HEALTH CARE FINANCIAL LITERACY AMONG NURSES:
A QUALITATIVE INTRINSIC CASE STUDY

by
Kory S. Holt

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__________________________________________ Date:___________
Connie Ostwald, Ph.D., Dissertation Chair

__________________________________________ Date:___________
Renita Ellis, Ph.D., Dissertation Committee Member

__________________________________________ Date:___________
Edward M. Moore, Ph.D., DBA Program Director
Abstract

Nurses have to perform many clinical services that require efficient decision-making processes in support of quality patient care. Alongside staff nurse clinical literacy, health care financial literacy was described as an important, but vaguely defined component of the nursing role. The significance of having financially competent nurses to efficient hospital operations and financial management continues to increase. However, the topic of health care financial literacy and financial decision-making among nurses remains disproportionately represented in existing scholarly research. To address this knowledge gap, this study integrated a single-site instrumental case study research design to examine health care financial literacy among nurses to assess the impact on efficient health care financial decision-making. The research illustrated that financial concepts are formulated by staff nurses through patient care practices and revealed that lower levels of health care financial literacy are generally accepted within nursing. The study described the role that robust nursing support structures play in the distribution of health care financial knowledge and explained the implications literacy levels have on the support of leadership decisions. Lastly, the case study discovered that the health care financial decisions of staff nurses are imbedded in clinical interventions. The research findings were applied to professional practice and assessed to understand the implications to the business of health care, the health care financial decision-support discipline, and the biblical worldview. Lastly, the study provided ways the research study could be expanded to additional health care institutions, new geographical locations, different clinical professionals, and a variety of other health care topics.

Key words: health care, financial literacy, decision-making, staff nurses, managerial nurses
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Kory S. Holt

Final Dissertation Review

___________________________________________________________  Date:__________

Kory S. Holt, Doctoral Candidate

___________________________________________________________  Date:__________

Connie Ostwald, Ph.D., Dissertation Chair

___________________________________________________________  Date:__________

Renita Ellis, Ph.D., Dissertation Committee Member

___________________________________________________________  Date:__________

Edward M. Moore, Ph.D., DBA Program Director

___________________________________________________________  Date:__________

Marti Dryk, Ph.D., Dissertation Editor
Dedication

This study is dedicated to my wife, Jill. Your love, patience, hardiness, and unwavering voice of reason has saved me in more ways than anyone else will ever understand. I love you in every way.

I would also like to dedicate this study to my kids, William, Thomas, and Sarah. Each of you played an important role in keeping me motivated and focused. I hope you can look at this work and realize that success oftentimes does not come easily or quickly, requires relentless hard work, and a willingness to publicly fail in order to personally succeed.

Lastly, I would like to dedicate this study to all health care workers, first responders, and active or retired members of the United States Military. Thank you for your sacrifice and dedication during these very transformative times in society.
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The realization that this research study is coming to a close is absolutely surreal! While not comprehensive list, there are several people that I want to thank for their guidance, brilliance, and support during the dissertation process.

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Section 1: Foundation of the Study

The nursing discipline has historically represented the largest percentage of clinicians in health care organizations, making clinicians an essential component of the health care delivery system (Rainbow & Steege, 2019; Gunawan & Aunguroch, 2016). Nurses have performed a vast array of clinical services across health care institutions that have required effective and efficient decision-making processes (Nibbelink & Carrington, 2019). Effective decision-making practices have been an important component of ensuring patient safety and clinical quality is maintained within the clinical environment (Nibbelink & Carrington, 2019). As health care continues to transform, nurses will be required to further integrate with health care financial concepts in order to achieve organizational goals and address industry challenges (Lim & Noh, 2015). Despite the growing significance of financially competent nurses to efficient hospital operations and financial management, health care financial literacy and financial decision-making among nurses remains disproportionately represented in existing scholarly research (Douglas, 2010; Gunawan & Aunguroch, 2016; Lim & Noh, 2015). Health care organizations need to be progressive in educating and integrating the nursing workforce with critical financial factors that impact the effectiveness of health care delivery.

The ability of nurses to apply acquired knowledge to clinical nursing practices is well-documented (Lindley & Cozad, 2017). Conversely, the scholarly literature related to nurses’ application of health care financial concepts remains sparse despite the topic’s increased relevance within the health care industry (Douglas, 2010). Health care is a significant component of the national and global economy, requiring knowledge advancements within the nursing discipline to effectively manage the industry’s financial and moral challenges (Baicker & Chandra, 2018; Rother, 2017). The deficiency of health care financial literacy among nurses
becomes cumulatively problematic to the industry given the importance that future nurse leaders possess health care finance skills and competencies (Naranjee, Sibiya, & Ngxongo, 2019).

The nursing discipline is well-positioned to enhance the level of health care financial literacy, apply newly acquired health care financial knowledge, and improve decision-making. Nurses operate in an environment where a significant number of vital clinical decisions are made on a daily basis based on acquired knowledge, accepted concepts, and prescribed protocols (Nibbelink & Brewer, 2018). The decision-based environment that has historically served as a foundation for the nursing discipline provided the necessary behaviors and commitment to integrating new health care financial knowledge. In addition, clinical quality improvements that have been achieved in the past due to nurse involvement in critical decision-making can assist organizations in illustrating the importance of developing health care financial concepts within the nursing discipline. Therefore, the purpose of this qualitative study was to understand staff nurse health care financial literacy and examine the impact on financial decision-making effectiveness.

Background of the Problem

The Bureau of Labor Statistics reported that an estimated 1.6 million nurses are employed at any point in time across the United States, making the nursing discipline the single largest group of health care providers within hospitals (Rainbow & Steege, 2019). In addition to the size of the nursing discipline, nursing roles and responsibilities of individuals have transformed significantly. Combined with the traditional responsibilities related to direct patient care, nurses are being asked to understand and apply financial concepts despite being technically unprepared to take ownership of financial performance, apply data-driven approaches to financial decision-making, and understand the larger view of health care finance (Douglas, 2010).
Gunawan and Aunguroch (2016) described that future nursing leaders will need to possess skills related to important health care finance topics such as resource management and fiscal budgeting. Success in these new and essential roles of nurses presents challenges for health care systems due to the inability of staff nurses to effectively identify and apply health care financial concepts to decision-making. A review of existing literature revealed that limited information was available on the topic of health care financial literacy and further examination is warranted. Lim and Noh (2015) described a web-database search using Medline, the Cumulative Index to Nursing and Allied Health Literature, and the Research Information Sharing Service for published articles between 2006 and 2012 that included the phrases ‘finance and nursing’ and ‘accounting and nursing’. Only seven out of 6,399 research articles in the searched databases matched the defined search criteria, with none of the seven articles focusing on financial decision-making, financial statement analysis, or financial competency (Lim & Noh, 2015).

James et al., (2018) stated that general financial literacy is the ability to access, understand, and utilize financial information and concepts effectively and efficiently. James et al. (2018) also articulated that within the health care industry, much of the existing research on financial literacy focused on behaviors such as financial planning and investing rather than the applicability of financial concepts to decision-making. Recognizing that pertinent knowledge is lacking related to nurses and health care financial literacy, Noh and Lim (2015) used a nominal group technique to gather ideas for ways to enhance the education of nurses on financial topics. A synthesis of the data collected by Noh and Lim (2015) revealed educational gaps within the nursing discipline related to topics such as the comprehension of health care financial management concepts, the ability to analyze financial statements, and the application of financial ratios to decision-making.
Loan et al., (2017) described the significant research that exists on improving the level of health literacy maintained by nursing professionals. Health literacy has been viewed as a precursor to the achievement of a culture of health due to its focus on the complexity of health care, social factors, and individual health experiences (Loan et al., 2017). After combining the perspectives provided by James et al. (2018) on financial literacy and by Loan et al. (2017) on health literacy, a significant void in current literature remained as it relates to staff nurse application of health care financial concepts to decision-making.

Tools to improve efficiency in the decision-making of nurses have been ingrained in the discipline from a clinical perspective. Decision-making tools such as the Nurse Decision-Making Instrument have been used to identify and classify the alternatives that nurses should consider when certain clinical situations are encountered (McColl & Pesata, 2016). In addition to clinical decision-making, organizations including the Agency for Healthcare Research and Quality and the Institute for Healthcare Improvement support the dissemination of tools such as the Health Literacy Universal Precaution Toolkit to help nurses educate and communicate with patients regarding financial matters (Loan et al., 2017). Unfortunately, tools similar to the Nurse Decision-Making Instrument and the Health Literacy Universal Precaution Toolkit fail to address the development of health care financial literacy among staff nurses in a way that enhances decision-making in their roles.

Welton and Harper (2015) stated significant challenges existing in maintaining cost control when those costs are not well-understood. The challenge described by Welton and Harper (2015) make insufficient health care financial literacy levels among nurses problematic when attempting to gain nursing support to manage labor costs and control one of the most significant operational expense elements within health care systems. The critical competencies
described by the American Association of Colleges of Nursing revealed the importance of integrating the ability to identify and apply financial concepts to decision-making as staff nurses gain experience and transition into future leadership roles. The American Association of Colleges of Nursing described education and training changes that may be required to increase the financial competencies of nurses around the ability to develop a budget, contribute to the development of an operating budget, and become more generally knowledgeable in the areas of health care economics and finance (Bender, L'Ecuyer, & Williams, 2019). Through this case study, nurse leaders, staff nurses, and health care organizations added to the existing research to more effectively describe the skill-based changes required to build a solid foundation for future development.

Problem Statement

The general problem to be addressed was the lack of financial literacy among nurses resulting in inefficient and ineffective financial decision-making processes. Douglas (2010) described that the financial skills of nurses are underdeveloped with nurses not being able to understand the language of finance and not effectively managing departmental financial performance. Naranjee, et al. (2019) stated that low financial literacy among nurses has required them to rely on and accept financial directives from other managers and leaders due to the lack of knowledge and understanding about finances. Naranjee, et al. (2019) also articulated that despite the importance of health care financial literacy to effective decision-making, limited information related to health care finance concepts exists for a wide range of clinical professionals that can be used in practicality.

The ineffectiveness of the previous instructional methods used to disseminate financial management concepts throughout clinical functions such as nursing has been articulated by
practitioners. Bai et al. (2017) described that in a survey of head nurses, nurse coordinators, and nurse executives, one of the major challenges faced was insufficient training and education on financial management and nursing economics. In a recent study, Lim and Noh (2015) stated that increases in consumer expectations related to quality, more invasive governmental restrictions, and the complexity of health care capacity management are the major reasons why clinicians are confronted with financial challenges that have not existed in the past. The specific problem to be addressed was the lack of financial literacy among nurses within the health care industry in Midwest hospitals resulting in inefficient and ineffective decision-making processes.

**Purpose Statement**

The purpose of this case study was to contribute to the literature on the importance of health care financial literacy for nurses. The case study explored staff nurses’ ability to identify and apply health care financial concepts, provided an analysis of the actions or behaviors that influence the ability of staff nurses to identify and apply health care financial concepts, and assessed the impact on decision-making effectiveness. The study discovered the perceptions held by leaders in the nursing discipline regarding the depth of health care financial literacy among staff nurses. The case study research described the ways nursing leaders articulate the consequences of staff nurses’ ability to identify and apply health care financial concepts.

The purpose of the study required the collection of information necessary to assess nurses on their health care financial knowledge to provide a rationale for increasing financial literacy among nurses. The case study illustrated the desire for staff nurse health care financial literacy to improve the effectiveness of decision-making and justify health care financial literacy training as a foundation for the future. This larger problem was explored through a case study on the lack
of ability by nurses within the health care industry in Midwest hospitals to identify and apply health care financial concepts to understand its impact on decision-making.

Nature of the Study

A qualitative research methodology was selected to examine the health care financial literacy of nurses. Smith, Bekker, and Cheater (2011) stated that qualitative methods are ideal for exploring a topic, issue, or phenomena to make sense of complex factors, gain new insights, construct themes, and foster a deeper understanding. Malagon-Maldonado (2014) described that incoming data from qualitative research is effective in confirming or contradicting existing theories, resulting in the approach being inductive in nature where researchers move from specific to general viewpoints.

Qualitative research method.

Qualitative research and observations can be made in real-life clinical or educational situations and allow research participants to bring a greater understanding of a phenomenon (Sawatsky, Ratelle, & Beckman, 2019). The qualitative research method was determined to be the optimal research method for the study since the method allows for the use of explorative interviews, surveys, and questions with nursing leaders and staff nurses. The subjectivity inherent in the qualitative method was effective in discovering the complex factors that impact the way staff nurses identify and apply health care financial concepts.

The qualitative research method’s element of inductive reasoning promoted the understanding of actions or behaviors nursing leaders believe influence the use of health care financial concepts by staff nurses. Additionally, the qualitative research method was accepting of the individual interpretations necessary to understand staff nurse financial literacy, fostered a
deeper understanding of staff nurse health care financial literacy, and facilitated ways to improve the application of financial concepts in the future (Sawatsky, et al., 2019; Smith, et al., 2011).

**Case study research design.**

An intrinsic case study research design was selected for the qualitative research study. Creswell (2014) and Yin (2014) discussed that the intrinsic case study can be effectively applied to learn about a unique phenomenon upon which the study is focused and to explore the uniqueness of a phenomenon through data collection and analysis. In a case study, the researcher investigates an existing phenomenon through an in-depth inquiry placed within a real-world context (Blum, 2017; Stake, 2013; Yin, 2014). Yin (2014) stated the case study research design is optimal when the emphasis of the study is for participants to respond to ‘how’ and ‘why’ questions, participant manipulation is not allowed, uncovering context critical to the study is a priority, and the dividing boundaries between context and the phenomenon are unclear.

The qualitative data for the research study was collected from two target populations and applied to the problem statement. Qualitative information was gathered from nurses working in leadership or supervisory roles within the hospital setting that related to a variety of clinical nurse disciplines. Additionally, the intrinsic case study examined qualitative data collected from hospital staff nurses with varying years of experience and clinical focus. The research information from the two identified target populations was accumulated through the completion of interviews with a sufficient quantity of nurses to achieve a research saturation point.

**Research Questions**

Qualitative research questions are used to reveal the perspectives of a subject or phenomenon (Haven & Van Grootel, 2019). Through qualitative research questions, the
researcher can integrate the principles of reflexivity, adequacy, authenticity, trustworthiness, and resonance into the study (Cristancho, Goldszmidt, Lingard, & Watling, 2018). Research questions also provide the flexibility required to follow the qualitative data in a focused and consistent manner throughout the study (Cristancho et al., 2018). Qualitative research questions should be formulated by focusing on the benefits realized from the completion of the study and considering the consequences if the research is not completed (Mattick, Johnston, & De La Croix, 2018). The guidance provided through the scholarly literature regarding well-defined qualitative research questions were applied directly to this study. The following research questions were designed to provide an understanding of health care financial literacy among nurses and the impact on decision-making within the researched institution.

**RQ1:** In what ways do staff nurses identify and apply health care financial concepts to financial decision-making in their roles?

**RQ2:** What actions or behaviors do nursing leaders believe influence the ability of staff nurses to identify and apply health care financial concepts to decision-making?

**RQ3:** What perceptions are maintained by nursing leaders regarding staff nurses’ ability to identify and apply health care financial concepts to decision-making?

**RQ4:** How do nursing leaders articulate the consequences of staff nurses’ ability to identify and apply health care financial concepts in decision-making?

**Conceptual Framework**

Padgett (2016) stated that a conceptual framework has provided researchers with valuable perspective and served as a guiding influence on studies based on a qualitative research methodology. The conceptual framework for this study was nurse intellectual capital theory. The following information explained how the research study was related to existing
concepts of nurse intellectual capital theory and illustrated the concepts from the literature that provide a foundation for the research. The use of nurse intellectual capital theory as a conceptual framework addressed the research questions and provided a mechanism for summarizing the seminal themes that are expected as the study progresses.

**Nurse intellectual capital theory.**

Lindley and Cozad (2017) stated that Covell’s theory of nurse intellectual capital examined the intersection between knowledge, work environment, and organizational outcomes within nursing practice. The theory of nurse intellectual capital has identified the use of knowledge resources as the most efficient way of realizing benefits for the organization, particularly within nursing where the collection and application of knowledge capital are considered essential (Kholifah, Nurs, Adriani, Ahsan, & Susanto, 2018). Researchers have posited that through nurse intellectual capital theory, nursing knowledge primarily exists in the components of nursing human capital and nursing structural capital. The human capital and structural capital components of nurse intellectual theory can be used to approach a wide variety of new and existing problems faced by nurses (Kholifah, et al., 2018; Lindley & Cozad, 2017). Cavicchi (2017) explained that health care practitioners, scholars, and thought leaders are beginning to explicitly illustrate the value that can be derived through intellectual capital, which is a development of particular importance given the health care industry’s complexity.

Lin (2016) provided a more detailed definition of the two components of nurse intellectual capital theory. The first component described as nurse human capital was focused on the knowledge and skills maintained by nurses. Covell and Sidani (2013a, 2013b) stated that nurse human capital becomes operational in the clinical perspective through the combination of degree achievement, specialty certifications, continuing education, and experience. The presence
of nurse human capital attributes as a component of nurse intellectual capital has been linked to improved overall nurse performance in the traditional sense (Aiken, Cimiotti, Sloane, Flynn, & Neff, 2011). Nurse human capital can be expanded beyond clinical nursing skills and associated closely with financial literacy through the development of abilities, talents, and experience. Nurse human capital can also provide utility to new subject matter such as financial concepts through an expansion of nurse competency, motivation, commitment, and leadership (Kholifah et al., 2018). Data collected and analyzed as part of the case study revealed the importance of nurse human capital attributes to health care financial literacy, the achievement of leadership expectations, and financial decision-making effectiveness.

The second component of nurse intellectual capital theory described as nurse structural capital relates to the transmission of nursing knowledge and skills inherent in nurse human capital through organizational structures available to nurses as a way to drive results (Lin, 2016). Within the clinical nursing realm, nurse structural capital is commonly represented by the mechanisms, guidelines, and processes applied by nurses to make decisions (Lindley & Cozad, 2017). Covell and Sidani (2013a, 2013b) posited that health care organizations committed to fostering nurse structural capital may increase organizational performance through the use of guidelines and protocols that enhance efficiency. The case study research examined and articulated the utility of nurse structural capital to staff nurse financial literacy and decision-making.

The case study focused on staff nurses’ ability to apply financial concepts to decision-making, which closely aligned with the fundamental attributes of nurse intellectual capital theory. Lindley and Cozad (2017) described the integration of knowledge, work environment, and organizational outcomes within the clinical nurse setting. The importance of integrating
those same elements to staff nurse financial literacy became visible through the research study. Covell and Sidani (2013a, 2013b) explained the ways nurse intellectual capital theory can extend beyond enhancing clinical quality within the work environment and create competitive advantages for the health care organization. The perspectives of Covell and Sidani (2013a, 2013b) supported the premise that nurse intellectual capital theory holds significant potential for revealing new ways to improve staff nurse decision-making related to financial issues.

**Summary of the conceptual framework.**

Nurse intellectual capital theory was an appropriate conceptual framework for this study because the theory suggests that all knowledge correctly applied within the work environment is essential to nursing success. The proper application of financial knowledge within the nursing discipline has been an elusive topic and has become cumulatively more problematic as the health care environment transforms (Douglas, 2010). Naranjee et al. (2019) wrote of the importance of having nurse leaders with developed financial management skills, knowledge, and competencies to function effectively in new roles.

The specific research problem and research questions focused on staff nursing financial literacy and decision-making was addressed in this case study through a modified application of nurse intellectual capital theory. The purpose of this study was to explore the financial literacy of staff nurses to understand how skills are applied to decision-making, examine actions or behaviors that may influence financial literacy, and examine the perceptions of nurse leaders regarding the importance of staff nurse financial literacy. The selected conceptual framework shown in Figure 1 allowed the research to be governed by a theory that acknowledges the generation of knowledge, development of skills, and formation of core competencies are
essential to nursing success and could be similarly applied to financial responsibilities made part of the modern nursing role.

**Figure 1. Intrinsic Case Study Conceptual Framework**

**Definition of Terms**

*Decision-making:* use of relevant evidence and systematic assessment processes by an individual or collective group to consider confronting tradeoffs and select the favored alternative (Agoritsas, et al., 2015; Thokola, et al., 2016).

*Financial decision-making:* use of financial concepts, experience, and knowledge to assess relevant evidence and apply processes as a way to consider confronting tradeoffs and select the favored alternative within the context of financial resource scarcity (Cook & Sadeghein, 2018; Van Auken, Ascigil, & Carraher, 2017; Thokola, et al., 2016; Agoritsas, et al., 2015).

*Health care financial concepts:* a collection of terms, formulas, and methods of measurement that is fundamental to the efficient administration, application, and provision of health care services (Baker, 2019; Grumbach, 2009).
**Literacy:** an individual’s ability, skill, competency, or basic knowledge of a defined concept that is considered to be an important life skill (Malloy-Weira, Charles, Gafnib, & Entwistle, 2016; Skagerlund, Lind, Stromback, Tinghog, & Vastfjall, 2018).

*Nurse intellectual capital theory:* a middle-range theory grounded in the fields of economics and accounting that identifies with the human capital and structural capital components of nursing intellect (Covell & Sidani, 2013a, 2013b; Lindley & Cozad, 2017).

**Assumptions, Limitations, and Delimitations**

The following sections discuss the assumptions, limitations, and delimitations associated with the study. The sections were necessary component of the study and to scholarly research as a way to articulate the critical restrictions inherent in the study and the supporting research included within this study (Simon, 2011; Simon & Goes, 2013). Additionally, the sections were a necessary component to revealing the perspective required for the research study and to provide a framework upon which the conclusions can be considered. The sections below revealed restrictions of the study including research boundaries, items that needed to be maintained as fact while reviewing the study, and weaknesses inherent with the case study research design.

**Assumptions.**

The assumptions contemplated within the study were research elements that were partially out of the control of the researcher (Simon, 2011; Simon & Goes, 2013). In the absence of fact, a research assumption required a level of trust that an investigated data element or information pattern is ‘most likely’ true. While assumptions were a restriction inherent to the study, assumptions are a basic element of any phenomenon worthy of qualitative case study
research. Without the need for assumptions, the research problem itself would not exist (Leedy & Ormrod, 2018).

The first foundational assumption associated with this research study was that the research participants would answer all questions openly, honestly, and without intentional bias. The presence of this risk was mitigated through the use of guaranteed anonymity and confidentiality of all participant names and professional titles. The data collected from the research participants was organized and analyzed in the study through the assignment of randomly selected participant numbers.

The second assumption inherent in the research study was that all research participants had consistent experiences with health care finance concepts. Certain nurses gain experience as licensed practical nurses prior to pursuing a Bachelor of Nursing, while other nurses enter the workforce directly as a registered nurse (Chachula, Smith, & Hyndman, 2019). Additionally, nurses work in a wide array of inpatient units, outpatient units, and departments that will provide exposure to different topics, behaviors, and work environments (Dubos, 2018). The risks associated with this assumption were justified by screening the research participants prior to data collection to ensure that variation in educational or workplace experiences were insignificant to the research study.

**Limitations.**

The limitations of a research study are defined as constraints that are largely beyond the control of the researcher but have the potential to affect the study’s outcome (Simon & Goes, 2013). The first limitation associated with the research study was the qualitative nature of research (Anderson, 2010). Qualitative research quality is more easily influenced by the researcher’s personal biases and idiosyncrasies. Rigor is more difficult to maintain, assess, and
demonstrate as the volume of data makes analysis and interpretation overly time-intensive. Additionally, the researcher’s presence during data gathering, which is often unavoidable in qualitative research, can affect the subjects’ responses (Anderson, 2010).

The second limitation of the study was related to time and change within the health care operating environment. Waterworth (2017) described the ‘temporality’ of health care, referring to the rapid changes in the timing, flow, and pace of events within the hospital setting. Within the industry, there is not a strong understanding of whether those working in health care can effectively manage temporality and effectively complete change initiatives (Spaulding, Kash, Johnson, & Gamm, 2017; Waterworth, 2017). The fluidity of health care industry dynamics had the potential to result in changing perspectives and perceptions of the research participants over relatively short periods of time.

The third limitation associated with the study was related to the application of the research. The study and associated research were completed in a specific health care institution in the Midwest. While the research study may be applicable to a variety of health care institutions in the Midwest and other geographical locations, the concepts and conclusions were most specifically identifiable to the researched health care institution.

The fourth limitation related to the research was the case study research design. A case study design involved the research of one person, group, organization, or phenomenon Campbell, 2015; Creswell & Poth, 2018). The behaviors that were researched within a case study cannot rule out that different behaviors may exist in other similar organizations. As such, the limitation of the case study research design required additional research to verify whether findings from the study could be replicated in other health care organizations (Creswell & Poth, 2018; Simon & Goes, 2013).
Delimitations.

Simon and Goes (2013) stated that delimitations of a study are those characteristics that arise from the designated boundaries of the study and are typically applied by the researcher through a conscious decision-making process. In a qualitative case study, the boundaries of space and time are critical to providing an intensive analysis and an in-depth understanding of the research topic (Campbell, 2015). The first delimitation of the case study was the criteria used to select the research participants. The nurse leaders and staff nurse participants selected for the research population were restricted to nurses working on a full-time basis at the identified Midwest hospital. Additionally, the research population for selected nurse leaders was limited to those occupying formal leadership positions rather than an informal leadership capacity.

A second delimitation of the research study was the current time period. Nurse leaders or staff nurses that previously worked or are planning to work at the identified Midwest hospital were excluded from the research population. The physical location was the third delimitation of this study. The institution and employees used in the study were located and domiciled in the Midwestern Region of the United States of America. The scope of the case study was further reduced by the fourth delimitation of selecting a single site health care institution within the Midwest geographic region.

The final delimitation was the research focus on the study. The topic of financial literacy was generalized research focus of the study. Financial literacy is an expansive topic ranging from investment portfolio management to the anomalies in the financial decision-making process of consumers (Bianchi, 2018; Brent & Ward, 2018; Huston, 2015; Meyer, 2017). Therefore, the scope of research was reduced further to focus on staff nurse literacy, the
application and the identification of health care financial concepts, and the impact on their ability to make effective financial decisions.

**Significance of the Study**

The nursing discipline has a rich history of developing forward-thinking leaders that provided the highest levels of dedication to the profession, patients, and organization (Hughes, 2017). The importance of nurse development described by Hughes (2017) is supported through cognitive models such as nurse intellectual capital theory as a way to optimize clinical nurse intelligence (Lindley & Cozad, 2017). The evolution of health care has increased the need for nurses to apply financial concepts to decision-making in ways that have not existed in the past. For example, health care systems are participating in new reimbursement models such as accountable care organizations and value-based initiatives that hold promise for the future of health care, but also have negative financial consequences if health care cost and quality metrics are not achieved (McWilliams, Hatfield, Chernew, Landon, & Shwartz, 2016).

Bai et al. (2017) articulated that nurses have not had adequate exposure to health care finance concepts, which presents a challenge for transformative health care organizations that require nurses to engage in financial decision-making. This study bridged the gaps that existed in the application of financial concepts to decision-making by nurses. Within the nursing discipline, the research integrated a biblical framework for research application. Lastly, the importance of nurse health care financial literacy and decision-making revealed the relationship to health care administration as a field of study.

**Reduction in gaps.**

This study sought to understand the identification and application of financial concepts by staff nurses and the impact on decision-making effectiveness. The importance of effective
decision-making within the nursing discipline had been explicitly illustrated from a clinical perspective. Studies described by Nibbelink and Carrington (2019) revealed that errors in health care decision-making result in an estimated 98,000 deaths in the United States each year. Nurses are a significant component of the clinical decision-making cycle, with nurses in critical care functions making over 1,400 decisions in a 12-hour shift (Nibbelink & Carrington, 2019).

Specific attributes have been considered fundamental to effective clinical decision-making including technical skills, experience, assessment capabilities, and culture (Nibbelink & Brewer, 2018). However, the importance of these attributes to the ability to identify and apply health care financial concepts has not been researched thoroughly. Globally, there is a paucity of research on nurse health care financial literacy and an inconsistent presence of financial skills within the nursing discipline (Naranjee et al., 2019). This study enhanced the ability of health care organizations to further develop the attributes that are common to the nursing discipline as a way to effectively identify and apply health care financial concepts to decision-making.

Nursing behaviors can be impacted by attitude, subjective norms, and self-efficacy (Van Hooft, Dwarswaard, Bal, Strating, & Van Staa, 2016). Existing literature revealed that coaching attitudes, gatekeeper attitudes, clinical attitudes, and educator attitudes exist in the nursing discipline and have a different impact on clinical outcomes (Van Hooft, Dwarswaard, Jedeloo, Bal, & Van Staa, 2015). Subjective norms such as perceived pressure or support from others and the management of priorities have been implicated in the different performance behaviors displayed by nurses (Van Hooft et al., 2016). Research gaps currently exist within the nursing discipline related to actions or behaviors that influence nurse financial literacy. This study reduced this gap by researching the behaviors that influence the ability of staff nurses to apply financial concepts within an individual Midwest hospital.
Non-clinical challenges including increased operational complexity, staffing shortages, changing reimbursement models, wavering staff engagement, and rising labor costs have placed significant pressure on nursing leadership (Machon, Cundy, & Case, 2019). The inability of nursing leadership to effectively manage the non-clinical challenges revealed the historical ineffectiveness of health care finance-focused education and training. The examination of nursing leader’s perceptions regarding the financial abilities of staff nurses within a specific Midwest hospital reduced the gaps identified in previous scholarly research. The study also reduced gaps in existing research by exploring the consequences of staff nursing financial literacy using the perspectives of nurse leaders (Machon et al., 2019).

**Implications for biblical integration.**

The integration of spirituality in nursing is a long-standing professional responsibility and a complicated topic within the nursing discipline (Giske & Cone, 2015). The International Council of Nursing Code of Ethics stated that a nurse must promote an environment in which the human rights, values, customs, and spiritual beliefs of everyone involved are respected. The Code of Ethics directive remains complicated due to the lack of an agreed-upon definition of appropriate spirituality in nursing (Giske & Cone, 2015). This study extended that research through the examination of health care financial knowledge among nurses and the use of retained knowledge in financial decision-making.

Scripture describes that knowledge is a gift from God that must be treasured. Proverbs 2:6 (English Standard Version) states that the wisdom of God results in knowledge and understanding and reminds His followers that those who ask God for wisdom will be rewarded abundantly. Proverbs 1:7 (English Standard Version) states that knowledge is God’s gift to give and His gift must be honored through acts of reverence, respect, and worship. The biblical
story provided in Proverbs is an example of how knowledge gained in any capacity on any subject must be applied in accordance with His will. Similarly, knowledge on a topic that is lacking must be requested with the highest respect for His law and divine purpose.

Health care financial literacy by nurses is an important component of modern health care and requires knowledge that has not traditionally existed within the nursing discipline. The lack of financial literacy within nursing prohibits God's divine economy from being cultivated to its full potential. The Bible illustrates that individuals who possess knowledge are the embodiment of Jesus Christ. In that regard, knowledge should be feared, as the inappropriate or irreverent use of knowledge will offend Him greatly (Proverbs 1:7, ESV). This study had implications for biblical integration by aligning the need for health care financial knowledge within nursing and God's expectations of His people.

The importance of collectively applying and identifying knowledge within an organization is described in scripture. The Bible describes the risk of failure if no foundation or method of guidance upon which to make a decision exists. The Bible proclaims that an abundance of spiritual wealth can be realized when knowledge is dutifully shared (Proverbs 11:14, English Standard Version). The use of financial concepts to improve the decision-making of nurses needs to be guided by organizational culture and a robust spiritual foundation that fosters innovation and empowers decision-making. Through this study, the current gaps that exist in staff nurses’ financial knowledge and effective decision-making were used to understand the secular aspects of health care within a biblical worldview.

**Relationship to field of study.**

This study was directly related to the field of health care administration due to the study's focus on health care finance and staff nurse financial decision-making efficiency. The impact of
health care costs on the United States economy represents a significantly greater percentage of national spending when compared to the health care costs of other countries. Baicker and Chandra (2018) stated that health care spending in the United States accounted for 17.8% of gross domestic product and that annual per capita health care spending in the United States was nearly double when compared to other high-income countries. Rother (2017) explained that the rising cost of health care is one of the greatest economic, fiscal, and moral challenges facing the United States and significant innovation will be required to reverse the cost trend. As health care transformation continues, nurses who are knowledgeable of financial concepts and understand ways the concepts can be applied to decision-making can be an essential part of future health care cost management.

Health care is expected to become more complex as the population ages, the number of chronic conditions continues to grow, and the demand for services increases. From a clinical perspective, researchers have found that hospital nursing units in which nurses reported high levels of participation in decision-making had fewer infections and pressure ulcers (Bacon, Lee, & Mark, 2015). Similarly, nurses with the knowledge to effectuate financial decision-making within the practice of health care administration can support organizational growth in new ways. The health care financial literacy of nurses is related to the field of health care administration as it directly impacts the health organization’s performance, financial stability, and financial decision-making effectiveness.

**Review of Professional and Academic Literature**

A literature review was completed for this study and included professional and scholarly sources. The professional and scholarly sources provided the foundation for the research study and related directly to the applied problem statement and research questions. Throughout the
literature review, different points of view were considered, potential themes were examined, and perceptions were explored. The relevance of nurses within the health care delivery model resulted in a plethora of developed literature focused on nursing knowledge and the application of knowledge to clinical problem-solving. The focus of this research study extended the existing literature by investigating the financial literacy of nurses within health care settings in order to understand the impact on health care financial decision-making effectiveness.

Nurses play an essential role in facilitating the patient care experience and managing the decisions necessary to deliver quality care (Barton et al., 2018). From a clinical perspective, literacy within the nursing discipline has been described through model domains such as oral, written, and environmental communication (Barton et al., 2018, Table 1). Similarly, nurses are intricately involved in the clinical experience measured through the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) as a way to measure effectiveness of the critical dimensions of patient care (Machon et al., 2019).

The same model domains and dimensions described by Barton et al. (2018) and Machon et al., (2019) can be applied to health care financial literacy and integrated with the role nurses play within modern healthcare. However, existing research on the topic of health care financial literacy among nurses is incongruent and lacks the focus required for broad application within the discipline (Douglas, 2010). The insufficiency of applicable information on health care financial literacy within the discipline was more troubling given the transition to alternative payment models. Alternative payment models are becoming more prominent within the health care industry and are requiring enhanced levels of health care financial literacy by the nurses delivering some of the costliest aspects of direct patient care (Rome, Nickitas, & Lawrence,
However, the recognition has not resulted in a noticeable increase in the topic of health care financial literacy among nurses at the time of this study.

**Overview.**

The literature included in this review examines the current state of health care financial knowledge maintained within the nursing discipline, as well as the successful and unsuccessful ways that health care financial knowledge has been applied in practice. The research study’s seminal focus on nurse health care financial literacy guided the literature review and provided a mechanism for an in-depth analysis of health care financial literacy’s role in financial decision-making effectiveness. Existing literature included in the review provided the opportunity to understand the historical actions or behaviors that influence nurses. A review of the scholarly research also identified themes that provide valuable insight into health care financial decision-making abilities. Naranjee, et al. (2019) described the dependence nurses have on other professionals to guide them in financial decision-making. The literature review examined the knowledge gap through an investigation of the perceptions maintained by nurse leaders regarding staff nurse health care financial literacy.

This section includes an examination of scholarly peer-reviewed and professional journals, research articles, and books. The scholarly sources included in this literature review directly apply to the study’s research questions in several ways. As a way to provide context to the topic of health care financial literacy, a review of the general concepts, definitions, and relevance of the seminal topics have been included. The concepts, definitions, and relevance of health care financial literacy have been integrated into the literature review with the health care delivery process from both a historical and futuristic perspective. The literature review
then transitioned to the acquisition of health care financial knowledge by nurses and the application of nurse intellectual capital theory within the process of financial decision-making.

The efficiency of knowledge acquisition within health care has been described as an important but elusive goal for many organizations and is a remaining developmental predicament that extends to the application of health care financial concepts (Bai et al., 2017; Pentland et al., 2014). The literature demonstrates the importance of nurse intellectual capital theory as a foundation for applying critical human capital and structural capital attributes that are necessary to integrate the fields of accounting and economics within the clinical nursing discipline (Covell & Sidani, 2013a, 2013b; Lindley & Cozad, 2017). Following the section dedicated to nurse intellectual capital theory, the literature review transitions to the financial decision-making of nurses and the different decision-making theories that support the actions traditionally applied by nurses. The literature review integrates those traditional decision-making theories with the new health care financial elements that are relevant in modern nursing practice.

**Health Care Financial Literacy**

The initial section of the literature review focuses on the specific attributes that make health care financial literacy a topic of interest. Through a review of the definitions, critical concepts, and relevance of health care financial concepts to the nursing profession, the section describes the importance of health care financial literacy to health care institutions, clinical practice, and nurse professional development. The initial section of the literature review concludes by investigating the association of health care financial literacy within the health care delivery process from a historical and futuristic perspective.
Financial literacy defined.

The integration of financial literacy and the decision-making process within modern society has been well-documented in research. Chu, Wang, Xiao, and Zhang (2017) described research showing that households with higher levels of financial literacy perform more favorably in the areas of general financial management and planning. In addition to effective levels of financial management, higher levels of financial knowledge have been associated with an increased likelihood of engaging in desirable financial practices such as making timely payments, managing expenses, developing sound budgeting practices, diversifying investments, setting financial goals, and planning long-term financial strategies (Chu et al., 2017). Consistent with Chu et al. (2017), Ali, Rahman, and Bakar (2015) stated that financial literacy is a significant determinant of financial stability due to the influence financial literacy has on financial decision-making, consumer spending, and saving practices.

The perspectives of Chu et al. (2017) and Ali et al. (2015) illustrated the important role financial literacy plays in the general well-being of society. In addition to being regarded as a critical ingredient to financial well-being, the presence of financial literacy unequivocally opens up easier routes for policy design and the implementation of new strategies across different institutions (Karakurum-Ozdemir, Kokkizil, & Uysal, 2019). The impact that health care financial literacy has on societal and strategic sustainability provided a working foundation for the topic’s importance to specific disciplines including nursing, despite the lack of specific literature on the topic (Gunawan & Aunguroch, 2016; Lim & Noh, 2015).

Financial literacy and society.

A review of the literature on financial literacy showed that in general, society tends to maintain consistently low levels of financial literacy. Wolla (2017) wrote that adults who
completed consumer financial literacy surveys administered by the National Foundation for Credit Counseling self-assigned substandard literacy grades on fundamental financial concepts. The results described by Wolla (2017) reflected a foundational disadvantage for nurses seeking to obtain higher levels of health care financial literacy. In addition to the nursing discipline and existing educational curriculum not focusing on critical health care financial concepts, literature showed that society as a whole tends to have lower than acceptable levels of financial literacy (Lim & Noh, 2015; Wolla, 2017). The decision-focused background of the nursing discipline appeared to align with significant opportunities cited in the literature to increase health care financial literacy including improved education, enhanced training, and professional development (Nibbelink & Brewer, 2018).

**Assessment of financial literacy.**

Allgood and Walstad (2016) explained that a complicating factor in advancing financial literacy is that no standard definition on the topic exists within current literature. Most of the research literature on the assessment of financial literacy had been conducted by economists and other researchers through the use of defined questions, questionnaires, and behavioral applications as a way to understand the presence of financial knowledge (Allgood & Walstad, 2016). Xiao and Porto (2017) described the conceptual elements that have been built into assessment tools to understand financial literacy levels, maintain the capacity to process information, appreciate the importance of financial knowledge, and exhibit proficiency in analyzing complex information.

Within the model described by Xiao and Porto (2017), financial education is considered to be the primary determinant of financial literacy within society through education’s ability to enhance the skills necessary to obtain, comprehend, and apply financial knowledge. Further,
most of the existing research on health care financial literacy focused on the cognitive
dimensions of the construct and have relied on tests to measure what people know or understand

The narratives provided by Allgood and Walstad (2016), Lusardi and Mitchell (2014),
and Xiao and Porto (2017) introduced the critical role of maintaining formality in the delivery
of financial education as a way to achieve financial literacy. In support of the educational
process, researchers have described varying types of knowledge that exist and are available to be acquired. Decker and Hamilton (2018) described the categories of tacit knowledge, explicit
knowledge, and machine knowledge. Expanding on the descriptions of Decker and Hamilton
(2018), Walker (2017) stated that tacit knowledge is designated as the knowledge that exists as
part of the work environment and the application of the knowledge is not specifically
articulated. Garrick and Chan (2017) described the differences between tacit knowledge and
explicit knowledge using practical examples involving accountants and lawyers.

Garrick and Chan (2017) stated that accountants, managers, and lawyers must possess a
significant amount of knowledge related to business law, practice codes, regulations, and policy
requirements. In addition to those fundamental responsibilities, accountants, managers, and
lawyers must also understand the significant elements of engaging clients, working with
coworkers, and dealing with complex emotions (Garrick & Chan, 2017). While tacit knowledge
is grounded in the more abstract areas of intuition and prescience, explicit knowledge and
mechanical knowledge are more heavily focused on defined theories, empirical indicators, and
quantitative databases (Decker & Hamilton, 2018). The tacit, explicit, and mechanical
knowledge constructs are important to the topic of this study due to the different ways that
clinical knowledge can be acquired by nurses and how that particular knowledge acquisition
process may translate into behavioral and relational knowledge factors that impact decision-making.

**Financial literacy and health care.**

Within a specific professional context, the circumstances of nurses aligned with the perspective of Garrick and Chan (2017) around the knowledge requirements of a clinical profession. Nurses must operate effectively within an environment that depends on the clinical knowledge gained through a formalized educational and training process. However, health care transformation has required that new skill sets be maintained by nurses that have not been formally integrated into nurse educational practices. The deficiency of existing education practices has resulted in palatable financial knowledge gaps between the nursing discipline and the requirements of effective health care delivery within modern medicine (Gunawan & Aunguroch, 2016; Rainbow & Steege, 2019). The perspective of Allgood and Walstad (2016), Lusardi and Mitchell (2014), and Xiao and Porto (2017) provided important insight into formalized education as the most effective way to increase health care financial literacy among nurses. The literature suggested that while tacit knowledge acquisition is an important element of professional development, knowledge acquired through formalized training on an explicit basis remains as the most effective way to initiate the transfer of knowledge that is long-lasting (Decker & Hamilton, 2018; Walker, 2017).

Lindley and Cozad (2017) opined on the importance of nurses acquiring all of the knowledge that is necessary to provide effective, efficient, and safe patient care. Over time, the role of nurses has evolved and required a broader appreciation for the operational and financial mechanics of the health care institution. The lack of appreciation was revealed in the existing literature regarding the relationship between nursing practice, the data generated by nursing
documentation within the clinical setting, and the reimbursement methodology upon which health care institutions are funded (Westra et al., 2015). The role nurses play in optimizing institutional reimbursement cannot be understated as approximately 28% of nursing time is spent documenting clinical activities that are translated into a significant financial outcome (Westra et al., 2015).

**Financial literacy and transformation.**

Welton and Harper (2015) posited that a slow transformation is taking place within nursing as the need to integrate health care financial data into the nurse realm becomes more explicit. Organizations are developing business intelligence and analytics tools that are capable of synthesizing clinical, operational, financial, quality, and safety outcome data (Westra et al., 2015). The attention to nursing financial models as evidenced in the research was appropriate to provide the transparency necessary to support the risk-sharing approaches now required of many health care institutions (McWilliams, et al., 2016; Westra et al., 2015).

Common risk-based approaches discussed by practitioners and subject matter experts including alternative payment models, accountable care organizations, value-based purchasing, and pay-for-performance models (McWilliams, et al., 2016; Westra et al., 2015). Westra et al., (2015) further supported the need for financial competency within nursing by stating that value-based metrics grounded in financial concepts can be positively leveraged within the nursing discipline. Areas specifically described as an opportunity included the most effective management of direct and indirect nursing costs per patient per day, average direct and indirect nursing intensity costs per patient per case, patient-level quality metrics tied to actual care hours and costs, and nurse unit-level costs (Westra et al., 2015).
The views of Naranjee et al. (2019) and Douglas (2010) illustrated that while nurses may be placed in roles of responsibility for managing criteria that impact financial reimbursement as health care transforms, nurses generally rely on others for financial decision-making. Naranjee et al. (2019) formalized the perspectives around nurse financial literacy using the defined competencies of financial planning, financial monitoring, and financial decision-making as a mechanism for developing financial control. Through the use of the three competencies, a conceptual framework was developed that allowed for the exploration of nurse manager financial competencies and the identification of financial management competency gaps among nurse managers (Naranjee et al., 2019). While the conceptual model developed by Naranjee et al. (2019) concluded that health care financial literacy within the nursing discipline was critical to institutional sustainability, the model provided minimal guidance or procedural insight to be used within a health care setting as a means of enhancing nurse health care literacy and improving decision-making outcomes.

The relevance of financial knowledge within the nursing discipline has been recognized by the professional organizations supporting the nursing profession. In 2013, the American Association of Critical Care Nurses revised the competencies considered most fundamental to address changes in the nursing practice within the new health care environment (Bender et al., 2019). The American Association of Critical Care Nurses supported the need for nurses to be able to present a budget and contribute to health care financial development (Bender et al., 2019). However, the gaps remain in the literature regarding the presence of current financial literacy levels within the nursing discipline and ways necessary enhancements in training and education can be invoked.
The process of educating nurses on health care financial concepts appears to be amenable to using decision-making criteria or systems similar to those deployed in the clinical environment. The use of decision-making criteria and tools within the nursing discipline is currently prevalent from a clinical perspective and has been generally well-received within the health care industry (Loan et al., 2017; McColl & Pesata, 2016). A critical component to integrating financially-based decision-making tools with the nursing discipline is removing the uncertainty that currently exists regarding ‘what’ nurses know about health care financial concepts and ‘how’ the financial concepts are applied. Education, programming, and training developed to promote health care financial literacy within the nursing discipline must similarly include the characteristics of clinical decision-making tools.

**Nurse knowledge acquisition.**

The gap in the development and integration of knowledge within the nursing discipline revealed a history that predates the need for nurses to have standard levels of health care financial competency. The need for nurses to acquire the skills, knowledge, and attitudes to achieve optimal patient outcomes is well-documented (Decker & Hamilton, 2018; Douglas, 2010). However, scholars agree that even clinical nursing knowledge is not a well-ordered compilation of information. As far back as the late 1970s, researchers including Donaldson and Crowley implored nursing authors to find better ways of explicating the body of knowledge that was required to succeed within the nursing discipline (Decker & Hamilton, 2018). Kim (2010) related to the aspirations of Donaldson and Crowley but described that more than 30 years after advocating for more succinct ways to disseminate nursing knowledge, a unified framework of epistemological discussions about nursing knowledge was still lacking.
The Nursing Knowledge Pyramid has been identified as an effective way to translate the ways nurses receive information, apply the understanding of relevant concepts, and present decision alternatives (Decker & Hamilton, 2018). The Nursing Knowledge Pyramid has been described as a vehicle that was effective in integrating new knowledge as well as relating existing theory to research (Chinn & Kramer, 2015). Chinn and Kramer (2015) described the versatility of the Nursing Knowledge Pyramid beyond Decker and Hamilton (2018). Chinn and Kramer (2015) stated that the Nursing Knowledge Pyramid’s ability to be applied in practice, education, research, and knowledge creation on all topics relevant to nurses was the element that made the model most effective.

The application of the Nursing Knowledge Pyramid appeared to be biased towards clinical practice improvement and medical knowledge enhancement. However, the Nursing Knowledge Pyramid presented a unique opportunity to invoke health care financial knowledge concepts into the same process model through which nurses acquire clinical knowledge. Further, the Nursing Knowledge Pyramid acknowledged the importance of explicit and mechanical knowledge, both of which are fundamental to enhancing the health care financial literacy levels of nurses through formal practices (Chinn & Kramer, 2015; Decker & Hamilton, 2018).

The importance of a nurse’s “know-how” has become more obvious within the nursing discipline through various research endeavors (Arnaert, Mills, Sol, & Ponzoni, 2018). Arnaert et al. (2018) stated in September 2016, five databases were searched using a number of keywords including ‘business practice’, with a particular focus on the cognitive skills that represented the most significant educational gaps within nursing. Research participants indicated the importance of several key concepts including a broader appreciation of health care system structure, increased awareness to the governance of healthcare institutions, and higher
comprehension-levels of health care economics (Arnaert et al., 2018). The desire for increased competencies within the areas of governance and health care economics was to advance nursing business practices with the inter-workings of the health care system within a larger financial context (Arnaert et al., 2018).

**Nursing and financial skills.**

A review of the research on the need for business skills of nurses showed that in addition to the desire for advancing the overall educational progression of nurses, a strong desire existed to address the need for the comprehensive education of health care financial concepts. Articles extracted to review the business skills of nurses revealed the need for improvement in risk management, marketing, in financial operations management (Arnaert et al., 2018). Conversely, the importance that nurses extend into new realms that included different levels of critical thinking has not seemingly penetrated the nursing school curriculum. Descriptions provided by directors of nursing within multiple universities and health care institutions have described the trend of new nurses not being critical thinkers (Darbyshire, Thompson, & Watson, 2019). The discussion of Darbyshire et al. (2019) was expanded by Morrall and Goodman (2013), who explained the desire of nursing school administrators that nurses to go beyond traditional clinical algorithms and support advanced critical-thinking.

Darbyshire et al. (2019) described the stark reality that so few nursing schools or health services institutions have started to address the educational gaps that exist within the nurse curriculum to improve critical-thinking in the larger healthcare context. Complicating the matter is that existing research regarding the education of nurses suggested that a significant component of the health care financial knowledge held by nurses has been acquired through a tacit knowledge acquisition process. Darbyshire et al. (2019) and Walker (2017) stated that tacit
knowledge is developed through the normal course of business and does not have a formal
education element to it. The lack of formal business practice elements within the nursing
curriculum is suggestive that the financial skills acquired tacitly by nurses increase the
probability that health care financial concepts will be inappropriately applied in
practice (Darbyshire et al., 2019; Walker, 2017).

**Intellectual Capital Theory**

The second section of the literature review focuses on a fundamental intellectual
theory that supports the development of knowledge and the definitive elements of the theory that
align well with health care and the nursing discipline. Through the analysis of intellectual capital
theory and its impact on health care and nursing, the section illustrates the relevance of the
theory to the development of financial skills among nurses and impact the ability to make health
care financial decisions. The purpose of initially analyzing intellectual capital theory is to
illustrate the fundamental elements that make an extension of the theory into the discipline of
nursing as a reliable conceptual framework. The second section of the literature review includes
an exploration of the human capital and structural components that impact the nursing discipline
and ways the financial decision-making of nurses is impacted. This section of the literature
review concludes with an examination of intellectual capital theory, the specific components that
comprise nurse intellectual capital theory and the practical application to health care financial
decision-making.

The topic of intellectual capital has migrated over time in relation to the topic’s role
within organizations. Most recently, intellectual capital has been described as a method to assess
the ways people, processes, and relationships are mobilized within organizations (Chiucchi &
Dumay, 2015). Chiucchi and Dumay (2015) described that intellectual capital can be used to
create value through the exploitation of knowledge and as a means for transforming knowledge resources. Cuozza, Dumay, Palmaccio, and Lombardi (2016) described the utility that intellectual capital can provide to better understand the factors that drive the fields of finance and economics. An analysis of the scholarly literature provided below considers the research concepts of intellectual capital and extends them into the more refined field of nurse intellectual capital theory (Chiucchi & Dumay, 2015).

The subject of intellectual capital has produced a significant amount of literature covering a wide variety of professional disciplines (Pedro, Leitao, & Alves, 2018). Pedro et al. (2018) stated that the term ‘intangibles’ has been previously used as a synonym of intellectual capital. The articulation of intellectual capital has been further developed and the definition of intellectual capital has been appropriately placed within research as a subset of an organization’s intangible asset base and intellectual capacity based on the combination of knowledge with tangible assets to produce value. Theoretical studies of intellectual capital have described a taxonomy based on four different stages that have been refined since the late 1980s (Labra & Sanchez, 2013; Roos & O’Connor, 2015). A detailed examination of the existing literature on the taxonomy stages of intellectual capital theory has been included below.

**Theoretical application.**

Pedro et al. (2018) and Roos and O’Connor (2015) explained the four stages that comprise the conceptual framework of intellectual capital and the time frame over which intellectual capital theory was developed. The first stage, originating at the end of the 1980s and during the 1990s, helped to develop intellectual capital’s theoretical framework with a specific focus on creating visibility to the importance of the topic, as well as developing and promoting a sustainable organizational competitive advantage. The second stage was described by Pedro et
al. (2018) as a period for creating new approaches oriented to the measurement, management, and communication needs of intellectual capital.

Beginning in 2004, the third stage described by Pedro et al. (2018) resulted in the production of a significant amount of literature and publication of various articles of reference. Roos and O’Connor (2015) described the fourth stage of intellectual capital theory at the societal and structural level of organizational development. Studies related to the fourth stage refined the research to understand the drivers of wealth creation based on a balance of intellectual and financial measures, which created a more comprehensive perspective (Roos & O’Connor, 2015).

The historical development of intellectual capital theory showed the transition from defending a theory as a framework upon which knowledge can be examined to the measurement of quantitative value created through the application of the theory (Pedro et al., 2018; Roos & O’Connor 2015). The nursing discipline aligns with the conceptual framework of intellectual capital theory due to its focus on enhancing value creation within the health care environment through the expansion of knowledge (Lindley & Cozad, 2017). In addition to the knowledge-based elements that are part of intellectual capital theory, the importance of environmental factors also implicated (Lindley & Cozad, 2017). The stages of intellectual capital theory recognized the relevance of societal and structural elements with the nursing environment through the inclusion of environmental factors including staffing ratios, nursing labor concentration levels, and career progression (Lindley & Cozad, 2017; Roos & O’Connor 2015).

Certain scholarly research described intellectual capital theory and the theory’s application within health care rather than explicitly applying the term ‘nurse intellectual capital theory’. The concept of intellectual capital within health care appropriately focused on internal
capabilities and the external factors that impact health care knowledge creation (Evans, Brown, & Baker, 2015). Evans et al. (2015) detailed the challenges of assessing the use of intellectual capital in health care and the impact those challenges have on the creation of value within organizations.

Evans et al. (2015) reviewed and critiqued the use of intellectual capital theory within the health care sector. Evans et al. (2015) described the challenges of effectively deploying intellectual capital in health care such as the difficulty in assessing whether necessary human resources and capabilities are present to implement a strategy, create change, or support innovation. Specifically noted within the research was that unawareness of the depth of knowledge flowing through an organization decreases the likelihood of success in the sustainability of new initiatives and effective decision-making (Evans et al., 2015).

The need for advancements in the application of intellectual capital theory within health care will continue due to the human capital challenges that exist in the industry and nursing discipline (Evans et al., 2015). Hospitals nationally and globally are predicted to experience nursing workforce shortages as the demand for health care grows (Lee, Daugherty, & Eskierka, 2018). Shortages in the nursing discipline are attributed to an aging workforce, insufficient enrollment in nursing programs, nursing burnout, low morale, poor job satisfaction, lack of recognition, reduced autonomy, and the availability of other professional opportunities (Lee et al., 2018). The World Health Organization estimates that by 2030, there will be a need for over 37.2 million nurses and midwives. Further complicating the nurse demand requirement is that in the United States, the nursing workforce continues to grow older, with registered nurses age 35 and older representing approximately 75% of total nurses (Lee et al., 2018). Despite the increase
in the number of younger registered nurses, the growth is insufficient to offset the number of expected retirements in the coming decades (Lee et al., 2018).

**Nurse intellectual capital theory.**

Nurse intellectual capital theory was developed to expand on a number of elements considered in intellectual capital theory and apply the element to the domains of nursing (Kholifah et al., 2018). Kholifah et al. (2018) stated that the theory of nursing intellectual capital developed by Covell in 2011 was intended to find ways to more effectively use nurse knowledge resources to gain benefits for a health care organization. Within the practice of nursing, knowledge capital was considered an essential element to the implementation of effective nursing care. Kholifah et al. (2018) also described the complexity of nursing problems that are experienced within the health care setting and the necessity that a special approach and process for the application of appropriate nurse knowledge was activated.

The application of nurse intellectual capital theory to the research study required an extensive investigation into the fundamental components supporting the theory. As an extension of nurse intellectual capital theory, the two critical components of human capital and structural capital are described below. In addition, each theoretical component was associated with the research study, how the concept is applied within nursing practice, and the relevance of the component to effective decision-making are described below. Within the literature review, nurse intellectual capital theory was initially reviewed from a general perspective and then was more narrowly focused on the fields of economics and accounting that help ground the theory (Covell & Sidani, 2013a).

The broad range of topics upon which nurse intellectual capital theory has been applied historically revealed the universal nature of the theory. Nurse intellectual capital theory has
proven to be a useful framework within clinical, operational, and fiscal environments in health care (Lindley & Cozad, 2017). The flexibility of nurse intellectual capital theory is an important attribute as the conceptual framework of this research study. The nursing discipline is expansive in nature and requires a conceptual theory that can be applied with nimbleness while maintaining relevancy. Application of nurse intellectual capital theory within areas of perinatal hospice, palliative care, cross-cultural nursing competency, finance, human resources, and risk management are examples of the theory's versatility (Covell & Sidani, 2013a, 2013b; Lin, 2016; Lindley & Cozad, 2017).

**Association with nurse financial literacy.**

A query was completed to identify scholarly literature research on the topic of nurse intellectual capital theory to understand the competencies within nursing that are most commonly associated with the theory. Limiting the query to scholarly resources no greater than five years old, the topic of nurse intellectual capital theory was applied to a wide variety of nursing practices. Lindley and Cozad (2017) (Figure 1) described the application of nurse intellectual capital theory to topics that require the use of financial knowledge by nurses to effectuate decision-making, including human capital strategy, nurse turnover management, and work environment sustainability. Smith (2018) expanded the discussion on the components of nurse intellectual capital theory by describing the complicated financial elements that impact the nurse work environment and require effective decision-making practices. Smith (2018) described labor management challenges, multi-faceted compensation strategies, and complex nurse turnover reduction initiatives as examples why the attributes of nurse intellectual capital theory are associated with financial decision-making within the nursing discipline.
The importance of nurse intellectual capital theory to variations in nursing turnover was an extension of existing knowledge that showed expanded nurse knowledge and favorable work environments are associated with fewer errors and lower adverse outcomes. Lin (2016) used nurse intellectual capital theory to focus on the use of a social cognitive framework for nurses for providing intercultural nursing care to international patients, as well as examine the relationship between nurses’ cross-cultural competency and nursing intellectual capital. Covell and Sidani (2013a, 2013b) also integrated nurse intellectual capital theory into the study of financial, human resource and risk data elements within 91 inpatient care units.

The insight provided by Lee et al. (2018) associated with the narrative provided by Evans et al., (2015) through the description of the challenges faced with the effective use of intellectual capital due to a general lack of clarity on the presence of knowledge within a defined workforce. As the nursing workforce turns over through the natural process of promotions, retirements, and career transition, the ability for health care institutions to ascertain the depth of knowledge that exists within nursing may become exponentially complicated. Evans et al. (2015) further stated that a challenge in effectively engaging intellectual capital in health care is the inability to efficiently and effectively put growing volumes of data and information into practice. The entry of newer nurses into the workforce also suggests that the educational and development programs within health care institutions may need to be reevaluated for relevancy.

**Nursing and changing skill sets.**

An examination of the literature revealed that the nursing discipline has previously found success in changing the skill set of nurses to meet the needs of the changing health care industry. For example, the difficulty of filtering, extracting, integrating, and deploying tacit knowledge was documented as an ongoing challenge within health care institutions (Decker &
Hamilton, 2018; Evans et al., 2015; Walker, 2017). The nursing practice has transitioned modestly over time to address the influx of information impacting the discipline through the development of a nurse informatics profession. The modern health care environment has exposed nurses to complicated clinical technologies that required competency in clinical informatics (Kleib & Nagle, 2018). As informatics has gained interest as the basis for enhancing clinical quality and patient safety, advanced knowledge in informatics has become a crucial professional role of nurses (Khezri & Abdekhoda, 2019).

Hospital nurses can also find themselves in research-based roles within hospital settings where they may be studying emergency department practice patterns, gastrointestinal device trials, investigational drug trials, or other hospital-based clinical investigations (Cavalieri & Rupp, 2014). Nurse intellectual capital theory was described as being able to specifically define the nursing attributes that can improve the ability to advance knowledge within the nursing practice (Covell & Sidani, 2013a, 2013b; Lindley & Cozad, 2017). Future literature and research on the topic of nurse intellectual capital theory and its association with the ability of nurses to make effective financial decisions must consider the highly differentiated clinical practices in which the decisions are being made.

**Nurse human capital.**

Within the context of a business environment, the optimization of human capital is considered a key determinant of an institution's success (Gambardella, Panico, & Valentini, 2015). However, the concept of human capital does not come without challenges that need to be addressed for the asset to be effectively used within a business environment. Gambardella et al. (2015) described the challenges inherent in the effective deployment of human capital such as
the complex process of motivating skilled people to perform in knowledge-intensive activities as a way to create a competitive advantage for the firm.

Theoretical frameworks associated with human capital help firms effectively manage human capital, even when actions are hidden, performance is difficult to measure, and performance-based rewards cannot be used. The existing research on human capital frameworks described the importance of amplifying the performance of human capital by conferring ‘decision rights’ so that employees feel they have been granted the authority to make the decisions that are necessary within the scope of normal business practice. The more decisions employees make, the more the employees can direct activities towards the achievement of goals and the increase the confidence and passion maintained about a particular topic of interest (Gambardella et al., 2015).

The association of human capital to this research study was visible in several ways. First, the literature described the importance of human capital and institutional success. The correlation between the two elements supported the premise that an extensive investment to understand knowledge-sets maintained within the workforce is a worthy allocation of resources. Secondly, the literature described the relevance of maintaining human capital strategies that promote decision-making. In order for knowledge maintenance strategies to be successful, initial knowledge baselines need to be established by organizations to place employees in positions of decision-making success. Lastly, the research on the topic of human capital explored the subject from a generalist's perspective, illustrating the opportunity for the outcome of this study on the health care financial literacy and decision-making capabilities of nurses to be expanded in concept to industries beyond health care.
Halder (2018) stated that human capital is the single most important asset that exists within health care institutions. Identified specifically within nurse intellectual capital theory, nurse human capital was described as one of several components that adds to organizational value by understanding the combined skills, experience, and knowledge of employees (Halder, 2018; Lindley & Cozad, 2017). The applicability of nurse human capital from a practical perspective is diverse and can be illustrated through a number of examples. Nursing turnover is a major issue negatively impacting health care in the United States, with the average national turnover rate for registered nurses at approximately 14%. Nurse turnover in perinatal hospice and palliative care organizations is a concern that particularly needs to be addressed to help ensure quality outcomes for mothers, babies, and families at the end of life (Lindley & Cozad, 2017). The integration of nurse human capital within the framework of nurse intellectual capital theory provided a mechanism to better understand the extent of nursing knowledge through formal human capital components including academic preparation, specialty certification, and advanced professional experience (Lindley & Cozad, 2017) (Figure 1).

The definition of nurse human capital defined by Halder (2018) and Lindley and Cozad (2017) was extended by other researchers. Kholifah et al. (2018) applied additional components to the construct of nurse human capital including motivation, commitment, and clinical judgment. The inclusion of clinical judgment as an important element of nurse human capital is aligned with the purpose of this research study. Within the clinical context, the formation of a judgment was described as an integration of the different aspects of information about an individual, object, or situation in order to arrive at an overall conclusion (Logan, 2015).

Practitioners consider the use of clinical information and clinical queues as important data elements that can be applied objectively, statistically, intuitively, or subjectively (Logan,
2015). Additionally, the importance of judgment formation was described as being dependent on the ability of nurses to pick up on formal and informal cues and determine if cues should be interpreted as relevant to a particular task (Logan, 2015). The measurement of the health care financial literacy of nurses and the topic’s impact on decision-making carries similar themes to the clinical judgment component described in the existing literature (Logan, 2015).

Yu, Tang, Chen, and Teresa (2016) described an even broader variation of nurse human capital and the concept's application in practice. Rather than considering nurse human capital from a perspective of an intangible asset, nurse human capital was viewed as a measurement of estimated nurse education, training, and health care clinical quality. Applying nurse human capital as a measurement mechanism, the concept has been modified over time to represent a leading indicator of personal or organizational performance (Yu et al., 2016). The application of nurse human capital as a way to understand nurses’ perceptions of their importance within a health care setting was similarly validated by other scholarly researchers (Yepes-Baldo, Romeo, & Berger, 2013). In addition to viewing nurse human capital as an element of a health care institution’s intangible assets, there should be a consideration to apply the concept as another way to measure health care financial decision-making performance.

**Nurse structural capital.**

Nurse structural capital is described as another functional element of nurse intellectual capital theory. Lindley and Cozad (2017) described nurse structural capital as the informational components or practice guidelines that are used by nurses within the scope of practice. Clinically, the components of nurse decision-making and care planning are specifically described as foundational elements of nurse structural capital. Within modified models of nurse intellectual capital theory, the utility of nurse structural capital is to advance knowledge levels
across the nursing discipline in an effort to develop greater value and enhance organizational outcomes (Lindley & Cozad, 2017). The integrative nature of nurse structural capital into nurse capital theory as described by Lindley and Cozad (2017) was expanded by other researchers. Lin (2016) described nurse structural capital more definitively as the transference of knowledge and skills information structures that are important to nurses. Covell and Sidani (2013a, 2013b) illustrated the purpose of nurse structural capital within the context of patient care. Lin (2016) also provided examples of nurse structural capital within the patient care context by describing an investigation of 147 inpatient units from six Canadian hospitals that verified an increase in nurse professional competence contributes to ongoing organizational performance improvement.

The construct of nurse structural capital theory described by researchers is important to the transfer of knowledge and the enhancement of value by nurses (Covell & Sidani, 2013a, 2013b’ Lin, 2016; Lindley & Cozad, 2017). The integrative element of nurse structural capital within nurse human capital was posited by researchers as well. Kholifah et al., (2018) detailed that the management of nurse human capital is impactful to nurse structural capital in a number of ways. One example provided was the need for structural capital of nurses specific to infrastructure and facilities to be aligned with aspirational elements of a nurse human capital component. Moving beyond the physical plant and structural perspective, nurse structural capital was described as a critical piece to forming the guidelines of standard practice, operational procedure, and documentation requirements.

The application of nurse structural capital to the health care financial literacy of nurses and the impact on financial decision-making can be contemplated in several ways. One consideration of nurse structural capital and health care finance is the need for nurses to have
well-defined tools and information technology that can be used to assist them with health care financial decisions. The insight provided by the researchers revealed the dependence of nurse structural capital with nurse human capital (Kholifah et al., 2018). Recognizing the dependency, health care institutions must be aware that investment deficiencies within one component will have direct implications on the other.

Specific to health care financial literacy, the dissemination of financial knowledge within the nursing discipline will be muted or potentially ineffective without structural components that activate health care financial knowledge for nurses in ways that are understandable and accessible. Additionally, health care institutions must contemplate the impact nurse structural capital investments have on the ability of nurses to make effective health care financial decisions. Organizational investments in financial tools designed to improve the health care financial decision-making of nurses need to be properly calibrated with the known financial aptitudes of nurses. This research study assisted in those endeavors by providing context to the level of understanding that nurses maintain regarding health care financial concepts.

**Nurse relational capital.**

Within nurse intellectual capital theory, nurse relational capital appeared to be less understood and not as diligently investigated. Seminal authors on the topics of nurse human capital and nurse structural capital provided limited information on nurse relational capital (Covell & Sidani, 2013a, 2013b; Lin, 2016; Lindley & Cozad, 2017). Kholifah et al. (2018) chose to describe nurse relational capital through a number of perspectives. The first was through the acknowledgment that nurse human capital and nurse structural capital interact to create the nurse relational capital that exists within health care institutions. Kamukama, Ahiauzu, and Ntayi (2010) stated that relational capital, also described as ‘domain capital
relations’, affects the performance of nurses. Although not explicitly described as nurse relational capital, other researchers have invoked the work environment variable as a way to recognize the importance of relational factors in nurse knowledge development (Lindley & Cozad, 2017) (Figure 1).

While the importance of relational capital has been downplayed relative to human and structural capital, the role that relational capital plays within health care institutions warrants discussion. Nurse relational capital illustrates the importance of personal interaction within the clinical nursing environment (Kamukama, Ahiauzu, & Ntayi, 2010). While the existing research on the relational elements of the nursing environment has focused on clinical aspects, the utility of nurse relational capital can be expanded to health care financial concepts and financial decision-making. Similar to the importance of clinical nurse interaction and relationships, the ability to effectively apply health care financial concepts and make effective financial decisions can be enhanced through similar relationship-based practices. Further, the nurse relational capital aspect can be extended to find effective ways for nurses to interact and make financial decisions by collaborating with operational counterparts that may not have a clinical background.

**Nursing knowledge development.**

The relevance of nursing knowledge to favorable patient outcomes has been a topic of interest to researchers and practitioners for an extended period of time (Covell & Sidani, 2012). Existing literature revealed the inherent challenges that have existed in measuring nursing knowledge and have typically conceptualized nurse knowledge within the context of continuing professional development activities and the acquisition of a degree (Covell & Sidani, 2012). While some researchers have affiliated and measured nurse knowledge based on the level
of academic preparation, others have represented nurse knowledge in proportion with a particular nurse specialty certification (Aiken et al., 2011; Krapohl, Manojlović, Redman, & Zhang, 2010).

The development of nursing knowledge within the discipline has continued to grow in importance as the health care service industry grows domestically and abroad (Lin, 2016). Across these varying healthcare environments, the impact of culture on nursing knowledge has been recognized as having a statistically significant impact on the nursing discipline. Nurse intellectual capital theory requires attention within the cultural space given the environmental factors, personal features, behavioral interactions that precede favorable performance outcomes. Lin (2016) explained the importance of triangulating nurse culture with social cognitive aspects with nurse capital intellectual theory as a way to optimize competency levels within the nursing discipline.

The application of social cognitive theories provided effective behaviors and subjective norms that are antecedents of behavioral intentions (Strudwick, Booth, & Mistry, 2016). Within the context of health care finance, the theory of reasoned action can help illustrate the positive or negative feelings that individuals may project towards a particular action, such as decision-making health care. The impact of social cognitive elements on the attitudes of nurses is relevant to this research study of the health care financial literacy of nurses and the impact on decision-making in a number of ways. The reasoned action element of social cognition described the importance of positive and negative feelings as an indicator of future behavior. Social cognition is important for leaders inside and outside of the nursing discipline as a way to better predict the decision-making processes applied by nurses and actions that may be taken when considering certain fact-patterns. For example, nurses may have been placed in a
position previously to make financial decisions on health care matters for which they felt ill-equipped and undereducated. Consequently, the prior experiences of nurses with financial decision-making may manifest in negative feelings that make the attainment of necessary financial concepts a significant challenge in the future.

The element of planned behavior proposed by researchers has been explained on the basis of intentions and primarily impacted by the factors of attitude, subjective norms, and perceived behavioral control (Chung, Ho, & Wen, 2016). Chung et al. (2016) described each of the planned behavioral elements in a number of different ways. Attitudes were described as the positive or negative intention of an individual. Subjective norms were stated as those factors that influence a person and their actions based on the importance of another person. Perceived behavioral control can be illustrated as the perception of control by an individual and the impact that perception has on intentions and beliefs. As an appropriate model to explain the behaviors of health care professionals, the intention of an individual has been identified as a key determinant in behavior (Gagnon, Cassista, Payne-Gagnon, & Martel, 2015).

By combining the perspectives of Chung et al. (2016) and Gagnon et al. (2015), the relevance of planned behavior to the health care financial decision-making effectiveness of nursing can be further understood. The application of planned behavior was described within the clinical context but can be extended to non-traditional nursing realms as well. Gagnon et al. (2015) articulated the conclusions of prior research that revealed the nursing groups that had the highest degree of perceived control over the application of certain concepts were more likely to apply the concepts with effectiveness and consistency.

The research revealed that nurses who are able to approach the new subject matter with a positive intention are more likely to apply the new subject matter (Gagnon et al., 2015). Similar
to social cognitive elements and health care financial decision-making, planned behavior should be recognized as a critical component of disseminating health care financial knowledge throughout a nursing contingent. The presence of control by the ultimate user of the knowledge through the knowledge transfer process remains fundamental to knowledge application, regardless of whether that information is clinical or financial in nature (Gagnon et al., 2015).

The research provided by Chung et al. (2016), Strudwich et al. (2016), and Gagnon et al. (2015) was conclusive regarding the necessity to consider social cognitive and behavioral elements when developing knowledge with the nursing discipline. Specific to health care financial concepts, institutions need to consider not only the position of ‘what’ financial knowledge is being transferred but also the importance of articulating the ‘how’ and the ‘why’ across the nursing contingent. Existing research empirically shows the increased effectiveness can be realized if these behavioral aspects are considered as part of organizational programming for both clinical and non-clinical topics of interest (Chung et al., 2016). The combination of institutional, personal, and professional aspects can create a more integrated environment where the consequences of decision-making and actions can be broadly understood (Chung et al., 2016; Gagnon et al., 2015; Strudwich et al., 2016).

The characteristics of planned behavior are applicable to the understanding of health care financial literacy among nurses and the impact on decision-making in several ways. Health care institutions and nurse leaders may need to acknowledge the shortfalls that have taken place previously. The understanding of planned behavior characteristics can assist with understanding the educational deficiencies that have existed in the past and to appreciate the challenges that nurses face when making effective health care financial decisions. Secondly, the demographic and social factors described by Strudwich et al. (2016) revealed the need for formality when
expanding the health care financial literacy levels of nurses. Failure to acknowledge the factors articulated by Strudwich et al. (2016) appeared to increase the probability that the application of health care financial knowledge and subsequent decision-making process will be sub-optimal.

Decision-Making

The final section of the literature review examines the decision-making process and common methods applied within the nursing discipline. The section explored the literature on the fundamentals of decision theory and ways in which effective decision-making is applied in practice. In addition to aligning the concepts of decision-making to nurse intellectual capital theory, the section described the ways in which nurses can apply decision models to improve the ability to address financial issues within health care. The final section closed by aligning the common themes found in the decision-making processes applied by nurses and by considering opportunities for enhancing programs focused on effective health care financial decision-making.

Rational choice decision model.

The rational choice decision model is based on the assumption that individuals pursue goals in a logical manner in a way that based on a complete understanding of available alternatives. The rational choice decision model is predicated on strength individuals and organizations self-interest that is at stake defines thinking in a manner that aligns with basic rules of logic (Samson, Foley, Gan, & Gloet, 2018). The theme of rationality within decision-making makes the theory appealing as an educational element for nurses seeking to better understand health care finance and the decision-making process that is involved. However, a common theme within the literature regarding the rational choice decision model is the association with inherent self-interest. Samson et al. (2018) described the self-interests that may manifest with
the rational choice decision model within the business setting. Paternoster, Jaynes, and Wilson (2017) described the application of the rational decision model and the existence of ‘self-regarding preference’.

The function of self-interest is a component of the rational choice decision model that should be included in the decision-making process with nurses. Adherence to well-established and prescribed clinical decision-making protocol may not prepare nurses well for the ambiguity that can be part of health care financial decisions. For example, organizations and individuals leading the research and development function need to appreciate the resources and solutions necessary to create a new product and determine if the incremental value is worthy of the investment (Sofronas, Archontakis, & Smart, 2019). In a more focused fashion, health care financial decisions made by nurses in an organization require similar short and long-term considerations surrounded by ambiguity. The self-interested element that is inherent in the rational choice decision model presents the risk of potential decision-making bias that should be mitigated through education.

**Causal decision model.**

The causal decision model is recognized as a means for processing information and selecting decision-alternatives with complex environments (Armendt, 2019). Bales (2016) contributed to the explanation of the causal decision model by explaining the theory seeks the most appropriate decision based the optimization of expected causal effects. More definitive sub-categories of the causal decision model have established over time described as Lewisian, Sobelian, and Rabinowiczian models. The Lewisian causal decision model is based on the availability of relevant evidence to support a particular decision. Antagonistically, the Sobelian causal decision model focuses less on the availability of evidence and focuses more on
The probability of success or failure. The Rabinowiczian causal decision model is predicated on historical tendencies and beliefs around what will most likely happen (Bales, 2016).

The premise of the causal decision model provides several insights and factors for consideration when contemplating decision-making by nurses on health care finance issues. The first insight is related to the importance of the nurse's viewpoint when making a decision. Specifically, the ability of nurses to make causal assessments of potential decisions is predicated on the environmental and situational context maintained by the nurse (Armendt, 2019). As variation in nursing experience is observed within the workforce, institutions need to recognize the importance of providing the appropriate context upon which nurses can apply a chosen decision process.

A second important element of the causal decision model to nurse decision-making on health care financial decisions is how a logical decision alternative is framed. Consistent with the rational choice decision model, the causal decision model requires an internal assessment by the decision-maker of what makes sense given a certain set of circumstances (Armendt, 2019; Bales, 2016; Sofronas et al., 2019). Nurses seeking to engage further in health care financial decision-making need to be supported by programming that ensures the decision alternatives are not misguided by a lack of conceptual health care financial knowledge gaps.

**Constructivist decision model.**

The constructivist decision model was described as a way to show how to make the probability value judgments on which the decisions can be made (Shafer, 2016). Shafer (2016) stated that the constructivist decision model does not rule out the possibility that preconceived notions and biases already exist. The model also recognized that all relevant beliefs and preferences that have been formulated are a necessary part of constructing decision-based
probabilities and assigning values on various arguments (Shafer, 2016). Constructivist researchers tend to follow qualitative research methods where decisions are often made based on various viewpoints gathered through an investigation (Mojtahed, Nunes, Martins, & Peng, 2014). Denceux (2019) described that Shafer's constructive decision model should be based on goal achievement or the assessment of a particular consequence. The application of the constructivist decision model has been most valuable through the model's ability to invoke conscious thought and deliberation to identify the most desirable goals and motives (Denceux, 2019).

An examination of the constructivist decision model revealed a number of favorable attributes to the theory's approach to the health care financial decision-making process of nurses. Whereas the rational decision model and the causal decision model seemed to assume that nurses would possess the context or framework necessary to make effective health care financial decisions, the constructivist decision theory acknowledges an expected knowledge gap (Shafer, 2016). Further, the constructivist decision model uses the knowledge gap in the decision-making process by transparently discussing or validating beliefs and perspectives that may already exist. Nurses, nursing leaders, and organizations can integrate the gap analysis inherent in the constructivist decision model with the decision process to increase the likelihood that the most favorable alternative is ultimately selected.

**Decision-making in health care.**

Health care decisions are described by researchers as highly complex and multi-variable (Thokola et al., 2016). Thokola et al. (2016) continued the description by saying that health care decisions include a wide range of trade-offs that can be confusing and conflicting, requiring the use of well-defined techniques and criteria that can improve the quality of decision-
making. Mayer, Kiss, Laszewska, and Simon (2017) stated that in order to assess health care issues, decision-makers need information on a number of key elements such as the effect of an alternative, the resources used to generate the effect, and the unit cost of the necessary resources. Inaccuracies in any of the previous three informational components increase the risk of coming to incorrect conclusions (Mayer et al., 2017).

An examination of the literature on decision-making revealed extensive information focused on clinical decision-making protocols. Research has also been developed on the decisional process of considering health care treatment and the traits that are critical to effectiveness by the decision-maker (Palmer & Harmell, 2016). The insights provided by Palmer and Harmell (2016) allowed for an opportunity to investigate the characteristics that are important to the health care decision-making capacity of nurses. The information below associated the most relevant elements of decision-making capacity with the practice of health care financial decision-making by nurses.

Palmer and Harmell (2016) explained that the capacity to select health care treatment is generally defined in terms of four dimensions of understanding, appreciation, reasoning, and expression of a choice. The ‘understanding’ dimension refers to the ability of an individual to comprehend the information being in order to analyze the potential risks and benefits of a decision. Similar to the importance of a psychologist verifying an individual's actual comprehension, nurses need to effectively translate their understanding of health care financial concepts into their own words and descriptions to validate comprehension levels (Palmer & Harmell, 2016).

The ‘appreciation’ dimension of decision-making capacity involves the ability to apply relevant information to a specific situation. Da Silva, Mograbi, Silveria, and Nunes (2015) stated
that an individual experiencing an acute manic episode may demonstrate an intellectual understanding of bipolar disorder and mania but fail to appreciate the personal risks of refusing treatment. Specific to health care financial decision-making, nurses who understand health care financial concepts but do not appreciate the negative consequences of ignoring the concepts do not exhibit decision capacity.

The ‘reasoning’ dimension of health care decision-making refers to evidence of the ability to engage in comparative reasoning and to manipulate information rationally (Palmer & Harmell, 2016). To the extent that the components of understanding and appreciation exist, health care financial decisions can be similarly assessed by nurses in ambiguous situations. Regardless of the decision theory selected, the reasoning component appears to be universally applicable (Armendt, 2019; Bales, 2016; Shafer, 2016; Sofronas et al., 2019).

The ‘expression of choice’ dimension describes the basic ability to communicate a decision with clarity, consistency, and confidence (Palmer & Harmell, 2016). In addition to the importance of making and communicating a consistent choice, the expression of choice criteria also includes the ability to delegate to trusted individuals to help make a decision (Kim et al., 2011; Moye, Sabatino, & Weintraub, 2013). The logic of the expression of choice dimension related to the health care financial decision-making of nurses in several ways. Effective decision-making requires confidence in the selected choice and the ability to articulate the logic behind the selected alternative with consistency.

**Summary of the Literature Review**

This study sought to examine the lack of health care financial literacy among staff nurses and the impact on the health care financial decision-making of nurses. Accordingly, scholarly literature related to health care financial concepts and financial decision-making was extensively
reviewed and summarized within this section. Specifically, literature was analyzed relating to the definition of health care financial literacy and the processes used traditionally by nurses to acquire knowledge. In addition, literature pertaining to nurse intellectual capital theory and the human, structural, and relational components that ground the theory were examined. Lastly, foundational elements of decision-making logic and the relevance to health care financial decision-making were explored.

The literature review illustrated several themes that support the focus on the study. Financial literacy as described in the literature directly impacts the ability of society to function productively and effectively (Lim & Noh, 2015; Nibbelink & Brewer, 2018; Wolla, 2017). The components that are integral to the development and maintenance of financial literacy within society similarly extend to the health care industry through tacit, explicit, and mechanical knowledge transfer methods (Decker & Hamilton, 2018; Garrick & Chan, 2017). Health care financial literacy as a topic of interest within the nursing discipline has gained institutional and professional interest as the complexity of modern health care increases (Lindley & Cozad, 2017; McWilliams, et al., 2016; Welton & Harper, 2015; Westra et al., 2015). Additionally, health care financial literacy as an element of the nursing discipline has grown in importance as more nurses are being placed in positions that involve health care financial concepts (Douglas, 2010; Naranjee et al., 2019). As the development of health care financial literacy among nurses progresses, education concepts that have been historically applied to clinical concepts can be applied to the health care financial realm (Loan et al., 2017; McColl & Pesta, 2016).

The process and methods used by nurses to acquire clinical knowledge have provided a pathway for enhancing health care financial knowledge (Chinn & Kramer, 2015; Decker &
Hamilton, 2018). While the process for integrating education resources for fundamental clinical information within nursing has proven challenging, the need for health care financial knowledge alignment among nurses is gaining visibility within nursing schools (Darbyshire et al., 2019; Hicks & Patterson, 2017; Morrall & Goodman, 2013). Simultaneous with the desire within the nursing professional to expand the critical thinking of nurses to health care financial matters, the attributes of nurse intellectual theory provide a proven knowledge transfer structure to apply the human, structural, and relational capital that exist within health care institutions (Covell & Sidani, 2013a, 2013b; Kholifah et al., 2018; Lindley & Cozad, 2017; Pedro et al., 2018).

Finally, the themes in the literature regarding decision-making models provided insight that can apply to the nursing practice. The gaps in health care financial knowledge have been well documented, alongside a variety of decision models that have proven to be effective (Armendt, 2019; Bales, 2016; Sofronas et al., 2019). An exploration of the choice, causal, and constructivist decision models revealed strengths and weaknesses that may impact the ability of nurses to effectively apply the model in practice. Conceptually, the elements of the constructivist decision model and the appreciation for integrating expected knowledge gaps into the decision cycle aligned effectively with the purpose of this study.

This research project was grounded in the scholarly literature on the topic of health care financial literacy among nurses and the impact on health care financial decision-making. As appropriate, relevant scholarly research on the study’s topic has been extracted, examined, and synthesized. The seminal themes and patterns of logic presented within the scholarly and professional literature supported the purpose of the study. The scholarly research and thematic analysis in the literature review served as the foundation for solving the specific problem and research questions fundamental to the completion of this study.
Transition and Summary of Section 1

Section 1 contained the foundation of this qualitative intrinsic case study and described the study’s significance to current and future research. The problem addressed by this study, that a lack of health care financial literacy exists among nurses that has an impact on decision-making efficiency, was established within this section. This study’s purpose, to explore staff nurses’ ability to apply health care concepts and provide an analysis of nurse behaviors that influence effective decision-making, was also established. Further, the justification for selecting a qualitative intrinsic case study design was addressed, as well as the assumptions, limitations, and delimitations associated with this study.

Section 1 produced the focus of the study by stating the research questions and establishing nurse intellectual capital theory as the conceptual framework and by defining the key definitions related to the study. Lastly, Section 1 included a comprehensive examination of the scholarly and professional literature. The next section of the study discusses the details of the research project and includes an examination of the research design, the selected research method, and the reliability and validity of the compiled data.
Section 2: The Project

This qualitative case study examined the health care financial literacy of staff nurses and the ability to make effective and efficient health care financial decisions within their roles. The research study investigated health care financial literacy levels among staff nurses in order to effectively address the research questions that were central to the study. Additionally, the study sought to understand the perspectives of nursing leaders as a way to assess the importance of health care financial literacy by staff nurses and throughout the nursing discipline.

Using a single site intrinsic case study research design, semi-structured interviews were conducted with staff nurses and nurse managers of the selected institution. This section articulates the fundamental elements of the research study, and describes the role of the researcher, research participants, research method, and research design. Further, this section specifies the population and sample, methods of data collection, and types of data analysis methods integrated within this study. Lastly, the validity and reliability of the data collected for the study are addressed within this section.

Purpose Statement

The purpose of this case study was to contribute to the literature on the importance of health care financial literacy for nurses. The case study explored staff nurses’ ability to identify and apply health care financial concepts, provided an analysis of the actions or behaviors that influence the ability of staff nurses to identify and apply health care financial concepts, and assessed its impact on decision-making effectiveness. The study discovered the perceptions held by leaders in the nursing discipline regarding the depth of health care financial literacy among staff nurses. The case study research described the ways nursing leaders articulate the consequences of staff nurses’ ability to identify and apply health care financial concepts.
The purpose of the study required the collection of information necessary to assess nurses on their health care financial knowledge to provide a rationale for increasing financial literacy among nurses. The case study illustrated the desire for staff nurse health care financial literacy to improve the effectiveness of decision-making and justify health care financial literacy training as a foundation for the future. The ability by nurses within the health care industry in Midwest hospitals to apply health care financial concepts and understand its impact on decision-making was explored through this research study.

**Role of the Researcher**

The premise of the researcher’s role within qualitative inquiry is one of the unique features of qualitative research (Roger et al., 2018). Unlike other forms of research that seek independent realities through objective observation, Roger et al. (2018) stated that qualitative research locates the researcher as an observer in the world and acknowledges that a relationship exists between the researcher and the phenomenon being researched. As such, the findings are mediated between researcher and participants in ways that allow the researcher to make all research assumptions transparent (Roger et al., 2018). The result is not value-free objectivity and instead “empathic neutrality” where research is co-constructed by researchers and participants (Corbin & Strauss, 2015; Ormston, Spencer, Barnard, & Snape, 2014).

In this study, the researcher utilized in-depth interviews with the research participants. Semi-structured interviews were the sole data collection instrument and required the researcher to play an integral role in the study. The researcher worked in coordination with the researched institution’s chief nursing officer to assist in compiling the population data and randomly identified the population and potential research participants on behalf of the researcher. Using the data provided by the chief nursing officer, the researcher contacted the
randomly selected research participants through electronic mail to set up subsequent face-to-face or video-based interviews as appropriate.

The prominent role of the researcher and the potential impact of population selection bias was mitigated through the use of the data developed by the chief nursing officer to select the population for the study. An initial population of potential research participants was developed by the chief nursing officer that included staff nurses and management-level nurses. Upon receiving the participant’s consent, the researcher scheduled and moderated the semi-structured interviews. The researcher was responsible for maintaining consistent initial interview questions throughout the interview sessions.

Sparkes and Smith (2013) described that qualitative research maintains covert or overt characteristics. Sparkes and Smith (2013) described that covert research is present when researchers do not disclose the actual reason for conducting the research to participants or describing the researcher’s presence. In contrast, Sparkes and Smith (2013) noted that overt researchers ensures the research participants understand why the researcher is present and acknowledges the fundamental purpose associated with the research. Van Damme (2019) integrated the covert and overt qualitative research characteristics described by Sparkes and Smith (2013) by saying research does not have to be viewed as two binaries between which a researcher needs to choose or avoid. Rather, qualitative researched can be posited on a continuum in the quest for balance that is guided by a genuine reflective stance (Van Damme, 2019). Virtova, Stockelova, and Kransa (2018) combined social principles to covert and overt qualitative research concepts, stating the cultivation of sensitivity and ethical research practices is prominent to mitigate issues related to power dynamics, informed consent, and anonymity. The researcher in this qualitative case study was overt, since the research
participants understood the purpose of the research and the role of the researcher was disclosed. Research participants were informed of the researcher’s prominent role prior to the inception of the interview sessions.

Collins and Stockton (2018) described that qualitative researchers need to synthesize previous literature, population data, and theoretical frameworks in a way that can reveal new knowledge and perspectives. Qualitative researchers must effectively integrate the research problem, existing literature that substantiates the problem and topic, and the conceptual framework through which information from research participants can logically organized (Collins & Stockton, 2018). With the exception of the key terms noted in the Definitions section of this study, the seminal themes and conclusions described within the existing literature were not be disclosed to the research participants. The researcher was responsible for collecting the data from research participants, assessing the data within the conceptual framework identified for the study, and comparing the information to existing literature for thematic consistency.

Participants

Boivin and Cohen Miller (2018) stated that qualitative research commonly recognizes the participant’s voice as one of the most crucial components of the research. Case studies performed on qualitative research practices have demonstrated that participants become pseudo-researchers and are integral in co-constructing the knowledge integral to the research study (Boivin & Cohen Miller, 2018). Most researchers agree that successful participant selection leads to eliciting relevant information during critical stages of the research study, including the completion of cognitive interviews (Park, Sha, & Olmsted, 2016). Participant selection in qualitative research was purposeful by the researcher, with participants being selected that can most effectively inform the research questions and enhance the understanding
of the research phenomenon. Consequently, one of the most important tasks in the study design phase of qualitative research was to effectively identify appropriate participants (Creswell, 2014; Sargeant, 2012).

Nibbelink and Brewer (2018) emphasized that nurses maintain unique and complicated personal perspectives related to health care financial literacy, as well as the application of financial knowledge to problem solving and delivery of improved performance through more efficient decision-making. Naranjee et al. (2019) and Gunawan and Aungsuroch (2016) described the personal element that exists with nurses seeking to further health care finance topics among nursing staff, while also acknowledging the inadequate health care financial information available for use by nurses. In order to examine the individual nurse perspectives fundamental to the research topic, the nurse leaders and staff nurse participants were selected for the research population that included nurses working on a full-time basis at the identified institution. Additionally, the research population for selected nurse leaders was limited to nurses occupying formal leadership positions rather than an informal leadership capacity. The selection criteria ensured research participants maintained the attributes and context necessary to fully examine the study’s research questions.

Creswell (2014) indicated that the sample size required for qualitative research is contingent on the qualitative design being applied, with the number of participants ranging from as high as 30 to as low as three. Expanding on the perspectives of Creswell (2014), Galvin (2015) provided a detailed analysis of 54 qualitative research papers. As illustrated in Figure 2 and Figure 3, the dominant modal class was 11 to 15 participant interviews with or without population groupings. Across the 54 research papers examined, the next most common number of participant interviews ranged from six to 10 (Galvin, 2015).
In combination with the average participant sizes supported by existing scientific research, qualitative research saturation needed to be exhibited in the research data. Thematic research saturation is the point at which no new relevant information is forthcoming even if additional participants are interviewed (Creswell, 2014; Galvin, 2015). Saturation has differing degrees of relevance depending on the role of theory and the analytic approach adopted, requiring the researcher to acknowledge and articulate how the principle of research applies to each unique research topic (Saunders et al., 2018).

![Figure 2. Participants - Without Population Groupings](image1)

**Figure 2. Participants - Without Population Groupings**

![Figure 3. Participants - With Population Groupings](image2)

**Figure 3. Participants - With Population Groupings**

Staff nurse and nurse management personnel data maintained by the selected institution and the institution’s chief nursing officer was essential to the intentional identification of a
qualified research population. The researcher for this study increased the ability to foster a working relationship with the research participants through the institution’s chief nursing officer. Additionally, the researcher’s employment status at the institution served as another point of integration with the selected participants. The researcher used a series of electronic communications to provide the participants a comprehensive description of the study, the study’s specific purpose, eligibility criteria to participate in the study, and privacy measures that were included in the research study. Selected research participants were required to individually attest via electronic email that all pre-defined research eligibility criteria are met. The attestation process simultaneously served as a natural process for developing the effective research relationships required for successful qualitative studies. The documents that were used to facilitate the communication, eligibility confirmation, and attestation process have been included in the appendices of this study.

The participants involved in the research were notified of the methods utilized to protect privacy in advance of providing consent to serve as a research participant. Password protected electronic files and folders containing interview recordings, research data, and records were stored on a secure personal computer. The researcher was the only individual with access to the computer and knowledge of the password for the folders and files. Further, only the researcher, doctoral program director, and dissertation committee members were authorized to review confidential research material. Interviews were conducted confidentially and completed within the confines of a mutually agreed upon office building or other agreeable location. All forms of research data gathered from the participants will be destroyed within three years of the study’s completion and all participant names or titles were excluded from the study. The
documents that were used to communicate and gain participant consent, as well as describe the data security procedures, have been included in the appendices of this study.

**Research Method and Design**

Creswell and Poth (2018) described that the selection of a qualitative, qualitative, and mixed-methods research approach should be considered on a continuum based on the research topic. Creswell and Poth (2018) also reminded researchers that while qualitative research will primarily maintain characteristics central to the qualitative research method, elements of other research methods may manifest that become important to the research study. Functionally, qualitative research methods are applied to answer questions about an experience, meaning, and perspective, commonly from the standpoint of the participant (Hammarberg, Kirkman, & De Lacey, 2016). Hammarberg et al. (2016) described that research integrity and robustness are as important in qualitative studies as in other forms of research and qualitative research should be ethical and intelligibly-described.

**Discussion of method.**

Smith, Bekker, and Cheater (2011) explained that qualitative research methods are used to discover the fundamental attributes associated with a particular topic or issue requiring a scientific research approach. Malagon-Maldonado (2014) and Sawatsky, Ratelle, and Beckman (2019) stated that qualitative research methods can be used to efficiently analyze existing theories and allow research participants to contribute new knowledge to a phenomenon. The qualitative research method’s foundation was based on the use of emerging questions and the application of data analysis to make interpretations, draw conclusions, and formulate research themes (Creswell, 2014). For the purposes of this research study, the research topic selected was examined through the use of a qualitative research method. Specifically, this study
applied the qualitative research method as a way to examine, integrate, and synthesize the topic of health care financial literacy of nurses and investigate the impact on effective problem-solving.

**Discussion of design.**

Research designs can be described as the overall strategy applied within a defined research method in order to conduct a reliable and valid research study (Bloomfield & Fisher, 2019). Bloomfield and Fisher (2019) further expanded the relevance of a research design to scientific study by describing its function as the blueprint or plan that will be used to answer a specific research question. Fundamentally, a research design contains the three distinct elements of a plan, structure, and strategy. Acknowledgement of the plan, structure, and strategy elements critical to the qualitative research method will assist the scientific researcher in identifying seminal themes and drawing conclusions that will enhance the relevance of the research topic to effective practical application (Burns, Grove, & Gray, 2015).

The research design applied to this qualitative research method was a single site intrinsic case study. Creswell (2014) stated that qualitative case studies are a design based on inquiry that can be used in a wide variety of fields where the need for in-depth analysis of a concept, program, activity, process, or event that involves one or more individuals exists. Qualitative case studies are defined by the elements of time and activity, allowing researchers to reliably aggregate critical information through the use of relevant data collection procedures (Creswell, 2014). Case study research designs are used for building, testing, and refining the themes related to a particular phenomenon and comparing conclusions with empirical data (Hoorani, Nair, & Gibbert, 2019). Taylor and Thomas-Gregory (2015) defined an intrinsic case study as a research design that allows research to be undertaken out of the interest of the phenomenon’s own
merits. The specific problem addressed within this study was the health care financial literacy among nurses within the health care industry and the impact on decision-making processes.

Interviews were the primary source of data collection within this case study research design. The use of interviews was essential in allowing the researcher to explore the lack of health care financial literacy among nurses within the health care industry from a variety of perspectives to gain a thick description and balanced picture of the phenomenon (Taylor & Thomas-Gregory, 2015). This case study research design exhibited the attributes of reliable and valid research and applied a clearly defined case, appropriate and justifiable methodology, research rigor, and ethical consideration (Taylor & Thomas-Gregory, 2015). An analysis of the qualities and attributes of the qualitative case study research revealed sufficient support that a case study research design was appropriate for addressing the research problem defined in this study.

**Summary of research method and design.**

This study applied the qualitative research method and an intrinsic single site case study design. The qualitative research methods were applied to efficiently examine and extract seminal themes, interpretations, and conclusions. The case study research design was used due to the importance of research context, well-defined boundaries, and thorough analysis to the topic of health care financial literacy. The utilization of the qualitative method and implementation of a case study design was necessary to satisfy the research questions associated with understanding the health care financial literacy among nurses within the health care industry.
Population and Sampling

This section includes a comprehensive assessment of the target research population, sampling method, and sample population that are integral to this research study. This section describes the criteria developed for participant inclusion in the research and sample population. The appropriateness of the methods that were applied to assess potential research participants are discussed, along with the protocol that ensured the research participants qualified for inclusion in the study based on established participant criteria. Lastly, this section explains how the selected research participants were uniquely qualified to express the specific research data elements that were fundamental to addressing the research questions guiding this study.

Discussion of population.

Asiamah, Mesah, and Oteng-Abayie (2017) stated that in the researcher’s quest to contribute to academic debate and knowledge, information must be gathered from a target research population, which is the group of individuals having one or more characteristics of interest. The concepts of a general, target, and accessible population specification are required for qualitative studies, which focus on relatively succinct populations that have the ability to describe experiences and knowledge with respect research questions or a phenomenon (Asiamah et al., 2017; Creswell, 2014; Creswell & Poth, 2018; Denzin & Lincoln, 2017). Functioning as the main data source within qualitative research, the population must be well understood as the population can influence research credibility on the basis of the researcher’s understanding, definition, and choice of the research population (Asaimah et al., 2017). The staff nurses and managerial nurses employed by the targeted health care institution that were included in the research population possessed knowledge, perspectives, and foresight
into the health care financial literacy of nurses and the impact on problem-solving effectiveness. The information gathered from the target population was applied to the research questions and assisted in developing incremental knowledge on the research topic.

Eligibility for the target population in this study included the following criteria: (a) employment on a full-time basis at the researched institution; (b) formal classification in a job code synonymous with a staff nurse or managerial nurse at the researched institution; (c) completion of at least one full-year of service at the institution; and (d) the willingness to confidentially and comprehensively share perspectives or experiences in an honest and detailed manner. Enforcement of the preceding criteria supported the researcher in addressing the challenges staff nurses face due to insufficient training and education on health care financial management concepts (Bai et al., 2017). The criteria also defined a population uniquely qualified to describe the ways nurses are confronted with health care financial challenges and the impact the challenges have on effective health care financial decision-making (Lim & Noh, 2015).

Gender, ethnicity, race, socio-economic background, and age were not be factors in determining the target research population (Asiamah et al., 2017). The chief nursing officer of the researched institution acted as the target population gatekeeper by providing the researcher with a list that includes the entirety of staff nurses and nurse managers that meet the criteria of the research population. The use of the chief nursing officer as a gatekeeper in the research study warranted that all potential members of the population met the criteria of being employed on a full-time basis at the researched institution, resided in a job classification synonymous with a staff nurse or managerial nurse, and had completed at least one full-year of service. The chief
nursing officer also granted the researcher the permission to contact the individuals identified in the target population.

**Discussion of sampling method.**

Understanding the health care financial literacy among nurses and the impact on the health care financial decision-making of nurses was the goal of this study. The researcher’s goal was attained by selecting participants from the target population that possessed the experiential capacity to inform the study through a sampling process. Turner (2020) explained that sampling is the selection of a subset of the target population of interest in a research study. Turner (2020) noted that sampling is applied in research when the participation of an entire population of interest is not feasible or efficient. Sampling from the population is more practical in research, allowing research data to be collected faster, reducing the cost of research, and increasing the ability to draw inferences and develop in-depth conclusions about the population (Turner, 2020). The process of sampling aids in focusing the research through the selection of specific data sources from which information can be collected to address the objectives of a research study (Gentles, Charles, Ploeg, & McKibbon, 2015).

Turner (2020) stated that the most prominent scholarly research methods applied in practice are probabilistic and non-probabilistic sampling, both of which will be examined for their appropriateness to this research study. Probabilistic sampling is designed to randomly select research elements that accurately represent the total population from which the elements were drawn, with each element in the population having a known probability of being included in the sample (Wilson, 2016). Different types of probabilistic sampling exist, including simple random sampling where each element in the population has an equal chance of being included in the sample, as well as systematic sampling where only the first unit is selected randomly and the
remaining units of the sample are selected through a fixed process (Etikan & Bala, 2017; Wilson, 2016). Etikan and Bala (2017) also discussed stratified sampling, which divides the population universe into several sub-groups that are individually more homogeneous than the total population in order to select items from each stratum to generate more precise estimates. Wilson (2016) explained another type of probability sampling referred to as cluster sampling, where the population are divided up into clusters and samples are drawn from the clusters.

Non-probabilistic sampling is a non-random sampling method based on the researcher's choice where the elements of a population do not have a known or equal probability of being selected in the sample (Setia, 2016; Turner, 2020). Wilson (2016) acknowledged that while non-probabilistic sampling may decrease the ability to generalize from the sample to the population due to selection that is not random, non-probabilistic sampling methods are cost effective, efficient, and produce valid research results when aligned with the appropriate research questions. Various types of non-probabilistic samples are used in research including convenience sampling, where selections are made until the desired number of people or items is reached (Etikan & Bala, 2017; Wilson, 2016). Purposeful sampling is a non-probabilistic, non-random sampling method developed through the researcher’s knowledge of the target population and the objectives of the research (Etikan & Bala, 2017; Wilson, 2016).

A non-probabilistic sampling method and purposeful sampling type was used for this research study. The non-probabilistic sampling method and purposeful sampling type ensured the individuals included in the sample maintained the specific knowledge required to answer the study’s research questions. To achieve the goals of this study, sample participants needed to include nurses that have experienced challenges due to a lack of health care financial literacy. Contrary to probabilistic random sampling, non-probabilistic purposeful sampling
prevented individuals from being included in the population sample that did not have previous health care financial literacy related experiences.

Purposeful sampling supported the non-probabilistic sampling method that were applied to this study in a number of ways. Existing literature illustrated the wide use of purposeful sampling in qualitative research for the identification and selection of the most information-rich participants, as well as the effective use of the limited resources often available to scholarly research (Palinkas et al., 2015). Palinkas et al. (2015) also described how purposeful sampling optimizes the use of participants that are available, willing to participate, and have the ability to communicate experiences and opinions in an articulate, expressive, and reflective manner.

Staff nurses and nurse managers were identified at the researched institution through purposeful sampling with mechanisms that optimized the applicability and thickness of the collected research data. Lastly, the purposeful sampling approach applied to this study included a secondary strategy of randomness that has been used previously in non-probabilistic research as a way to increase the credibility of results (Palinkas et al., 2015). The strategy illustrated in Figure 4 was deployed in this study by randomly selecting the final sub-set of participants from the initial, non-random purposeful sample (Asiamah et al., 2017).

![Figure 4. Synopsis of Population and Sampling Method](image-url)
Discussion of sampling size.

Boivin and Cohen-Miller (2018) stated that the involvement of research participants as pseudo-researchers is a necessary component of qualitative case study research. Creswell (2014) and Gavin (2015) described that while the sample size required for qualitative research is situational, the most common sample size for case study participants primarily ranges from 11 to 15 and secondarily ranges from six to 10 participants. Consistent with the sample size recommendations provided by Creswell (2014) and Gavin (2015), this study included a total sample size ranging from 22 to 30 total research participants. The 30 participants were comprised of 11 to 15 staff nurses and 11 to 15 managerial nurses as reflected in Figure 5.

The selected sample size allowed the researcher to optimize the value created through qualitative case study research. Creswell (2014) and Galvin (2015) described that at the point no pertinent research data is derived from research participants, thematic research saturation has been achieved. The sample size ranging from 22 to 30 participants provided the researcher with sufficient participation to comprehensively examine critical data elements related to staff nurses and managerial nurses. Additionally, restricting the sample size prevented the researcher from developing a study that included the wide-spread participant of qualified individuals, but lacked the research depth required to produce a reliable qualitative case study.

Figure 5. Illustration of Sampling Size
Potential research participants needed to be properly restricted to only include participants who produced the data required to address the research questions. Accordingly, the final participant sample for this study was identified through two participant screening cycles. As illustrated in Figure 5, the chief nursing officer identified the initial target population for this study through a first-level gatekeeper screening process. The first-level gatekeeper screening process validated that all members of the target population met the criteria of being employed full-time basis at the researched institution, working in a job classification synonymous with a staff nurse or managerial nurse, and having completed at least one full-year of service.

The researcher was responsible for completing a second-level research participant screening. As part of the second-level screening process, the researcher used electronic mail to contact the participants identified through the first-level cycle. The second-level screening positively confirmed that participants met the criteria of being employed full-time basis at the researched institution, worked in a job classification synonymous with a staff nurse or managerial nurse, and had completed at least one full-year of service. Additionally, the researcher positively confirmed that all participants possessed the willingness to confidentially and comprehensively share experiences essential to address this study’s research questions. The participant confirmation template utilized by the researcher to complete the second-level positive confirmation cycle has been placed in the appendix of this study.

**Summary of population and sampling.**

This research study required that participants were employed full-time basis at the researched institution, worked in a job classification synonymous with a staff nurse or managerial nurse, had at least one full-year of service, and possessed the willingness to
confidentially and comprehensively share experiences essential to address this study’s research questions. Non-probabilistic purposeful sampling was utilized in order to ensure members of the sample population were qualified to provide the information necessary to address the goals of this research study. Participant screening procedures were applied to assist in the selection of qualified research participants from the sample population. Lastly, the method and procedures that was used in this study to identify the target population and research sample was consistent with previously completed scholarly case studies.

Data Collection

Lemon (2017) stated that within qualitative research, the researcher must be positioned to look inside the participant’s environment and be prepared to use appropriate data collection practices to effectively capture the participant’s perspective. Consequently, all qualitative case studies need to integrate the data collected through the literature review, the researcher, and the data collection techniques to achieve research goals (Gaikwad, 2017). Gaikwad (2017) wrote that qualitative case study data can be efficiently collected using thorough participant documentation, archived records, interviews, and participant-observation. For the purposes of this research study, the data collection process was completed to understand the health care financial literacy among nurses and the impact on the health care financial decision-making practices.

Throughout the qualitative case study research process, a large amount of data was generated that required extensive investigation and analysis (Sutton & Austin, 2015). Barrett and Tywcross (2018) wrote that in order to develop the insights essential to qualitative research, the data collection process must create new information that is holistic and allows seminal themes to emerge. Interviews, focus groups, and participant observations were described as
several core qualitative data collection methods (Barrett & Twycross, 2018). Yin (2018) stated that interviews are one of the most important sources of evidence used within qualitative case study research.

**Instruments.**

In order to effectively investigate a qualitative topic of interest, the researcher must be an active, consistent, and objective participant in the data collection process (Brisola & Cury, 2016). Creswell (2014) substantiated the perspective of Brisola and Cury (2016) by stating that the qualitative case study researcher is involved in a sustained and extensive experience with the research participants. Consistent with existing qualitative case study research, the researcher served as the sole data collector in this research study (Berger, 2015; Thoreson & Ohlen, 2015). Specifically, the researcher used semi-structured interviews and detailed field notes as the primary data collection techniques to support this research study.

The participant interview questions and field notes were developed by the researcher and were included in the appendices of this study. Research participants identified through the purposeful sampling process were contacted through electronic mail by the researcher. The initial contact from the researcher provided the participants with a basic summary of the research’s purpose, explained the semi-structured interview process, and described the requirements of the semi-structured interview process. The researcher’s electronic mail message also included an interview participation consent form that each participant reviewed, signed, and returned to the researcher of this study. Upon return of the approved consent form, the researcher scheduled the participant’s semi-structured interview.

In support of the interview process, the researcher was responsible for a variety of fundamental tasks, including the development of interview questions, collection of interview
responses, and the development of potential follow-up interview questions. Additional tasks fulfilled by the researcher included the completion of interview transcripts, development of field notes, involvement in participant observation, management of privacy measures, and the continuous maintenance of participant confidentiality. The data collected for this research study included all responses to the interview questions, verbatim transcriptions from the participant interviews, and supplementary field notes.

**Data collection techniques.**

Research experts have described the use of survey interviews as an efficient data collection technique within qualitative case studies (Fulton, 2016; Meng, Lui, & Lui, 2015; Spekle & Widener, 2018; Story, 2019). Story (2019) stated that interviews performed to gather data on a topic of interest remain foundational to social science research, medical research, and the research practices of many other disciplines. Accordingly, semi-structured interviews were the first of two data collection techniques that were used to satisfy the goals of this study. The semi-structured interview is a qualitative data collection strategy in which the researcher asks sample participants a series of pre-determined, but open-ended questions (Given, 2008). In contrast to structured or unstructured interviews, a researcher using a semi-structured interview technique has the flexibility to modify the interview process based on circumstances and situational awareness in order to fully extract critical research data (Given, 2008).

The semi-structured interview technique allows research participants to become invested in the research process and to more openly share the information most significant to the study (Freyens, Dejeanne, Fabre, Rouge-Bugat, & Oustric, 2017; Schaffer, Sussex, Hughes, & Devlin, 2016). The semi-structured interview session with each research participant was scheduled in advance and required the completion of the consent form prior to the inception of the
interview. The scheduling process was used to formalize each participant’s prescribed interview time and format. The consent form served as the participant’s approval for completing the interview and disclosed to the participant that the interview discussion would be digitally recorded, subsequently transcribed, and integrated into this research study. The researcher provided the research participants the option of completing the interview in a private physical location of the participant’s choosing or remotely through a private video-enabled connection. The two preceding interview formats allowed the researcher to execute the interviews consistently and thoroughly populate observation field notes regardless of the format selected by the participant.

The researcher functioned as the interviewer and prepared a uniform interview documentation form prior to the beginning of each interview. Two pre-populated interview documentation forms were developed that were unique to the staff nurse and managerial nurse groups identified during the purposeful sampling process. The researcher used the appropriate interview documentation form to support the delivery of the interview questions unique to the staff nurse group and managerial nurse group. For the duration of the interview, the researcher articulated the pre-determined interview questions to the research participant. Accordingly, the researcher populated the applicable interview documentation form with notes and observations specific to each research participant.

The interview documentation form was also be used to record any non-standardized interview questions and responses that took place during the interview. The interview documentation form included the specific follow-up interview question asked during a participant’s interview, the researcher’s purpose for asking the follow-up question to the identified participant, and the participant's response. The digital recordings of each interview
were transcribed and provided to each research participant after the interview was completed. Through the post-interview transcription review process, all appropriate transcription edits requested by the participant were integrated and the participant’s attestation of complete data accuracy was secured.

Field notes served as the second source of data collection within this study. Nurse researchers began using field notes over four decades ago as an additional layer of data that could be interpreted and analyzed, building ongoing support for the inclusion of field notes within qualitative research (Phillippi & Lauderdale, 2018). Field notes were used in this study for the primary purpose of documenting pertinent circumstances that resulted in modifications to the semi-structured interview. The field notes were also be used to include information relevant to the study that pertained to what the researcher felt, thought, saw, and heard throughout the interview process as a way to enhance critical reflection (Maharaj, 2016). The researcher used field notes as an individual data collection tool, as well as a secondary data collection technique that improved the accuracy of the data collected through the semi-structured interview technique. The template that was used to facilitate data collected through field notes has been included in the appendices of this study.

**Data organization techniques.**

Sutton and Austin (2015) stated that qualitative research is about putting oneself in the participant’s position as a way to see the world from a different perspective. Accordingly, qualitative research data must be organized to maintain integrity with research participants, accomplish the objectives of the study, and create incremental learning opportunities for future researchers (Sutton & Austin, 2015). Creswell and Poth (2018) described the principles that
need to be adhered to regarding qualitative data organization, including the data inventory matrix and the creation of data protection procedures.

Semi-structured interviews and field notes were used as the data collection techniques to support this research study. The research data was organized and saved in participant-specific file folders that were stored on a secured personal computer. The folder for each participating staff nurse and managerial nurse included the associated interview information. The personal computer was password protected and a second password was created to gain access to the file folders containing the data associated with this study. Access to the secured file folders was limited to the researcher, doctorate program director, and members of the doctoral committee dedicated to this study.

The detailed information from the semi-structured interviews, verbatim transcription data, and field notes was stored digitally in password protected file folders. The device used to record the interviews was password protected and was accessible only by the researcher. Field notes were primarily documented using Microsoft Word and digitally stored in the appropriate file folder located within the secured computer. A data inventory matrix was developed to allow for efficient access to the type, date, and location of the research information. The data inventory matrix was password protected and access was limited to the researcher, doctorate program director, and members of the doctoral committee dedicated to this study.

**Summary of data collection.**

The integration of the semi-structured interview and field notes techniques occurred through multiple phases in this study. The interview questions developed for the staff nurse and managerial nurse groups were submitted to the population sample through electronic mail. The electronic mail message provided the participants with a summary of the research, explained
the semi-structured interview process, and described the requirement that the entire interview be completed in order to participate. The electronic mail message also included an interview participation consent form that each participant reviewed, signed, and returned to the researcher of this study. Upon return of the approved consent form, the participants were scheduled for a time to complete the semi-structured interview. The semi-structured interviews took place in a private physical location of the participant’s choosing or remotely through a private video-enabled connection.

The researcher functioned as the interviewer and populated a uniform interview documentation form with any additional interview-related information that advances the objectives of this study. Digital recordings of each interview were transcribed and provided to each research participant for review to attest for accuracy. Field notes were used to support the semi-structured interview data collection technique by including information that pertained to what the researcher felt, thought, saw, or heard during the interview process. All qualitative research collected for this study was organized within a data inventory matrix and created an efficient process for identifying the type, date, and location of the research information. Within each participant’s password protected and secured folder, the collected research data was organized and sorted according to the specific interview questions and seminal themes derived from the research process.

**Data Analysis**

Yin (2018) explained that throughout the data analysis process, the researcher should continually search for patterns, insights, or concepts that provide broader meaning to the research topic. Yin (2018) and Creswell (2014) discussed the effectiveness of qualitative data analysis strategies that use initial concept categories, generate themes, illustrate contrasting evidence, and
examine research data placed in a chronological order or particular sequence (Creswell, 2014). The qualitative data analysis concepts articulated by Yin (2018) and Creswell (2014) were directly applied to this study’s focus on the health care financial literacy among staff nurses and the impact on health care financial decision-making.

Thematic analysis has been a method of research synthesis used similar to other meta-synthesis strategies within qualitative research (Thomas & Harden, 2008). Nicholson, Murphy, Larkin, Normand, and Guerin (2016) stated that thematic analysis is an inductive approach to data analysis that is able to assess information in a way that generates higher-order meaning. The thematic analysis process generally takes place over three stages, with the first stage including the free line-by-line coding of findings from a primary source (Nicholson et al., 2016; Thomas & Harden, 2008). The second stage includes the process of organizing the coded data into related areas in order to develop descriptive categories (Nicholson et al., 2016; Thomas & Harden, 2008). The thematic analysis process concludes when the descriptive categories are translated into analytical themes that are additive to current literature (Nicholson et al., 2016; Thomas & Harden, 2008). Creswell (2014) described the importance of applying a qualitative data analysis process that seamlessly transitions from the case study data collection process. Accordingly, this study transitioned from data collection phase to thematic data analysis by having the researcher thoroughly examine the entirety of the semi-structured interview transcriptions and the researcher field notes aggregated throughout the data collection process.

**Inductive data analysis technique.**

Azungah (2018) explained that inductive qualitative data analysis is an approach anchored in the detailed reading of raw data to derive concepts and themes. Inductive
data analysis is a recursive process that involves examining the intricate components of organized qualitative data, assigning codes to segments of text, and identifying concepts or themes that address the research questions. Researchers applying inductive data analysis need to be immersed in the raw data to make sense of the complete data-set and to follow the participant with reflexivity, reflectivity, and open-mindedness (Azungah, 2018). Nilson (2017) stated that a limited number of individuals know how to articulate or take the time to consider their worldview and how it has influenced attitudes, behaviors, values, beliefs, and views. Therefore, researchers must follow robust reflexive and reflective cycles to constantly consider the potential impact of the researcher’s core belief system, develop an understanding of self-identity, and examine personal biases and assumptions (Nilson, 2017). The thematic analysis process used in this case study ensured the researcher possessed reflexivity levels consistent with the recommendations of Azungah (2018), Nilson (2017), and Creswell (2014).

Yin (2018) and Azul (2016) explained that observing the raw research data prior to the coding process creates value through the development of initial concept nodes. By establishing preliminary concept nodes, the researcher can begin conceptualizing the codes that may apply and contemplating the descriptive categories that may warrant a translation into an analytical theme (Azul, 2016; Nicholson et al., 2016; Thomas & Harden, 2008; Yin, 2018). The researcher for this study began the inductive data analysis process by reading all initially collected research data and established the goal of identifying three initial concept nodes for each sample population. Given the emergent characteristic of thematic analysis, the researcher for this study recognized that the inductive data analysis process may transpire non-linearly. Accordingly, the concept nodes identified in the early stages of data analysis were continuously reviewed and appropriately adjusted as the analysis progresses.
Approach to qualitative coding.

The qualitative coding process involves identifying segments of meaning in collected research data and labeling the segments with a code, word, or short phrase (Saldana, 2015). Saldana (2015) stated that coding symbolically assigns a summative, salient, essence-capturing, or evocative attribute. The goal of the coding process described by Saldana (2015) is to organize the summative and salient codes into a coherent, convincing, trustworthy, and communicative story that answers the research questions and provides insights that are loyal to the research (Linneberg & Korsgaard, 2019). This study was supported by computer-assisted coding software that adhered with the qualitative coding objectives identified in scientific literature (Linneberg & Korsgaard, 2019).

This study applied the NVivo computer-assisted coding software, which allowed for the efficient development of descriptive categories and facilitate the identification of the most prominent analytical themes. The research study’s computer-assisted coding application technically emulated the more traditional data analysis workflow described by Tesch, which emphasized that qualitative coding is an iterative process that requires cyclic analysis until data saturation is achieved (De Villiers, Maree, & Van Belkum, 2015). As illustrated in Figure 6, the iterative nature of the qualitative data coding provided the researcher with the opportunity to initially code a participant’s data and repeatedly recode the same participant’s data as the data analysis process progresses.
Computer-assisted coding.

This study’s use of the NVivo computer-assisted coding program effectively aligned the data analysis process with the research questions (Woods, Paulus, Atkins, & Macklin, 2016). Consistent with the traditional or manual coding format described by Parameswaran, Ozawa-Kirk, and Latendresse (2019), the non-linear functionality of NVivo supported the data analysis cycle by developing initial concept nodes that helped identify the most meaningful codes and assigned the most accurate descriptions to the data. Feng and Behar-Horensteins (2019) and Woods et al. (2016) stated that computer-assisted coding reduces the potential for the bias that may exist when only human coders are used. Computerized coding also enhances confidence in the conclusions drawn due to the ease of data access and the enhancement of analytic visualization (Feng & Behar-Horensteins, 2019; Woods et al., 2016). This study optimized NVivo’s ability to support the entirety of the analytical cycle, overcame data management limitations inherent in independent coding spreadsheets, and
applied an early indexing system prior to the inception of the coding process (Feng & Behar-Horensteins, 2019; Woods et al., 2016).

The computer-assisted coding utility was supported by having the researcher read the collected research data prior to the start of the coding process. Using insights from the initial read-through, the researcher selected the staff nurse participant and managerial nurse participant considered to have the most comprehensive collection of participant data. By selecting the participants with the most comprehensive data, the researcher had the opportunity to identify and applied the largest number of salient codes at the onset of the coding process. Once the first participant was fully coded for each sample group, the coding process for the second participant in each sample group began.

As the coding process progressed, the researcher identified data that required the creation of new codes. New codes created were applied to previously coded participants, resulting in an iterative coding and recoding routine. Within the NVivo software, the iterative coding and recoding cycle continued for the research participants until data saturation was achieved. Upon the researcher’s satisfaction with the coding function, the researcher began preparing for a descriptive and analytical review of the data (Bernard, Wutich, & Ryan, 2016).

Descriptive categories and analytical themes.

The production of categories and themes that expand existing knowledge on a topic of interest is the primary goal of qualitative data analysis (Vaismoradi, Jones, Turunen, & Snelgrove, 2016). Consistent with the perspectives of Vaismoradi et al. (2016), the concept nodes and codes developed during the initial phase of data analysis allowed the researcher to apply interpretive and relational analysis to the newly organized data. Vaismoradi et al. (2016)
explained that descriptive analysis requires the development of descriptive categories at the text level that represent the explicit manifestation of the participant’s account.

The development of descriptive categories is required to subsequently produce analytical themes and is guided by an origination, verification, and nomination process (Vaismoradi et al., 2016). The researcher of this study originated the categories identified on staff nurse health care financial literacy using existing literature, intellectual construction, and continuous reflexivity. Verification of the descriptive categories took place through an iterative category review cycle that considered staff nurse feedback, supervisory nurse perspectives, and the presence of empirical evidence related to health care financial literacy. Lastly, the researcher nominated the final descriptive categories that were used to develop the analytical themes associated with health care financial literacy and decision-making.

The data analysis process within this study developed analytical themes that extended the current body of knowledge related to the topic of health care financial literacy. Pitt et al. (2017) and Thomas and Harden (2008) described that analytical themes are effectively generated by placing the nominated descriptive categories within a qualitative research framework that is guided by defined research questions. This study included an initial thematic reduction goal of producing one analytical theme for every four nominated descriptive categories (Guise, Horyniak, Melo, McNeil, & Werb, 2017). The appropriate descriptive categories and analytical themes were continually assessed to ensure the expanded body of knowledge directly aligned with this study’s purpose.

The thematic analysis process applied to this study were directly guided by the research questions designed to examine staff nurse health care financial literacy. The study’s coding function were used to isolate words, phrases, and text groups highlighting the different ways staff
nurses identify and apply health care financial concepts, behaviors nursing leaders believe influence the understanding of financial concepts, and nursing leader perceptions regarding the consequences of staff nurse financial decision-making. The study’s coded data provided the opportunity to consider potential descriptive categories such as nursing tenure, clinical specialty, or supervisory relationships. The data analysis process needed to translate the research categories in this study into potential analytical themes that addressed the research questions. This study’s comprehensive thematic analysis needed to examine the identified descriptive categories and consider their importance to many topics including changes in nursing education, awareness of institutional strategy, and revisions to workplace training practices.

**Summary of data analysis.**

This study included an inductive thematic analysis that focused on generating higher-order meaning. Using free line-by-line coding of the findings from a primary study, descriptive categories were developed and synthesized into analytical themes (Nicholson et al., 2016; Thomas & Harden, 2008). The study’s inductive data analysis approach required the researcher to perform an in-depth analysis of data, with the researcher simultaneously applying reflexivity, reflectivity, and open-mindedness. A computer-assisted coding approach was applied to this study to effectively develop codes that support initial concept nodes (Azul, 2016; Nicholson, 2016; Thomas & Harden, 2008; Yin, 2018). The coding process focused on identifying segments of meaning with a symbolic code, word, or short phrase.

The computer-assisted coding process supporting this study also allowed for the development of descriptive categories and facilitated the identification of final analytical themes fundamental to the research. The development of descriptive categories manifested from the participant’s account and was guided by an origination, verification, and nomination process.
directed by the researcher. The study concluded with the development of analytical themes that extended the current body of knowledge regarding the health care financial literacy of staff nurses. The appropriate descriptive categories and analytical themes supporting descriptive categories included in this study were continually assessed to ensure the expanded body of knowledge addressed the research questions guiding this study.

**Reliability and Validity**

Within qualitative research, validity refers to the integrity and application of the methods undertaken and the precision in which the findings accurately reflect the data. Reliability describes the presence of consistency within the analytical procedures employed during the research process (Noble & Smith, 2015). Cypress (2017) stated that reliability is based on consistency and care in the application of research practices and is made evident through research practices, analysis, conclusions, impartiality, and the establishment of research limitations. Cypress (2017) explained that validity in research is concerned with the data accuracy through the use of a valid research instrument. Noble and Smith (2015) described that qualitative researchers can integrate the highest levels of reliability and validity into research by properly accounting for personal biases, maintaining a meticulous audit trail, generating detailed descriptions, involving respondent validation, and using triangulation. The practices used to integrate data reliability and validity to this research study are described in detail below.

**Reliability.**

This research study included a number of research qualities and procedures that promoted data reliability. Consistency in research practices was applied to all participant selection and sampling processes. All staff nurses and managerial nurses that satisfy the inclusion criteria were equally eligible to be selected into the research samples. The interview scheduling process
was uniformly applied to both population samples, with every reasonable effort being taken by the researcher to create consistency regarding interview cadence, tenor, and ambience. The data collection techniques supporting this study included standardized field notes and uniform semi-structured interview questions. The standardized data collection approach ensured that common concepts were consistently introduced to participants that yielded data, while also allowing for situational flexibility that was necessary to extract meaningful responses.

The presence of reliability within this study was exhibited through the ability of future researchers to independently apply the research procedures and arrive at similar results (Yin, 2014). Similar to data collection, the data analysis function applied to this study was guided by principles of consistency. The use of computer-assisted coding software allowed the researcher to methodically process the raw data and assign codes to segments of text, while mitigating the risk of bias. Further, the researcher consistently applied the practice of reflexivity throughout the data collection and data analysis process as a way to further reduce the risk of personal beliefs and biases. Data sets using a standardized research approach were produced by requiring participants to consent to essential research guidelines, confirm their willingness to support the study through detailed field note documentation, and mandate that participants understand definitions that are fundamental to the research.

Triangulation can be used as a reliability procedure applied to integrate information from different methodological approaches with different biases as a way to assess the differences in the data and draw qualitative conclusions (Lawlor, Tilling, & Smith, 2016). Natow (2019) explained that multiple method triangulation occurs when a researcher employs more than one type of qualitative data collection procedure, such as gathering data via interviews, observations, and field documentation. Multiple method triangulation was used in this study through the
application of semi-structured interview, field notes, and the documented observation of all research participants. Additionally, information gathered through field note procedures allowed the researcher to consistently document thoughts, feelings, and discoveries made throughout the research process.

Participant-specific observations suggesting characteristics such as ambivalence, overconfidence, or uncertainty needed to be triangulated with the ability to articulate health care financial concepts or explain the level of importance nurses assign to financial literacy throughout the interview process. Sample population triangulation required the researcher to identify patterns across the various participants that may be specific to an interview question, recognized during a particular point-in-time during the interview, or evident in the field note documentation process. Multiple method triangulation was used to correlate common themes, effectively identify less obvious themes, optimize the reliability of the study, and ensure that the study can be replicated.

**Validity.**

Lub (2015) stated that qualitative validity can be tested for and achieved through various mechanisms including member checking, audit trail development, prolonged engagement, peer debriefing, and negative case selection. Yin (2018) wrote that three primary types of validity must be considered within qualitative research, described as internal, external, and construct validity. Construct validity focuses on ensuring the correct operational measures are being applied to the research approach (Yin, 2018). Internal validity seeks to identify causal relationships of conditions within the study, while external validity shows whether the results of the study can be generalized similarly to different populations (Yin, 2018).
This study satisfied the construct validity test by applying member checking, which involved the researcher in engaging the staff nurses and managerial nurses to gather systematic feedback on the collected data. The participant’s involvement in the data collection process invoked a sufficient set of operational measures to avoid inadvertent subjectivity in the study. Through member checking, the nurses involved in the study contributed to the validity of the study by assessing the credibility of the research’s account (Lub, 2015). Construct validity was also integrated into this study by adhering to strict definitions when assessing the presence, or lack thereof, of health care financial literacy and the ability to effectively make decisions. The collection of data and development of codes, categories, and themes was guided by a research construct that consistently applied the meaning of decision-making, financial decision-making, health care financial concepts, literacy, and nurse intellectual capital theory.

External validity was established through the population sampling process. The inclusion criteria allowed nurses with a wide range of tenure, experience, and clinical specialty to participate in the study. The more inclusive approach to population sampling that directly addressed the research questions simultaneously allowed the categories, interpretations, and conclusions of the study to be generalized to similar population groups. External validity of qualitative research was augmented by developing an audit trail throughout the research process that showed others the ‘how’ and the ‘why’ behind the study.

This study included a thorough audit trail that illustrated why the inductive analysis process advanced the understanding of health care financial literacy, as well as how the coding process developed in NVivo were applied to generate descriptive categories and analytical themes. The collected data were meticulously inventoried in a data inventory matrix that accurately connected the data to participant pseudonyms. Lastly, external validity was supported
by thoroughly documenting interview interactions through the completion of field notes, capturing the entirely of participant conversations through verbatim interview transcription, and the audio-recording of participant interviews. The documentation trail allowed external evaluators of this study to conclude that the findings were supported by chronologically organized data, logical conclusions, and methodological choices (Lub, 2015).

The application of internally validity was limited in this study given the study’s descriptive rather than explanatory nature (Yin, 2018). However, the strength of internal validity was examined in this study through triangulation. Similar to the use of triangulation to ensure data reliability, triangulation supported research validity by searching for patterns in participant responses and behaviors (Lub, 2015). The development of codes, descriptive categories, and analytical themes on the topics of health care financial literacy and decision-making allowed the researcher to find commonalities and patterns in the data collected across the nurse participants.

Fusch and Ness (2015) described that research saturation is the point at which no additional data, themes, or codes are found and there is an ability to replicate the study. Data saturation can support research validity through the development of data that is equally rich in quality and thick in quantity. Failure to collect data through the point of research saturation has a negative impact on the quality of the research conducted and hampers content validity (Fusch & Ness, 2015). This study progressed towards research saturation through the use of a case study research design supported by a data collection process that included semi-structured interviews and field note documentation.

Bernard et al. (2016) stated that interviews are an effective way to reach qualitative data saturation. Creswell (2014) and Galvin (2015) stated that interview participant groups ranging from 11 to 15 was the most common in qualitative research, suggesting that data saturation can
be achieved using research groups within a similar range. Accordingly, this study included 11 to 15 participants in the staff nurse and managerial nurse sample populations. Bernard et al. (2016) cautioned researchers that the number of interviews cannot be the sole criteria for measuring research saturation. Consistent with (Bernard et al., 2016), this study achieved research saturation by asking staff nurses and managerial nurses consistently ordered questions, as well as focusing on reducing overall interview variation. Further, this study avoided experience bias by investigating health care financial literacy through the lens of nurses, which was a population that would not normally be associated with finance-related topics (Bernard et al., 2016). The use of nurses to investigate financial literacy allowed this study to progress towards data saturation at a faster rate, gather data that is equally rich and thick, and avoid the risk of inadvertently having the results of thematic analysis overshadowed by interviewing subject-matter specialists.

**Summary of reliability and validity.**

Validity relates to the integrity of the methods used and the precision by which the methods are applied to data collection and analysis. Reliability in qualitative research requires the use of processes and procedures that promote consistency in the application of research practices, analysis, conclusions, impartiality, and limits of the research findings. This research study integrated data reliability through a consistent staff nurse and managerial nurse selection process. Reliability within this study was exhibited through the ability of future researchers to independently replicate the research procedures applied to the study and generate similar results. Triangulation was also be used in this study as a reliability procedure by using multiple methods including interviews, observations, and field documentation to collect the research data.
This study satisfied the validity test by through member checking, which involved the researcher engaging nurse participants to gather feedback on the collected data. Validity was achieved by involving the nurses in the study in the process of assessing the credibility of the researcher’s account. The study’s validity increased by adhering to strict definitions when assessing the health care financial literacy, as well as consistently applying the definitions as descriptive categories and analytical themes are developed. Validity of qualitative research was augmented in this study through an audit trail illustrated the ‘how’ and the ‘why’ behind the study.

Data saturation was attained in this study by selecting population sample sizes supported by research, while simultaneously developing data that is equally rich in quality and thick in quantity. The study achieved data saturation by involving research staff nurse and managerial nurse participant ranges between 11 to 15 participants, as well as through the use of additional techniques. Staff nurse and managerial nurse interviews were guided by identical question-sets across the participants in each sample group, reducing overall interview variation. Further, the study avoided experience bias by investigating health care financial literacy through the experiences of nurses, which was a population that would not commonly be associated with finance-related research.

Transition and Summary of Section 2

This section described the purpose of the research study, which was to understand health care financial literacy among nurses and illustrate how the researcher utilized semi-structured interviews to investigate the research questions guiding the study. The researcher worked in coordination with the institution’s chief nursing officer to compile population data, randomly identify the population, and mitigate selection bias throughout the research process. Staff nurse
and nurse management information maintained by the researched institution was essential to identifying a qualified research population and developing the necessary level of engagement that were required to complete the study. This section discussed the data collection methods, data analysis techniques, reliability, and validity of the collected data. The research study’s data collection and analytic approach were supported by the techniques and strategies found within scholarly and professional literature.

The staff nurses and managerial nurses targeted in the research study were appropriately assessed to verify the research population. The participants selected possessed the required knowledge to examine the health care financial literacy of nurses and investigate the impact on problem-solving effectiveness. Eligibility requirements related to employment status, tenure, job classification, and a willingness to share information were required to be a research participant. The study included participants from all genders, ethnicities, races, socio-economic backgrounds, and ages to the extent the inclusion criteria for the study are met. The chief nursing officer served as a gatekeeper in the research study. The gatekeeper function ensured that all potential members of the population met the study’s inclusion criteria and granted the researcher the permission to contact those identified in the target population.

The researcher of the study used a non-probabilistic sampling method and purposeful sampling type for this research study. Non-probabilistic and purposeful sampling included individuals in the sample that maintained the specific knowledge required to answer the study’s research questions. The study’s non-probabilistic purposeful sampling method prevented individuals from being included in the population sample that did not have health care financial literacy related experiences. Purposeful sampling increased the thickness of the collected research data and included a secondary strategy of randomness that increased the credibility of
results. The sample size ranging from 22 to 30 participants provided the researcher with sufficient participation and prevented the researcher from decreasing thematic depth through excessive participation.

The primary data collection techniques used to support this research study included semi-structured interviews and detailed field notes. Research participants were identified through a purposeful sampling process and were contacted through electronic mail. Electronic communication was used to provide the participants with the purpose of the research, explain the interview process, describe the requirements of the study, and obtain participant consent. Upon consent, the researcher served as the interviewer and prepared accordingly through the use of a uniform interview documentation form. The researcher populated the interview documentation form with the question-specific responses generated by each research participant and recorded any non-standardized interview questions and responses. Field notes served as the second source of data collection within this study and pertained to what the researcher felt, thought, saw, and heard throughout the interview process. All detailed information from the semi-structured interviews, verbatim transcription data, and field notes were stored digitally in password protected file folders.

An inductive thematic data analysis technique was used in this research study. The researcher began the inductive data analysis process by reading all initially collected research data to develop preliminary concept nodes. The concept nodes guided the study’s use of computer-assisted coding software in order to identify the most meaningful codes and assigned the most accurate descriptions to the data. Descriptive categories were isolated through an iterative category review cycle that nominated the final descriptive categories that were used to develop the analytical themes.
Reliability was integrated into the research by allowing all staff nurses and managerial nurses satisfying the inclusion criteria to be equally eligible as a research participant. Interviews were conducted consistently to both population samples and the use of computer-assisted coding software allowed the researcher to carefully process the data, assign codes, and mitigate bias. Reflexivity was applied throughout the data collection and data analysis process to further reduce the risk of personal beliefs and biases. Multiple method triangulation was used in this study to enhance reliability through the application of semi-structured interviews, documented observation of all research participants, and the use of field note procedures.

The study included the attributes of validity through member checking and the attainment of systematic feedback on the collected data. A thorough audit trail illustrated why the inductive analysis process advanced the understanding of health care financial literacy and how the coding process developed in NVivo generated descriptive categories and analytical themes. Research saturation was used to validate the study and included the use of 11 to 15 participants from both sample populations. Accordingly, the following section included the pinnacle of the study, illustrated the study’s findings, and synthesized the ways the research contributed to existing literature on the health care financial literacy of nurses.
Section 3: Application to Professional Practice and Implications for Change

The culmination of this qualitative intrinsic case study has been integrated into Section 3. The research study’s focus was to investigate the lack of financial literacy among nurses and the impact on financial decision-making processes. Section 3 begins with a concise review of the study’s design and transitions to a detailed review of the relationships and results derived from thematic analysis. This section continues with applications for professional practice, as well as researcher recommendations and personal reflections that were prompted by this study. Section 3 concludes with a synopsis of the study, as well the thematic deductions generated from the study’s results.

Overview of the Study

This qualitative research study assessed the levels of health care financial literacy among staff nurses and examined the impact on financial decision-making effectiveness. Naranjee, et al. (2019), Bai et al. (2017) and Douglas (2010) described that the financial skills of nurses are underdeveloped and lack the literacy to effectively integrate financial decision-making into their roles. Nursing staff represent a significant portion of the clinical staff within health care systems and are required to perform a wide variety of complex clinical activities through efficient decision-making practices (Gunawan & Aunguroch, 2016; Rainbow & Steege, 2019). As the health care environment experiences ongoing transformational change, nurses will be required to correctly apply health care financial concepts (Lim & Noh, 2015).

The significance of financially competent nurses to efficient hospital operations and financial management, health care financial literacy and financial decision-making remains underrepresented in current research (Douglas, 2010; Gunawan & Aunguroch, 2016; Lim & Noh, 2015). Health care organizations need to be progressive in educating and integrating
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the nursing workforce with critical financial factors that impact the effectiveness of health care delivery. Baicker and Chandra (2018) and Rother (2017) stated that health knowledge advancements within the nursing discipline are critical to effectively manage the industry’s financial and moral challenges. The imperatives described within existing scholarly literature revealed the opportunity within this research study to develop conclusions and recommendations that enhanced current business practices.

The purpose of examining the health care financial literacy of staff nurses was to illustrate the use of health care financial concepts within nursing practice and understand the impact on decision-making effectiveness. In addition to exploring staff nurse awareness to health care financial concepts, the case study examined the actions or behaviors that influence the effective application of health care financial concepts and assess its impact on decision-making effectiveness. The study also discovered the perceptions held by leaders in the nursing discipline regarding the depth of health care financial literacy among staff nurses. Lastly, the case study research described the ways nursing leaders articulate the consequences of staff nurses’ ability to identify and apply health care financial concepts. An intrinsic case study research design was selected for the qualitative research study due to its ability to explore the uniqueness of a phenomenon through data collection and analysis with a real-world context (Blum, 2017; Creswell, 2014; Stake, 2013; Yin, 2014).

The defined objectives of the case study research were accomplished through an exhaustive review of peer-reviewed academic, scholarly, and professional literature. A comprehensive literature review was completed to optimally appreciate the differing perspectives that existing on the research topic. Literature was analyzed relating to the definition of health care financial literacy and the traditional practices applied by nurses to acquire knowledge. In
addition, literature pertaining to nurse intellectual capital theory and the human, structural, and relational components that ground the theory were examined. The primary components of decision-making logic and the relevance to health care financial decision-making were also explored.

The literature review illustrated several themes that support the focus on the study. Financial literacy was described as an attribute that impacts the ability of society to function optimally (Lim & Noh, 2015; Nibbelink & Brewer, 2018; Wolla, 2017). Health care financial literacy was described in the literature as a topic of interest within the nursing discipline that has gained institutional and professional interest as the complexity of modern health care increases (Lindley & Cozad, 2017; McWilliams, et al., 2016; Welton & Harper, 2015; Westra et al., 2015). The literature posited health care financial literacy as an element of the nursing discipline that has grown in importance as more nurses are being placed in positions that involve health care financial concepts (Douglas, 2010; Naranjee, et al., 2019). A synthesis of the literature revealed a variety of practical and educational gaps within the nursing discipline related to health care finance literacy and the application of finance concepts (Bai et al., 2017; Douglas 2010; Naranjee, et al., 2019; Noh & Lim, 2015).

The conceptual framework for this study was nurse intellectual capital theory. Nurse intellectual capital theory intersects knowledge with the work environment and organizational outcomes within nursing practice (Lindley & Cozad, 2017). The concept framework was ideal for the research study due to the applicability of the theory’s human capital and structural capital components to new and existing problems faced by nurses (Kholifah, et al., 2018; Lindley & Cozad, 2017). Additionally, nurse intellectual capital theory was the optimal conceptual
framework for this study because the theory suggests that all knowledge correctly applied within
the work environment is essential to nursing success (Douglas, 2010)

Participation in the research study was defined by four eligibility criteria. Specifically, the eligibility criteria included employment on a full-time basis at the researched institution, formal classification in a job code synonymous with a staff nurse or managerial nurse at the researched institution, completion of at least one full-year of service at the institution, and the willingness to confidentially and comprehensively share perspectives or experiences in an honest and detailed manner. For each participant selected for the case study that met the required eligibility criteria, semi-structured interview and field notes techniques were used to collect the necessary research data. Prior to the start of data collection, each participant was required to sign and return the volunteer consent form required for this study and in accordance with the procedures required by Liberty University’s Institutional Review Board.

Semi-structured interview questions were developed for the staff nurse and managerial nurse groups to gather information specifically focused on the case study’s research questions and overall objectives. The semi-structured interview technique allowed the research participants to become invested in the research process and to share the information more openly most significant to the study (Freyens, et al., 2017; Schaffer, et al., 2016). Digital recordings of each interview were transcribed and provided to each research participant after the interview was completed. Through the post-interview transcription review process, all appropriate transcription edits requested by the participant were integrated and the participant’s attestation of complete data accuracy was secured. In aggregate, the data collection process was effectively organized to maintain integrity with research participants, accomplish the objectives of the study, and create incremental learning opportunities for future researchers (Sutton & Austin, 2015).
Presentation of the Findings

The data collection, coding, and thematic analysis procedures associated with this research study produced a number of themes that are applicable to business practice and provide opportunities to effectuate change within the health care environment. Data collected through the interview process were accurately assigned to specific research codes and descriptive categories to ensure the thematic analysis process maintained the research study’s principles of data validity and reliability. The NVivo coding software allowed the researcher to visualize the results of the coded interviews through the use of a coding hierarchy diagram. The development of a hierarchical diagram accelerated the identification of coding relationships and descriptive categories and allowed for the use of extensive triangulation exercises to locate the most prominent themes and conclusions.

Descriptive categories and analytical themes were developed and compared to the scholarly and professional literature. Thematic research saturation, which is the point at which no new relevant information is forthcoming even if additional participants are interviewed, was required during the data collection process (Creswell, 2014; Galvin 2015). Through the use of existing literature on sampling and data saturation, this study’s research saturation point was expected upon the completion of 11 to 15 participant interviews for the staff and managerial nurse population groups (Creswell, 2014; Galvin, 2015). Ultimately, research saturation was achieved upon the completion of 15 staff nurse interviews and 12 managerial nurse interviews. Procedurally, key words, phrase, and topics identified in the transcribed interview were grouped into coding nodes and were translated into specific descriptive categories. The descriptive categories were further analyzed and compared to existing literature on the topic of
staff nurse health care financial literacy to identify the analytical themes that fulfilled the purpose of the research study.

The themes identified in the research data collected addressed the study’s problem statement, which was the lack of financial literacy among nurses resulting in inefficient and ineffective financial decision-making processes. Concurrently, the themes centered around the four research questions that guided the research study. Each theme supported the research questions by providing perspective on the health care financial literacy of staff nurses and the impact of decision-making effectiveness within the researched institution. Lastly, the themes were directly related to nurse intellectual capital theory as this research study’s conceptual framework. The themes definitively supported the key elements of the conceptual framework including the intersection of nursing knowledge, the work environment, the decisions to support organizational initiatives within nursing practice (Lindley & Cozad, 2017). Similarly, the conceptual framework’s applicability of the theory’s human capital and structural capital components connected with the themes synthesized from the research data (Kholifah, et al., 2018; Lindley & Cozad, 2017).

Five seminal themes were identified and established within the collected research data. The first theme was staff nurse descriptions and interpretations of health care financial concepts are predominantly formulated based on lived unit and patient care experiences. The second theme was the low levels of staff nurse health care financial literacy are acknowledged and deemed acceptable by staff and managerial nurses. Data analysis revealed the third theme that staff nurse health care financial literacy levels, behaviors, and experiences influenced decisions to support leadership. The fourth theme was accepted gaps in staff nurse health care financial literacy are predicated on the continuation of the existing, labor intensive staff nurse
support structures. Lastly, the fifth theme was the applicability and consequences to staff nurses due to health care financial decision-making are opaquely imbedded in nursing clinical decision-making. A detailed analysis of the themes, patterns, and relationships found within and the relevancy of each theme to the research study is provided below.

**Health care financial concepts are formulated through patient care delivery.**

The research data collected during the interview process revealed the ways staff nurses use patient care experiences to formulate beliefs and perceptions around health care financial concepts. Staff nurse 15 stated, “patient care always comes first, so I never want to do deviate from that”. Staff nurse 3 aligned the understanding of health care financial concepts around the servant role of nurses by explaining, “I guess initially when I think of health care concepts, I think of things like how I treat my patients with compassion and dignity, and things like that”. Staff nurse 3 expanded on the realities of cost management within patient care through the statement, “then you find out when they arrive that they [the patient] is just fine and you can try to return the meds [medication]. We are trained to do our best to manage health care costs, but ultimately the patient comes first”.

Staff nurse 14 described the nursing mindset as, “very driven to think patient satisfaction and whatever is going to make your patient happy is what we are going to do”. The vast majority of managerial nurses aligned with the staff nurse ideals related to the formulation of health care financial concepts around patient care. Managerial nurse 4 described that, “it does not matter to me if the cost is $10 or $30 or $300 if that is what is needed to take care of my patient”. Managerial nurse 12 provided that, “my basis of knowledge about finances is from the bedside of taking care of the patients. If you are taking care of your patient the best possible way then that is being financial responsible too”. Lastly, the well-established decision-making nature
Imbedded in staff nurse culture was presented by managerial nurse 1 through that statement, “it [nursing] is definitely protocol-driven”.

The preceding statements from staff and managerial nurses addressed the focus of research question one by revealing that the objective of high-quality patient care and the decision-making attributes patient care requires primarily drives the conception of health care finance. Through the patient care process, elements of financial decision-making exist within staff nurses, but are not explicitly acknowledged in that fashion. Rather, staff nurses implicitly identify and apply financial concepts as a silent and secondary component of the clinical experience. The research data showed that the financial ramifications of health care delivery decisions are not necessarily viewed as manageable financial decisions, but rather as an unavoidable result of efforts to restore health or preserve life. The findings related to the first theme supported existing literature that no standard definition health care financial literacy exists within current literature (Allgood & Walstad, 2016). Additionally, the findings aligned with Lindley and Cozad (2017), who stated that superseding all functions within nursing is the importance of acquiring all of the knowledge that is necessary to provide effective, efficient, and safe patient care.

Theme one revealed the relationship with the nurse human capital component of nurse intellectual capital theory, which was the conceptual framework integrated with this research study. Nurse intellectual capital theory provides the mechanism to help health care institutions to effectively manage human capital when the human action components are not easily identifiable (Gambardella et al., 2015). Gambardella et al. (2015) stated the more decisions employees make, the more the employees can direct activities towards goal achievement and the creation of decision-making confidence. The similarities through nursing’s view of health care
financial principles, stewardship preservation, and the delivery quality care required an intentional focus on human capital development. The research data collected revealed one notable outlier to the synonymous nature of quality care and adherence to health care financial concepts. Managerial nurse 7 signaled some decision-making conflict by stating, “sometimes we have cases that are by any professional estimation are futile to keep going. We sometimes have a lot of resources into those cases and the conversation comes up if that is that money, even for the patient”. While the statement was a thematic outlier, the expression by the research participant supported the ongoing need for frameworks such as nurse intellectual capital theory to navigate potential ethical dilemmas.

**Lower health care financial literacy levels are acknowledged within nursing.**

This study’s research question three focused on the perceptions maintained by nursing leaders regarding staff nurses’ ability to identify and apply health care financial concepts to decision-making. The fundamentals of research question three were addressed the second theme that an acknowledgment and acceptance of the low levels of health care financial literacy staff and managerial nursing already exists. The low literacy levels concluded in the second theme aligned with the perspectives of Naranjee et al. (2019), who stated that low financial literacy among nurses has required on other institutional resources due to the lack of knowledge and understanding about finances. Similarly, the research data illustrated a material gap between the health care financial literacy levels maintained by nurses and the expectations that may become commonplace within the nursing discipline due to industry changes. The American Association of Colleges of Nursing described education and training changes that may be required to address health care transformation and enhance nursing abilities related to budgeting, health care economics and finance (Bender et al., 2019). The research conclusions supported the
recommendations by the American Association of Colleges of Nursing, as limited knowledge of
the health care financial concepts and their applicability existed within the research institution
(Bender et al., 2019).

The semi-structured interviews revealed that staff nurses and managerial nurses perceive
the meaning of health care financial concepts in several ways. One method of association was
through the attachment to institutional objects used within the clinical practice, such as supplies
and equipment. Staff nurse 1 described health care finance as, “the products that are health care
uses”. Staff nurse 15 described the understanding informally as, “just kind of a mindset of
understanding how much supplies are and just thinking financially that way trying not to be
wasteful”. Managerial nurses identified with health care finance and agreed with the
perspectives of staff nurses in a similar fashion. Managerial nurse 3 described health care
finance as “ideal equipment” and managerial nurse 4 as “the equipment that is acquired”.

Another method of articulating health care finance within staff nursing was by identifying
with financial concepts through institutional actions. Staff nurse 12 stated that health care
finance, “is how the hospital pays for supplies”. Staff nurse 5 explained that health care finance
is to “staff according to how many patients we have and the acuity of the patients. And then,
 obviously, the use of supplies”. Staff nurse 10 referenced, “the decisions being made around
staffing, productivity, and reimbursement” as being a health care finance concept. Staff nurse 2
provided the general perspective that health care finance is “how hospitals pay for things and use
their money”.

Analysis of the data collected revealed the perception by staff nurses that the importance
of health care financial literacy within their role of “low” or “low to medium” importance. Staff
nurse 11 articulated that health care finance “is something I do not think about. I do not think it
holds me back or is something I need to work on constantly”. Staff nurse 12 responded that consideration of staffing implications at the staff nurse level is, “low and should reside with others within the researched institution”. Staff nurse 14 provided a slightly different perspective connecting literacy levels of staff nurses with communication practices. When asked about the importance of staff nurse health care financial literacy, staff nurse 14 responded, “I would say medium importance. It is not our [nurse’s] focus, but it is important. I think we are informed on the low end, I would say”. Within the research data, staff nurses that held specified staff designations tended to rank health care financial concepts of greater importance. Staff nurse 10 was a charge nurse and stated, “I would say from my end as a charge nurse focused on staffing every day that it is probably on a higher end. You know, trying to be physically responsible, especially during this time [COVID-19]”. Staff nurse 5 was a resource nurse and described a particular focus on labor management implications by describing the focus of staffing based on patients and clinical acuity.

Managerial nurse responses regarding the perceptions of staff nurse’s ability to accurately understand basic health care financial concepts varied greatly. Managerial nurse 11 stated, “I think some really understand it”. Managerial nurse 1 described that the understanding of health care financial terms is “kind of in the middle”. Managerial nurse 8 described that as it relates to health care financial matters, “nurse staff probably do not have the competency or information they need”. Despite the variation in managerial responses, the data collected revealed the sentiment that the low levels of health care financial literacy maintained by staff nurses have not impeded staff nurses from meeting performance expectations within their roles. Managerial nurse 4 explained, “for the tasks at the bedside, I think a low to medium level is okay. I would see more along the line of let me [the nurse] manage my critical care and let someone else be the
expert in the dollars”. The interview dialogue with managerial nurse 10 summed up the general perspectives of the importance assigned to staff nurse literacy by addressing whether low staff nurse literacy meets managerial expectations. Managerial nurse 10 responded, “there are gaps, definitely. We look at the budget, capital, equipment, and similar things but we do not talk about the cost. Somebody else takes care of that piece of it”.

The second theme was supported by this research study’s conceptual framework, which acknowledges the need for a wide variety of skills and knowledge sets within nursing for the discipline to be collectively successful. Relationally, the theory of nurse intellectual capital integrated with the first and second themes. The first and second themes combined to support the relevance of health care financial concepts to nursing as addressed in the existing scholarly literature. Additionally, the first and second themes acknowledged that even though staff nurses may incorrectly or informally define health care financial literacy concepts, overall managerial expectations of staff nurse responsibilities are being achieved.

**Health care financial literacy influences decisions to support leadership.**

The third theme of the research study was related to the influence that health care financial literacy levels have on decisions to support organizational leadership. Health care financial literacy was introduced to the study through research question four as a way to discover the consequences of health care financial literacy within staff nurse decision-making. The semi-structuring interview responses revealed relatively low levels of significance to daily nursing tasks. In response questions about the relevance of decision-making within staff nursing roles, staff nurse 4 responded, “not really, honestly”. As it related to questions about cost awareness and supply usage decisions throughout patient care, staff nurse 14 stated, “we do not necessarily think about how expensive these small things we are doing really are”. When staff nurse 6 was
asked about the involvement of health care financial decisions of a staff nurse, the response was, “no, other than like my paycheck”.

Through discussions on financial literacy to daily nursing tasks, the topic of waste was described in 25 of the 28 semi-structured interviews with staff and managerial nurses. Initially, waste was described in terms of cost containment around items used in daily clinical practice, such as gloves, fluids, medications, and masks. Managerial nurse 10 discussed, “how much those antibiotics cost that you care giving to the patient”. Managerial nurse 12 expressed frustration related to supply consumption and staff nurse behavior by explaining, “bedside nurses take for granted those finance and things and they just grab whatever supplies they think they need”. With limited exceptions, the perspectives and stewardship sentiments of staff nurses generally aligned with the supply-related decision-making expectations of managerial nurses. Staff nurse 1 stated, “I try to be as frugal as possible, and if something is multi-use, I try to do that”. Staff nurse 11 described being, “mindful of the expenses that are incurred if I were to use a certain medication on a patient”.

As the thematic analysis process continued, the topic of decision acceptance and the association with health care financial literacy was revealed. Rather than specifically describing the consequences of decision-making as part of daily tasks, staff nurses described the ways health care financial literacy influenced individual decisions to support or not support leadership. Staff nurse 1 explained the decision to not support leadership decision-making by saying, “you know, they [leaders] do not get too terribly into detail about it because at the end of the day we [nurses] are not going to change what they already have in place. They basically just tell us what we are doing going forward. I would not say they take our [nurses] consideration into play”. Staff nurse 13 stated, “sometimes I hear the frustration that they [leadership] could
have asked our [nurse’s] opinion when they did this. The position of staff nurse 15 was more directive with the statement, “it takes our [nurse’s] thoughts into what we need because we are the ones on the frontline”. Finally, staff nurse 8 described frustration with leadership decision-making practices by saying, “I do not know where they [leadership] got their decision-making tools. I do not think management is in the best position to make those decisions”.

The component of decision acceptance by staff nurses extended into managerial nurses as well. Managerial nurse 10 described the challenges that exist with getting staff nurses properly invested in leadership decision-making by stating, “it [nurse involvement] does not happen unless some from the top requests that we have a staff nurse involved”. The ethical aspects of decision-making and leadership support also surfaced in theme 3. The challenges that exist with managing volumes at the researched institution and related to decision-making to manage patient throughput were described by managerial nurse 5 through the statement, “I think they [nurses] feel a little bit powerless. And that is where they get frustrated with finance”. Conversely, ethically-charged end-of-life decisions involving physicians and organizational leaders cause similar frustrations with managerial nurse 7 stating, “staff get frustrated sometimes. We have had cases where honestly in their [staff nurse’s] mind, they feel like they are doing more harm to the patient by continuing”.

The challenges and frustrations that existed within the researched institution related to decision-making required the application of the nurse intellectual capital theory’s conceptual framework. Lindley and Cozad (2017) stated that Covell’s theory of nurse intellectual capital was conceived upon the acknowledged relationship between knowledge, work environment, and organizational outcomes within nursing practice. The expansion of knowledge can allow health care financial concepts to be viewed in new ways and create support for the
decision-making logic applied by leaders. The conceptual model supported the importance of cultivating new ways to formalize the integration of staff nurse decision-making, while appreciating the finite nature by which health care organizations much financially operate. Lastly, as described in nurse intellectual capital theory, the research institution’s goals can be advanced through the acceleration of knowledge expansion and the importance of prudent financial decision-making practices. The application of the conceptual framework is consistent with Chu et al., (2017) and Ali et al., (2015), who described the important role financial literacy plays in the general well-being of society. In a more narrowed manner, the well-being of the research institution’s employees, patients, and their family’s manners will be positively or negatively influenced.

**Labor intensive nursing support insulates the impact of staff nurse literacy gaps.**

The fourth theme of the research study extended the basis of the first three themes, which were associated with financial concept formulation, financial literacy level assessment, and financial concept application for decision-making. Specifically, the fourth theme identified that labor intensive nursing support structures are promoting the acceptance of current gaps in staff nurse health care financial literacy. The research revealed the intricacies and specialized manner in which the staff nurse structures are configured within the research institution. Through the intricate support structures, staff nurses working at the bedside are protected from the need to formally identify or apply basic health care financial concepts within their roles. The fourth theme was focused on existing knowledge held within the nursing units at the researched institution. Accordingly, the study’s conceptual framework, which was focused on the proper application of financial knowledge within the discipline of nursing, particularly as the health care environment transforms, supports the theme’s development (Douglas, 2010).
Nursing units within the researched institution are generally staffed with a staff nurse working at the bedside, as well as a resource nurse, charge nurse, and case manager. Each nurse within the structure performs a unique function in the delivery of patient care. Staff nurse 6 stated that the role of a staff nurse is to, “get my patients what they need”. A similar response was provided by staff nurse 16, who stated, “our job is to take care of the patients and not worry about the finance side”. When managerial staff nurse 12 was asked about prior experiences as a staff nurse, the experience was concisely described as, “taking the best care of my patients”. As the patient care delivery process is executed by staff nurses, the more health care financially focused decisions are deferred to the resource nurse, charge nurse, and case manager nursing functions working alongside the staff nurses. The expediency of the decision-making process was described by managerial nurse 1 through the statement, “if something turns over and we did staffing at 7:00 am but it is 8:00 am and somebody changed or discharged quick, we change staffing right then. We do not wait until the next time”.

Managerial nurse 8 described the daily task and importance of, “staffing to our matrix”. When asked to explain some of the common tasks and decision-points withing nurse, managerial nurse 6 stated, “every day we [nurses] are doing staffing. The delegation of staffing to the resource nurse role was articulated by staff nurse 8 through the statement, “if you are the resource nurse, you are the one in charge of staffing”. The role of a resource nurse was explained synonymously with staffing by staff nurse 2 through the description, “when I am talking about resources nurse we are talking about staffing”. The response of staff nurse 13 provided an additional perspective on the topic of staffing and introduced concerns around the effectiveness of the resource nurse role through the statement, “So, I was that full-time resource position that I stepped down from. And one of the reasons for that was that I saw a lot of wasted
time with staff”. Staff nurse involvement in staffing decisions, as well as an awareness of the logic applied to staffing decisions, was limited within the research institution.

Thematic analysis showed that the importance assigned to staff and labor productivity was communicated to staff nurses. Staff nurse 5 stated that, “productivity [labor] is the main one, because that is the one that is kind of drilled into our heads”. Similarly, staff nurse 6 described the direction nursing receives to, “make sure we do not go over hours and get overtime and stuff because we want to be able to hire”. Lastly, staff nurse 14 described the messages that spread throughout the nursing unit of “having too many nurses on staff”. While the importance of staffing has seemingly been communicated throughout the research institution, a lack of staff nurse involvement in staffing decisions is evident.

Similar to a resource nurse’s role specific to staffing, the case manager role exists within the organization to manage the advancement of patients throughout the clinical process. When describing conversations with patients that have questions about their health care process, staff nurse 2 said, “that is when I like to bring in my other resources like my case manager and social work because we have those resources. They are just more knowledgeable than I am”. When describing the decision-making functions around patient education and available resources, staff nurse 4 stated, “everything like that, the case managers take care of it”. The perspectives of staff nurse 6 were similarly aligned with the statement, “the families will ask it but then we just refer them on to their case worker [manager]”. The differences in the knowledge held by staff nurses and case managers was expressed in the analyzed research data. Staff nurse 10 stated that, “an instant [financial knowledge] gap” would exist without the case manager position. Staff nurse 6 described the situation, similarly, expressing the “big gap” that would exist if case managers were not part of the nursing support structure.
Valuable insight into research question two can be derived through the fourth theme. Research question two focused on the actions or behaviors that may influence the ability to identify and apply health care concepts. The preceding analysis illustrated a self-selection process that moves individuals through the nursing structure. Certain nurses choose to progress through the current nursing structure by being involved as a staff nurse, resource nurse, charge nurse, or case nurse. The skill sets and knowledge required to succeed in each of the different nurse roles requires interested nurses to behave proactively within their role. Opportunities to exhibit financially-focused behaviors or actions do not exist in a meaningful way outside of the formal clinical nursing structure. Research participants uniformly supported existing literature stating that health care financial concepts are not discussed with staff nurses in any meaningful way within academics or organizational practice (Douglas, 2010; Gunawan & Aunguroch, 2016; Lim & Noh, 2015).

**Health care financial decisions are opaquely imbedded in clinical practice.**

The fifth and final theme of the research study was a significant amount of formal health care financial decisions by staff nurses become imbedded in daily clinical practices. Throughout the data collection process, staff nurses described the various ways in which patients are provided high quality care. Analysis of the research data revealed that effective clinical decisions intended to meet acceptable standards of care can simultaneously support or completely replace the need for a nurse to apply health care financial decision-making. The process of analysis and discovery revealed the prevalence of nurse decisions-making related to interventions and other alternatives considered within the primary clinical role of a staff nurse.

As articulated below, thematic analysis revealed the relevance of the fifth theme to a number of other research themes and research questions. The research participants often started
describing their knowledge and association with health care financial decision-making through work-related objects and actions. Staff nurse 4, 11 and 13 described the need for their departments to make “sound financial decisions with equipment”. Staff nurse 3, 8, and 12 explained how the “use of supplies” was a health care financial decision. The analysis resulted in combining more transparent financial examples provided by staff nurses, such as equipment, medications, and supplies, with the realities of clinical decision-making. Upon review of the results, the possibility that clinical and health care financial decision-making are synonymous for staff nurses began to form.

Nurses commonly apply clinical interventions in practice. Research participants described the ways intervention are integrated into the patient care continuum as a mechanism to increase the likelihood of a positive outcome for the patient. Staff nurse 2 provided a number of interventional decisions tied to the financial outcomes including the management of, “bowel movements”, “pressure ulcers”, and “central line infections”. The research participant went on to acknowledge, “when we [nurses] think about the interventions that we put into place, it puts that into perspective because every extra day that the patient costs the hospital thousands of dollars and the patient cannot go home. We do think about that on a daily basis, I guess, but we think of it as an intervention”.

Research participants also described clinical interventions in ways that appeared to equate clinical efficiency with financial efficiency. Staff nurse 14 described efficiency in terms of “how many interventions I do”. Managerial nurses also described the ways decision-making around interventions is impactful, and sometimes even inefficient. Managerial nurse 7 explained that, “we have 40 interventions on every patient and that does change your distribution of time”. The response by managerial nurse 7 provided valuable insight into the ways some nurses
associate questionable interventions as a health care financial definition of “waste”. Waste within clinical practice was described in a number of different ways. Staff nurse 13 described waste in terms of ‘time’, whereas staff nurse 2 described waste in terms of ‘items lost’. Lastly, staff nurse 7 described waste as “unnecessary cost”.

The opaque assignment of clinically focused topics to financial concepts in theme five revealed the importance of aligning the clinical processes of nurses with health care financial performance goals. Additionally, the conclusions reached through the analysis of theme five exhibited relationships with research themes one, two, and three. Theme one described how health care financial concepts are formulated through patient care delivery. Through the relationship of theme five and theme one, staff nurses conceptualize support of the research institution’s financial stewardship principles based on the interactions with patients, rather than through formal financial definitions.

Theme two stated that lower health care financial literacy levels are acknowledged within nursing. In combination with theme 5, the research themes revealed that although more formal health care financial literacy levels may be low, staff nurses can still favorably and effectively impact financial performance through meaningful clinical interventions. Lastly, theme three described that health care financial literacy influences decisions to support leadership. The clinically focused aspects of theme five revealed the need for the researched organization to gain staff nurse financial accountability through support of clinical decisions, as staff nurses may not distinguish between the concepts.

The various tools and instruments used by staff nurses in clinical practice for decision-making were described in existing literature. Decision-making tools such as the Nurse Decision-Making Instrument and the Health Literacy Universal Precaution Toolkit were specifically
identified to provide nurses with technical decision support (Loan et al., 2017; McColl & Pesata, 2016). Theme five within this research study revealed the importance of clinical to decision-making tools to health care financial decisions that take place implicitly through patient care practices. The consistency through which these clinical tool kits and instruments are applied in practice and impacted health care financial decision-making was described in theme five. Nurse intellectual capital theory aligned with the connectedness of clinical and financial information and decision-making criteria through the framework’s use of knowledge capital to increase staff nurse effectiveness (Kholifah et al., 2018). The conceptual framework further appreciated the decision-making complexities that exist within nursing and the necessity that incremental knowledge should be continually activated on a wide variety of topics within health care (Kholifah et al., 2018).

Theme five provided a multitude of information that was used to address the research questions aligned with this study. Specific to research question one, theme five revealed that staff nurses implicitly apply and identify with health care financial concepts through the patient care activities carried out through clinical functions. As staff nurses apply decisions to the effectively use supplies, medications, and equipment to treat patients, the nurses are subconsciously effectuating health care financial decisions. Similarly, research question two can be answered through the relational nature of clinical and health care financial decision making. Nursing actions and behaviors exhibited through the clinical care process, most notably the attentiveness to timely interventions and the willingness to progress through the nursing support structure, primarily influence the ability of staff nurses to identify and apply health care financial concepts to decision-making.
The third and fourth research questions inquired about the perceptions held by nursing leaders related to health care financial literacy, as well as potential consequences from those decisions. Previous themes described that managerial nurses recognize lower levels of health care financial skills among staff nurses, but consistently described the importance of placing patient care first. Further, managerial nurses stated that lower levels of health care financial literacy have not prohibited staff nurses from meeting performance expectations or resulted in recognizable financial consequences. In aggregate, the researched institution’s managerial nurses implicitly appreciated the amalgamation of clinical and health care financial concepts, and the collective impact on financial decision-making practices illustrated in this study.

**Summary of the findings.**

The analysis of the collected data revealed themes that were generally consistent with the scholarly and professional literature.

I. Staff nurses use patient care experiences to formulate beliefs and perceptions around health care financial concepts.

II. Acknowledgment and acceptance of the low levels of health care financial literacy staff and managerial nursing already exists.

III. Health care financial literacy levels influence decisions to support organizational leadership.

IV. Labor intensive nursing support structures are promoting the acceptance of current gaps in staff nurse health care financial literacy.

V. Significant health care financial decisions by staff nurses become imbedded in daily clinical practices.
Applications to Professional Practice

This section extends the examination of staff nurse health care financial literacy to illustrate how the study’s findings can be applied in professional practice. The section provides insight into ways the research findings can be practically and strategically integrated into health care business practices. In addition to the study’s seminal applications within the health care industry, the research results and thematic conclusions are applied to the fields of health care finance, analytical decision support, and human capital management. Lastly, the biblical implications of this study’s results are thoroughly illustrated.

Health care business.

The practical application of the research findings to the general health care industry was an important component of ensuring the existing knowledge has been effectively transferred and synthesized. The application was also critical to the expansion of new information necessary to support a continually transforming health care industry. Health care organizations are a critical component to societal stability and require extensive support from a wide variety of clinical professions to function optimally. Within the United States, an estimated 1.6 million nurses are employed at any point in time, exhibiting the need for the industry to be well-supported by practical and application-focused business concepts (Rainbow & Steege, 2019).

The research results concluded that staff nurses use patient care experiences as a mechanism for developing health care financial concepts. The conclusion aligned with other themes developed in the study, specifically how significant health care financial decisions by staff nurses become imbedded in daily clinical practices. Health care organizations must realize the importance of aligning staff nurse clinical experiences with business measures that are
non-clinical in nature. Creating visibility to this relationship can foster new and incrementally functional clinical and non-clinical relationships within the business of health care.

As described in theme two of this study, a symbiotic decision-making relationship existed within the staff nurse clinical process. Specifically, this research study discovered that significant health care financial decisions by staff nurses become imbedded in daily clinical practices. The discovery related to staff nurses can be expanded to other areas within health care business practices as the means to optimize financial outcomes through a singular focus on the patient care experiences. The optimization of the clinical interventions described by staff nurses that become synonymous with financial decisions can be similarly expanded to all health care business practices. New interventions placed within critical health care functions including pharmacy, laboratory, surgery, and radiology designed to improve clinical quality can also be financially beneficial under proper circumstances. Health care organizations must complete the diligence necessary to understand the interventions currently in place.

**Specific field of study.**

The results of this research study are important and relevant to the specified health care fields of health care finance, analytical decision support, and human capital management. Health care organizations continue to face significant financial pressure due to a wide-variety of complex factors. Macroeconomically, financial margins within health care are being pressurized as the operational input costs necessary to meet required quality measures continue to rise amidst declining reimbursement sources. Further, health care organizations are needing to continually reinvest in medical technology that becomes outdated, requiring higher levels of financial liquidity and greater access to capital funding when compared to prior periods. The management
of the challenges requires health care financial leaders to increase the depth and breadth of innovative health care data to offset financial pressures.

The integration of health care knowledge was recognized by Westra et al. (2015), who stated the need for organizations to continue developing business intelligence and analytics tools capable of synthesizing clinical, operational, financial, quality, and safety outcome data. This study’s findings can be applied to practice through an integration with traditional financial business planning logic within health care institutions. Business planning that appreciates the closeness of clinical and financial decision-making can provide a perpetual synopsis of the risk and opportunities within business decisions. Further, a business planning and financial decision-making approach that acknowledges the alignment of clinical interventions to financial outcomes can assist in balancing the ‘mission or margin’ paradox that many health care institutions face. Previously, clinical and financial expectations may have been viewed as mutually exclusive. The application of this study can help remove the perception that exclusiveness exists between clinical and financial disciples.

Further, the study findings can illustrate to institutional leadership the uniqueness of how front-line staff make implicit financial decisions within non-financial roles. Collectively, the integration of this study’s results into business planning practices and leadership decision-making logic can create the general transparency that is important to sustaining staff support, as described in theme three. Explicitly or implicitly, staff nurses desire the opportunity to understand the rationale used in leadership decision-making. Health care organizations that are purposeful in aligning non-clinical departments with health care financial liaisons will find more effective pathways to satisfy the staff expectations around communication.
The viability of a health care organization is heavily dependent on the ability to financially reinvest in the organization. Reinvestment can come in the form of structures, equipment, research, human capital, and clinical expertise. Many health care institutions operate as not-for-profit entities, which requires deep reinvestments into communities, technology, and infrastructure to fulfill the mission of providing accessible health care. The ability to consistently assess and illustrate the opportunities or risks in reinvestment decisions requires the integration application of financial decision support technology. This study described the opaque nature of clinical and health care financial decision-making within the staff nurse function. The logic can be applied to existing decision-making technology that has been primarily focused on financial outcomes.

The nursing practice has transitioned modestly into the realm of clinical informatics to help manage the massive amounts of information coming into health care organizations throughout the clinical process (Kleib & Nagle, 2018). The results of this study can be applied to enhance the integration of clinically and financially focused tools. Additionally, the study can help health care leaders assess ways to place more appropriately powerful, but potentially underutilized decisions-making technology. Similar to the way nurses effectuate financial decision-making through clinical nurse literacy, clinical tools can be modified to effectively visualize the financial ramifications imbedded in clinical decision-making. Accordingly, non-financial professionals with health care financial literacy levels similar to staff nursing can assume a more significant role in organizational viability.

As evidenced by nurse intellectual theory being applied as the conceptual framework to this study, investing and effectively managing human capital within health care institutions is essential. Halder (2018) stated that human capital is the single most important asset within
Within nurse intellectual capital theory, nurse human capital was described as one of several components that adds to organizational value by understanding the combination of skills, experience, and knowledge (Halder, 2018; Lindley & Cozad, 2017). This study has revealed that clinical skills, experience, and knowledge impact decision-making and financial outcomes. Human capital leaders within health care institutions must inclusively recruit and develop staff but be wary of information exhaustion. Onboarding and continuing educational programs can use the findings of this study to educate staff nurses or other clinical professionals most effectively with lower levels of financial literacy. Organizational training programs can assign and illustrate the connection between clinical and financial priorities without traversing into esoteric concepts that may become confusing or have a demotivating effect.

In combination with integrating this study’s findings with financial business planning practices, decision-support tools, and professional development, the results can help assess risks within current nursing support structures. The research results revealed the ways labor intensive nursing support structures are promoting the acceptance of current gaps in staff nurse health care financial literacy. Within organizations where nursing specialization is financially viable, the risks related to gaps in staff nurse health care financial literacy can be moderated or considered inconsequential. Conversely, organizations forced to modify or constrict nursing support structures to remain financially solvent may experience ongoing skill displacement among staff nursing. The study described the symbiotic relationship between clinical and health care financial decision-making, revealing the risk of unfavorable financial outcomes as clinical nursing structures transition from specialized to generalized. Organizations can use this study’s conclusions to identify and assess ways to mitigate health care financial decision-making risk in the event of clinical labor reductions or role reconfiguration.
Biblical implications.

Mouw (2015) stated that God’s creation of the world and His desire to integrate human management, work, and struggle provided an illustration to the competence and excellence within business practices. Baumgartner (2016) described that leaders are the life-giving or life-taking element of an organization but acknowledged that business leaders remain conflicted on how to mobilize the best of human nature while applying those skills toward economically valuable human endeavors. Health care organizations seeking to improve financial decision-making must look beyond standard performance measures and observe the less obvious tools available in God’s divine economy. The results of this research study provided the greatest utility through the integration of the themes with God’s perspective on business. God’s greatest joy comes through His children finding the importance in work and accepting work’s challenges as a way to emulate Jesus Christ.

Scripture describes the importance of knowledge and information-sharing practices by proclaiming, “I will instruct you and teach you in the way you should go; I will counsel you with my eye upon you” (Psalm 32:8, ESV). This study exemplified the value God sees in the expansion of knowledge and the search new ways to cultivate His creation. All of God’s children are a gift that should be further through servant leadership and service. Peter 4:10 (ESV) announced, “As each has received a gift, use it to serve one another, as good stewards of God's varied grace”. The health care milieu provides voluminous opportunities to individuals in many disciplines to be of service and to find new ways to proclaim the values of grace, compassion, and empathy.
Recommendations for Action

The results of this study provide thought-leaders, technicians, academics, and practitioners with new opportunities to increase value to their organizations in a number of ways. This study demonstrated that staff nurses use patient care experiences to formulate health care financial concepts and lower levels of literacy are acknowledged within the nursing discipline. Additionally, the research revealed the ways labor intensive nursing support structures reduce the potential impact of low health care financial literacy levels, while revealing that leadership support levels can be impacted. Lastly, the study illustrated that health care financial decision-making by staff nurses is imbedded in daily clinical practices. Contemplating this study’s results, two primary recommendations for action have been identified.

**Implement dyadic decision-based leadership structures.**

The first recommended action is the formal implementation of dyadic leadership structures within patient care service areas. Through the two clinical and financial participants in the dyadic relationship, organizations can find symbiotic ways to engineer and reverse engineer clinical decision-cycles while studying financial variation. Conversely, financial expectations can be used to apply tolerance levels within clinical practice specific to interventional investments, supply consumption, and waste mitigation. Dyad leadership will be essential to the technical decision components, as well as creating collective support from managerial nurses and staff nurses. This study revealed that staff nurses make decisions regarding leadership support levels based on the breadth of health care related information available to consider. Accordingly, dyadic relationships can fuse the key elements of clinical and financial communication, fostering the support required for leadership decision-making.
Develop measurement tools rewarding staff nurse innovation.

The second recommended action is the development of a measurement tool to be used to reward individuals for the creation of incremental financial value within clinical practice. By definition, methods of measurement are a primary component of health care finance and to the provision of health care services (Baker, 2019). This study revealed that complex nurse support structures perpetuate the acceptance of lower health care financial literacy levels among nurses. Programs developed that incentivize nursing groups for reducing the cost of labor structures and redefining patient care management processes can be explicitly rewarded by discovering new incremental value-adding activities. Without innovation or the broader understanding that clinical and financial decision-making intersect, staff nurses will continue to be penalized through reduced hours or canceled shifts as operating margin pressures intensify.

Integrate alternative labor models and structures within nursing.

The last recommended action is the assessment of alternative staffing models within the nursing discipline. The research study illustrated that current nurse staffing structures have insulated organizations from the potentially negative financial implications of low health care financial literacy levels. Current instability and ongoing transformation within the health care industry will place continued pressure on the long-term financial viability of many health care organizations. Sustained financial pressures must be addressed through the reorganization of nursing labor, which typically represents one of the largest operational costs within hospital systems (Rainbow & Steege, 2019). Each of the themes derived from the research data could be analyzed through an organization’s decision-support function for the purpose of identifying relationships among clinical skill sets, interventional practices, recruiting and retention costs, compensation levels, nurse role differentiation, quality outcomes, and overall patient
experience. Upon completion of the analysis, the most viable staffing alternatives could be translated into potential labor cost reduction plans through the support of dyadic health care leadership. Along with dyadic leadership, the alternative structures would need to be supported by the human capital function to ensure that recruiting, retention, and developmental efforts align with a purposeful redistribution of health care financial literacy within nursing human capital.

**Recommendations for Further Study**

This study, as well as the associated results, contributed to the limited body of existing literature pertaining to health care financial literacy among nurses. Additionally, the research findings provided new insight into the ways staff nurses and clinical decisions affect financial decision-making. While this instrumental case study was comprehensive and repeatedly tested for data reliability, additional scholarly and professional research on the topic of health care financial literacy among nurses is recommended. Recommendations for subsequent study and examination have been included in this section. The recommendations are intended to enhance existing literature on the topic and improve the methods used to make financial decisions within health care organizations.

**Scope of investigation.**

The initial recommendation for further study pertains to the scope applied to this case study research. This study researched within a single health care located within the Midwestern region of the United States. It is recommended that this study be broadened to include multiple higher education institutions. This study could be replicated or expanded as a single site case study within health care institutions across a variety of geographical regions. Further, the study could be extended by involving multiple health care locations within a similar geographic
location. It is recommended that this study be replicated within single health care institutions in other geographical regions of the United States.

**Health care topic of interest.**

The second recommendation for future study is related to the specific health care literacy topic of interest. Future studies could be broadened outside of the finance discipline to examine the staff nurse literacy levels related to compliance, human resources, supply chain, risk management, and other clinically supportive disciplines. Researchers could investigate the topics individually within a single site. Conversely, a researcher could choose to investigate these topics collectively within a defined single site location. For example, staff nurse literacy levels specific to human capital-related concepts and the impact of effective decision-making could be assessed. Expanding this study to include multiple health care institutions and literacy topics may not allow the narrow focus required to maintain qualitative research validity and reliability. It is recommended that this study be furthered through a research design focused on a singular health care topic of interest within a single health care institution.

**Health care profession.**

A third recommendation for this study is associated with the application of the research findings to clinical specialties outside of nursing. Future researchers could propel this study’s conclusions forward by investigating whether similar themes exist among laboratory science technicians, radiography specialists, therapists, and surgical technicians. The research could also be extended to assess literacy levels through the highest levels of the medical staff, including doctors, physician assistants, certified nurse professionals, and pharmacists. Exploring the existence of similar themes across different health care professions could generate new perspectives and promote alternative actions in decision-making. The profession selection
criteria would need to be balanced with the ability to timely and comprehensively collect the required research data. Further, additional eligibility criteria may need to be considered to validate the willingness of higher levels of medical professions to share information openly and honestly.

**Clinical literacy of financial professionals.**

The final research study recommendation is to assess the levels of clinical literacy, or lack thereof, maintained by financial professions. The investigation of clinical literacy among financial professionals could be a useful way to understand awareness levels to the pressures specific to clinicians. Rather than focusing on the impact on decision-making, the study could pivot to investigate clinical literacy levels among financial professionals to understand factors driving clinician burnout, workforce turnover, compliance, and resource conservation. Future research focus on the topic could also enhance the ways knowledge can be most effectively transferred between clinical and non-clinical teams. Researchers considering this research problem can find utility in deploying a research design, population sampling methodology, data collection, and thematic analysis approach consistent with this study.

**Reflections**

This section is used to describe the researcher’s reflections pertaining to this study. The reflections focus on the impact that personal beliefs, preconceived notions, biases, and prior experiences may have had on the research study. Additionally, the section acknowledges any possible effects on the research or the situation, as well as changes in thought-patterns. Lastly, a reflection on the biblical principles associated with this research study has also been included in the section. Azungah (2018) described the importance that reflexivity, reflectivity, and open-mindedness within a qualitative research methodology. The researcher of this study exercised a
fifteen-minute period of reflexivity prior to each interview as a way to temporarily separate from professional and personal responsibilities.

The practice was applied by closing the door, turning off all technology, and focusing on delivering the research questions in an unbiased manner. Due to the COVID-19 pandemic, 27 of the 28 interviews were completed through virtual technology, creating a natural buffer with those participants that have had prior professional experiences with the researcher. At the onset of the data collection process, the researcher was concerned that the ability to achieve the necessary degree of closeness with the data would be muted. However, the concerns quickly dissipated as the data collection process continued.

The sample population for this study included the sub-populations of staff nurses and managerial nurses. Within the randomly selected managerial population, 12 semi-structured interviews were necessary to achieve research saturation. Of the 12 managerial participants, the researcher had worked professionally with three of the participants on previous occasions. While the previous professional interaction was sporadic and relatively superficial, the researcher was compelled to redirect the interviews on several occasions to a more mutually neutral research position. The researcher quickly rebalanced the conversation and in a manner that satisfied the data reliability and validity requirements of this research study.

Noble and Smith (2015) described that qualitative researchers integrate reliability and validity by accounting for personal biases, maintaining a meticulous audit trail, generating detailed descriptions, involving respondent validation, and using triangulation. On reflection, the mechanisms built into the data collection and data storage phases of the research functioned seamlessly. The data inventory matrix was invaluable to the process, allowing the researcher to continuously manage the research process. Whether at home or at work, the matrix allowed the
HEALTH CARE FINANCIAL LITERACY AMONG NURSES

researcher to continuously monitor participant schedules, eligibility criteria, participation approvals, and interview transcription status. Further, the matrix was used to successfully track the receipt of participant interview validations, as well as to integrate with the NVivo software for coding and thematic development.

Lastly, the reflection would not be complete without an acknowledgement of the data collection process partially coinciding with the apogee of the COVID-19 pandemic. Upon reflection and notwithstanding the social distancing requirements of the pandemic, other challenges existed that are noteworthy. As a result of the COVID-19 pandemic, the research institution was forced to place certain employees on furlough or significantly reduce employee hours. Portions of the researcher’s finance department were included in the temporary labor reduction exercises, which resulted in significant amounts of additional professional responsibilities for the researcher. The reflexivity exercises were critical to allowing the researcher to maintain an investigative balance through the data collection process. Modest complications were experienced primarily related to scheduling, participant or researcher timeliness, and technological issues.

Throughout the research study, the focus remained on discovering the truth regarding the health care financial literacy levels of nurses and the impact on effective decision-making. The importance the Lord places on truth is shared in John 8:32 (ESV) through the proclamation, “and you will know the truth, and the truth will set you free”. This research study recognized that the truth is defined by individual beliefs and experiences rather than the perceptions of others. Whether related to difficult financial concepts, challenging workplace situations, or dire health care situations, the truth that exists within each situation is held individually and needs to be respected as such. The respect of individual truth is achieved through the biblical principles
of humility, integrity, and fellowship. Individually and in combination, these biblical principles existed throughout this research study.

**Summary and Study Conclusions**

The purpose of this case study was to expand on existing literature and close current knowledge gaps through the exploration of the health care financial literacy of nurses within a Midwestern health care institution. The study’s purpose was to analyze the ability of nurses to identify and apply health care financial concepts, provide an analysis of the actions or behaviors that influence the ability of staff nurses to identify and apply health care financial concepts, and understand the impact on decision-making effectiveness. The study applied a qualitative research method and an intrinsic single site case study design. The qualitative research methods were specifically defined to efficiently examine and extract seminal themes, interpretations, and conclusions.

Descriptive categories and analytical themes were developed and research saturation was achieved during the data collection process. The themes identified in the research data collected addressed the study’s problem statement and placed an emphasis on the four research questions that guided the study. Each theme supported the research questions and were directly related to nurse intellectual capital theory as this research study’s conceptual framework. The themes supported the key elements of the conceptual framework and applied the fundamentals of the theory’s human capital and structural capital components.

Five seminal themes were identified and established within the collected research data. The first theme was staff nurse descriptions and interpretations of health care financial concepts are formulated on patient care experiences. The second theme was the low levels of staff nurse health care financial literacy are acknowledged and accepted by staff and managerial
nurses. Analysis revealed the theme that staff nurse health care financial literacy levels influence decisions to support leadership. The fourth theme was accepted gaps in staff nurse health care financial literacy are dependent on labor intensive staffing models. Lastly, the fifth theme was the applicability and consequences to staff nurses due to health care financial decision-making are imbedded in clinical decision-making.

The findings of the study included several recommendations, including the implementation of dyadic decision-based leadership structures and the development of measurement tools rewarding staff nurse innovation. The research conclusions proposed that future research considers changes in the scope of the investigation, the health care topic of interest, different health care professions, and the assessment of clinical literacy among financial professionals. Research reflections were provided to illustrate the importance of reflexivity, reflectivity, and open-mindedness within qualitative research.

Human beings were designed by God to cultivate the world in ways consistent with His vision. Health care professionals are in optimal positions to exemplify servant leadership in a multitude of ways, many of which are simple acts such as offering a smile, nod, or a gentle hug to someone in need. The findings within this research study proved that health care delivery is highly integrated, oftentimes in ways that may not be readily visible. Health care leaders who do not appreciate the invisible perspectives of staff will perceived as obstructive. Health care staff who are not motivated to support organizational leadership will perpetuate a culture predicated on self-centered behaviors. Successful organizations will be defined by those embracing the importance of inclusiveness, integrating diversity in thought practices, and eradicating the presence of social injustice.
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Appendix A: Permission Request Letter

February 23, 2020

Ms. Lori Popkes, MBA, BAN, RN, NE-BC
Chief Nursing Officer
Avera McKennan Hospital and University Health Center
1325 South Cliff Avenue
Sioux Falls, South Dakota 57105

Dear Ms. Popkes:

As a graduate student in the School of Business at Liberty University, I am conducting research as part of the requirements for a doctorate degree. The title of my research project is “Health Care Financial Literacy Among Nurses: A Qualitative Intrinsic Case Study”. The purpose of my research is to explore the health care financial literacy of staff nurses to understand how skills are applied to health care financial decision-making and examine actions or behaviors that may influence health care financial literacy. Additionally, the study will examine the perceptions of nurse leaders regarding the importance of staff nurse health care financial literacy.

I am writing to request your permission to conduct my research at Avera McKennan Hospital & University Health Center, as well as to work with you to contact participants for my research.

Participants will be asked to complete an in-person semi-structured interview lasting approximately 45 to 60 minutes. Additionally, participants will be asked to review the interview transcripts and attest that the information is accurate. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Participants will be assigned a pseudonym to protect confidentiality. The interviews will be conducted in a private location that is not easily accessible by others and is agreeable to the participant. Interviews completed remotely that include audio and video capabilities will also be available. Participant names and/or position titles will not be included in the published findings.

Thank you very much for considering my request. If you choose to grant permission, please sign and return the permission letter than has been attached for your convenience. The signed document can be sent to kholtt11@liberty.edu.

Sincerely,

Kory Holt, MBA
Doctoral Candidate
Liberty University
Appendix B: Permission Approval Letter

February 23, 2020

Kory S. Holt, MBA
Liberty University, Doctorate Candidate
7208 South Russet Circle
Sioux Falls, South Dakota 57108

Dear Kory:

After careful review of your research proposal entitled “Health Care Financial Literacy Among Nurses: A Qualitative Intrinsic Case Study”, I have decided to grant you permission to contact the nursing staff at Avera McKennan Hospital & University Health Center and invite them to participate in your study.

Sincerely

Lori Popkes, MBA, BAN, RN, NE-BC
Chief Nursing Officer
Avera McKennan Hospital & University Health Center
Appendix C: Liberty University Institutional Review Board Approval

April 16, 2020

Kory Holt
Connie Ostwald

Re: IRB Exemption - IRB-FY19-20-178 Health Care Financial Literacy Among Nurses

Dear Kory Holt, Connie Ostwald:

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46: 101(b):

Category 2.(iii). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by §46.111(a)(7).

Your stamped consent form can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. This form should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document should be made available without alteration.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether
possible modifications to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office
Appendix D: Recruiting Template

Dear [potential participant name]:

As a graduate student in the School of Business at Liberty University, I am conducting research as part of the requirements for a doctorate degree. The purpose of my research is to examine staff nurse health care financial literacy, investigate decision-making practices, and analyze managerial nurse perspectives on health care financial literacy. I am writing to invite eligible participants at the researched institution, Avera McKennan Hospital & University Health Center, to join my study.

If you meet the four criteria listed below, and are willing to participate, you will be asked to participate in an audio-recorded interview that will be administered remotely or in person at the participant’s choosing. Additionally, you will be asked to review the verbatim interview transcript developed by the researcher after the interview to ensure the transcript accurately reflects your answers and experiences.

It should take a total of approximately 1.5 hours for you to complete the procedures listed above. Your name and classification as a staff nurse or managerial nurse will be requested as part of your participation, but the information will remain confidential.

To express your interest in participating, please respond to this email confirming your interest, as well as confirming that you meet all of the following criteria:

1. Employment on a full-time basis at the researched institution.
2. Formal classification in a job code synonymous with a staff nurse or managerial nurse at the researched institution.
3. Completion of at least one full-year of service at the researched institution.
4. Possess a willingness to share perspectives or experiences in an honest and detailed manner.

I will contact you via email within five days of your response to schedule an interview should you be selected to serve.

A consent document is attached to this message. Please review, and sign, the consent document and return it to me prior to our interview should you be selected to participate. You may return the consent document by scanning and emailing the signed document to kholt11@liberty.edu.

Thank you for your time and consideration to participate in this study.

Sincerely,

Kory S. Holt, MBA
Liberty University, Doctoral Candidate
Kholt11@liberty.edu
Appendix E: IRB Stamped Consent Form

Consent Form
Health Care Financial Literacy Among Nurses
A Qualitative Intrinsic Case Study
Kory S. Holt, MBA
Liberty University
School of Business

You are invited to participate in a research study designed to examine staff nurse health care financial literacy, investigate decision-making practices, and analyze managerial nurse perspectives on health care financial literacy. You were selected as a possible participant because you are employed on a full-time basis at Avera McKennan Hospital & University Health Center, reside in a formal classification or job code synonymous with a staff nurse or managerial nurse at Avera McKennan Hospital & University Health Center, completed at least one full-year of service at Avera McKennan Hospital & University Health Center, and possess a willingness to share perspectives or experiences in an honest and detailed manner. Taking part in this research project is voluntary. Please take time to read this entire form and ask questions before deciding whether to take part in this research project.

Background Information: The purpose of the study is to explore the health care financial literacy of staff nurses to understand how skills are applied to health care financial decision-making and examine actions or behaviors that may influence health care financial literacy. Additionally, the study will examine the perceptions of nurse leaders regarding the importance of staff nurse health care financial literacy.

Procedures: If you agree to be in this study, I will ask you to do the following things:

1. Participate in a remotely administered or in-person semi-structured interview with open-ended questions lasting approximately 45 to 60 minutes. The interview will be digitally recorded and transcribed verbatim. Identifiable personal information, to include your name and position title, will not be published and will be kept confidential.
2. Review the completed verbatim interview transcript for accuracy and to ensure that your perspective is accurately reflected. This process will take approximately 15 to 30 minutes and personally identifiable information, including your name and position title, will not be published.
3. Attest to the accuracy of the transcript, or, if necessary, provide a clarification statement. This process will take approximately 15 to 30 minutes and your statement will be included within the research. Identifiable personal information, including your name and position title, will not be published.

Benefits: Participants should not expect to receive a direct benefit from taking part in this study. Benefits to society include the potential for the researched institution to enhance its impact on the nursing discipline and to potentially increase the involvement of nurses in non-clinical strategic opportunities going forward. In addition, the information may assist health care institutions in enhancing health care finance-related staff nurse training, transforming educational practices, and assessing the involvement of nurses in health care finance-centric matters.
Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

Confidentiality: The records of this study will be kept private. Published reports will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher, doctorate program director, and members of the doctoral committee dedicated to this study will have access to the records.

- Participants will be assigned a pseudonym to protect confidentiality. The interviews will be conducted in a private location that is not easily accessible by others and is agreeable to the participant. Interviews completed remotely that include audio and video capabilities will also be available. Participant names and/or position titles will not be included in the published findings.
- Data will be stored on a secured personal computer. The personal computer will be password protected and a second password will be created to gain access to the file folders containing the data associated with this study. Access to the secured file folders will be limited to the researcher, doctorate program director, and members of the doctoral committee dedicated to this study. Three years from the date of the study’s completion, all electronic data will be deleted.
- Interviews will be recorded and transcribed verbatim by the researcher, or a private transcription service. Recordings will be stored on a password protected personal computer. The software program used to record the interviews will be password protected and will be accessible only by the researcher. Three years from the date of the study’s completion, the recording software and all associated electronic files will be deleted.

Compensation: Participants will not be compensated for participating in this study.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University, Avera McKennan Hospital & University Health Center, or me. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is Kory Holt. You may ask any questions you have now. If you have questions later, you are encouraged to contact him at kholt11@liberty.edu or (612) 834-1006. You may also contact the researcher’s faculty sponsor, Dr. Connie Ostwald at costwald@liberty.edu.
If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

**Your Consent**

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You will be given a copy of this document for your records. The researcher will keep a copy with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

*I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.*

☐ The researcher has my permission to audio-record me as part of my participation in this study.

____________________________   ____________________________
Printed Subject Name            Signature & Date
Appendix F: Field Notes Template

Kory S. Holt – Principal Investigator and Interviewer
Doctoral Dissertation Data Collection – Field Notes

Participant Pseudonym:

Participant Review:
5. Please help me confirm your qualifications for participating in this study by answering the following questions verbally:

   a. Are you currently employed on a full-time basis at the researched institution?  
      YES NO

   b. Are you formally classified in a job code synonymous with a staff nurse or managerial nurse at the researched institution?  
      YES NO

   c. Have you completed at least one full-year of service at the institution?  
      YES NO

   d. Do you possess a willingness to share perspectives or experiences in an honest and detailed manner?  
      YES NO

6. Please help me verify our ability to process with this interview by answering the following questions verbally:

   a. Have you submitted a signed consent form?  
      YES NO

   b. Did you have questions prior to the start of the interview? If so, were those questions answered satisfactorily?  
      YES NO

   c. Do you agree to review the verbatim transcript of our interview and to complete the transcript review form?  
      YES NO

   d. Do you understand the definitions of terms fundamental this study as listed in the Interview Definitions Handout?  
      YES NO
Researcher’s (Interviewer’s) Documentation:

Thoughts and Observations:

Feelings Regarding the Interview:

Final Participant Observation:

Final Thoughts and Comments:
### Appendix G: Semi-Structured Interview Questions – Staff Nurses

#### Semi-Structured Interview Questions – Staff Nurses
Health Care Financial Literacy Among Nurses
A Qualitative Intrinsic Case Study
Kory S. Holt, MBA
Liberty University
School of Business

<table>
<thead>
<tr>
<th>No.</th>
<th>Semi-Structured Question, Research Question (RQ) Alignment, Follow-Up Question(s)</th>
<th>Interviewee Response Documentation</th>
</tr>
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</table>
| 1.  | **Interview Question**: Please describe in detail the most common health care financial concepts you identify with, and why?  
**RQ Alignment**: (1)  
**Follow-Up Question (if any):** | |
| 2.  | **Interview Question**: How would you describe the ways health care financial concepts impact your decision-making?  
**RQ Alignment**: (1)  
**Follow-Up Question (if any):** | |
| 3.  | **Interview Question**: How do you relate your personal success with health care financial literacy? How do you relate health care financial literacy with organizational success?  
**RQ Alignment**: (1)  
**Follow-Up Question (if any):** | |
| 4.  | **Interview Question**: Please describe the ways you and your supervisor discuss health care financial topics. What is the effectiveness of those discussions and why?  
**RQ Alignment**: (2)  
**Follow-Up Question (if any):** | |
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<tr>
<th></th>
<th>Interview Question</th>
<th>RQ Alignment</th>
<th>Follow-Up Question (if any):</th>
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<tbody>
<tr>
<td>5.</td>
<td><strong>In what ways do you feel staff nurse behaviors and actions influence the perception of financial competency?</strong></td>
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<td></td>
<td><strong>RQ Alignment:</strong> (2)</td>
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<td></td>
<td><strong>Follow-Up Question (if any):</strong></td>
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<td>6.</td>
<td><strong>How do the actions or behaviors of your supervisor impact your perspective of health care financial literacy?</strong></td>
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<td></td>
<td><strong>RQ Alignment:</strong> (2)</td>
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<td></td>
<td><strong>Follow-Up Question (if any):</strong></td>
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<td>7.</td>
<td><strong>What situations do staff nurses most commonly experience that requires decision-making based on health care financial concepts?</strong></td>
<td>(2)</td>
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<td></td>
<td><strong>RQ Alignment:</strong> (2)</td>
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<td><strong>Follow-Up Question (if any):</strong></td>
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<tr>
<td>8.</td>
<td><strong>To what extent should staff nurses be involved in health care financial decision-making?</strong></td>
<td>(2)</td>
<td></td>
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<td></td>
<td><strong>RQ Alignment:</strong> (2)</td>
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<tr>
<td></td>
<td><strong>Follow-Up Question (if any):</strong></td>
<td></td>
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<tr>
<td>9.</td>
<td><strong>What level of importance do you feel managerial nurses assign to the health care financial competency of staff nurses? Why?</strong></td>
<td>(3)</td>
<td></td>
</tr>
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<td></td>
<td><strong>RQ Alignment:</strong> (3)</td>
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<td><strong>Follow-Up Question (if any):</strong></td>
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<td>10.</td>
<td><strong>Describe how you feel your health care financial competencies align with the perceptions of your supervisor? Does that matter to you, and if so, why?</strong></td>
<td>(3)</td>
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<td></td>
<td><strong>RQ Alignment:</strong> (3)</td>
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<td><strong>Follow-Up Question (if any):</strong></td>
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<td>Interview Question:</td>
<td>Follow-Up Question (if any):</td>
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<td>11.</td>
<td>In what ways have health care financial consequences impacted your role?</td>
<td>RQ Alignment: (4)</td>
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<td>Follow-Up Question (if any):</td>
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<td>12.</td>
<td>How would an increase in the requirements for health care financial competencies be received by staff nurses?</td>
<td>RQ Alignment: (4)</td>
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<td>Follow-Up Question (if any):</td>
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<td>13.</td>
<td>Describe the ways you feel health care financial competency requirements would impact decision-making.</td>
<td>RQ Alignment: (4)</td>
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<td>Follow-Up Question (if any):</td>
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Appendix H: Semi-Structured Interview Questions – Managerial Nurses

Semi-Structured Interview Questions – Managerial Nurses
Health Care Financial Literacy Among Nurses
A Qualitative Intrinsic Case Study
Kory S. Holt, MBA
Liberty University
School of Business

<table>
<thead>
<tr>
<th>No.</th>
<th>Semi-Structured Question, Research Question (RQ) Alignment, Follow-Up Question(s)</th>
<th>Interviewee Response Documentation</th>
</tr>
</thead>
</table>
| 1.  | **Interview Question:** Please describe in detail the most common health care financial concepts you identify with, and why?  
**RQ Alignment:** (1)  
**Follow-Up Question (if any):** | |
| 2.  | **Interview Question:** How would you describe the ways health care financial concepts impact your decision-making?  
**RQ Alignment:** (1)  
**Follow-Up Question (if any):** | |
| 3.  | **Interview Question:** How do you relate your success with health care financial literacy? How do you relate health care financial literacy with the organization’s success?  
**RQ Alignment:** (1)  
**Follow-Up Question (if any):** | |
| 4.  | **Interview Question:** Please describe the ways you and your staff nurses discuss health care financial topics. What is the effectiveness of those discussions and why?  
**RQ Alignment:** (2)  
**Follow-Up Question (if any):** | |
|   | **Interview Question:** In what ways do you feel managerial nurse behaviors and actions influence the perception of financial competency?  
**RQ Alignment:** (2)  
**Follow-Up Question (if any):** |
|---|---|
| 5. | **Interview Question:** How do the actions or behaviors of your staff nurses impact your perspective of health care financial literacy?  
**RQ Alignment:** (2)  
**Follow-Up Question (if any):** |
| 6. | **Interview Question:** What situations do staff nurses and managerial nurses most commonly experience that requires decision-making based on health care financial concepts?  
**RQ Alignment:** (2)  
**Follow-Up Question (if any):** |
| 7. | **Interview Question:** To what extent should staff nurses and managerial nurses be involved in health care financial decision-making?  
**RQ Alignment:** (2)  
**Follow-Up Question (if any):** |
| 8. | **Interview Question:** What level of importance do you feel staff nurses and managerial nurses assign to the health care financial competency of staff nurses? Why?  
**RQ Alignment:** (3)  
**Follow-Up Question (if any):** |
| 9. | **Interview Question:** Describe how you feel your expectations of health care financial competencies align with your staff nurses? Does that matter to you, and if so, why?  
**RQ Alignment:** (3)  
**Follow-Up Question (if any):** |
<table>
<thead>
<tr>
<th>Follow-Up Question (if any):</th>
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<tbody>
<tr>
<td><strong>11. Interview Question:</strong> In what ways have health care financial consequences impacted your role?</td>
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<td><strong>RQ Alignment:</strong> (4)</td>
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<td><strong>Follow-Up Question (if any):</strong></td>
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<tr>
<td><strong>12. Interview Question:</strong> How would an increase in the requirements for health care financial competencies be received by staff nurses? Managerial nurses?</td>
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<tr>
<td><strong>RQ Alignment:</strong> (4)</td>
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<td><strong>Follow-Up Question (if any):</strong></td>
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<tr>
<td><strong>13. Interview Question:</strong> Describe the ways you feel health care financial competency requirements would impact decision-making.</td>
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<td><strong>RQ Alignment:</strong> (4)</td>
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<td><strong>Follow-Up Question (if any):</strong></td>
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Appendix I: Interview Definitions Handout

Kory S. Holt – Principal Investigator and Interviewer
Doctoral Dissertation – Definitions Provided to Research Participants

Definitions:

Decision-making: use of relevant evidence and systematic assessment processes by an individual or collective group to consider confronting tradeoffs and select the favored alternative.

Financial decision-making: use of financial concepts, experience, and knowledge to assess relevant evidence and apply processes as a way to consider confronting tradeoffs and select the favored alternative within the context of financial resource scarcity.

Health care financial concepts: a collection of terms, formulas, and methods of measurement that is fundamental to the efficient administration, application, and provision of health care services.

Literacy: an individual’s ability, skill, competency, or basic knowledge of a defined concept that is considered to be an important life skill.

Nurse intellectual capital theory: a middle-range theory grounded in the fields of economics and accounting that identifies with the human capital and structural capital components of nursing intellect.
### Appendix J: Uniform Interview Documentation Form

Kory S. Holt – Principal Investigator and Interviewer  
Doctoral Dissertation Data Collection – Participant Interview

#### Interview Information:
- Interview with (Participant Pseudonym):  
- Date and Time:  
- Setting/Location:  
- Signed Consent Form: YES NO  
- Participant Questions:  
  - Did the interviewee ask questions? YES NO  
  - Did the interviewer answer the interviewee’s questions? YES NO

#### Situational Information:
- Summary of the interview context:  
- Summary of the interviewee’s initial demeanor:  
- Summary of how the interviewee possessed a willingness to share perspectives and experiences in an honest and detailed manner.

#### Post-Interview Information:
- Interview transcript submitted to participant for review: YES NO  
- Date transcript sent to participant:  
- Participant attestation reviews: YES NO  
- Transcript revision statement required: YES NO
Appendix K: Interview Transcript Review Form

Health Care Financial Literacy Among Nurses
A Qualitative Intrinsic Case Study

Information and Instructions: You have received this form because you participated in a semi-structured interview associated with Kory Holt’s doctoral study entitled, “Health Care Financial Literacy Among Nurses: A Qualitative Intrinsic Case Study”. This form is designed to assist in verifying the accuracy of your interview’s verbatim transcript. Please review the transcript carefully, select one of the options below, date, and sign using your assigned pseudonym in lieu of your name. The lined space is provided for you to provide clarifying remarks, or additional information, should you feel the transcript does not reflect the entirety of your interview.

If additional space is required, please attach a separate sheet to this form and include your pseudonym signature, and date, in the upper right-hand corner. Upon completion, data will be derived from this form and included within the study. The specific form will not be published. Please email completed forms to kholt11@liberty.edu within five days of receiving this form and interview transcript.

PLEASE SELECT ONLY ONE OPTION:

☐ I have received, and reviewed, a verbatim copy of my interview transcript and attest that the transcript is accurate and effectively portrays my personal perceptions of the case study topic (health care financial literacy among nurses).

OR

☐ I have received, and reviewed, a verbatim copy of my interview transcript and wish to add the clarifying remarks and/or the information found below. The inclusion of the remarks will allow me to attest that the transcript is accurate and effectively portrays my personal perceptions of the case study topic (health care financial literacy among nurses).

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Pseudonym Signature</th>
<th>Date</th>
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</table>

Clarifying Remarks and Additional Information (if necessary):

______________________________________________________________________________

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