the variables.

**Critical Value:** The minimum value at which an observed correlation coefficient is statistically significant.

**Descriptive Statistics:** Descriptive statistics are typically used to describe or summarize data. They are used as an exploratory method to examine the variables of interest, potentially before conducting inferential statistics on them. Descriptive statistics provide summaries of the data and are used to answer descriptive research questions.

**Effect Size:** The strength of the relationship between variables

**Interprofessional Team:** Nurses, nurse managers, physicians, Advanced Practice Registered Nurses (APRNs), pharmacists, therapists and social workers

**Job satisfaction:** Nurses' job satisfaction, as measured at the nursing unit level by the Job Enjoyment Scale score in the National Database of Nursing Quality Indicators (NDNQI) survey

**Kurtosis:** The measure of the tail behavior of a distribution. Positive kurtosis signifies a distribution is more prone to outliers, and negative kurtosis implies a distribution is less prone to outliers

**Mean (*M*):** The average value of a scale variable

**Ordinal Data:** Ordinal scales rank order the items that are being measured to indicate if they possess more, less, or the same amount of the variable being measured. An ordinal scale allows us to determine if  $X > Y$ ,  $Y > X$ , or if  $X = Y$ .

***p*-value:** The probability under the assumption of no effect or no difference, of obtaining a result equal to or more extreme than what was actually observed. The P stands for probability and measures how likely it is that any observed difference between groups is due to chance (Dahiru, 2008). A result is usually considered statistically significant if the *p*-value is  $\leq .05$ .

**Pearson (Product-Moment) Correlation:** A correlation expresses the strength of linkage or co-occurrence between two variables in a single value between -1 and +1. This value that measures the strength of linkage is called *correlation coefficient*, which is represented typically as the letter *r*. The correlation coefficient between two continuous-level variables is also called Pearson's *r* or Pearson product-moment correlation coefficient. A positive *r* value expresses a positive relationship between two variables (the larger A becomes, the larger B becomes) while a negative *r* value indicates a negative relationship

(the larger A becomes, the smaller B becomes). A correlation coefficient of zero indicates no relationship between the variables. However, correlations are limited to linear relationships between variables. If a correlation coefficient is zero, a non-linear relationship might exist.

**Percentage (%):** The percentage of the frequency or count of a nominal or ordinal category

**Professional Interaction:** Interactions between team members from multiple disciplines including nursing, physicians, APRN's, therapists, pharmacists and social workers as measured by the interdisciplinary scales on the NDNQI survey

**Sample Minimum (Min):** The smallest numeric value in a given sample.

**Sample Maximum (Max):** The largest numeric value in a given sample.

**Sample Size ( $n$ ):** The frequency or count of a nominal or ordinal category; the number of participants who contributed to the data.

**Skewness:** The measure of asymmetry in a bell curvedistribution of a variable. Positive skewness indicates a long right tail, while negative skewness indicates a long left tail.

**Staff Nurse:** Registered Nurse (RN) who performs primarily clinical duties and is involved in direct patient care on a day-today basis

**Standard Deviation ( $SD$ ):** The spread of the data around the mean of a scale variable.

**Standard Error of the Mean ( $SE_M$ ):** The estimate of how far the sample mean is likely to differ from the actual population mean.

## **Measures**

The NDNQI includes a scale that provides a rating for RN interaction with various disciplines and other RNs on the unit as well as an over-all measure used to provide a measurable score of Inter-Professional Interaction. Job satisfaction will be measured by the Job Enjoyment Scale (JES) on the NDNQI survey. JES tested at the unit level was found to be reliable with a Cronbach alpha from 0.91-0.97 (Boyle et al., 2006). There are no identified threats to the validity or reliability of the data; the surveys that were utilized have met standards of validity and reliability. Association of the professional interaction scores with the Job Enjoyment Score will be used to determine if there is a significant association with the available variables that reflect professional interaction.

In summary, this introductory chapter presents an overview of relevant literature on job satisfaction and interprofessional interaction among registered nurses and other healthcare professionals. The statement of the problem, purpose, significance of the study as well as the theoretical framework and definitions of terms are presented.

## CHAPTER 2: REVIEW OF THE LITERATURE

### Introduction

This chapter presents synthesized literature on interprofessional interaction and nurse job satisfaction. (add another sentence on what was covered in this sentence)

The research question that this study seeks to answer is “is there a relationship between professional interaction among team members and nurse job satisfaction?” A review of the literature regarding professional interaction, nurse job satisfaction, and the relationship between these variables was completed to construct a knowledge base prior to reviewing and analyzing data for this study. While a healthy work environment is well researched, this review revealed a limited study of the impact of interprofessional interaction and nurse job satisfaction. This research will add to knowledge regarding this important element of the practice environment.

The topic of interprofessional interaction among team members and its’ potential impact on nurse job satisfaction is relevant and important to the field of nursing because nurses who are not satisfied with their job are more likely to leave and seek employment elsewhere or will leave the nursing profession altogether. Organizations are constantly pursuing strategies to improve nurse retention and decrease turnover. It is costly for an organization to replace a nurse when they leave, with the cost of turnover for a bedside nurse averaging at \$40,038 (NSI Nursing Solutions, 2021). The organization not only incurs a financial cost, it also loses human capital. Human capital is defined as knowledge retained by staff which includes theoretical and practical knowledge required for the delivery of care (Covell & Sidani, 2013). While it is difficult to quantify the experiential knowledge of a nurse, it is established that every nurse sustains a measure of education, knowledge and training they contribute to an organization and when they

leave, the organization loses that intellectual capital (Lee et al, 2018). It takes time to orient a new nurse, so nurses take on additional work until a new nurse can be hired and fully trained.

In addition to operational impact on the organization that occurs with a high rate of nurse turnover, the workload per staff nurse increases. With fewer core staff nurses available to provide direct patient care, nurses must adjust to this heavier workload and increased responsibilities. When turnover is cyclical, such that a unit is continuously seeing nurses leave with no improvement in retention, the core staff members on the unit continue to bear an increased workload, often resulting in contracting agency nurses to fill vacancies (NSI Nursing Solutions, Inc., 2021). This temporary solution impacts the dynamic of the team and alters the professional interactions that occur between team members. While nurses are expected to be resilient, changes in team dynamics can impact the workflow, efficiency and interactions of unit staff.

### **Professional Interactions Among Team Members**

The COVID-19 pandemic has impacted every aspect of healthcare, and healthcare teams have been through experiences together that have changed and shaped the way they work and interact on a daily basis. Some nurses have found teamwork was strengthened with an increase in interdisciplinary interactions and the removal of organizational barriers as a result of the COVID-19 pandemic (Anjara et al., 2021). Greater autonomy contributed to greater collaboration among teams and increased innovative behavior, with staff feeling they were all working as part of the same team, rather than in discipline-specific silos. Staff who perceived their teamwork experience negatively during the pandemic due to a rigid hierarchical structure or a polarizing work environment also reported a greater degree of burnout (Anjara et al., 2021).



When the COVID-19 pandemic hit the United States in 2020, an outpouring of community support for nurses and healthcare workers was observed. This external support waned as time passed, leaving nurses and other healthcare professionals to fight a battle within hospital walls while the rest of the world began to move on (Marzilli, 2021). The impact of caring for COVID-19 patients, working in a pandemic culture, and losing community support contributed to diminished morale.

Thompson and Kusy (2021) explored whether COVID-19 had a strengthening or weakening effect on healthcare teams and found it impacted some health care teams differently than others. Some healthcare teams were strengthened through the pandemic, and a common factor that was present for these teams, and absent for teams that fell apart, was an authentic and visible leader (Thompson & Kusy, 2021). Nurse managers are part of the healthcare team and have routine interactions with nurses. Leaders such as the nurse manager are also in a position to be advocates for their staff as well as for patients, and their communication with various team members can influence how their interactions are perceived. The impact of authentic nurse leadership on the work environment during the pandemic was also supported by a national study of clinical nurses and nurse leaders (Raso et al., 2021). Although clinical nurses did not perceive a healthy work environment through the pandemic, the presence of authentic nursing leadership was found to be a necessary factor for a healthy work environment. The impact of COVID-19 on healthcare teams cannot be fully realized yet; however, the pandemic has impacted and continues to impact team member interactions and dynamics.

Teamwork in nursing is essential and providing direct care often requires the work and skill set of multiple nurses. The nature of the interactions among these individuals constitutes

their team dynamics. Individuals' perceptions of team dynamics can be impacted by a characteristic as simplistic as demonstrating civility in team interactions (Campbell et al., 2021).

Shared decision-making, teamwork, and communication were identified as common themes when evaluating perceptions about nurse-physician collaboration in a systematic review (House & Havens, 2017). Findings revealed that various factors impacted perception of nurse-physician collaboration; however, nurses' perception of nurse-physician collaboration reflected a desire to have a voice in decision-making regarding patients' plan of care and active listening from physicians. Physicians' perception of nurse-physician collaboration revealed different contributing factors, indicating the need for a standardized definition of collaboration.

Nurses were generally found to perceive teamwork as an interprofessional practice rather than a nursing-specific practice in a qualitative study where semi-structured interviews were conducted with RN's in an acute care hospital (Souza et al., 2016). Team interactions were explored in both contexts: teamwork restricted to nursing professionals and teamwork as an interprofessional practice. Key components that contributed to the perception of interprofessional interactions included communication, trust and professional bonds, mutual respect and recognition of the other's work, and collaboration. Conflict was identified as an obstacle to teamwork in both contexts.

A current study identified the significance of team virtuousness as a contributing factor to practice environment and the need for a comprehensive measure of team virtuousness since previously existing measures did not capture the underlying structure of virtuosity and were not built from a theoretical framework ( Varagona, & Ballard, In Press). The Perceived Trustworthiness Indicator (PTI) was created to address this gap in practice environment research and provides a measure of "nurses' interrelations with coworkers, varies significantly between

nursing units, and has a significant positive correlation with staff engagement” (Varagona & Ballard, In Press). This will be a relevant and useful measure for addressing interprofessional interactions among the healthcare team in future research.

Communication is a crucial aspect of professional interactions and the presence of open communication between individuals impacts team members’ overall perception of team dynamics. Dahlke et al. (2018) identified the significance of communication to teamwork in a study in which team members in various roles in a healthcare team participated in structured interviews consisting of four questions related to teamwork on the unit. Participant responses revealed that team members shared similar priorities regarding what characterizes a good team. These priorities were: open communication; sharing a common goal; having strong relationships in which team members support and value each other; and being supported and valued by their leader. These interactions that are based in open communication and a sense of support for one another contributed to an overall positive teamwork experience. Team members expressed that experiencing positive teamwork and strong team relationships made difficult tasks seem more manageable, lessened stress, and made the work more enjoyable.

Data collected in previous studies from nurse-specific surveys such as the Nursing Teamwork Survey (NTS) have found that higher levels of teamwork correlate with greater job satisfaction (Kalisch et al., 2010). Kaiser and Westers (2018) also utilized the NTS for a descriptive cross-sectional study of nursing teamwork in a health system. Salas’s “Big Five” framework was the basis for the subscales in the study: shared mental model, team leadership, backup, trust, and team orientation. The presence of a shared mental model, backup and trust can impact professional interactions among team members, and team leadership addresses interactions that nurses have with a nurse manager. The highest-scoring subscale was that of the

shared mental model, which describes an understanding of the roles and responsibilities of team members. Within this subscale, participants scored considerably low when asked about their awareness of the strengths and weaknesses of other team members; however, they did have an awareness of which patients were assigned to each staff member and what tasks for which the team members were responsible (Kaiser & Westers, 2018). The middle-scoring areas were backup and trust; team members felt an obligation and responsibility to care for their assigned patients and were less likely to take initiative and assist with another team member's assigned patients and tasks (Kaiser & Westers, 2018). Considering this lack of awareness of the activity outside of their assigned patients, it is unsurprising that trust would score lower as well. The trust subscale was largely comprised of components of communication among team members including giving and receiving feedback. The lowest scoring subscale was team orientation (Kaiser & Westers, 2018); as seen with trust and backup, this is not surprising since the team members cannot take ownership as a unit and see collective responsibilities when they lack awareness of the activity around them and remain focused on their designated patient assignment. The results from the subscales of this study provide insight into some of the barriers that nursing teams face when trying to develop a strong culture of teamwork. The population represented in this study appears to have become comfortable and familiar with the culture of working in silos, and that culture would have to change in order to see improvement in trust, backup, and team orientation. Kaiser and Weston (2018) also found a significantly higher teamwork score by participants with no intention of leaving their position in the next year when compared to team members who planned to leave their position within six months. Additionally, teamwork scores were positively correlated with the team member's satisfaction with their current position.

Leader-member exchange (LMX), the exchange between a nurse leader and a staff nurse, has been identified as a contributing factor in nurses' job satisfaction in an organization. A descriptive study of nurses in Korea explored the impact of LMX and team-member-exchange (TMX) on job satisfaction and turnover intention (Kim & Yi, 2019). Less was known about the concept of TMX and its' influence on job satisfaction and turnover intention prior to this study. The participants included head nurses and staff nurses. Head nurses were given a questionnaire to evaluate staff nurses from a leader-LMX (L-LMX) perspective, and staff nurses were given a questionnaire to evaluate member-LMX (M-LMX). Each staff nurse also completed an evaluation of job satisfaction, TMX, and turnover intention. Results indicated that L-LMX, M-LMX, and TMX all had a positive impact on job satisfaction, and L-LMX and M-LMX also had an impact on turnover intention (Kim & Yi, 2019). The variable that had the greatest impact on both job satisfaction and turnover intention was M-LMX. Staff nurses' perception of their leader's interest and interaction with them played an important role in the nurse's satisfaction (Kim & Yi, 2019).

A nursing team consists of staff nurses as well as the unit-level nursing leaders who support and guide them. An interprofessional team is ultimately impacted by nurse leaders as they are influential to nursing staff and will participate in rounding and other interprofessional interactions on a daily basis. Nurse leaders who are engaged with their staff and committed to fostering a unit culture of trust can be the driving force behind a group of nurses who feel empowered and who thrive in their work. Afsar and Umrani (2020) sought to identify if thriving and leader trust had a causal influence on the relationship between innovative work behavior and transformational leadership in a cross-sectional study in Pakistan. Innovative work behavior (IWB) was defined as "the generation and implementation of new and useful ideas within the

organization” (De Jong and Den Hartog, 2010, p38). The researchers found that there was a statistically significant, positive relationship between transformational leadership and IWB of nurses. (Afsar & Umrani, 2020).

Nurse managers are influential in promoting nurses’ perception of empowerment, enabling them to also impact nurses’ organizational trust. A study of nurses’ perception of empowerment revealed a significant correlation between nurse perception of job empowerment and organizational trust and commitment (Gholami et al., 2019). Participants completed one questionnaire which evaluated the measure of structural empowerment and a second questionnaire which measured organizational trust. Organizational commitment indicates an intent to stay. A subscale of Williams and Cooper’s Pressure Management Indicator was used to evaluate the measure of organizational commitment. Findings indicated that the relationship between job empowerment and organizational trust was a stronger relationship than the relationship between job empowerment and organizational commitment. Nurses who are committed and engaged in their organization are valuable members of interprofessional teams and will contribute to valuable interprofessional interactions with their team members.

A positive team culture yields professional interactions that are also positive and beneficial for the team. An emotionally intelligent manager who can connect with staff and address staff needs contributes to a team culture where staff are less likely to express intent to leave (Majeed & Jamshed, 2021). In Majeed and Jamshed’s study on the role of leader emotional intelligence and team culture in nurse turnover intentions, findings indicated that a leader with strong emotional intelligence had a strong positive effect on team culture.

## **Job Satisfaction**

In a qualitative study, Loft and Jensen (2020) studied nurses in Denmark with a focus on what makes a nurse want to stay. Researchers identified seven common factors from the interview data: being an experienced nurse, importance of the specialty, management, professional challenges, good colleagues, balancing family and work-life, and change in organizations. Participants valued unit-level nurse leaders who were visible, respectful, interested in staff development, have a thorough understanding of the unit, and are able to manage conflict effectively (Loft & Jensen, 2020). All of these elements support interaction of the team members. Some nurses expressed that their charge nurse largely impacted their decision to stay in their position. Participants typically appreciated and prioritized the quality of their closest or most immediate leader in their decision to continue working in their position. One of the concepts identified as a contributing factor to nurses' job satisfaction was professional challenges (Loft & Jensen, 2020).

In an exploratory study, Mousazadeh et al. (2019) studied the challenges to job satisfaction in a population of ICU nurses. One of the significant factors was the quality of nurses who work in the unit. Nurses found it difficult to work on a team with other nurses who were not adequately educated or trained and found they could not depend on nurses who were ill-equipped intellectually, which impacts the interactions between nurses (Mousazadeh et al., 2019). Aside from working toward a more stringent and selective hiring process for nurses, another way to ensure staff are adequately prepared is by providing professional development and educational opportunities. Nurses who are challenged professionally will be more likely to rise to the occasion and meet or exceed the educational growth and continued training requirements of the job for them to be a reliable and dependable team member.

## Summary

It is clear from the literature that team member interactions have a role in how satisfied nurses' feel with their job. There is an opportunity to specifically explore the relationship of professional team-member interactions with nurses' job satisfaction, which is the focus of this study. Several studies have investigated nurse perspectives of nursing teams, but there is a gap in the literature regarding nurse perspectives of team interaction within the interdisciplinary healthcare team and its' impact on nurse's job satisfaction. Nurses have frequent interactions with physicians in planning care and delivering care to patients, and interprofessional interactions within the healthcare team are frequent and necessary. This research will be beneficial in identifying the presence and strength of the association of interprofessional interactions among the healthcare team, as measured by nurse interactions with other nurses, physicians, APRN's, therapists, pharmacists, and social workers, with nurses' job satisfaction. Findings from the literature indicate job satisfaction occurs as a result of several factors. Interactions with team members that a nurse experiences every day and the team dynamics that result from those interprofessional interactions can impact a nurse's satisfaction with their job and, consequently, their intent to stay. This research will contribute to a better understanding of the impact of interprofessional team interactions on nurse satisfaction.



## **CHAPTER 3: METHODS**

### **Introduction**

This chapter describes the methods utilized in this study to analyze the relationship between nurse's job satisfaction and interprofessional interactions. Sample characteristics, instruments used, data collection method and the process used for statistical analysis are outlined in this chapter.

### **Research Design**

A retrospective correlational design was used for this research using results from previously administered surveys completed at the unit level. The purpose of the study was to identify the association between the interprofessional interactions among team members and nurse job satisfaction. A correlational study design was chosen to identify the direction and strength of this association between these variables in a population of nurses within a health system. A secondary analysis of existing data from a previously completed survey from 2021 administered by the hospital system was used to address the research question.

### **Setting**

The study setting was ten acute care hospitals which are part of one healthcare system. The hospitals range in bed size from 25 beds to 662 beds; nine facilities are full service acute care hospitals with an emergency services and one is a long-term acute care hospital (LTAC) with no emergency services.

### **Participants**

The population represented in this study was clinical staff nurses. Individual participant data such as demographics and nurse experience were not considered in this study. All

completed surveys submitted by nurses at the ten selected hospitals were included in the sample and aggregated at the unit level. Surveys were sent to all nurses within each hospital who had been employed at the organization for at least six months. Participation was strongly encouraged but not mandated; all completed surveys from clinical areas were included in the sample. Using G\*Power, an *a priori* sample size was estimated at 107 units for a two tailed alpha of .05, power .90 and moderate effect size to for analysis using Pearson's correlation  $r$  (Faul, et al., 2007).

Since surveys were submitted anonymously and this was a retrospective analysis, participant consent was not necessary and there was no identified risk to participants who previously completed surveys. Review by the Institutional Review Board classified the study as exempt.

## **Methods and Instruments**

Surveys were sent to participants electronically and the participants completed surveys anonymously. Participants were able to complete the survey on any electronic device from which they had access to their organizational email account, so employees may have filled out their survey while at work or on their own time. Unit-level data from the surveys was blinded in reporting of data to protect the confidentiality of the hospitals and units.

The instruments that were utilized in this study were from the NDNQI survey. Intervention strategies were not used in this study. The NDNQI Survey consists of multiple scales that measure areas relevant to nursing practice in which questions are grouped together by their relevance to certain subscale topics (Press Ganey, 2021). The Scales that will be utilized for this study are the Job Enjoyment Scale (Appendix A) and the Interprofessional Scale (Appendix B).

**Job Enjoyment Scale (JES).** The JES provided a quantitative measure of nurses' satisfaction in their current position. Survey participants responded to each item within each subscale by indicating their level of agreement with the statement. Brayfeild and Rothe (1951) identified the original items for the JES which was later modified by Taunton et al. (2004) to reflect work unit perceptions. Work unit perceptions are reflected in the JES instead of individual perceptions with the wording of the stem: "Nurses with whom I work would say..." Reliability at the work group level from 0.91 – 0.97 is reported (Boyle et al., 2006). The Cronbach alpha for unit-level items in the current study was 0.97. There are seven items scored on a 1-6 scale as shown in Appendix A.

**Interprofessional Scale (IPS).** IPS is comprised of six subscales with five items that addressed the interactions between nurses and other disciplines within the healthcare team and included a precursor question in which the nurse identified the frequency of interactions they have with the specified discipline. If the nurse had more than one interaction with individuals from the specified discipline during most months, they were given access to answer the questions in the interprofessional scale with regard to the specified discipline. If the nurse had less than one interaction with individuals from the specified discipline during most months, the Interdisciplinary scale questions for that discipline would not be generated which resulted in some variation in the number of responses from the disciplines included in the survey. The scale had a total score for each item and a roll up score (mean score for all items). Cronbach's alpha for the Interprofessional Scale for this study was 0.99.

## **Data Collection**

Data were abstracted from the completed surveys that were administered prior to this study in 2021. Units with a minimum of five nurses and a 40% unit response rate were included

for the analysis. Kramer et al. (2009) determined that a 40% response rate was adequate to reflect the unit perspective. Specialty groups (i.e., supervisors, case managers) that were not part of a unit providing direct care were not included in the sample.

### **Data Analysis**

The Job Enjoyment Scale (JES) from the NDNQI survey was utilized to reflect the measure of nurse's job satisfaction. A rollup score was generated for each of the five items in the Interprofessional scale which included RN perception of each separate discipline based on the same five items from the Interprofessional scale. A mean rollup score was generated from the rating on the five items from each sub-scale which reflected the nurses' responses to all items with regard to each discipline that was part of the Interprofessional team as described above. Association of each of the Interprofessional roll-up scores for each discipline and the aggregate roll up score that included all disciplines with the JES were used to determine if there was a significant association between variables of interest. Data were imported from the survey databases into SPSS software. An alpha ( $\alpha$ ) level of .05 was used in this study to determine a significant relationship. Frequency distribution was computed to identify missing values. Each variable was described using univariate descriptive statistics. Appropriate descriptive and inferential analyses were used to determine associations between variables of interest.

## CHAPTER 4: RESULTS

### Introduction

Summary statistics were calculated for each interval and ratio variable. Frequencies and percentages were calculated for each nominal variable. Further explanation of what each variable represents is provided in Table 2 and Table 3.

The number of units per facility ranged from  $n=2$  to  $n=45$ . Table 1 reflects the frequency of unit types across all facilities.

**Table 1**

*Unit Type Breakdown*

<b>Unit type</b>	<b>N</b>	<b>%</b>
Adult Critical Care	13	8.9%
Adult Med-Surg Combined	34	23.3%
Adult Medical	5	3.4%
Adult Rehab	5	3.4%
Adult Step Down	4	2.7%
Adult Surgical	4	2.7%
Amb Surg	3	2.1%
ARU Cardiac Services	2	1.4%
ED	10	6.8%
IV Therapy	1	0.7%
Labor and Delivery	7	4.8%
Mother/Baby	8	5.5%
NICU/Nursery	7	4.8%
OP Specialty	10	6.8%
OR	4	2.7%
PACU	4	2.7%
Peri-Op	8	5.5%
Procedural Unit	11	7.5%
Psychiatric	3	2.1%
Short Stay/Obs	3	2.1%

**Table 2***Explanation of Variables: IPS*

<b>Variable Label</b>	<b>Variable</b>	<b>Scale*</b>	<b>Instrument or Question**</b>
IP_RU_tot	Interprofessional Rollup Score Mean	1-5	Total rollup score of all interprofessional scores (including all scale questions from all disciplines)
IP_conflict_RU	Interprofessional Item- Conflict Rollup Score Mean	1-5	Consistently use effective conflict management skills to prevent and/or resolve disagreements.
IP_rspct	Interprofessional Item- Demonstrate Respect Rollup Score Mean	1-5	Demonstrate respect for the contributions to patient care of RNs on my unit.
IP_root_causes	Interprofessional Item- Root Causes Rollup Score Mean	1-5	Consider root causes of adverse events or errors rather than placing blame.
IP_shr_account	Interprofessional Item- Share Accountability Rollup Score Mean	1-5	Share accountability for the quality of patient care with RNs on my unit.
IP_undstd_roles	Interprofessional Item - Understand Roles Rollup Score Mean	1-5	Understand the roles, knowledge, and skills of RNs on my unit.

**Table 3***Explanation of Variables: IPS – Discipline Specific*

<b>Variable Label</b>	<b>Variable</b>	<b>Scale*</b>	<b>Instrument or Question**</b>
IP_Phy_RU	Interprofessional - RN-Physician Rollup Score Mean	1-5	Rollup score of all Physician Interprofessional scores
IP_APRN_RU	Interprofessional - RN-APRN Rollup Score Mean	1-5	Rollup score of all APRN Interprofessional scores <i>Includes NPs, NMs, CRNAs, and CNSs</i>
IP_RN_RU	Interprofessional - RN-RN Rollup Score Mean	1-5	Rollup score of all RN Interprofessional scores
IP_Pharm_RU	Interprofessional - RN-Pharmacist Rollup Score Mean	1-5	Rollup score of all RN Pharmacist scores <i>Include both pharmacists and pharmacy technicians</i>
IP_Thrpst_RU	Interprofessional - RN-Therapist Rollup Score Mean	1-5	Rollup score of all RN Therapist scores <i>Includes occupational, physical, respiratory, speech therapists, and dieticians or nutritionists</i>
IP_SW_RU	Interprofessional - RN-Social Worker Rollup Score Mean	1-5	Rollup score of all RN Social Worker scores

\* The higher the score, the more positive the rating

\*\*Question stem for Interprofessional Scale Questions stated, “Based on your experience on your unit, how many [members of specified discipline] would you say:”. Response Options: No [members of specified discipline], A few [members of specified discipline], Some [members of specified discipline], Most [members of specified discipline], All [members of specified discipline].

### Summary Statistics

The summary statistics can be found in Table 4. When the skewness is greater than 2 in absolute value, the variable is considered to be asymmetrical about its mean. When the kurtosis is greater than or equal to 3, then the variable's distribution is markedly different than a normal distribution in its tendency to produce outliers (Westfall & Henning, 2013).

**Table 4**

*Summary Statistics Table for Interval and Ratio Variables*

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	<i>SE<sub>M</sub></i>	Min	Max	Skewness	Kurtosis
JES	4.10	0.70	146	0.06	2.59	5.54	0.02	-0.64
<b>Interprofessional Scale Roll-Up Scores</b>								
IP_conflict_RU	3.98	0.31	146	0.03	2.73	5.00	-0.07	1.77
IP_shr_account	3.97	0.34	146	0.03	2.59	5.00	-0.14	1.83
IP_rspct	4.08	0.30	146	0.02	2.80	5.00	-0.20	1.94
IP_undstd_roles	4.05	0.32	146	0.03	2.63	5.00	-0.27	2.27
IP_root_causes	3.97	0.32	146	0.03	2.70	5.00	0.06	1.46
<b>Discipline Specific Roll-Up Scores</b>								
IP_APRN_RU	3.98	0.56	143	0.05	1.00	5.00	-1.55	5.94
IP_Thrpst_RU	4.20	0.49	130	0.04	1.00	5.00	-2.20	12.74
IP_RN_RU	4.12	0.31	145	0.03	2.85	5.06	0.04	1.83
IP_SW_RU	4.20	0.63	114	0.06	1.00	5.00	-2.32	8.54
IP_Phys_RU	3.73	0.50	146	0.04	2.20	5.00	-0.46	0.58
IP_Pharm_RU	4.13	0.42	140	0.04	2.92	5.00	-0.46	0.19
<b>Total Roll-Up Scores</b>								
IP_RU_tot	4.01	0.31	146	0.03	2.69	5.06	-0.08	2.08

Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

## **Pearson Correlation Analysis**

A Pearson correlation analysis was conducted between JES and the rollup scores for each item on the Interprofessional Scale (IPS) generated from each discipline on the Interprofessional scale as well as the total rollup score for the Interprofessional Scale. Cohen's standard was used to evaluate the strength of the relationship, where coefficients between .10 and .29 represent a small effect size, coefficients between .30 and .49 represent a moderate effect size, and coefficients above .50 indicate a large effect size (Cohen, 1988).

### ***Assumptions***

A Pearson correlation requires that the relationship between each pair of variables is linear (Conover & Iman, 1981). This assumption is violated if there is curvature among the points on the scatterplot between any pair of variables. A Spearman correlation analysis was also conducted for the pairs IP\_conflict\_RU-JES and IP\_RU\_tot-JES as they violated the assumptions of the Pearson correlations. Results of the Spearman correlation analysis for these pairs of variables were consistent with the results of the Pearson correlation analysis.

### ***Results***

The result of the correlation was examined based on an alpha value of .05. A significant positive correlation was observed for all pairs of variables except the pair IP\_APRN\_RU-JES (Table 4). There was no significant correlation observed between variables in the IP\_APRN\_RU-JES pair. The correlation for pairs with a significant positive correlation ranged from .24 to .56, indicating a range from small effect size to large effect size (Table 5). The pairs of variables that yielded a significant positive correlation suggest that JES increases as the score for the IPS variable increases.



The sample size (n) varied for the variable pairs that addressed specific disciplines within the Interdisciplinary scale. Nurses do not interact with all disciplines on every unit; therefore, some discipline-specific questions were not relevant when nurses did not interact with those disciplines.

The overall response rate from each unit met the minimum required value for inclusion in the study. A response rate of 40% or higher was required for data to reflect unit level perception for analyses (Kramer, 2009).

**Table 5**

*Pearson Correlation Results*

<b>Variable with JES</b>	<b><i>r</i></b>	<b>95.00% CI</b>	<b><i>n</i></b>	<b><i>p</i></b>
<b>Interprofessional Scale Roll-Up Scores</b>				
JES-IP_conflict	.49	[.36, .60]	146	< .001
JES-IP_shr_account	.54	[.41, .64]	146	< .001
JES-IP_rspct	.51	[.38, .62]	146	< .001
JES-IP_undstd_roles	.52	[.39, .63]	146	< .001
JES-IP_root_causes	.49	[.35, .60]	146	< .001
<b>Discipline Specific Roll-Up Scores</b>				
IP_APRN_RU-JES	.16	[-.01, .31]	143	.062
IP_Thrpst_RU-JES	.24	[.07, .39]	130	.007
IP_RN_RU-JES	.56	[.44, .66]	145	< .001
IP_SW_RU-JES	.28	[.10, .44]	114	.003
IP_Phy_RU-JES	.39	[.25, .52]	146	< .001
IP_Pharm_RU-JES	.32	[.16, .46]	140	< .001
<b>Total Roll-Up Scores</b>				
IP_RU_tot-JES	.52	[.39, .63]	146	< .001

## CHAPTER 5: DISCUSSION

### Explanation of Findings

Results from the data analysis reflect a positive correlation between interprofessional interactions and nurse job satisfaction as measured by the JES. There is a significant positive correlation between the total interprofessional score and the mean job enjoyment score, suggesting a positive correlation exists between the interprofessional interactions among team members and nurse's job satisfaction, and as one increases, so does the other. The nurse's role as a member of the interdisciplinary team requires frequent interactions with individuals from different disciplines, so it is reasonable that the findings support a correlation between these interactions and the job satisfaction of the nurse.

Prior research findings suggested that communication impacted the perception of team dynamics within a healthcare team (Dahlke et al., 2018) and that team members were impacted by simple characteristics of interactions such as demonstrating civility (Campbell et al., 2021). The data in this study was collected during the COVID-19 pandemic, so the findings support the value of positive interprofessional interactions during that challenging time. Thompson & Kusy (2021) previously reported that the strength of interprofessional healthcare teams could be impacted either positively or negatively by the pandemic; it was suggested by the findings in this study that amidst the pandemic, the interprofessional interactions among team members still impacted the job satisfaction of nurses. An unexpected finding was the absence of a significant correlation between JES and the APRN Interprofessional Rollup Score Mean.

## **Evaluation of Conceptual Framework**

The framework that guided this study was the *Framework for Interprofessional Teamwork for Health and Social Care* (Reeves et al., 2010). This framework identified four primary components of the relational aspect of teamwork: communication, team stability, trust and respect. The questions in the interdisciplinary scale that was utilized in this study directly addressed respect and communication (conflict management), and the question regarding shared accountability supports the component of trust. These three components all reflected a significant positive correlation with nurse's job enjoyment and contributed to the overall perception of interdisciplinary interactions among the members of the team. Team stability is a broader ideal; however, the interdisciplinary scale that was used in this study addresses multiple aspects of team interactions that support the concept of stability among an interdisciplinary team. Overall, the study findings are consistent with the framework that was utilized.

## **Limitations**

There were two noted limitations to this study. The first identified limitation is the retrospective cross-sectional nature of the data; the survey that the data were collected from was an established survey which is administered annually by the hospitals within the healthcare system. Retrospective data and the use of a cross sectional study captures a snapshot in time rather than a trend. This study was limited to one acute care healthcare system in the Southeast; it would be beneficial to obtain data across multiple regions and healthcare systems in order to analyze a more comprehensive set of data.

## **Recommendations for Future Research**

Study results indicated that the discipline that showed no correlation with nurses' job enjoyment was APRN's. This was a surprising finding, as most participants indicated that they do frequently interact with APRN's, and they are often the first point of communication for RN's prior to an interaction with a physician. This finding suggests the need for further research into the interactions specifically between RN's and APRN's and the impact that it has on the work environment and job enjoyment of nurses.

## **Implications for Nursing Practice**

Identifying a positive correlation between the interactions of the interprofessional team and nurse's job satisfaction provides insight into how nurses and healthcare teams can focus their efforts on striving to improve nurse satisfaction and retention and to foster healthy work environments. Investing efforts in strengthening the interactions between disciplines, building effective communication skills between team members, and identifying the strengths and opportunities for growth on the interprofessional team will have a positive impact on nurse's job satisfaction by cultivating positive interactions among team members. Recognizing the positive impact that interprofessional interactions have on nurse's job satisfaction creates a new path to pursue in strengthening the nursing profession and supporting nurses in their vital role as a member of the healthcare team.

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## APPENDICES

### Appendix A

#### Appendix A: Job Enjoyment Subscale (NDNQI)

Job Enjoyment Scale Stem	Based on your experience, please indicate your agreement or disagreement with the following statements about your unit and the RNs with whom you work.
Response Options	Strongly agree, Agree, Tend to Agree, Tend to Disagree, Disagree, Strongly Disagree
1.	As RNs, we are fairly well satisfied with our jobs on our unit.
2.	RNs on our unit would not consider taking another job.
3.	I have to force myself to come to work much of the time.
4.	RNs on our unit are enthusiastic about our work almost every day.
5.	RNs on our unit like our jobs better than the average RN does.
6.	I feel that each day on my job will never end.
7.	We find real enjoyment in our work on our unit.

## Appendix B

Interprofessional Scale Items	
<p>Based on your experience on your unit, how many [members of specified discipline] would you say:</p> <p><i>If RNs on your unit routinely interact with only one [members of specified discipline], select either “No [members of specified discipline]” or “All [members of specified discipline]”</i></p> <p><i>Response Options: No [members of specified discipline], A few [members of specified discipline], Some [members of specified discipline], Most [members of specified discipline], All [members of specified discipline]</i></p>	<ol style="list-style-type: none"> <li>1. Consistently use effective conflict management skills to prevent and/or resolve disagreements.</li> <li>2. Demonstrate respect for the contributions to patient care of RNs on my unit.</li> <li>3. Consider root causes of adverse events or errors rather than placing blame.</li> <li>4. Share accountability for the quality of patient care with RNs on my unit.</li> <li>5. Understand the roles, knowledge, and skills of RNs on my unit.</li> </ol>