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PROSPECTIVE NURSING STUDENTS' PERCEPTIONS OF THE IMPORTANCE OF NUTRITION LITERACY: A TRANSCENDENTAL PHENOMENOLOGICAL STUDY

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ABSTRACT

PROSPECTIVE NURSING STUDENTS' PERCEPTIONS OF THE IMPORTANCE OF NUTRITION LITERACY: A TRANSCENDENTAL PHENOMENOLOGICAL STUDY

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Proper nutrition is essential to the prevention of chronic diseases such as cancer, heart disease, and diabetes. It is also important during the recovery period from disease as well as in the maintenance of general good health. In many health care settings, nurses are the initial health care provider with whom patients have contact. All forms of literacy require a solid foundation in fundamental literacy concepts that must be reinforced to fully develop content-specific literacy, such as nutrition literacy. Nutrition literacy is defined as the extent to which nutrition information is acquired, processed, comprehended, and applied in ways that benefit human health. Nurses are integral members of the health care team and should receive proper nutrition education. In light of the key role nutrition plays in health and disease, it is imperative during the early assessment of patients to properly evaluate them with consideration of their nutritional health. Accordingly, nurses should have a solid foundation in fundamental literacy concepts as well as nutrition literacy and possess and understand both fundamental and advanced nutrition concepts and be able to communicate this information to patients. The purpose of this qualitative transcendental phenomenological study was to explore prospective nursing students' perceptions of the importance of nutrition literacy related to the field of nursing and whether they would be sufficiently prepared to address nutrition issues in a clinical setting. All participants were seeking admission to a Bachelor of

Science in Nursing (BSN) program that would result in eligibility for registered nurse (RN) certification. A semi-structured interview protocol involving the incorporation of open-ended questions was employed to collect information regarding the participants' life experiences with nutrition and nursing. Additionally, a questionnaire was used to collect participant demographic information. The findings of the study indicate prospective nursing students believe nutrition is a vital component of health care delivery and should be an integral part of nutrition education to prepare nutritionally-literate nurses for clinical practice.

Keywords: nutrition, nutritional, literacy, phenomenology, nurse, education

DEDICATION

To my mother, who was always there for me and always supported me. No matter how difficult it was for her. I wish I knew then what I know now.

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CHAPTER 1 INTRODUCTION

Literacy is bigger than the sum of its parts and any discussion of the concept, by necessity, must be comprehensive as well as contextual. Literacy is, in fact, a perception viewed through the lens of its observer. In a general sense, literacy is the ability, confidence, and willingness to engage and communicate meaning in all aspects of life (Government of Alberta, n.d.).

The ability to read is commonly considered to be one of the premier pillars of literacy. This ability refers to not only reading text as a print manifestation, but the ability to read the environment and the world and understand it as a metaphysical text (Muhammad, 2015). Literacy is the tool that helps people forge a path to awareness and knowledge, developing a spiritual connection with that knowledge and viewing the world as its source (Muhammad, 2015).

Life's experiences and interactions are integral to literacy development but are too often displaced by positivist views and empirical philosophies (Freire & Macedo, 1987). It is only when viewing literacy through different lenses and with differing perspectives that we are fully able to appreciate the role it plays in the human experience through empowerment and the fostering of intellectual growth and development. Leveling the playing field is essential to reducing or eliminating health disparities. One method to achieve this goal is to empower communities by ensuring everyone has access to the local, regional, and national resources that balance out opportunities. Empowering community members and the underprivileged is not always simple, yet a significant section of the U.S. population will remain largely unwell if they are not fully included in

a healthy society. Health disparities can be reduced and eventually eliminated with the help of empowered communities.

Literacy is what enables an individual to engage with the world. Watching the news on television, viewing videos on social media, listening to music, driving along a busy street, reading online newsletters, or looking out the window at the weather are all examples of this engagement. Each of these engagements requires the application of a specific literacy. Literacy is intangible, something most of us do not ponder or reflect upon. It is an internalized activity that enables individuals to attend to their daily lives without any substantial consideration or effort. Whether we are questioning our own level of knowledge on an issue or reflecting on the abilities of others, literacy is a fundamental prerequisite. Who, what, when, where, and why are daily questions that influence life, and literacy serves to help us appreciate their importance.

Literacy serves as energy, is always available, and helps maintain our awareness of the world. That awareness is vital so we can be conscious of how others are either acting or reacting to their environment. This study comes at the tail end of the COVID-19 pandemic, the worst global pandemic in over 100 years. Accordingly, the importance of literacy is arguably more significant now than at any other time as we engage with global events, attempt to understand them, and develop the acumen necessary to recognize and confront existing struggles. A fundamental role of educators is to help students develop the ability, confidence, and willingness to engage with the world and achieve successes that will allow them to flourish.

The comprehensive nature of literacy addresses a foundation upon which contextual literacy is built. Health literacy represents a specific context in which an

individual must address and interact with the complexities of health care delivery. Nutbeam (2008) described health literacy as "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways which promote and maintain good health" (p. 2074). Inadequate levels of health literacy are not unique to any one population and a lack of health literacy has the potential to bring about unnecessary pain and suffering. From a more focused lens, it is clear there is a substantial disconnect when interpreting and understanding basic dietary and nutrition information. The field of nutrition is replete with conflicting information and misinformation, making it difficult for anyone to make healthy choices. Compounding the problem is the current nutrition paradigm in which nutrition recommendations are applied in a fairly generic manner across the population. With few exceptions, nutrition recommendations are viewed as standard for everyone, with little consideration for individual, community, or cultural needs. Building upon a strong comprehensive literacy foundation, a robust and sustainable level of health literacy can be established, which will encourage, motivate, and support a greater level of understanding and application of health care.

Improving health literacy, and specifically nutrition literacy, in a general sense is important but improving it among those charged with overseeing the provision of health care is mandatory. This will lead to improved understanding and awareness of the risks of developing chronic disease, which will, in turn, improve the chances of a better quality and length of life.

Background to the Problem and Context

Sixty percent of Americans currently live with some form of chronic disease, such as cardiovascular disease, cancer, chronic obstructive pulmonary disease, or diabetes (Hoffman, 2022). Additionally, 40% of Americans suffer from multiple chronic conditions, with studies indicating the presence of one chronic disease substantially increases the risk of developing others, especially with increasing age (Hoffman, 2022). It has been estimated that 10,000 Americans will reach the age of 65 years each day from 2017 through the end of 2029 (Tinker, 2017), with a probable dramatic increase in the overall number of individuals with multiple chronic diseases. Chronic disease is the leading cause of death and disability in the United States and is the major force driving the $4.1 trillion annual U.S. health care costs (Centers for Disease Control and Prevention [CDC], 2022a).

A chronic disease is a condition that lasts for at least 1 year and requires ongoing medical attention or limits a person's daily activities, or both. The most often recognized risk factors for chronic disease are smoking, exposure to secondhand smoke, inadequate nutrition, inactivity, and heavy alcohol use (CDC, 2022a). Chronic diseases frequently result in hospitalization, long-term incapacity, and ultimately death (CDC, 2022a).

Chronic disease not only adversely affects health and quality of life, it also has an associated impact on businesses through absenteeism and presenteeism. Treating the seven most common chronic diseases, when added to the economic productivity losses, results in a cost of over $2 trillion annually to the U.S. economy, or approximately $8,600 per person by the year 2030 (Hoffman, 2022).

The choices people make have a tremendous impact on their health and the development of chronic disease. These choices may be personal or they may be thrust upon them as a result of a lack of access to healthy foods that would reduce their risk of chronic disease. Too often, people live in communities where there is a lack of fresh food alongside an abundance of less healthy processes (O. Roberts, 2020). Dangerous behaviors, including inadequate diet, lack of physical activity, the use of tobacco, and disregarding one's family history, increase the potential for the development of chronic disease. Many people commonly disregard the body's warning signs and symptoms that potentially indicate the development of serious chronic diseases. Additionally, many do not receive the benefits of proper preventive care due to either social or financial barriers (Hoffman, 2022). These circumstances have resulted in an overall inadequate quality of health in the United States, a nation that spends $11,945 per capita annually on health care, which is more than any other nation (McGough et al., 2022).

Proper nutrition is essential to life and to the prevention and mitigation of the development of chronic diseases. It is also important during the recovery period from any disease and for the maintenance of general good health (Ojo, 2019). Boersma et al. (2020) found the prevalence of chronic disease in the United States is on the rise. With this general increase in prevalence, we are also seeing an increase in disease in children. Health disorders once thought to occur only in adults are now being seen more frequently in children (Wang et al., 2020). Bender et al. (2020) observed that chronic health disorders, such as cardiovascular disease and diabetes, are occurring with increasing frequency in children and adolescents suffering from severe obesity.

Obesity, which in simple terms is defined as having excessive body mass for a specific height, has become a public health crisis in the United States with its prevalence steadily increasing over the past 2 decades from 30.5% in 2000 to 41.9% in 2020 (CDC, 2020a). The human body has evolved to store excess energy as fat to be used in times of energy scarcity. It seems there are physiological restraints in place to limit this fat formation within a specific range. However, some people go beyond that range whereas others do not. Excessive bodily fat accumulation brought on by malfunctioning energy balance systems is a more precise definition of obesity (Dhurandhar, 2022). With annual medical expenses for obese adults being $1,861 greater than those for adults with a healthy weight, there is an anticipated yearly medical cost of about $173 billion in the United States for 2019 (CDC, 2020a).

Additional worries center on the problematic rise in childhood obesity, which has been shown to be predictive of chronic diseases that persist into young adulthood and beyond (Bender et al., 2020). Studies showing recent increases in adult and childhood obesity and related diseases provide evidence in favor of these findings. From 2017 to 2020, 14.7 million children and teenagers (19.7%) aged 2 to 19 years were obese (CDC, 2020a). Furthermore, the prevalence of childhood obesity differs by population, with non-Hispanic Black children having the highest prevalence at 26.2%, followed by non-Hispanic White children at 16.6% and non-Hispanic Asian children at 9.0% (CDC, 2020a). Children who are overweight have a higher risk of developing long-term obesity-related conditions such high blood pressure, high cholesterol, type 2 diabetes, asthma, sleep apnea, and problems with skeletal joints (CDC, 2020a). In many cases, the

incidence of these ailments is related to inadequate eating choices and a lack of nutritional awareness.

Obesity in children is known to increase their risk of obesity as adults, contribute to the development of other chronic diseases, and increase health care costs (Cheng et al., 2016). In addition to inadequate dietary choices leading to overweight and obesity, inadequate choices may also result in a lack of vital nutrient intake. For example, inadequate iron intake in children is associated with iron deficiency anemia (Alaimo et al., 2001). This condition has been linked to poor attention, poor memory, and poor academic performance related to vocabulary, reading, and knowledge acquisition, with iron-deficient children performing worse on standardized tests compared to other children (Kapil & Bhavna, 2002; Skalicky et al., 2006). Inadequate iron levels are also related to lower energy levels, feeling tired, and poor retention of information (Pollitt et al., 1996).

Data from the National Health Interview Survey show that from the ages of 12 to 21 years, there is a gradual decrease in the amount of time spent engaging in vigorous aerobic and strengthening activities, with young adults and adolescents entering the college years experiencing the highest declines in physical activity. Children, teenagers, and young adults appear to be more likely than adults to gain weight, engage in irregular exercise, and practice inadequate eating behaviors (Racette et al., 2003). Additionally, early adulthood (i.e., 18–29 years of age) is characterized by a consistent decrease in physical activity, which could be a factor in students gaining weight throughout their first years of college (Racette et al., 2003).

As children move into high school, they become more self-reliant in their decision making and less dependent on parental supervision. Among high school-aged

adolescents, Vaitkeviciute et al. (2015) discovered there is an association between high nutrition literacy and a healthy diet that includes more fruits and vegetables and fewer fatty foods. Unfortunately, teenagers lack the ability to employ the knowledge and abilities they do possess about food to plan, manage, choose, prepare, and consume healthy foods. They also generally have low food literacy (Wickham & Carbone, 2018). Adolescents in one study acknowledged they did not typically read food labels because they did not know what the ingredients were and found the jargon to be confusing. Additionally, they held the view that food labels are only useful for individuals with certain dietary requirements (Wickham & Carbone, 2018).

It has been suggested that pediatric nurses hold educational sessions with high school teenagers concentrating on nutrition advice from the Dietary Guidelines for Americans (DGA) to increase adolescents' nutrition literacy (Bereznay et al., 2019). According to Nissen (2016), when establishing the DGA, committee reports failed to distinguish between recommendations based on expert consensus rather than high-quality randomized clinical trials, resulting in outdated information being reflected in both the current and previous guidelines. Marantz et al. (2008) further asserted that the DGA are jeopardizing health, with a primary focus on the way these guidelines are now generated and distributed. As a result, it has been suggested that any nutrition instruction currently provided at nursing schools in the United States is essentially out of date (DiMaria-Ghalili et al., 2014).

Compounding concerns with the DGA is the recommendation that nurses serve as the principal source of nutrition information and education for teenage students. DiMaria-Ghalili et al. (2014) stated the didactic approaches to nutrition education in nursing

education include stand-alone nutrition courses, weaving nutrition content into other nursing courses, or combining the two approaches. The concern surrounds the inadequate nutrition training provided to nurses. Results of a survey of 264 nursing programs yielded claims that 54% included at least one nutrition course in the curriculum, totaling an average of only 32 hours of instruction, with other programs claiming to weave nutrition content into other nursing courses (DiMaria-Ghalili et al., 2014). Inadequate nutrition is a recognized factor in obesity, diabetes, heart diseases, cancer, and cerebrovascular diseases, yet many health care providers, including nurses, are inadequately trained to address recommendations regarding nutrition in a manner that could mitigate the onset and progression of chronic diseases (Kris-Etherton et al., 2014).

Health literacy may be considered one of the most essential individual abilities to support and control general health determinants (Doustmohammadian et al., 2020). Mosley and Taylor (2017) suggested that to effectively educate patients and support their health literacy development, nurses must possess fundamental and advanced literacy skills. They must be able to effectively read, write, and communicate their knowledge to patients as well as possess the supporting scientific knowledge to assess and apply health care-related concepts. Additionally, nurses must be cognizant of the unique social and cultural determinants of the health care system and of the patients with whom they will interact (Mosley & Taylor, 2017). Only when nurses are adequately educated in all aspects of health literacy will they be able to educate patients in a manner that will improve their literacy skills to improve health and reduce unnecessary suffering (Figure 1).

Figure 1

Elements of Health Literacy

Nutrition literacy is contained within the broader scope of health literacy and necessarily includes all of the same underlying literacy constructs. For example, health care disparity is an unfortunate reality that results in increased morbidity and mortality within at-risk communities. Leveling the playing field is essential to reducing or eliminating health disparity and empowering communities (Luke, 2012). Empowering communities through improved health literacy can serve as one tool to ensure everyone has access to the local, regional, and national resources that balance opportunities. Empowering community members and the underprivileged is not simple, yet a significant section of the U.S. population will remain largely unwell if they are not fully included in a healthy society. Accordingly, for nurses to be able to support patients' nutritional health

and provide current and patient-specific counseling, they must be fundamentally literate, health literate, and nutritionally literate.

Proper nutrition education has been shown to improve academic performance, behavior, and achievement in school (Beckwith et al., 2019), whereas inadequate nutrition is associated with behavioral problems, short-term thinking, motivation issues, withdrawal from learning, and school non-attendance (Institute of Medicine, 2013). The improved health and academic performance of children that has been seen with proper nutrition education often translates into positive behaviors in adults (Beckwith et al., 2019).

It is becoming more widely acknowledged that the period between adolescence and young adulthood—once thought of as one of peak health and well-being—is crucial for promoting health and preventing disease. In addition to an increased risk of developing chronic disease, obesity, and poor lifestyle issues at this stage of life, young people are also at risk of developing long-lasting behaviors and habits that will result in declining health with increasing age (M. C. Nelson et al., 2008). Young male and female students tend to acquire excess weight during their first year of college, and many continue to do so well into their second year, according to Lloyd-Richardson et al. (2009). According to Gall et al. (2009), eating habits that are formed throughout adolescence persist into adulthood and are strongly linked to an elevated risk of cardiovascular disease.

Results of a study by Spencer (2002) showed 29% of college-aged participants had unhealthy total cholesterol (TC) levels, and up to 18% had abnormal levels of TC, high density lipoproteins (HDL), and TC:HDL, putting them at risk for heart disease. The

fact that 50% or more of all participants had at least one parent with high blood pressure or cholesterol, 15% to 21% had borderline values, and 10% to 11% were at risk for high systolic or diastolic blood pressure supported that participants were also at risk (Spencer, 2002). According to Sarpong et al. (2017), there are increasing hazards to college students' general health in the United States, particularly their lack of knowledge about the prevalence of cardiovascular risk factors and their lack of knowledge. They found that 28% of freshmen in their second semester of college were familiar with their blood pressure (BP), 62.9% were familiar with the recommended BP range, 5.3% were familiar with their total cholesterol level, 27.8% were familiar with the recommended cholesterol range, 40.9% were familiar with their body mass index (BMI), and 23.1% were familiar with the recommended BMI range (Sarpong et al., 2017).

It is during the college years that behaviors are shaped regarding diet and lifestyle and students find themselves engaging in problematic eating behaviors, including high intake of fast foods and low intake of fruits and vegetables (Cousineau et al., 2006). These dangerous activities, coupled with the intrinsic lack of awareness regarding healthy eating and lifestyle, lead to an increased risk for chronic disease and increased morbidity and mortality. Reliable and comprehensive guidance provided to his population can help reduce the rates of overweight, obesity, and chronic disease risk during the transition from adolescence to adulthood, thus serving to prevent various associated long-term health consequences (Desai et al., 2008).

Although the body of research on nutrition literacy is expanding, it is still quite small, so general health literacy research must be taken into account when discussing nutrition literacy. The majority of people have trouble using the information on food

labels, according to growing evidence (Cowburn & Stockley, 2005; Kim et al., 2021; Malloy-Weir & Cooper, 2017). In addition, people with inadequate health literacy or numeracy have a harder time and have worse health outcomes (Rothman et al., 2006; Sinclair et al., 2013; Viswanathan et al., 2009). In a low-income rural population, Zoellner et al. (2011) found a positive correlation between decreased health literacy scores and decreased diet quality.

In addition to the need for increased health literacy, critical assessment skills are coming up increasingly often when talking about critical nutrition literacy. Despite the need to use caution when examining content using critical thinking skills, one should not ignore the broader societal capabilities that promote social action (Sykes et al., 2013). As shown by Kickbusch (2009), civic engagement or social action that supports Nutbeam's (2008) concept of critical nutrition literacy can take the shape of a neighborhood protesting the building of a fast-food establishment adjacent to a local school. Challenges to deeply rooted social beliefs about food and health are one example of how critical nutrition literacy manifests.

Alternative food literacy discourses need to be considered as well. Both Drummond (2010) and Fordyce-Voorham (2011) discussed many facets of food literacy. Fordyce-Voorham emphasized the capacity to recognize seasonal crops. Such interpretations might have their origins in progressive food ideologies that emphasize the value of understanding where food originates to encourage sustainable food consumption and choices (Guthman, 2008). Additionally, these competencies are associated with critical nutrition literacy. It is critical to build connections among food, society, and health by considering how the dietary decisions made by people individually and in

groups have an impact on larger populations (Drummond, 2010). This might also include organizations working to develop more stringent food laws and practices to challenge deeply-rooted social beliefs around food. This group of choices may also include choices that are influenced by moral and ethical principles. These elements, which are primarily drawn from the debate on food literacy, are extremely crucial to nutrition literacy as a concept.

Need for the Study

In a clinical setting, dietitians are often part of the health care delivery team and have the responsibility of addressing patients' dietary and nutritional needs. This responsibility, which properly begins with the primary care provider (PCP), normally shifts to the dietitian and includes assessing patients' nutrition status, developing a comprehensive diet plan, and counseling patients to enact the recommended dietary modification (Tappenden et al., 2013). However, when dietitians are not present, the potential for the provision of even the most basic of proper nutrition advice is often lost. Additionally, it is becoming increasingly difficult to find qualified nutrition professionals to address the nutrition needs of patients when the ageing population, which is increasingly susceptible to nutrition-related disorders, is growing rapidly in both size and proportion (U.S. Bureau of Labor Statistics, 2022).

In many health care settings, nurses are the initial members of the health care delivery team with whom patients have contact. Due to the key role nutrition plays in health and disease, it is important during the early assessment of patients to properly evaluate them with consideration of their nutritional health status. Accordingly, nurses should possess adequate nutrition literacy and understand both fundamental and advanced

nutrition concepts and be able to communicate this information effectively to patients (Buxton & Davies, 2013). With this knowledge, nurses will be able improve patients' understanding of nutrition, which may translate into improved dietary practices (Buxton & Davies, 2013).

To develop adequate nutrition literacy, general academic literacy must first be established. Leaders of various universities are recognizing the writing challenges faced by nursing students and are addressing these inadequacies to improve academic literacy (San Miguel et al., 2013). Students with limited English proficiency have benefited from programs providing one-on-one writing support, embedded literacy, and writing tutorials (San Miguel et al., 2013). No matter their background, all students should have access to writing and literacy support to help them during their program of study.

A vital component of literacy related to the nursing profession that is often minimized or not addressed at all is critical thinking. There is a lack of commonality to the definition of critical thinking in nursing and the term does not easily transfer across various disciplines. However, it is acknowledged that aspects of critical thinking, such as problem solving, practice reflection, logical reasoning, and judgment, are important in academic literacy (Naber et al., 2014). Due to the uncertainty surrounding the precise definition of critical thinking, students frequently lack the support they need to adequately develop this ability. In contrast, it is anticipated that they will develop improved literacy as they complete their degree program (Gimenez, 2008). Critical thinking abilities should be explicitly taught to nursing students so they can use these skills in clinical settings.

Because literacy education is traditionally relegated to the primary education levels, postsecondary educators do not often appear to place enough emphasis on the value of the development of both adult literacy and critical thinking skills (Borglin & Fagerstrom, 2012). It has been shown that cultivating college-level student critical thinking abilities will improve writing proficiency, a literacy skill that is vital to the nursing profession (Whitehead, 2002). Unfortunately, college-level instruction does not always provide clear instructions on how to develop these skills (Whitehead, 2002).

Academic writing skills must be integrated into all facets of nursing education, including those that place a strong emphasis on developing clinical skills. Because errors in the clinical setting must be kept to a minimum, graduate nurses must safeguard the safety of patients by providing clear, concise, and properly written documentation of all treatment and care provided. Therefore, it is essential that nurses possess effective writing skills (Jefferies et al., 2010).

Although the existing research indicates evidence-based clinical nutrition education is limited in nursing school, little has been reported regarding the actual level of confidence prospective nursing students have with nutrition education during nursing school and their confidence in being able to address nutrition concerns with patients in a clinical setting upon their graduation. A greater understanding of prospective nursing students' perceptions regarding the nutrition education they will receive in nursing school, as well as their views regarding the use of nutrition information in clinical practice, will aid in the development of nutrition curricula based on the most appropriate adult learning theories for health care professional education. This study was conducted in an attempt to establish a better understanding of prospective nursing students' attitudes

and perceptions of clinical nutrition, thereby supporting efforts to include nutrition in all nursing programs and designing and standardizing an appropriate theory-based curriculum.

Purpose of the Study

Proper nutrition is essential to the prevention of chronic diseases such as cancer, heart disease, and diabetes. It is also important during the recovery period from disease as well as in the maintenance of general good health (Ojo, 2019). In many health care settings, nurses are the initial health care provider with whom patients have contact. Due to the key role nutrition plays in health and disease, it is imperative during the early assessment of patients to properly evaluate them with consideration of their nutritional health. Accordingly, nurses must possess and understand both fundamental and advanced nutrition concepts and be able to communicate this information to patients (Buxton & Davies, 2013).

Courses in nutrition for nursing students not only provide fundamental nutrition information, they also provide accurate, evidence-based knowledge to allow for the identification of inaccurate information and the evaluation of misconceptions, which are replete in the public domain. With this knowledge, nurses can improve patients' understanding of nutrition, which may translate into improved dietary practices (Buxton & Davies, 2013). The purpose of this qualitative study was to explore prospective nursing students' perceptions of the importance of nutrition literacy related to the field of nursing and whether they would be sufficiently prepared to address nutrition issues in a clinical setting. Results help to fill the gap in the literature by examining the level of confidence nursing students have in the nutrition education they will receive during nursing school

and their confidence in addressing the nutrition concerns of their patients. It is well known that nutrition education in nursing school is either nonexistent or inconsistent at best (Yfanti et al., 2011). Little is known about the confidence prospective nursing students have in their limited nutrition education and knowledge and their ability to address nutrition-related concerns with patients. In addition to helping establish a better understanding of prospective nursing students' attitudes and perceptions of clinical nutrition education in nursing school and subsequent nutrition skills in nursing practice, results can be used in supporting efforts to include nutrition in all nursing programs with an appropriately designed and standardized curriculum.

To achieve the necessary level of content-specific literacy, nurses must possess the ability to communicate clearly and critically, two skills that are crucial for their professional clinical practice (Whitehead, 2002). Having these fundamental literacy skills, along with strong written and verbal communication skills, is essential for competent nursing because they minimize errors in the clinical setting and serve to dramatically improve patient safety (Hillege et al., 2014). When nurses lack fundamental literacy skills, concerns arise regarding their limited writing and communication abilities, which will increase the risk of harm coming to patients (Jefferies et al., 2012).

Thus, to practice safely and deliver high-quality patient care, it should be expected that all nurses possess the fundamental literacy skills that will enable them to carry out and document clearly, accurately, and concisely the care they provide. This will help reduce errors, unfavorable incidents in care, and unfortunate litigation because all nursing records, like all medical records, must be accurate as they serve as legal documents and proof of the care provided (S. Roberts & Goss, 2009).

Research Questions

This study was designed in an attempt to establish a better understanding of prospective nursing students' attitudes and perceptions of nutrition education in nursing school and their subsequent nutrition skills in nursing practice. This information can be used to support efforts to include nutrition education in all nursing programs through the design of a standardized curriculum. This research was guided by the following research questions:

1. What are prospective nursing students' experiences and beliefs regarding the need for nutrition education in nursing school?
2. What are prospective nursing students' experiences and beliefs regarding whether they will be sufficiently trained in clinical nutrition during nursing school and be able to apply this knowledge clinically?

Theoretical Frameworks

The chosen theory (or theories) the researcher believes best explain how the research topic was planned, along with any concepts and definitions from those theories that are pertinent to the topic, make up the theoretical framework for a study (Grant & Osanloo, 2015). The theoretical framework links the research issue to other, more general areas of knowledge and shows comprehension of theories and concepts pertinent to the topic. Learning theories can be employed separately or in combination to provide a logical foundation for education by describing, explaining, or projecting how people learn (Aliakbari et al., 2015). The cognitive learning theory (Mukhalalati & Taylor, 2019), the constructivist learning theory (Tsimane & Downing, 2020), and the

transformative learning theory (Tsimane & Downing, 2020) all served as the foundation for the current study.

Cognitive Learning Theory

The cognitive learning theory supports the premise that learning best occurs in a formal learning environment, such as school. This kind of learning involves the development of explicit, recognizable knowledge that is supported by inwardly directed activities involving meaning, information processing, perceptions, reflection, metacognition, and memory (Mukhalalati & Taylor, 2019). The recommendation that nutrition training begin in undergraduate nursing programs lends credence to the pedagogical technique and framework from the perspective of the cognitive learning theory.

Transformative Learning Theory

The transformative and cognitive learning theories both support that verbal or written instructions or demonstrations are the main ways in which learning takes place in a formal way. The transformative learning theory goes on to provide an effective framework to establish and explain the complex mechanisms involved in nursing education. Transformative learning explains the cognitive involvement and structural mental changes seen with the interactive and integrative processes involved in recognizing new insights and changing perspectives. The process often begins with a presentation that alters existing beliefs and understanding, thereby leading to increased awareness and self-reflection (Tsimane & Downing, 2020).

Nutrition has often been considered to be outside the realm of mainstream medical practice and thought of as a complementary or alternative approach to health

care. This view is reinforced by the identified lack of nutrition education in nursing and medical school. Acceptance of the role nutrition plays in health care, both in terms of prevention and treatment, will require a conceptual paradigm shift that can be facilitated through the framework established by transformative learning theory (Tsimane & Downing, 2020). A move from transmissive learning, which is teacher and fact directed, to a transformative paradigm in nursing education is made easier by the transformative learning process. Transformative learning encourages nursing students to develop their ability to think freely so they can use the knowledge they have gained from life experience without reflecting or seeking clarification. Nursing education can be transformed through transformative learning to align with the 21st century worldwide trend that promotes education for sustainable development (Tsimane & Downing, 2020).

Constructivist Learning Theory

Finally, when applied to nursing practice and the role nutrition plays in clinical settings, the constructivist learning theory serves to enhance and validate nurses' awareness and appreciation of nutrition protocols in a clinical setting. Experiential learning is recommended to develop nurses' competency in providing nutrition guidance and counseling in a clinical setting. Knowledge is actively developed and reinforced based on practical applications in the nursing environment (Mukhalalati & Taylor, 2019).

Definition of Terms

Absenteeism—regularly avoiding work or school without good reason (Merriam-Webster, n.d.-a).

Adolescence—the period following the start of puberty when an individual develops from a child into an adult (Merriam-Webster, n.d.-b).

Aerobic strengthening activities—also called endurance activity, activities in which large muscles of the legs and arms are moved in such a way so as to increase heart and lung activity greater than usual. Over time, this will improve heart and lung function (National Heart, Lung, and Blood Institute, 2022b).

Asthma—a disease affecting the ability of the lungs to transport air and allow oxygen to enter the blood. It is characterized by episodes of wheezing, breathlessness, chest tightness, and nighttime or early morning coughing (CDC, 2022b).

Cardiovascular disease—a collection of cardiac and related blood vascular conditions. Included are coronary heart disease, which affects the blood vessels that supply the heart muscle; cerebrovascular disease, which affects the blood vessels that supply the brain; peripheral arterial disease, which affects the blood vessels that supply the arms and legs; rheumatic heart disease, which results from the streptococcal bacteria that cause rheumatic fever; and congenital heart disease, which affects the development and normal operation of the heart from birth (World Health Organization, 2021).

Cerebrovascular disease—a neurologic disease complex resulting from a lack of blood to brain tissue often caused by a cerebrovascular accident (CVA), or stroke, usually resulting in the sudden or subacute onset of focal brain impairment (Good, 1990).

Chronic disease—any condition that lasts 1 year or more and requires ongoing medical attention or limits activities of daily living, or both. Chronic diseases such as heart disease, cancer, and diabetes are the leading causes of death and disability in the United States (CDC, 2022a).

Diastolic pressure—arterial blood pressure measured in the arteries when the heart rests (CDC, 2021a).

Dietary Guidelines for Americans—offer dietary recommendations to Americans to meet nutrient demands, enhance health, and help prevent chronic disorders (U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2020).

Disability—the inability to do any major gainful activity due to any physical or mental disability that is predicted to cause death or that has persisted for a minimum of 12 months or longer (Social Security Administration, n.d.).

Elevated cholesterol—greater than normal levels of various forms of cholesterol expected to be found in the blood. Low-density lipoprotein (LDL), often called "bad" cholesterol, accounts for most of the body's cholesterol. Elevated levels of LDL cholesterol raise the risk of heart disease and stroke. High-density lipoprotein (HDL), often called "good" cholesterol, removes excess cholesterol from the blood and returns it to the liver. Elevated levels of HDL cholesterol can lower the risk of heart disease and stroke. Excessive LDL cholesterol can build up on the walls of the blood vessels and produce plaque, which narrows the blood vessels and reduces their ability to carry blood. This reduced blood flow can result in angina pectoris (chest pain) or a heart attack (CDC, 2020b).

Food literacy—proficiency in food-related skills and knowledge. This prevalent term is broadly applied, although its core elements vary from initiative to initiative (Truman et al., 2017).

Health literacy—how people find, understand, and use health information and how organizations make it easier for people to do that (CDC, 2022c).

High density lipoproteins—see elevated cholesterol.

Hypertension—blood pressure that is higher than normal. Blood pressure changes during the day based on activity. Blood pressure that is consistently above normal may result in a diagnosis of hypertension (or high blood pressure) and may put an individual at risk for other health problems, such as heart disease, heart attack, and stroke (CDC, 2021a).

Iron deficiency anemia—the most common type of anemia, developing when there are inadequate levels of iron in the body. Mild or moderate iron-deficiency anemia may present without any symptoms whereas more serious iron-deficiency anemia may cause fatigue, shortness of breath, chest pain, or dizziness (National Heart, Lung, and Blood Institute, 2022a).

Multiple chronic diseases—when a person is living with two or more chronic conditions at the same time. Presently, 25% of Americans have multiple chronic diseases and among individuals 65 years of age and older, 75% have multiple chronic diseases (Multiple Chronic Conditions Resource Center, 2022).

Nutrition literacy—the extent to which people can access, absorb, and comprehend nutrition information and have the necessary abilities to make prudent nutrition decisions (Silk et al., 2008).

Obesity—refers to weight that is higher than what is deemed healthy for a specific height. A screening method for identifying whether a person is overweight or obese is BMI. The healthy weight range is 18.5 to 25 BMI, depending on the individual. The BMI range for overweight people is between 25 and 30. A BMI of 30 or more is in the obese category. Three categories can be used to categorize obesity: Class 1 is a BMI between 30 and 35, Class 2 is a BMI between 35 and 40, and Class 3 is a BMI at or above 40 (CDC, 2022d).

Overweight—see obesity.

Pediatric nurse—a nurse who specializes in pediatrics, working with patients from infancy through the late teen years. These specialized nurses usually complete advanced training in pediatrics (Explore Health Careers, n.d.).

Presenteeism—to demonstrate that you put in a lot of effort and are valuable to your employer, staying at work later than normal or reporting for duty when you are ill (Cambridge Dictionary, n.d.).

Risk factors—factors that raise the risk of contracting an illness. Age, a family history of specific cancers, cigarette use, radiation exposure, chemical exposure, infection with specific viruses or bacteria, and genetic alterations are a few examples of risk factors for cancer (National Cancer Institute, n.d.).

Skeletal joint problems—any number of medical problems that have an impact on the human skeleton's joints (articulations). Joint inflammation (arthritis) may or may not be connected to joint pain (arthralgia). Along with discomfort, arthritis can result in swelling. Inflammatory arthritis, such as rheumatoid arthritis, infectious arthritis, gouty arthritis; autoimmune diseases, such as systemic lupus erythematosus; osteonecrosis and injuries affecting the portion of a bone forming a joint are just a few of the conditions that can cause arthritis. Frequently, tissues close to the joint, such as ligaments, tendons, and bursae, can be the source of joint discomfort (Villa-Forte, 2022).

Sleep apnea—when breathing stops and restarts many times while sleeping. This can result in decreased oxygenation of the blood and body tissues during the night (National Heart, Lung, and Blood Institute, 2022c).

Systolic—arterial blood pressure measured in the arteries when the heart contracts (CDC, 2021a).

Total cholesterol—calculated by adding the blood high density lipoprotein cholesterol (HDL-c) and the blood low density lipoprotein cholesterol (LDL-c) cholesterol levels, plus 20% of the blood triglyceride level (American Heart Association, 2020).

Total cholesterol—High density lipoprotein ratio (TC:HDL)—a value determined by dividing the total blood cholesterol number by the high-density lipoprotein cholesterol (HDL-c) number. Variation in the TC:HDL ratio may be associated with an increased risk for metabolic diseases and predictive of cardiovascular disease and diabetes (Lemieux et al., 2001).

Type 2 diabetes—when body cells do not respond normally to the hormone insulin. Insulin is made by the pancreas and lowers blood sugar levels by assisting sugar's entrance into cells where it can be used as a source of fuel. As a result, the pancreas produces more insulin to try to get cells to respond. Eventually, the pancreas is unable to produce adequate insulin and blood sugar rises, resulting in type 2 diabetes. High blood sugar can lead to heart disease, vision loss, and kidney disease (CDC, 2021b).

CHAPTER 2 REVIEW OF THE LITERATURE

Inadequate nutrition training of nurses results in inadequate nutrition literacy in nurses and a resultant inequity in delivering quality health care to patients. Additionally, inadequate nutrition literacy in nurses establishes a causal sequence that leads to inadequate nutrition literacy in patients, resulting in inadequate dietary practices and significantly increasing the incidence of nutrition-related diseases. These diseases, which are often chronic, such as heart disease, cancer, and diabetes, have associated increases in morbidity and mortality rates.

It is typical for minority communities and minority populations to suffer from a higher-than-average incidence of chronic diseases (Price et al., 2013), which are highly correlated with inadequate nutrition literacy and diet. Additionally, many minority communities are served not by PCPs, but by various nursing professionals. With poorly trained nurses, these populations are at a more significant disadvantage regarding their nutritional health when compared to non-minority and affluent communities.

When referencing nutrition education in nursing school, as well as the resulting nutrition literacy of nurses, it is essential to address the various facets and specific learning components of how nurses learn. Three learning theories consistent with nursing education are the cognitive learning theory, the transformative learning theory, and the constructivist learning theory. Each of these learning theories addresses a different aspect of nursing education and complements the others. In this study, the cognitive learning theory addressed how nursing students initially acquire specific knowledge through cognitive processing, the transformative learning theory addressed how nursing students take preexisting knowledge and ultimately alter their perceptions to form new knowledge

that is different from what they originally had, and the constructivist learning theory addressed the experiential aspect of learning and how nursing students develop practical competencies in the clinical environment. The following section provides details of each of these learning theories.

Theoretical Frameworks

Cognitive Learning Theory

According to the cognitive learning theory, learning takes place primarily in formal education and is supported by verbal or written instructions or demonstrations as well as an accumulation of explicit and recognizable knowledge supported by meaning, information processing, perceptions, reflection, metacognition, and memory (Mukhalalati & Taylor, 2019). Thought patterns can be changed to assist with and enhance learning if an individual is aware of how their thought processes affect learning. The cognitive learning theory is in favor of this pedagogical approach and strategy because it is recommended that nutrition instruction start with undergraduate nursing education.

Instead of the context or external environment, cognitive learning theory emphasizes the learner's internal environment and cognitive structures (Torre et al., 2006). It addresses the mental and psychological functions that help people learn by giving events meaning, including perception, information processing, insight, metacognition, and memory (Abdulwahed, 2010).

Cognitive learning occurs within the mind through the processing of understanding, storing, and retrieving information (Sink, 2008). The cognitive learning theory is functional when an individual needs to learn how to organize their thinking in a way that will enable them to perform specific tasks (Sink, 2008). For instance, when

learning a new nutrition concept, the brain finds a way to understand and retrieve the knowledge when needed. Assimilation refers to associating a new concept with previous knowledge and then combining it into reorganized knowledge (Sink, 2008). An example of assimilation is taking prior knowledge that minerals in the diet are necessary for proper nerve and muscle function, but then learning they also play a significant role in many enzymatic reactions of all cells.

According to Schunk (2008), cognitive theories place a strong emphasis on the importance of the learner's thoughts, beliefs, attitudes, and values. Cognitive theorists seek to understand the mental processes involved in learning as well as how learning takes place. Primary school is when preferred learning styles are first introduced to pupils, giving them an advantage if they are aware of how they can be used to their advantage. Well-known cognitive learning theorists contend that preferred learning styles come about as a function of information processing over extended periods of time (Knowles, 1988; Piaget & Cook, 1952; Vygotsky, 1978; Wertheimer, 1959).

The concept of cognitive learning involves a focus on how information is taken from the environment, how it is represented and transformed into knowledge, how it is maintained, and how it is subsequently used to direct attention and behavior. Information processing includes receiving, encoding, storing, and retrieving information (Bruner, 1966; Flannery, 1993). Depending on the experiences that occur after the encoding, information is sensed, perceived, paid attention to, and finally remembered, either for a brief time or for a long time. Information is retrieved when it is triggered again in response to current circumstances, stimuli, or tasks. According to cognitivists, the human mind integrates experiences and creates meanings that have an impact on consciousness

rather than being a passively acting station where stimuli come in and reactions go out (Merriam & Bierema, 2014). The goal of the cognitive rationalist is to learn the truth and gain knowledge via reason and analytical thought (Merriam & Bierema, 2014). Western society and higher education systems now mostly adhere to this paradigm.

The German word for pattern or configuration is gestalt and Gestaltists hold that the locus of control for the cognitive process of learning is located inside the person's awareness and an individual learns to understand the solution to a problem after reflecting on it for some time. Accordingly, an individual frequently has an "aha" moment or other quick burst of understanding when coming up with answers or resolving a thought (Ormrod, 1995). Piaget's research on the cognitive development of children laid the foundation for understanding adult cognitive information processing (Tennant, 1988). Researchers who drew inspiration from Piaget's work started to study theories of adult cognitive development. Piaget served as an inspiration for Bruner (1966), who examined the educational process and addressed cognitive and analytical thinking by introducing intuitive knowledge. Intuition, according to Bruner (1977), is a cognitive activity in which an individual comes to practical conclusions that are open to change without engaging in a systematic analysis that would help to establish the formulation's validity. According to Epstein (1998), the experiential system is fueled by intuition, emotion, and instinctive information processing, enabling the individual to generalize using scripts, metaphors, prototypes, and narratives. Preconscious thought processes and emotions are crucial in this system. The contribution of emotions and feelings, contextual requirements of the environment, and experience were all added to the cognitive learning

theory by Damasio in 1994. He considered intuition to be a legitimate aspect of human intellect, judgment, and learning.

Transformative Learning Theory

Transformative learning addresses the cognitive involvement and mental changes that occur with the interactive and integrative processes used to recognize new insights and changing viewpoints. The process often begins with a presentation that alters an individual's existing beliefs and understanding, leading to increased awareness and self-reflection (Tsimane & Downing, 2020).

The transformative learning theory is consistent with nursing education and complements cognitive learning theory well. This theory provides a practical framework to establish and explain the complex mechanisms involved in nursing education whereby nursing students' established knowledge base is challenged and supplanted with new perspectives. Nutrition has often been considered to be outside the realm of mainstream medical practice and considered a complementary or alternative approach to health care. The identified lack of nutrition training in nursing education and other health care professions reinforces this view. Acceptance of nutrition's role in health care, both in prevention and treatment, will require a conceptual paradigm shift that can be facilitated through the framework established by the transformative learning theory (Tsimane & Downing, 2020).

Transformative learning is a learning process that enables a shift from transmissive learning, in which the teacher controls the knowledge delivered to students, to a transformative paradigm. Students must demonstrate their attainment of knowledge through a testing process that is consistent with the cognitive learning theory. The

transformative paradigm encourages nursing students to develop independent thinking skills so they can evaluate the knowledge they have gained through other means or through life experience without stopping to reflect or ask questions. Additionally, transformative learning fosters the growth of competence and confidence in new roles and connections that alter the contexts of learning and employment.

By expanding one's consciousness and transforming basic worldviews in association with the specific capacities of the self, transformative learning can foster criticality in analyzing fundamental underlying premises (Elias, 1997). Changing one's frame of reference is necessary for the transformative learning process. This change is brought about by critical reflection on preexisting assumptions and beliefs, followed by the realization of conscious efforts that will lead to a new view of the world (Grabove, 1997; Mezirow, 1997).

Because transformative learning is learner-centered, active engagement accompanied by critical reflection and discourse is required. It should prompt students to question their current worldviews, take nothing for granted, and seek a deeper and richer understanding that will guide them to new perspectives (Kleinheksel, 2014).

For transformative learning to occur, an antecedent, which is anything that must occur before a learning event takes place, must be present. Nursing students must have specific cognitive views during the transformative learning process, including knowledge, comprehension, analysis, interpretation, reflective thoughts, assessment, and prediction about nutrition and its function in health care (Hoggan, 2015).

Student antecedents serve to promote three phases of the learning process. Phase one results from an expanded self-awareness caused by an awkward or uneasy situation.

The nursing student may experience a cognitive dilemma or a situation regarding the role of nutrition in health care that is at odds with their current worldview, which is based on traditional medical approaches (Tsimane & Downing, 2020). This clash of ideas, or cognitive dissonance, is the first phase's trigger, which increases prospective nursing students' curiosities and promotes awareness and transformative learning. In phase two, nursing students actively participate in cognitive development and the creation of expressive knowledge, which results in new abilities and facilitating awareness. Phase three of the transformative learning process is characterized by metacognition, an active process of monitoring one's own thoughts. Nursing students examine and self-reflect on their actions and motivations during this phase (Tsimane & Downing, 2020). Greater independence in thought is the result of transformative learning and equips nurses with the information and skills they need to satisfy the health care requirements of their patients (Tsimane & Downing, 2020).

Constructivist Learning Theory

According to the constructivist learning theory, learning is an active process of knowledge production in which people create innovative ideas by interacting with their surroundings (von Glasersfeld, 1991). The theory's basic presumptions are that learning is most successful when experiences are contextual and participatory, and that new knowledge is assimilated via the lens of earlier experiences.

Within constructivism, meanings are constructed in place of existing human knowledge. Neither objective nor subjective, meaning is described as arising from interactions and experiences with the outside world (Crotty, 1998). Human reality and knowledge are primarily based on this connection with the outside world, and they are

created by, and shared within, social situations (Crotty, 1998). Constructivism is a learning theory that was developed based on the works of Dewey, Bruner, Vygotsky, and Piaget. It is based on philosophy and psychology and is predicated on the notion that knowledge is socially generated and produced by prior life experiences (Bada, 2015). Additionally, as opposed to an organic learning process, learning is viewed as a mechanical process of intervention. Meaningful learning necessitates reflection and connecting newly learned material to prior knowledge (Brandon & All, 2010).

Driscoll (2000) identified basic principles that guide constructivism. The first is that knowledge is mainly created or developed. Also, constructivism places a focus on five learning goals: self-control, logic, critical thinking, knowledge understanding, and application. Finally, constructivism creates a dynamic and relevant learning environment by offering a variety of views and instructional methodologies. It encourages and promotes student ownership of their education and self-awareness of the process of knowledge building. Scenario-based learning, problem-based learning, and collaborative learning are all used in the constructivist approach to education (Driscoll, 2000).

When applied to nursing practice and the role nutrition plays in a clinical setting, the constructivist learning theory enhances and validates nurses' awareness and appreciation of nutrition protocols in a clinical setting. Experiential learning is recommended to develop nurses' competency in providing nutrition guidance and counseling when working directly with patients. Knowledge is actively developed and reinforced based on practical applications in various nursing settings (Mukhalalati & Taylor, 2019).

A change in teaching methods is required to adopt the concept-based curricular approach within nursing education. Concept-based teaching strategies place a high emphasis on active learning, student ownership of the learning, and the faculty's facilitative role in the learning process. The concept-based approach to nutrition education in nursing education is theoretically supported by constructivism (Brandon & All, 2010).

Nursing educators can use the constructivist learning theory by creating experiences that will assist nursing students in coming to conclusions about what they have gathered through observation or experience (Sink, 2008). With constructivist learning, the learner constructs or makes sense of some experience (Sink, 2008). The learner discovers and begins to understand something. When discussing the concept-based curricular approach to nursing education, it is best to employ a constructivist theoretical framework. According to the constructivist perspective, learning is a continuous, contextual process that builds on prior knowledge (Brandon & All, 2010; Bruner, 1977; Driscoll, 2000).

Nursing students can contextualize dietary concepts to past knowledge or preexisting schemata by working in a clinical setting under the supervision of qualified nutritionists and dieticians. The constructivist learning theory is effective because it promotes self-awareness, places learning in pertinent contexts, and offers students a say in how knowledge is created (Cardellini, 2006; von Glasersfeld, 1991; K. Yilmaz, 2008). The constructivist learning theory enhances learning and is ideal for nursing education because it emphasizes the value of contextual knowledge and individual experiences, two pillars of nursing practice (Benner et al., 2010; K. Yilmaz, 2008).

There are three variations on the constructivist learning theory. Given that it presumes that reality is mysterious and separate from the individual, the first type of constructivism is known as radical constructivism (Doolittle & Hicks, 2003). This form provides evidence that understanding nutrition involves hands-on experience, direct observation, and engagement with the subject matter.

A moderate variant of constructivism, called social constructivism, claims that social interaction, rather than individual intelligence, is the source of knowledge and reality (Doolittle & Hicks, 2003). This type of constructivism necessitates interactions between nursing students and other nutrition specialists to help nursing students gain a deeper understanding of clinical nutrition applications.

The final version is called cognitive constructivism (Brandon & All, 2010). It is based on the idea that knowledge is impartial and independent of an individual's reality (Doolittle & Hicks, 2003). In that knowledge is obtained from sources other than an individual and necessitates practical learning, this theory and cognitive learning theory are similar. To provide a more enhanced teaching event, the constructivist learning theory stresses that students learn by fusing new experiences with prior knowledge (Young & Paterson, 2007).

Another tenet of the constructivist learning theory that may be applied to the three types of learning that have been investigated is the notion that learning happens through three operating systems (i.e., assimilation, accommodation, and equilibration). The learner seeks to incorporate new knowledge into an already-existing framework during the assimilation phase. During the absorption phase, the learner seeks to alter and imitate the current structure with the new information. The last stage is equilibration, which

parallels the physical process of adjusting to a new environment. Any discrepancy in prior knowledge will require the student to reassemble knowledge to maintain equilibrium. Assimilation and accommodation lead to the ultimate state of equilibration (K. Yilmaz, 2008; Young & Paterson, 2007).

Summary

In summary, the three learning theories presented require active cognitive modification, which addresses an individual's schemata. The schema in question relates to nursing student nutrition literacy and the application of nutrition literacy in clinical nursing practice. Each theory necessarily has overlaps as they apply to the process of learning. However, each has been presented to highlight the specificity of their application in nutrition education with nursing students. Cognitive learning relies on external factors (e.g., information or data) and internal thought processes. Transformative learning focuses on the ability of learners to modify their thinking when exposed to new ideas, thereby forming new knowledge. Constructivist learning requires the learner to build upon previous experiences and understanding in an experiential way to construct a new understanding.

Historical Context and Review

Nursing Education

Concerns over the education necessary to become a registered nurse (RN) have persisted for a long time within the nursing profession (Donley & Flaherty, 2002; Jacobs et al., 1998; Matthias, 2010). In the 1800s, hospitals' training programs served as the first attempt at formal education for nurses. The first university-based program, the School of

Nursing at the University of Minnesota, did not start until 1909 (Griffin & Griffin, 1969; Jacobs et al., 1998).

Early nursing pioneer Florence Nightingale understood the importance of formal education for nurses. The Nightingale Model, which was established as the foundation for nursing education in the United States, was based on the tenets that nursing education should take place in a setting that is both educational and non-hospital-related, and nursing school administration should be under the supervision of a nurse (Goldmark, 1923; Griffin & Griffin, 1969). Emphasis was placed on differentiating the duties of nurses based on their education and experience because improving nursing competency was the main goal of providing formal education for nurses (Jacobs et al., 1998; Matthias, 2010). However, from a practical standpoint, recruiting nurses today is mostly determined by license, with little consideration for academic excellence (Jacobs et al., 1998; Matthias, 2010).

A lack of standardized education for nurses was identified within the *Goldmark Report* (Goldmark, 1923) and its authors recommended that nursing education occur in institutions that are focused on education and that courses undergo standardization and be taught at the college level (Griffin & Griffin, 1969). Additionally, *The Brown Report* (Brown, 1948) indicated nursing education was not meeting the needs of society and recommended detailed changes to improve its provision.

Montag (1951) suggested a 2-year associate's degree program in nursing education should be made available in junior or community colleges. The overarching goal was to divide nurses and nursing education into two groups with discrete functions. Though nurses with baccalaureate degrees would be primarily responsible for patient care

and would supervise the work of technical nurses, associate's degree nurses would offer technical services. The original vision was never realized, and the associate's degree became a backup route to passing the licensing exam and becoming a registered nurse. With little to no differences in actual tasks, the distinction between the variously trained nurses essentially vanished. Despite several calls for the baccalaureate degree to be the minimum requirement for nursing education and the ensuing professional debate, the associate's degree is still regarded as a quicker route to a nursing license (Griffin & Griffin, 1969; Jacobs et al., 1998; Matthias, 2010; M. A. Nelson, 2002).

Nursing Regulation and Licensure

Every state has a recognized Board of Nursing (BON) that helps safeguard the public's health by monitoring nursing practice and ensuring its safety. The BON also assesses applications for nursing licenses, grants and renews licenses, and enforces sanctions related to nurse practice (National Council of State Boards of Nursing, 2023).

Enforcement of each state's Nurse Practice Act (NPA) is another duty of the BON. The NPA was created to control and safeguard the public from professionals who pose a risk to the welfare, safety, and health of the people living under its state board's jurisdiction (Huynh & Haddad, 2022). The practice of nursing in the United States requires a license, which ensures the individual possesses the minimal competency required to ensure public safety. The BON is the governing body that determines licensure exam eligibility, which includes, among other things, successful completion of an approved nursing program (National Council of State Boards of Nursing, 2023). Upon successful completion of the National Council Licensure Exam for Registered Nurses

(NCLEXRN), the credential of RN may be used (National Council of State Boards of Nursing, 2023).

Magnet Hospital Designation

The American Nurses Credentialing Center (ANCC) bestows the coveted status of "Magnet hospital," which aids hospitals in drawing in patients, nurses, and other medical personnel. A hospital must exhibit excellence in nursing and patient care to be granted such a status. Currently, there are 601 Magnet hospitals in the United States, making up just 9.86% of all hospitals (ANCC, n.d.).

Hospitals must meet a high bar of excellence to be awarded Magnet status, including transformative leadership, structural empowerment, exceptional professional practice, new knowledge, innovations, and improvements, as well as empirical results (Gagnon, 2021). Magnet hospitals have a higher proportion of Bachelor of Science in Nursing (BSN) certified nurses, more nurses with specialized certifications, and fewer auxiliary nurses. Compared to hospitals without Magnet certification, Magnet hospitals frequently have a higher-quality atmosphere that leads to higher percentages of nursing satisfaction (Gagnon, 2021).

Literature Review

Research into nutrition education in nursing schools is a newly emerging area of inquiry and most often focuses on the quantity of nutrition content included in these programs. Little attention has been given to prospective nursing students' perceptions of the role of nutrition services in health care, levels of nutrition literacy, and confidence in the application of nutrition interventions in a clinical setting.

Nutrition education for undergraduate nursing students has been determined to be inadequate, leading to a critical need to improve this deficiency and increase the nutrition literacy of nurses (Buxton & Davies, 2013). Substantial gaps in the nutrition knowledge of nursing students exist and are likely to result in nurses having difficulties providing proper nutrition counseling to their patients following graduation and entrance into clinical practice (Buxton & Davies, 2013).

The three learning theories discussed are consistently identified in the literature when addressing nutrition education in nursing school. These theories (i.e., the cognitive, transformative, and constructivist learning theories) ideally apply to nursing education as nursing education is divided into two distinct phases. The first phase is didactic, where structured lectures are delivered in a traditional classroom setting. This is followed by clinical training, where students are exposed to various clinical settings, usually in hospitals, and work closely with licensed professionals to develop practical nursing skills. The learning experiences that occur during these phases are addressed by one or more of the three learning theories discussed.

The cognitive learning theory primarily addresses didactic learning and how nursing students initially acquire specific factual knowledge. The transformative learning theory focuses on how nursing students take preexisting knowledge and alter their perceptions to form new knowledge that is fundamentally different from what they initially held. Further emphasis is placed on the associated cognitive processing, through which that knowledge is processed, assimilated, and stored for future use. Finally, the constructivist learning theory covers the experiential aspect of learning and how nursing students develop practical competencies in a clinical environment. A review of the

existing literature identified studies consistent with one or more of these three learning theories.

Cognitive Learning Theory

Current research indicates the solution to the lack of nutrition literacy among nurses is to add nutrition courses into nursing programs, though this is not easily accomplished. Yfanti et al. (2011) stated nursing school curricula are already burdened with multiple complex subjects and incorporating nutrition content into the existing programs may be viewed as adding to that burden and act as a barrier to curricula modification. Additionally, the specific nutrition content that should be taught in nursing programs is believed to be an evolving question that is a source of debate. Although much has been said about the need for nutrition education in nursing and health care programs in general, difficulties exist related to implementing and improving nutrition education. Intrinsic inflexibility in the nursing curricula and the failure to properly define the specific aspects of nutrition to be taught are primary impediments to implementation (Yfanti et al., 2011). The current rigid curriculum of health profession programs in general, such as nursing programs, and the uncertainty of potential course content must be overcome comprehensively. This should address current nutrition research that is evidence-based and serves to improve patient clinical outcomes (Yfanti et al., 2011).

The adverse effects of inadequate nutrition education during nursing school become more apparent and profound when examining nutrition competencies among practicing nurses. The need to include nutrition content in nursing school programs is supported by research involving licensed nurses in clinical practice. Warber et al. (2000)

concluded the nutrition literacy of NPs is inadequate due to the low priority of nutrition education at both the undergraduate and graduate nursing education levels.

Parker et al. (2011) used a validated questionnaire to assess nurses' nutrition knowledge and found only 36% of nursing students in their last year had good scores (60%–79%) for nutrition literacy. The remaining nursing students received average (49%–59%) or subpar grades (40%). The results also showed that compared to other health groups, prospective nursing students' overall nutrition literacy and average mean knowledge scores were lower (Parker et al., 2011). An improvement in nutrition literacy was only seen in one study in which nursing students received specialized instruction on how to maintain a healthy weight (Lee et al., 2017).

Hyska et al. (2015) conducted a survey to learn more about the views held by Albanian medical and allied health professional students ($N = 374$) toward knowledge, attitudes, and behaviors in public health nutrition. The assessment of the attitudes and practice of public health nutrition in the fields of nursing ($n = 312$, 33%), medicine ($n = 280$, 27%), pharmacy ($n = 108$, 22%), and dentistry ($n = 110$, 18%) revealed about one-third of the students were dissatisfied with the quality and quantity of nutrition education they received. Notable gaps in the public health nutrition curriculum have been found in response to medical students' recommendations that the nutrition teaching curriculum be more scientifically rigorous (Hyska et al., 2015).

Transformative Learning Theory

Along with identified concerns regarding the quantity and quality of nutrition education provided during nursing school, concerns have emerged around how practicing nurses obtain nutrition information and stay current. Warber et al. (2000) found 59% of

NPs use professional journals as their primary source of reliable nutrition information, 21% use lay media for nutrition knowledge, and 16% attend postgraduate continuing education classes. NPs are becoming more common members of health care delivery teams and can practice in a semiautonomous manner without the direct supervision of a physician. They are regarded as professionals who have clinical expertise in identifying and managing health concerns as well as in diagnosing and treating illnesses. They operate under the laws of the states in which they are licensed, which includes all 50 states and the District of Columbia. Nursing homes, emergency departments, urgent care centers, private physician or solo NP offices, clinics, hospitals, schools, colleges, and public health departments all use NPs to provide medical care (American Association of Nurse Practitioners, n.d.). NPs need to be encouraged to stay up to date on nutrition research and knowledge as they provide a wide range of services in a variety of clinical settings and doing so will help them to provide their patients the best evidence-based treatment possible (Warber et al., 2000).

The effect of education and the incorporation of a dietary program by the nursing staff working in retirement communities, nursing homes, or group homes for patients with dementia was investigated by Christensson et al. in 2003. The goal was to ascertain whether such a program would affect nursing staff perceptions of the advantages of nutrition nursing care. Five fundamental aspects of nutrition nursing care were measured and identified using an attitude scale: self-ability, individualization, the value of food, assessment, and secured food intake. It was discovered that the nursing respondents at first had an overall favorable opinion of nutrition nursing care. However, approximately 25% of the nurses involved in the study had a negative attitude regarding their patients'

self-ability and assessment of nutrition intervention (Christensson et al., 2003). The cause for this negative attitude was not determined; however, it raises a concern as these nurses were working with a physically and mentally challenged population for whom negative attitudes related to nutrition care delivery could have profound consequences.

In a related study, Bachrach-Lindström et al. (2007) looked at how nursing personnel caring for elderly patients felt about several aspects of nutrition nursing care. A poll was answered by nurses working in medical clinics, resident homes, and geriatric rehabilitation centers. The Staff Attitudes to Nutritional Nursing Care Geriatric measure was used to investigate attitudes. The survey had 18 items and used a Likert scale with a range of 1 to 5. Only 53% of the study's nursing participants had a favorable opinion of the value of nutrition nursing, with the remainder of nurses either having a neutral or unfavorable opinion (Bachrach-Lindström et al., 2007). This study showed nurses do not appear to have a favorable attitude toward dietary-related tasks, even though nutrition difficulties are potentially of greater importance to older people (Bachrach-Lindström et al., 2007). It is suspected that inadequate nutrition knowledge among nursing staff due to the inadequate nutrition education they receive during nursing school may play a role in this problem. The impact on patient outcomes is severe and warrants further investigation.

Concerns arise when prospective nursing students' personal nutrition and dietary habits are unhealthy and potentially influence how they treat patients in a clinical setting. Van den Berg et al. (2012) reviewed how the personal nutrition habits of nursing students affect their nutrition perceptions and clinical judgment, BMI, waist-to-hip ratios, and a 24-hour meal recall. Findings revealed 92% of the nursing students consumed fewer than

two servings of dairy products per day; 35% had an elevated risk of developing chronic, non-communicable diseases; and 65% had waist-to-hip ratios that were associated with an elevated risk of insulin resistance, which can result in type 2 diabetes. Their results support the idea that nursing students need improved nutrition literacy in order to decrease their own risk for chronic diseases as well as to effectively counsel patients on proper nutrition practices.

D. U. Yilmaz et al. (2020) looked at the connection between how health sciences students viewed informational news about health and how they felt about complementary and alternative medicine (CAM). Nursing students are considered part of the broader category of health sciences students. Additionally, nutrition therapy has long been considered to be outside the mainstream or conventional approach to medical care and has been categorized as CAM (Shattuck, 1997). Consistent with these views, contemporary Western medicine has taken a guarded approach to nutrition therapy, with this view being reinforced by the fact that nutrition is generally not taught in medical school. This approach is rationalized by proponents of conventional medicine who contend there is inadequate research to confirm the safety and efficacy of this form of health care.

D. U. Yilmaz et al. (2020) found students studying health sciences used CAM at high rates in relation to consuming health-related material on textual, visual, and social platforms. However, they also discovered that students majoring in health sciences had low levels of formal CAM education, which includes education in nutrition (D. U. Yilmaz et al., 2020). It is possible to draw the conclusion that interactions with written-visual and social media platforms have an impact on health students' and prospective

nursing students' perceptions of the use of CAM and nutrition therapies. These conclusions may change how they feel about using CAM in a clinical setting (D. U. Yilmaz et al., 2020). The various forms of mass media communication have a tremendous force that influences individuals' health perceptions, plays a significant role in how people acquire health-related knowledge, and may influence changes in their health behaviors. The nutritional health literacy of all health care professionals must be improved through formal education to ensure they possess the necessary skills and expertise to critically review and determine whether nutrition-related information acquired from media sources is accurate. The recommendation was made to include CAM methods and health and nutrition literacy courses in all health science education (D. U. Yilmaz et al., 2020).

Constructionist Theory

There is an urgent need to properly train health care professionals, including nurses, to address nutrition-related conditions in an evidence-based manner. Inherent to this need is a focus on current standards for nutrition care and the need to include nutrition education in all levels of clinical training to establish an experiential setting that is consistent with the development of clinical proficiencies needed to provide patients this vital service (Kris-Etherton et al., 2014).

There have been few studies examining the value of prospective nursing students' viewpoints and experiences in relation to human rights in nursing with reference to nutrition literacy and the right to food for elderly nursing home residents. To address the importance of human rights and equity in nursing practice, Dogan et al. (2020) looked at nutrition from the perspective of the human right to food. Focus groups were used in a

qualitative study to gather information before, during, and after nursing students were assigned to nursing homes. Understanding the dietary requirements and right to food of senior patients is a dynamic process requiring regular and everyday training to learn in an experiential manner. A practice-based, experiential-oriented approach to human rights education that focuses on nutrition care aids students by preparing them to handle potential real-life nutrition issues (Dogan et al., 2020). Findings showed it is essential to increase prospective nursing students' nutrition-related competence and literacy and their understanding of and ability to handle challenges related to food and mealtimes. Nursing students need proper training to enhance their ability to handle the complexity associated with providing nutrition care (Dogan et al., 2020).

Cognitive and Constructionist Theory

Because proper nutrition is essential to health, attention to nutrition education should be fundamental in nursing education and of an appropriate level for clinical use. Nutrition education should begin at the undergraduate nursing level and must be consistent with subsequent clinical training and clinical applications related to patient care services (Yalcin et al., 2013). This view was supported by Chepulis and Mearns (2015), who emphasized that nurses need to be prepared to work closely with patients and have the ability to offer evidence-based nutrition counseling and support to promote healthy dietary choices. Unfortunately, current nutrition education does not support this professional goal in nurse training, and it has been suggested that nutrition education not only be taught in undergraduate nursing programs but be reinforced throughout the program and continue in clinical training and practice (Chepulis & Mearns, 2015).

Cognitive, Transformative, and Constructionist Theories

Buxton and Davies (2013) used self-administered questionnaires to collect data on the educational backgrounds, nutrition knowledge, and ability to apply nutrition knowledge as practicing nurses from third- and fourth-year nursing students as part of a comprehensive approach to nutrition education in nursing school. According to the findings, the nutrition education provided in nursing school curricula must undergo significant adjustment (Buxton & Davies, 2013). When nurses receive nutrition training during nursing school, regardless of the training format, most practicing nurses refrain from participating in any continuing education program to remain current with the ever-evolving nutrition knowledge (Arroyo et al., 2008; Crogan et al., 2001).

The essential gaps and restrictions in prospective nursing students' nutrition literacy, which influence their fragmented and limited understanding of general nutrition concepts and incomplete knowledge of food composition, were identified within three research studies (Lee et al., 2017; Van den Berg et al., 2012; Yfanti et al., 2011). An open-ended question format was used in one of the intervention studies to gauge participants' nutrition knowledge. In two of the investigations, structured questionnaires particular to each study used a closed style (Yes/No/Don't know), and in the third study, an open-ended response format was used. The Health Promoting Lifestyle Profile-I questionnaire was used in the other intervention trial to assess nutrition literacy using a 4-point Likert scale with a response range of 1 (*never*) to 4 (*routinely*). Despite nurses having prior nutrition knowledge or formal nutrition instruction, these investigations were crucial in uncovering significant gaps in prospective nursing students' nutrition knowledge and literacy (Chepulis & Mearns, 2015).

Two studies examined the eating habits and general health of nursing students. When compared to food's healthiness, Evagelou et al. (2014) found that food flavor more easily affected eating choices. Park et al. (2015) used nursing students' detailed food diaries that listed every ingredient they ate on two weekdays and one weekend day to examine their health behaviors regarding obesity and bone density. Numerous participants were discovered to have low levels of calcium (52.5%) and vitamin D (65%), as well as elevated levels of salt (85.6%) and cholesterol (53.8%). The harmful dietary and nutrition practices of nursing students included late-night snaking, excessive consumption of caffeinated beverages, a lack of dairy consumption, and insufficient exercise levels (Park et al., 2015).

Relationship Between Prior Research and the Current Study

Although the existing research showed nursing education is limited when it comes to evidence-based clinical nutrition education, little has been reported regarding the actual confidence prospective nursing students have in the current nutrition education provided during nursing school and their confidence in addressing nutrition concerns with patients. A greater understanding of prospective nursing students' perceptions regarding nutrition education in nursing school and their views regarding the use of nutrition information in clinical practice will facilitate the development of nutrition curricula based on the most appropriate adult learning theories for health care professional education. The current study reflects an attempt to better understand nurses' attitudes and perceptions of the clinical use of nutrition literacy, thereby supporting efforts to include nutrition education in all nursing programs. This can be achieved through designing and standardizing an appropriate theory-based education curriculum

that addresses student nurses' existing nutrition literacy at the classroom and clinical levels.

CHAPTER 3 METHOD

The focus in this study was to investigate the perspectives and beliefs of prospective nursing students regarding the importance of developing nutrition literacy through nursing education and clinical nursing practice. This chapter provides a review of the research questions, the paradigms of the methodological frameworks, and a general overview of the characteristics of qualitative inquiry. Additional discussion details the research design, the study context and population in question, participant selection, data collection instruments, data collection, and data analysis. Ethical considerations and establishing trustworthiness are also discussed.

Review of Research Questions

This study was designed to gain a deeper understanding of prospective nursing students' experiences and beliefs regarding the development of nutrition literacy in nursing education and in later clinical nursing practice. It was guided by Moustakas's (1994) approach to transcendental phenomenology. It was the researcher's hope that the insights obtained would assist in the development of a consistent curriculum to aid in efforts to include nutrition instruction in all nursing programs. The following research questions served as a guide for this study:

1. What are prospective nursing students' experiences and beliefs regarding the need for nutrition education in nursing school?
2. What are prospective nursing students' experiences and beliefs regarding whether they will be sufficiently trained in clinical nutrition during nursing school and be able to apply it clinically?

Paradigms of Methodological Frameworks

According to Creswell and Poth (2018), qualitative researchers use worldview paradigms when conducting research and use a foundational set of presumptions or beliefs to direct their questions. With the decision to employ a qualitative approach to investigation, researchers establish a process that is directed by a fundamental methodological framework guided by established qualitative paradigms. This framework served as the foundation that guided all aspects of this study. The importance of qualitative philosophical assumptions cannot be understated, as they are essential to the research methodology and direct the collection of data as well as the analysis and ultimate understanding of the phenomenon in question.

As the current study involved the use of phenomenology as a research method, a detailed understanding of this methodology is warranted. Because phenomenology is used to explore the lived experiences of individuals, which are demonstrations of existential thinking, an understanding of constructionism is necessary. Constructionism is a learning model based on the idea that individuals actively make, or construct, their own knowledge that is contingent upon their interactions with their surroundings and environment. In essence, they create their own reality, which is a manifestation of their perceptions and experiences (Elliott et al., 2000). Accordingly, knowledge, or meaning, is not discoverable, but constructed as a result of an individual's interactions with the world in which they exist. Arends (1998) stated that with a constructivist model, individual construction of world meaning and knowledge occurs through experiences, and this meaning and knowledge are influenced by an individual's schemas, or prior knowledge, as well as new experiences. This prior knowledge can greatly affect the way an individual

either constructs new knowledge from new learning experiences or modifies existing knowledge (Phillips, 1995). Crotty (2003) concluded that human consciousness is the tool that allows people to interpret their world and stated that without consciousness there is no knowledge or meaning.

Learning is not some distant abstraction; it is a social activity that depends on interactions with other people (Dewey, 1938). According to Vygotsky (1978), social interactions form guided learning within a zone of proximal development (i.e., the difference between a learner's current level of proficiency and their prospective level of proficiency with help and guidance), as students socially co-construct knowledge. This form of literacy development is crucial to cognitive growth as the environment influences thought processes. Even though knowledge is socially learned, each person has a unique perspective on the world and the knowledge they are receiving is based on their own prior knowledge and guiding principles. According to constructionism, knowledge only exists in human minds and has no equivalent in any physical reality (Driscoll, 2000).

Qualitative Inquiry

Because the foundations of qualitative research methods are seated within the constructionist theory of learning, a qualitative approach to research is becoming increasingly common in the nursing profession and is proliferating into other areas of health care (Miller, 2010). When the focus of a research inquiry is to learn about the life experiences of others, qualitative methods become a valuable tool. Lincoln and Guba (1985) discussed the holistic nature of qualitative inquiry, explaining how the whole person and their experiences are addressed. Denzin and Lincoln (2005) defined qualitative research as a collection of many human experiences, empirical case studies,

interviews with people about their life stories, observations of how people interact with one another, and visual texts that depict both happy and sad events in a person's life. Understanding a phenomenon from the perspective of one person's experience is the major goal of qualitative research. A process of knowledge known as qualitative inquiry uses a variety of methodological approaches to investigate a social or human problem (Creswell & Poth, 2018).

Through an inductive method, the researcher creates a complex and comprehensive picture, analyzes language, and presents in-depth perspectives from informants (Creswell & Poth, 2018). In qualitative research, the researcher seeks to investigate and comprehend a phenomenon from the perspective of people's actual experiences (Creswell & Poth, 2018).

Four philosophical presuppositions—ontology, epistemology, axiology, and methodology—direct qualitative inquiry. The research participants create several realities, and the ontological assumption addresses the nature of each reality they create. Due to the existence of different realities, researchers must report numerous participant comments and phrases that represent the various points of view that produce distinctive themes (Creswell & Poth, 2018).

The epistemological assumption is that the researcher attempts to work closely with the participants, developing rapport and a level of collaboration that are crucial to this form of inquiry. This close level of work between researcher and participant is intended to reduce any distance or objective separateness that may exist (Creswell & Poth, 2018). Because the participants were former students of the researcher, a level of rapport was already in place that served to establish a relaxed and comfortable setting.

The axiological assumption addresses how a researcher views the value of a study and subsequently makes that value understood. It is conceded that all research has value, but qualitative researchers present their "positionality" to the study context and setting. The researcher also acknowledges any biases and how they may affect interpretations (Creswell & Poth, 2018). Because all participants were engaged in applying to nursing school, the researcher emphasized the importance of this study to the nursing profession and how they would potentially benefit from the study.

The methodological assumption considers the complete qualitative research process, which begins as an inductive process from a body of observations used to derive a general principle (Creswell & Poth, 2018). To develop an increased level of agency with the research, the researcher emphasized to the participants the benefits of this qualitative study and the importance of their experiences.

Phenomenology, as a qualitative approach, begins by detailing multiple statements collected from participants regarding their lived experiences with the phenomenon in question before explicating meanings and clusters of meanings from those statements (Creswell & Poth, 2018). As an extension of the methodological assumption of the study, the researcher explained that the collective experiences of all participants would be integral in developing a meaningful view of prospective nursing students' experiences with nutrition.

There are five qualitative approaches to inquiry. Narrative inquiry involves the telling of stories of an individual's life. Ethnography focuses on describing a cultural group of people or seeking to understand a social group through an immersive process. Case study is used to analyze a theory, explore single or multiple cases, or test a process.

Grounded theory concentrates on generating a theory. Phenomenology, the method of this study, is used to understand the essence of the lived experiences of individuals (Creswell & Poth, 2018).

Research Design

Transcendental phenomenology gives depth and broadens our understanding of human experiences through qualitative research. In its purest form, transcendental phenomenology is focused on the concept of setting aside preconceived ideas about a phenomenon to perceive it in an unspoiled manner, allowing the phenomenon's actual meaning to develop from within and alongside participants' own identities (Moustakas, 1994). Researchers use qualitative methods because of the particular problem or because an issue needs exploration (Creswell & Poth, 2018). The method is also used when a thorough and detailed understanding of a particular issue is wanted and the only way to truly obtain pertinent information is by directly speaking with people who have experience with the phenomenon under study (Creswell & Poth, 2018).

A transcendental phenomenological approach allows a researcher to limit both prejudice and bias, allowing for an unencumbered approach to the insights of the lived experiences of people (Moustakas, 1994). With this approach, bracketing is used to ensure the researcher notes, and avoids, any intrinsic prejudices and presumptions that may have manifested (Creswell & Poth, 2018).

By employing a qualitative phenomenological approach, the researcher in the current study was able to develop an understanding and appreciation for the beliefs and perceptions of prospective nursing students toward nutrition education in nursing school and their subsequent use of nutrition literacy in clinical nursing practice. Eight to 15

prospective nursing students were proposed to share their lived experience regarding nutrition, nutrition education in nursing school, and the potential use of nutrition in clinical nursing practice. After the 11th interview, no new themes were generated from the analysis. It was therefore determined that data saturation had been reached. The researcher continued data collection with two additional interviews to ensure and confirm that there were no new themes emerging (Jassim & Whitford, 2014). Semi-structured open-ended questions (see Appendix A) were presented during either face-to-face or Zoom interviews that were scheduled to last 45 to 60 minutes. Interviews were conducted throughout the months of June and July of 2023. Data analysis was iterative and concurrent with data collection, ultimately using 13 participants to confirm that data saturation had occurred (Bekele & Ago, 2022; Malterud et al., 2016).

Phenomenological data analysis employs horizontalization, where data from each research question are built upon, highlighting statements, sentences, or quotes of significance that offer an understanding of the participants' experience of the phenomenon (Moustakas, 1994). These significant findings are then categorized according to meaning and grouped into developing themes (Moustakas, 1994). These significant statements and themes are used to develop a textural description of the participants' lived experiences. This is complemented by a structural description of the context associated with the participants' experience of the phenomenon (Moustakas, 1994).

Context and Population

This qualitative transcendental phenomenological study was conducted with prospective nursing students to attempt to establish a better understanding of their

attitudes and perceptions of nutrition education during nursing school and subsequent use of nutrition skills in nursing practice. Results help fill the gap in the literature by examining the level of confidence these students had in their nutrition education and their confidence in addressing nutrition concerns with patients in a clinical setting. By establishing a better understanding of prospective nursing students' attitudes and perceptions of nutrition education during nursing school and subsequent nutrition skills in nursing practice, this study supports efforts to include nutrition in all nursing programs and designing and standardizing the curriculum.

Participant Selection and Sampling

For this qualitative study, purposive, non-probability convenience sampling was used to recruit students enrolled in a pathophysiology course required in the nursing program where the researcher was a member of the faculty (see Appendix B). This course is officially offered during the fifth semester of the eight-semester associate's in science/bachelor of science in nursing program. However, most students enroll in the course prior to officially being accepted into the nursing program. This is permitted by the program and done by students to increase their standing and improve their chances for acceptance into the program. Recruitment took place following Institutional Review Board (IRB) approval on June 2, 2023 (see Appendix C and D).

Inclusion Criteria

To participate in this study, participants needed to be currently pursuing acceptance into an RN qualifying nursing program. They needed to be able to fluently read, write, and speak in English. Participants also needed to provide consent to participate (see Appendix E) in the study and complete a demographic questionnaire (see

Appendix F). They needed to be willing to discuss their understanding of nutrition literacy related to health care. They also needed access to a computer and to have internet connectivity.

Exclusion Criteria

Exclusion from the study occurred if individuals were not prospective nursing students, were current nursing students, or had graduated from a nursing program. Exclusion also resulted if individuals were not willing to give consent or speak about their experiences with nutrition literacy related to health care. Participants who were not fluent in English or were not able to meet face-to-face or via Zoom conferencing were also not considered for the study.

Instrumentation

The researcher in this study used two instruments for the collection of data: (a) a semi-structured interview protocol with open-ended questions to provide opportunities for both interviewer and interviewee to discuss topics in greater detail either face to face or using the Zoom platform (see Appendix A); and (b) a questionnaire regarding survey demographics, which was presented to participants following their consent to participate in the study and completed at the time of the interview (see Appendix F). Participants who were interviewed via Zoom were emailed the consent form and demographic questionnaire, which they downloaded, completed, and returned via email prior to the interview.

Data Collection

Data collection took place during June and July of 2023. Participants were made aware of the specifics of the study and the possibility of virtual interviews prior to data

collection. They were given the opportunity to read the consent form after it was explained to make sure they comprehended their part in the study and its goals. Prior to signing the consent form and deciding to take part in the study, individuals also had the chance to ask questions. The researcher made sure all participants were fully aware of their right to withdraw from the study at any time and for any reason without incurring any penalties, and that no payment or incentives would be given in exchange for their participation.

Prior to their online or in-person audio- and video-recorded interviews, participants completed a consent form and a demographic questionnaire with 10 basic questions. Gender, race, educational attainment, years of education, high school or college level nutrition education, and nutritional health issues were a few of the demographic factors that helped the researcher identify demographic similarities or differences among the study participants. The Zoom platform was used to conduct a single virtual interview and all other interviews were conducted face-to-face. The Otter Voice Meeting software was used to transform the audio recordings of the interviews into text, which was used in the research.

All transcribed recordings were listened to and relistened to, ensuring the accuracy of the transcription process. Pseudonyms were used during the study when verbatim quotes were used. Member checking was employed with all participants, with participants validating the accumulated data by means of email communication (Creswell & Poth, 2018).

The researcher discussed the issue of positionality with the participants during the interviews. This discussion detailed that the researcher had been a clinical nutritionist and

nutrition educator for over 20 years. The researcher practiced reflexivity during the data collection as well as during the analysis phase of the study by taking notes about participants' comments and the researcher's thoughts during the interview, by memoing about the interviews shortly after their conclusion, and continually referring to the subjectivity statement. Through this reflexivity process, the researcher attempted to mitigate any intrinsic bias (Creswell & Plano Clark, 2018; Olmos-Vega et al., 2023).

Data Analysis

This qualitative study involved the use of a transcendental phenomenological approach following semi-structured in-depth interviews using open-ended questions conducted by the researcher. Interviews were conducted either in person on the college campus in a private location or via the Zoom video conferencing platform. A total of 12 participants were able to meet on campus; however, one was not and requested a Zoom meeting. The in-person interviews allowed for greater interpersonal experience as the researcher was better able to view participants' body language for a more in-depth understanding of their responses. The Zoom interview did provide an opportunity to view certain aspects of the participant's body language, but to a lesser degree than being in person. The semi-structured, open-ended questions were used to initiate and conduct the interviews and to develop a picture of the participants' understanding of nutrition information and nutrition education as it related to nursing school. Interview transcription was followed by coding and ultimately thematic analysis (Creswell & Plano Clark, 2018).

The role of the researcher in transcendental phenomenological inquiry is to allow the shared meaning for participants of a lived phenomenon to develop without analysis or interpretation. This method of inquiry is an attempt to access the thoughts and feelings of

study participants absent influence from the researcher (Moustakas, 1994). Accordingly, the researcher must exercise reflexivity, address existing biases and notions related to the phenomenon, and bracket, thereby mitigating their influence on participant meanings and allowing the essence of the participants' experiences and reflections to emerge and reflect their awareness of the phenomenon (Moustakas, 1994). Additionally, the researcher must safeguard participants and their data (Sutton & Austin, 2015). Participant identifying information and any data specific to the participants were maintained securely, preventing the improper use or exposure of potentially sensitive information.

Transcribed data were entered into Microsoft Word for detailed review and correction prior to coding. Following proofing and correction of the final transcript, a hard copy was printed for initial in vivo coding. Coding, which was iterative, produced words, short phrases, and excerpts from the transcripts with systematic categorizing yielding patterns, categories, and themes. The process involved taking raw, unstructured, or semi-structured data from the transcripts of the in-depth interviews and structuring them into codes, patterns, and categories for analysis (Saldaña, 2021). Coding was performed directly on the hard copy of the transcript, in pencil, allowing for code modification during subsequent iterative analysis. These codes were then reviewed for common contextual threads and content and grouped into categories related to broader contexts. The categories were further grouped into general themes (Creswell & Porth, 2018).

Trustworthiness

Rigor establishes trust and confidence in a research study's findings and assists the researcher in establishing consistency in the chosen methods. Additionally, rigor can

provide a precise account of the population studied. Trustworthiness is a notion that Lincoln and Guba (1985) suggested to ensure validity and reliability in qualitative research. The three epistemological criteria for trustworthiness are (a) truth-value, which assesses whether the researcher has gained participants' trust in the veracity of the findings; (b) applicability, which measures how well the study's findings can be applied to various contexts and groups; and (c) consistency, which indicates whether the results would hold true if the investigation were repeated with the same participants and in a similar setting.

To improve the reliability of the findings, specific methodological procedures were applied (Noble & Smith, 2015). These consisted of accounting for any individual biases that might have influenced the outcomes, keeping meticulous records, displaying a clear decision trail, making sure the data interpretations were consistent and transparent, including rich and detailed verbatim descriptions of participant accounts to support the findings, exhibiting clarity in terms of thought processes during data analysis and subsequent interpretations, and respondent validation through member checking (Noble & Smith, 2015). In addition, theory triangulation, which involves analyzing and interpreting data using several theories, was used. With this kind of triangulation, the researcher uses various theories to support or contradict findings (N. Carter et al., 2014). The cognitive learning theory (Mukhalalati & Taylor, 2019), the constructivist learning theory (Tsimane & Downing, 2020), and the transformative learning theory (Tsimane & Downing, 2020) all served as the foundation for this study.

Ethics

In scientific research, human individuals are generally used as data sources. Researchers have a duty to safeguard the confidentiality and detailed aspects of the personal information of study subjects (World Medical Association, 2013). The *Belmont Report* provides a framework for evaluating research using three ethical principles: beneficence, which is based on the idea of doing no harm and maximizing benefits while minimizing risks; respect for persons, which calls for the recognition of autonomy and the protection of those with diminished autonomy; and justice, which encourages equal treatment of all participants and the equitable distribution of any rewards (Office of Human Research Protection, 2016).

A request for participation in this study was sent to the email addresses of prospective nursing students taking the researcher's nursing school course. It was made clear to respondents that their voluntary, unpaid involvement in the study would not affect their grade in the college course from which they were chosen. Additionally, respondents were informed of their right to leave the study at any time (Creswell & Creswell, 2018).

The researcher provided participants with enough information and reassurances to enable them to adequately comprehend the significance of their participation, and respondents were screened and authorized based on informed consent. To participate in the study, a person must be properly informed, have thought carefully about it, and then freely expressed their decision without being under any duress (Creswell & Creswell, 2018).

There was full attention and effort to avoid any offensive, discriminatory, or other unacceptable language in the formation of the instruments used in the interview process as well as the questionnaire used in the study (Creswell & Creswell, 2018).

Privacy and confidentiality were of utmost importance to participants and their organizational affiliation. All collected data made use of pseudonyms as did all preliminary drafts. Additionally, the published dissertation uses pseudonyms. All collected data were preserved on the researcher's personal laptop computer, which was maintained in a secure location and required a unique password for access. Any hard paper copies generated for the project were secured in a safe location in the researcher's home until the completion of the dissertation (Creswell & Creswell, 2018).

Study Assumptions

The assumptions in this transcendental phenomenological study were dependent upon how participants answered the survey and interview questions. The first assumption was the participants were freely participating in the study and were fully willing to provide responses to the questions being posed. The second assumption was that participants provided responses that honestly reflected their feelings and knowledge based on a true recollection of their lived experiences. The third assumption was that participants represented the appropriate population of prospective nursing students seeking enrollment in an accredited nursing program.

Philosophical Assumptions

Nursing is a field that is influenced by multiple philosophical influences (Bruce et al., 2014). In philosophy, fundamental truths about the world, the sciences, and the arts are sought (D. Boersema & Middleton, 2012). To make thought about the mind

independent of the empirical world, philosophers explore conscious perceptual experiences. Philosophers look for these experiences in the gathering of factual information about how the world actually works. Philosophy's fundamental goal is to find the truth (Scruton, 2005). A phenomenological approach to truth-seeking aims to investigate how people give meaning to the events and experiences of their everyday, continuing lives (Husserl, 1999; Seamon, 2000). Husserl (1999) made a substantial contribution to the growth of transcendental phenomenology, a philosophical viewpoint on qualitative research techniques intended to understand human experience (Moustakas, 1994). Transcendental phenomenology is based on the idea that to observe things objectively, one must cast aside all preconceptions (epoché). This enables the true significance of events to naturally emerge along with and within an individual's own uniqueness (Moustakas, 1994).

According to Moustakas (1994), phenomenology is a useful instrument for examining and describing people's common experiences with events. Beyond the individual's simple remembrance, the researcher must go deep and investigate the essences and meanings ingrained in commonplace events. Hearing prospective nursing students' opinions and conceptions about nutrition and nursing was important, but understanding the phenomenon required going further to understand why those feelings were expressed.

As a result, a metaphysical understanding of nursing ontological worldviews serves as the philosophical underpinning for nursing education. These ontological worldviews offer a variety of viewpoints on nursing practice concepts, such as people, health, change, the environment, and the nurse's role (Reed & Shearer, 2018). Nursing

axiology establishes our values and enables us to differentiate between the good and the evil, and nursing epistemology involves challenging what and how we know what we know. By emphasizing the value of health and health care, nursing axiology directs patient care (Conoglu et al., 2017).

Chapter Summary

The study methodology used to examine the lived experiences of prospective nursing students and their attitudes and perceptions of nutrition literacy associated with nursing school and during clinical nursing practice was thoroughly discussed in this chapter. The researcher in this study used transcendental phenomenology, as defined by Moustakas (1994), to direct the qualitative research strategy. Discussion focused on the research design, sample and setting, sample recruitment, inclusion and exclusion criteria, and ethical issues. This chapter also covered the method of collecting, processing, and analyzing data, as well as how the study's rigor was established.

CHAPTER 4 FINDINGS AND RESULTS

Overview

The purpose of this phenomenological study was to explore prospective nursing students' perceptions of the importance of nutrition literacy related to the field of nursing and whether they would be sufficiently prepared to address nutrition issues in a clinical setting. The three learning theories that guided this study were the cognitive learning theory, transformative learning theory, and constructivist learning theory. These theories ideally apply to nursing education as it is divided into two distinct phases. The first phase is didactic, where structured lectures are delivered in a traditional classroom setting. This is followed by clinical training, where students are exposed to various clinical settings, usually in hospitals, and work closely with licensed professionals to develop practical nursing skills. The learning experiences that occur during these phases are addressed by one or more of the three learning theories presented.

Due to the lack of nutrition education in nursing programs, the intention within this study was to provide information that can support efforts to standardize nutrition education in nursing programs through the design of a standardized curriculum. This research study was guided by the following research questions:

1. What are prospective nursing students' experiences and beliefs regarding the need for nutrition education in nursing school?
2. What are prospective nursing students' experiences and beliefs regarding whether they will be sufficiently trained in clinical nutrition during nursing school and be able to apply it clinically?

This chapter provides details about the participants, the findings from the interviews, the themes that emerged, and their relation to the principal research questions.

Participant Characteristics

The participants in this study were 13 prospective nursing students from a State University of New York suburban community college in southern New York State. As participants were students in the researcher's class, the researcher had access to their contact information via email. Using purposive sampling methodology, approximately 125 potential participants were informed of the research study either in class or by email for online students, and provided a flyer explaining the study. After the end of the spring semester, students were sent two follow-up emails reminding them of the study with a copy of the flyer as an attachment and were asked to respond if they were interested in participating. Recruitment was ongoing during data collection and ended after 13 interviews due to data saturation. The 13 participants completed the required participant consent form for the study prior to filling out the demographic questionnaire. Their interviews were scheduled at a convenient time for the participants and conducted during June and July of 2023 at a private location on the college campus. One participant was interviewed using the Zoom video platform and the rest were conducted in person.

Demographics

All participants were seeking admission to a BSN program that would result in eligibility for RN certification. Pseudonyms were assigned to each participant to protect their privacy, rights, and confidentiality (Creswell & Poth, 2018).

Nine participants were female and four were male, with ages ranging from 21 to 49 years. The highest level of formal education included seven participants with a high

school diploma, one with a GED, three with an associate's degree, and two with a bachelor's degree (see Table 1).

Table 1

Participants' Demographic Information for Age, Gender, and Education Completed

Number	Name	Gender	Age	Education completed
1	Aiden	Male	21–23	High school diploma
2	Alyssa	Female	40–49	High school diploma
3	Cynthia	Female	35–39	GED diploma
4	Ivanna	Female	Under 20	High school diploma
5	Jake	Male	40–49	Bachelor's degree
6	Kayla	Female	24–26	High school diploma
7	Lana	Female	30–34	Associate's degree
8	Manual	Male	40–49	High school diploma
9	Maya	Female	27–29	Associate's degree
10	Melissa	Female	21–23	High school diploma
11	Richard	Male	40–49	Associate's degree
12	Sarah	Female	21–23	High school diploma
13	Theo	Male	30–34	Bachelor's degree

The participants' nutrition education background was assessed through a survey questionnaire and results showed two had some form of nutrition education in high school with 11 reporting no high school nutrition education. Only one participant reported formal nutrition education in college with 12 reporting none. Three participants reported some form of informal nutrition education with 10 reporting none. Of the participants reporting some form of nutrition education, none reported more than one form (see Table 2).

Table 2

Participants' Nutrition Education Background

Number	Name	Formal nutrition course in high school	Formal nutrition course in college	Any informal nutrition class
1	Aiden	No	No	No
2	Alyssa	No	Yes	No
3	Cynthia	No	No	Yes
4	Ivanna	No	No	No
5	Jake	No	No	No
6	Kayla	No	No	Yes
7	Lana	No	No	Yes
8	Manual	No	No	No
9	Maya	No	No	No
10	Melissa	Yes	No	No
11	Richard	Yes	No	No
12	Sarah	No	No	No
13	Theo	No	No	No

Participants were surveyed about any nutritional health problems they may have experienced. They were asked to respond to whether they had any documented nutritional health issues, which would have been treated by a health care professional, or any undocumented nutritional health issues, which would not have been treated by a health care professional and remained unattended, or something they treated on their own. Four participants reported some form of self-described documented nutritional health issue with nine reporting none. Additionally, four participants reported some form of undocumented nutritional health issue with nine reporting none (see Table 3).

Table 3

Participants' Reported Nutritional Health Issues

Number	Name	Documented nutritional health issues	Undocumented nutritional health issues
1	Aiden	No	No
2	Alyssa	No	No
3	Cynthia	No	No
4	Ivanna	No	No
5	Jake	No	No
6	Kayla	Yes	No
7	Lana	No	Yes
8	Manual	No	No
9	Maya	No	No
10	Melissa	Yes	No
11	Richard	Yes	Yes
12	Sarah	Yes	Yes
13	Theo	No	Yes

The Participants

Below is a brief description of each participant, explaining their educational background, nutrition education, and any health issues related to nutrition.

Aiden

Aiden identified as completing high school and receiving a diploma. He went on to complete 2 years of formal education following high school. He never completed a nutrition course in high school, never took a nutrition course in college, and never took

an informal nutrition class. He claimed to have never experienced any documented nutritional health issues or any undocumented nutritional health issues.

Alyssa

Alyssa identified as completing high school and receiving a high school diploma. She went on to complete 3 years of formal education following high school. She never took a nutrition course in high school but did complete a basic nutrition course in college. She never took an informal nutrition class. She claimed to have never experienced any documented nutritional health issues or any undocumented nutritional health issues.

Cynthia

Cynthia identified as completing high school and receiving a general education development (GED) diploma. She went on to complete 5 years of education following high school. She never took a nutrition course in high school or in college but had completed an informal nutrition class. She claimed to have never experienced any documented nutritional health issues or any undocumented nutritional health issues.

Jake

Jake identified as earning a bachelor's degree with 6 or more years of education following high school. He never took a nutrition course in high school or in college and had not completed any informal nutrition classes. He claimed to have never experienced any documented nutritional health issues or any undocumented nutritional health issues.

Kayla

Kayla identified as completing high school and receiving a high school diploma. She completed 4 years of education following high school. She never took a nutrition course in high school or in college. However, she had completed an informal nutrition

class. She claimed to have experienced documented nutritional health issues but no undocumented nutritional health issues.

Lana

Lana identified as earning an associate's degree and completing 4 years of education following high school. She never took a nutrition course in high school or in college. However, she had completed an informal nutrition class. She claimed to have never experienced any documented nutritional health issues, but she had experienced undocumented nutritional health issues.

Manual

Manual identified as completing high school and receiving a high school diploma. He completed 3 years of education following high school. He never took a nutrition course in high school or in college. He had not completed any informal nutrition classes. He claimed to have never experienced any documented nutritional health issues or any undocumented nutritional health issues.

Maya

Maya identified as earning an associate's degree and completing 4 years of education following high school. She never took a nutrition course in high school or in college and had not completed any informal nutrition class. She claimed to have never experienced any documented nutritional health issues or any undocumented nutritional health issues.

Melissa

Melissa identified as completing high school and receiving a high school diploma. She completed 2 or fewer years of education following high school. She did take a

nutrition course in high school but did not in college. She had not completed any informal nutrition classes. She claimed to have experienced documented nutritional health issues but no undocumented nutritional health issues.

Richard

Richard identified as earning an associate's degree and completing 3 years of education following high school. He did take a nutrition course in high school but did not in college. He had not completed any informal nutrition classes. He claimed to have experienced both documented nutritional health issues and undocumented nutritional health issues.

Sarah

Sarah identified as completing high school and receiving a high school diploma. She completed 2 or fewer years of education following high school. She did not take a nutrition course in high school or college. She had not completed any informal nutrition classes. She claimed to have experienced both documented nutritional health issues and undocumented nutritional health issues.

Theo

Theo identified as earning a bachelor's degree and completing 6 years of education following high school. He did not take a nutrition course in high school or in college. He had not completed any informal nutrition classes. He did not claim to have experienced any documented nutritional health issues but did claim to have experienced undocumented nutritional health issues.

Data Analysis

The interview questions were open-ended to enable participants to share their attitudes and perceptions regarding the importance of nutrition literacy related to the field of nursing and whether they would be sufficiently prepared to address nutrition issues in a clinical setting. The researcher completed all the data analysis manually without the aid of qualitative software.

The researcher analyzed the interviews within the context of the two research questions using open coding to identify common responses, phrases, and themes within the participants' responses (Saldaña, 2021). The researcher engaged in descriptive coding in a concurrent and iterative manner that generated categories that were continuously reviewed and modified until relevant themes emerged. "Qualitative inquiry demands meticulous attention to language and deep reflection on the emergent patterns and meanings of the human experience" (Saldaña, 2021, p. 15). Though three distinct base themes emerged, they were found to be identifiably interconnected as the data were continuously reviewed and refined (see Figure 1).

Ultimately, the three relevant base themes that emerged from the data analysis were (a) general nutrition literacy, (b) primary health professional nutrition literacy, and (c) clinical application of nutrition literacy. Additionally, six relevant subthemes were identified (see Figure 1). Findings are presented as they relate to each research question. Following each research question are the relevant base themes and subthemes.

Figure 2

Emergent Themes

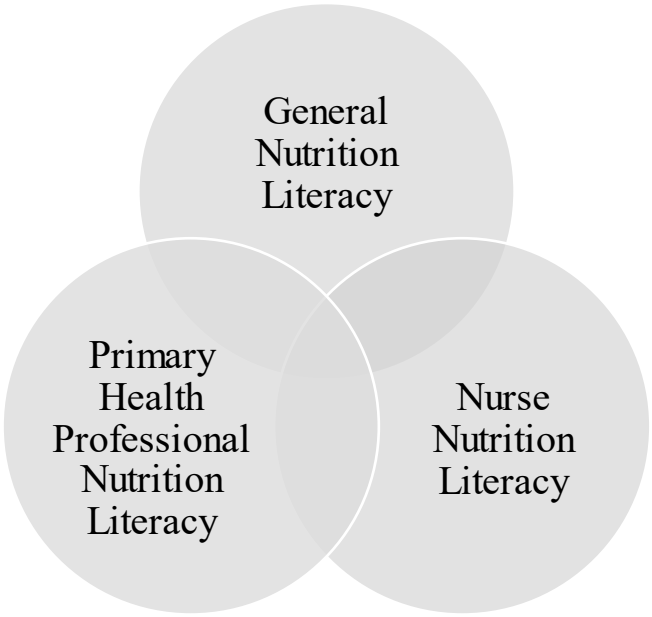

Table 4 summarizes the themes and subthemes that emerged from the research questions, the number of codes used to determine the subthemes, and the number of participants who responded. The next section is a detailed discussion of each theme, providing evidence and an analysis of each.

Table 4

Themes and Subthemes Coded Instances

Themes and subthemes	Number of codes	Number of participants
General nutrition literacy		
Obtaining reliable publicly available nutrition information	32	13
Discussing nutrition with other prospective nursing students	13	13
Primary health care professional nutrition literacy		
Discussing nutrition with a primary health care professional	27	13
Confidence in the nutrition information provided by a primary health care professional	23	13
Nurse nutrition literacy		
Nutrition education in nursing school	66	13
Nurse clinical application of nutrition	51	13

Research Question 1: Do Prospective Nursing Students Believe There is a Need for Nutrition Education in Nursing School?

General Nutrition Literacy

Nutrition literacy is defined as the ability of people to access, absorb, and comprehend nutrition information and ultimately be able to make use of that information in various ways (Silk et al., 2008). This definition can be applied to the general population as they seek out nutrition information for their own nutritional health. The definition can also be applied to health care professionals as they endeavor to learn about nutrition concepts that can be applied in a clinical setting for the prevention and treatment of nutrition-related diseases. The purpose of this study was to explore prospective nursing students' perceptions of the importance of nutrition literacy related to the field of nursing

and whether they would be sufficiently prepared to address nutrition issues in a clinical setting. Additional insights were gained regarding how the general population views nutrition literacy. When exploring participants' views of current nutrition literacy, their current schema as well as their interactions with other prospective nursing students and other health care professionals provided insight into their views regarding the value of nutrition education in nursing school and after.

This section addresses the subthemes of (a) obtaining reliable publicly available nutrition information, which was addressed by 13 participants and coded 32 times; and (b) discussing nutrition with other prospective nursing students, which was also addressed by 13 participants and coded 12 times.

Obtaining Reliable Publicly Available Nutrition Information. Today, with quick internet access being a click away, it is simple to become confused or overwhelmed if an individual does not know where to look for trustworthy nutrition information. As a result, it is critical to understand where to look for reliable sources of nutrition information and how to analyze such information when it is encountered.

Initially, participants were questioned about the importance of nutrition information and its availability to the general public. The issue of access was tied to the use of that information and potential health concerns that may result from questionable decision making. Alyssa addressed the issue of the importance of nutrition literacy in the general population and the impact choices have on dietary patterns:

> I think it's important. I mean, we have so many options of things to eat. And there are, like preservatives and sodium, things that should be banned. And then you have the fast-food choices, they're no better nutrition wise, and they're

> everywhere so there's a lot of bad stuff being offered, and I think it kind of overshadows good quality nutrition. People make bad choices because of convenience.

Convenience was an important factor linked to dietary and nutrition choices. The idea of being able to grab a quick bite without regard to what was being eaten was concerning. Kayla felt there is a certain mindset that contributes to the choices people make about foods, leading to bad choices that result in poor health:

> Yeah, I think it's important to educate people about nutrition because there's a lot of, especially from when I was growing up with like McDonald's and like all the fast-food that's popular. Yeah. I think it's important to kind of take people away from that mindset and remind them how easy it is to eat a vegetable at least once in a while.

Kayla expressed concern about the choices people make about what to eat when away from home, whereas Jake expressed concern about the quality of food prepared at home. Jake felt nutritional health issues arise as a result of the way people cook. The implication being that even though cooking at home is often considered a healthier option, the practice can contribute to health problems if not done properly and with proper knowledge:

> I think it's important to know that if you're either cooking with too much salt or you're eating foods with too much salt that that's going to be issues down the road, whether it's your blood pressure, whether it's you know, I mean, butters and things of that nature and stuff that makes cholesterol high and stuff like that.

Kayla also addressed the practice of cooking at home, but unlike Jake, focused more on the benefits when it is done properly:

> I know it's crazy because sometimes I think about my friends who I feel like they only ever eat like, you know, like eat out and stuff like that. And I just I think it's kind of crazy because it's like, you know, you can just cook at home and you have access to all these like, you know, good foods for you. To make sure you're properly getting the nutrition that you need.

Cynthia, similar to Kayla, expressed the importance of positive nutrition practices. Cynthia worked in a nursing home and interacted with many patients who were suffering from various health conditions. She related that employing basic positive nutrition practices could be important in supporting the general health and well-being of these individuals. She commented:

> Of course. Anything that you consume can affect . . . your body. In my work experience in nursing homes, even people who have diabetes and pressure ulcers, these are people in the nursing home now. Okay, so when I was trying to encourage them to take . . . anything that has vitamin C that's going to help. So, it is definitely very important. So, there is a definite role.

It can be difficult to locate trustworthy nutrition information. There are countless websites that offer suggestions, hints, and connections to additional resources. There are also many different health and fitness experts who offer diet and nutrition advice, and it can be challenging to sort through all the material. Maya also expressed her views regarding how people get nutrition information and showed concern about the level of reliability of this information:

> So, people generally get information with the computer, online. For as far as like the broad spectrum, probably social media. Social media, like people who are working out they, like I've seen on social media, there's people that's working out, probably not certified trainers, but they post like their eating habits and how they eat if you want to look like how they look. Like influencers.

Maya went on to provide additional details regarding the potential health effects of inadequate nutrition due to how people get their information:

> So, I think it all depends, like everything isn't always good because there's also food networks and channels that make food that's like, heavy in salts and all that other stuff, and it might look good, but it doesn't mean that it's good for you. So, I would say half and a half. It all depends on the person if they're educated or not enough or depends on what kind of goal they're going for. So, there's no clear-cut answer.

These concerns are supported by English et al. (2021), who concluded one aspect of lifestyle that raises the risk of death from chronic diseases is unhealthy eating habits and there is a clear link between the food an individual eats and mortality. Melissa had similar views supporting Maya's statements, stating, "Nowadays, social media, okay. I think that's where I see a lot of people getting information." Additionally, Aiden commented that:

> I think probably it's easy to say everybody just looks at Google or YouTube videos or wherever you give sponsorships. People run into some kind of media type thing and it's always going to be media to some extent, just what we

> consume . . . a lot of it is either by the spreading of the word and the way people communicate or just through media consumption.

For the majority of people, maintaining a balanced diet that includes nutritious foods is challenging for a variety of reasons. The propensity to consume "junk" food or other unhealthy foods as well as eating too much or too little are all factors. Lack of knowledge or comprehension of food nutrition is one factor many people frequently overlook that can make keeping a healthy diet extremely difficult or even impossible. Mya believed nutrition ignorance is a principal concern. When referencing where people get reliable nutrition information, she commented:

> I wish I knew! I like to believe that they're just none the wiser and they don't know when they're just you know Oh, I'm too busy. So, I have to do whatever's quickest or what I know. And the thing is ignorance, and they don't research because to me, if you research and you're doing all the things that you know aren't necessarily good for you.

Articles proposing information about nutrition can be found everywhere, from print media to digital sources. With so much information being released constantly, it can be challenging for readers to distinguish between solid research, questionable studies, and sensationalism. The media frequently oversimplifies nutrition research because it can be complicated. It is common to generate attention-grabbing headlines by focusing on a single preliminary study that has not been confirmed by further research or to highlight a study that deviates from current health care norms.

A detailed analysis showed all participants expressed concerns about the quality of nutrition information individuals possess and the reliability of that information.

Electronic formats, especially social media, were identified as primary sources for obtaining nutrition-related information.

Discussing Nutrition With Other Prospective Nursing Students. The lack of interest in or conversation about nutrition among prospective nursing students was a common observation, possibly due to a lack of family exposure during formative years or because primary and secondary education did not adequately cover the subject. Participants explained that the subject of nutrition was simply never brought up. Theo stated the following regarding nutrition discussions with fellow students: "Not really, like any of the interactions I've had with people in our class, conversations we had are probably like 80% about our classes and 20% just random." Sarah supported this view of nutrition discussions among fellow students by commenting:

> Very loosely. Okay. It's what I've noticed. Maybe on a slide or two of PowerPoint, it hasn't been very, I mean, the whole chemistry like protein carbohydrate, that thing has been in depth, but not really, to the point where I'm like, oh, I'm learning about nutrition. Maybe gonna get to me this discussion, nutrition is excellent. It's not really a topic that is really discussed.

Manual engaged in a similar discussion and expressed his thoughts about nutrition discussions with his fellow students by offering:

> The biggest thing you talk about . . . when you're in school is how much coffee are you taking in a day. Have I spoken to them about that? Probably not. Because it just, yeah, we tend to talk more about the classes at hand as opposed to the other stuff that can be impacted on. If nutrition came across in a course that we're

talking about, of course, that would probably be a discussion based on a study group or something of that nature, but it's not part of everyday conversation.

The findings are consistent with nutrition not being a topic of discussion among prospective nursing students and may be the result of students having more concern for other classes that are deemed more important and take a higher priority.

In summary, analysis of the data provided by prospective nursing students regarding general nutrition literacy revealed a consistent view that there exists a general lack of adequate nutrition literacy. Finding reliable and valid nutrition information was deemed to be challenging and commonly sought through various electronic and media-based means. When nutrition information is identified, convenience and expediency tend to supplant efforts to confirm validity. Because prospective nursing students have not begun their formal nursing education, their level of nutrition literacy is similar to that of the general population. Accordingly, nutrition literacy among this group is inadequate and the discussion of nutrition among these students is typically nonexistent.

Primary Health Professional Nutrition Literacy

The benefits of proper nutrition counseling are only as good as the abilities of those providing that service. A crucial aspect of patient care is healthy eating. Eating properly supports mental health as well a provide substantial physical benefits. Even so, studies on the early years of medical education and subsequent clinical training support how frequently patient nutrition is disregarded in both the clinical setting and medical academic curricula (Frost & Baldwin, 2021). The general population, and ultimately patients, rely on health care providers to be properly trained and in possession of the skills necessary to effectively address the health problems with which they are presented.

In recent years there has been a shift toward integrative and more natural healing and away from the use of medications, which often have significant untoward effects (Seetharaman et al., 2021).

This section addresses the subthemes of (a) discussing nutrition with a primary health care professional, which was addressed by 13 participants and coded 27 times; and (b) confidence in the nutrition information provided by the primary health care professional, which was also addressed by 13 participants and coded 23 times.

Discussing Nutrition With a Primary Health Care Professional. Primary health care providers understand the importance of providing valid nutrition advice to their patients. However, they admit that they require education and access to evidence-based information that they are able to apply effectively to patient needs within the time constraints of standard consultations. Medical education should be improved to provide an emphasis on nutrition education and the ability to provide advice in a clinical setting (C. Carter et al., 2022). When addressing nutrition advice from his PCP, Manual stated:

> Yes, he definitely wants me to watch what I eat. I am 198 pounds and I'm only 5'6" so technically I am overweight, and he would like me to lose at least 25 pounds. Easier said than done . . . He didn't really give me directions on proper nutrition. It was more about how you need to prevent eating certain things. It's not necessarily you know; eat this and don't eat fat.

Jake related a similar experience when asked if he discussed nutrition with his PCP, offering, "Yeah. With my primary care." He elaborated that he was the one who initiated the conversation regarding nutrition, but felt it was not something his PCP addressed:

> Probably me bringing that up. You know how I can change certain things within my diet or what I should do with my diet. To improve, like, for example, the blood pressure situation, and if there's anything that I could do there . . . I think their go to is medication. That's what I'm kind of looking for. Right? They want you to come away with a medication, and then I've been on it. I've never gone on any blood pressure medication. Nutrition is not part of their discussion.

Ivanna expressed a different experience, indicating her PCP brought up the topic of nutrition: "My doctor brings it up by asking, like how I've been eating, what I've been eating." She also had a positive experience, which indicates her PCP may have greater nutrition knowledge than a typical PCP as he followed up on subsequent visits:

> Yea, if I say I've been eating more processed foods or I've been eating, you know, fast food you know, he kind of makes suggestions. Yeah, make suggestions and then like the next appointment the doctor like asked how it's been going?

Melissa also claimed to receive advice from her PCP and shared, "Yeah, about the low iron. He gave me advice about foods to eat and said to take an iron supplement." Although both Ivanna and Melissa did have a positive experience with their PCP regarding addressing nutrition, neither claimed to have been given any detailed advice indicative of the PCP being well versed in nutrition.

Confidence in the Nutrition Information Provided by a Primary Health Care Professional. Al-Gassimi et al. (2020) found that PCPs felt comfortable offering nutrition counseling to patients with chronic diseases linked to diet. However, a higher level of nutrition expertise would help PCPs support patients more successfully in changing their eating habits and health conditions, which would improve public health.

When discussing the reliability of the nutrition information provided by her PCP, Ivanna stated:

> Not really, it was more so just saying to like limit like processed foods and add more like home cooked. It seems like the advice is valid, but nothing specific. So far. Nothing really super specific. Just kind of general dietary recommendations.

Aiden had similar encounters that supported Ivanna's views, addressing the lack of detail:

> It's universalized more. It's hey, eat more avocados for good fat, drink more milk to get better balance. It's very much at face value. You get what you get for it. But if you want a little bit more you got to do your own research. So, it's not the kind of information you would hope to get from a licensed professional. I think you get enough to be able to get on but it's nothing, I think, to be able to significantly build a routine that can improve the quality of life, so you have to be more proactive. It's enough information to survive, but not enough to thrive.

Melissa provided a more optimistic view of the validity of nutrition information provided by her PCP, stating:

> Well, my doctor, I've known him for a very long time, so I just have a good rapport with him. I feel like I yeah, I would listen to like whatever he says it's not like I said before, like social media like celebrities, Doctors are trained, you know.

Alyssa provided a broader perspective regarding the validity of advice from the PCP addressing the role of the patient. She discussed the interplay of responsibility between the PCP and the patient regarding the use of nutrition information in practice. She commented:

> I mean, they'll have you see like an endocrinologist and nutrition specialist sometimes. But as far as like a follow up, and hey, next time you're at your annual how's it going? Did you change what you're eating? Have you included, let's just say radishes, to your diet, you know, did you get anything out of it? I don't think there's a lot of that. And I don't think it's necessarily because of the doctors. I think the patients still just don't see how important it is. If the patients don't see it as being important, it goes back to the healthcare provider because you would think that they would reinforce what's important, right?

Alyssa continued by stating the medical model of using medication minimizes the importance of nutrition intervention. She suggested:

> I think it loses its importance down the line. If there's other things maybe going on with the person, I mean, if somebody has heart disease, death. We'll put patients on medication. It's like here's the meds and we'll see them in three months. Because we got it under control. That's the problem.

Maya had similar experiences when confronting PCPs about the topic of nutrition:

> He did ask me what I am eating. And then I told him what I'm eating and then that's when he brought the sheet out and told me okay, if you want to do this, you eat this. If you wanna do this, then eat this.

The lack of specificity of nutrition knowledge is a common finding related to traditional medical practice and patient recommendations. A common thread among the participants was the need for more detail and direction from PCPs when providing nutrition advice to improve health outcomes.

Sarah, who described herself as overweight, commented on discussing nutrition with her PCP and offered:

> Yes. My primary, a physician. My mom does have hypothyroid, she does have a lot of the same symptoms, okay. So, I've gone to the doctor to discuss that. But I think, and I don't know if you feel this way too, when a doctor, no matter what they think, when they see a heavy person come into their office. it's almost like they know, I'm just going to listen to this woman babble. And then I'm going to say it's your weight. That's what the problem is. It's your weight. I could go in there saying I have a rash and they would say it's your weight.

Saraha's frustration stemmed from her feeling of prejudice on the part of the PCP and the lack of providing any relevant detailed nutrition-related advice to help the patient. Sarah went on to state:

> When I was young, I was probably in middle school or high school, and saw either a nutritionist or dietitian, I don't remember, and she kind of just looked at me and said, well, eat salads and add protein to it. And I was like, you want me to eat salad for the rest of my life with some chicken cut in there?

Here we do not have a physician providing nutrition advice but some type of nutrition specialist. Nonetheless, with this specialization, there was still a lack of specificity in providing the patient with a roadmap to improved health.

Maya also expressed a disconnect when it comes to PCPs and nutrition. She worked in the office of an obstetrician/gynecologist and provided the following insights:

> I work with an OBGYN, and we have a bunch of women that come in and they complain of certain things and most times, ways that it can be fixed with their diet

and losing weight. Now I do work with a male physician. So, it's a little bit different. I assist him when he's in the room and he's talking to these patients. Sometimes I don't think he explains things best, like it can be explained a little bit differently. Like he just would say, you know, you need to lose some weight but you're not giving them like the keys as far as what to do and I don't know if he's knowledgeable in that, like, I don't know if he's able to be like, oh, you need to eat this and this and this to lose the weight or whatever the case may be. He just says you need to lose some weight.

In summary, a consistent finding from the participants was that health care providers, including PCPs, do not provide the expected and required detail and specificity one would assume from licensed primary health care professionals. This lack of nutrition literacy among trusted professionals may serve to negate the benefits of nutrition in health care and ultimately reduce the potential positive clinical outcomes related to improved nutrition practice by the general population.

Nurse Nutrition Literacy

Nursing students' nutrition literacy and nutrition knowledge levels correlate positively with one another. Nutrition lessons should be incorporated into nursing school curriculum to raise students' levels of nutrition knowledge as well as increase their nutrition literacy, which will contribute to the prevention and treatment of non-communicable diseases (Mengi Çelik & Semerci, 2022).

This section addresses the subthemes of (a) nutrition education in nursing school, which was addressed by 13 participants and coded 66 times; and (b) nurse clinical application of nutrition, which was also addressed by 13 participants and coded 51 times.

Nutrition Education in Nursing School. Knowing it is easier to maintain health than to recover from illness, nurses can actively promote healthy eating habits to give patients the tools they need to do so. Nurses can help patients understand the role of proper nutrition by breaking down complex nutrition concepts into more manageable pieces. However, giving nutrition instruction to patients can be difficult for nurses who lack knowledge.

Cynthia made an important connection with nutrition education and other required courses in nursing school. Specifically, she felt there was an important tie with nutrition and lab values. She commented:

> I think if you can tie it with the lab values, okay. That'd be amazing. Okay, you know if you could tie it with the potassium and the sodium and the sugars and kind of tie it together, because we have those charts imprinted in our minds if we can do that, with nutrition, you can combine it together. It gives you a better understanding and it helps you to expand it.

Manuel was more inclined to forgo a specific course in nursing school and suggested sprinkling the topic into other courses. But he did feel the issue was important and should be addressed in greater detail after graduating from nursing school. He commented:

> I think that there should be at least some sort of exposure to nutrition. I'm not sure if a complete 3- or 4-month class is completely necessary. However, there needs to be exposure that can be included in another class. It's possible. I would be afraid to say yes because I'm not sure. Once people graduate, I would think that, you know, advanced knowledge, continuous education, possibly throw in

recertification requirements. Possibly add that to a curriculum to answer some sort of recertification, maybe as an elective if you want to focus more on it.

Richard had similar concerns regarding nutrition being addressed in nursing school, but had strong feelings when addressing that some nursing schools do not teach it, stating, "It's unfathomable to me that they don't like I said before, I think nutrition is, I can't think of another subject in healthcare that people should know about. Because it affects everything in your body."

Sarah also expressed concern regarding nursing nutrition knowledge, feeling it was something that should be basic to nursing education. She commented:

> See me, like I said before, you are what you eat, and I think, you know, when a nurse is, if you're giving someone a head-to-toe assessment, you have to keep in mind the diet they have. If you see, let's just say they are emaciated and they're very underweight. But they are saying that their diet has a bunch of protein, is a very good diet and they're eating a decent amount of times a day. Why are you losing so much weight? Why so many stated and on the flip side, if you're eating really fantastically, why is this person so overweight? It has to be one of the things that's kind of a in the back of nurses' head, that just basic knowledge, you know.

Ivanna also supported nutrition being part of nursing education and added her views from a more natural and holistic perspective. She stated:

> I like holistic approaches. Okay. So, if I have an issue that can be fixed naturally, I'll use a natural remedy before I turn to like medications and stuff. Um, so like if I am bloated, I'll drink more water early in the morning because someone told me

> that apparently it helps, but also just eat cleaner. Because if we're not eating processed foods, I don't feel as icky. But if you're a health care professional like a nurse, it helps to know these tricks and you can tell other people, so they don't have to rely just on medications because that's just more chemicals in our system. Baby steps that can help mitigate issues. Nurses can help facilitate people feeling better, like before we had medicine we had food, so build upon it as needed.

In the quote above, Ivanna juxtaposed a holistic approach to health with one based primarily on medical interventions. Though not specifically addressing a holistic approach to health, Alyssa supported the need for nurses and other health care professionals to be knowledgeable about nutrition and appear professional. She stated, "Definitely. I mean, even as interactions with fruits or vegetables and medications, so we don't know we're just sitting there the doctor might not see anything at that time. And then we're just appearing ignorant." Alyssa's emphasis was on the ability of nurses and other health care professionals to instill confidence in patients.

Melissa had a similar view regarding the role nurses could play to instill confidence in patients, offering:

> Maybe nurses would be the one after the doctor comes and talks to you. Maybe they would like, come in and say oh you know you have this problem, doing this will probably help it and then like because you know, the doctors aren't, I feel like you don't really see them for a long time. So, after the doctor leaves, nurses could come in and explain to you could be doing this and then somebody's like, thorough with it, because they have more time than the doctors with you.

Melissa continued by stating nurses could instill confidence in patients by showing an understanding of their conditions and how proper nutrition can benefit their health. Perception affects how patients engage with, participate in, and complete care plans. This alone should inspire nurses to enhance patient communication. Patients may decide that continuing treatment or services is not worth their time, effort, or money if they do not think nurses or clinicians are competent, capable, and even confident. She commented:

> If a patient asks you, oh, what should I be doing, and you don't have an answer so that you look unprofessional. And like that you don't know anything because someone like me who's not like in any medical field yet. I would expect a nurse or a doctor to know this information. And if they didn't, I would think that they were under-trained. I'm not saying that they have to get a master's degree in nutrition, maybe a full course and also sprinkled in other courses to like, remind you. It should also be part of clinical training.

Melissa expressed concern when a patient has questions about nutrition and the primary provider or nurse is not able to provide adequate answers. She expressed, "I would expect a nurse or a doctor to know this information. And if they didn't, I would think that they were under-trained."

Contrasting the comments of Alyssa and Melissa on instilling confidence within patients, Maya thought better knowledge in nutrition would provide her greater confidence in her abilities to help patients, stating:

> I'm a medical assistant and my patients, I tried to give them the best knowledge that I know as far as nutrition. So, if I had a better background on nutrition, I feel

like I'll be a little bit more confident as to what it is I'm talking about or what it is I'm additionally advising them to do.

Maya also addressed the interplay between nutritionists and nurses, feeling there was a definite role for nurses having nutrition knowledge:

> Yeah, yeah. Because, not to say it's gonna like knock out a nutritionist, but it'll help the patient not have to branch out to so many places because they know they could come to their doctor's office and there's a nurse here that's knowledgeable in nutrition so they can go to the nurse and talked about nutrition.

Consistent with and supporting other participants, Theo's views regarding nurses counseling patients included the following:

> I would say, because, as their role as nurses and I would say that too, because I know sometimes, certain diets can help alleviate symptoms or like, if you have chronic illnesses, going back to what I said before, maybe if it's a medicine that you have to take for the rest of your life, if you follow optimal diet the medicine may function better.

Jake emphasized the need for nurses to be nutritionally literate and to instill confidence in patients because he offered that nurses are the ones educating patients. Jake continued to state that as educators, having adequate nutrition knowledge was especially important, noting:

> I mean, you see it all over the labels nowadays, they put that little heart healthy label on everything. And it . . . has to do with the amount of carbohydrates, it has to do with the amount of protein and nutrients that are within food. So, they have to be at certain levels in order to be in line with the structure of the diet. So yes,

> we [nurses] have to preach that to the patient so that they understand. They're not exceeding certain amounts that are outside of what the diet calls for. I mean, it's the education nurses provide.

Richard supported the role of nurses being educators, offering his experiences with his daughter, explaining, "Experience with nurses has mostly just been with my regular visits to the doctor or vaccinations or even with my daughter." He went on to comment that, "With my daughter, they certainly told us what she should be eating, what she should, you know, what's good for them, and that was the nurse." Richard continued:

> Also, nurses, I guess in my experience, a lot of them have families and they're in healthcare so they were interested in it for their own kids. So, I did get a lot of good information from some nurses. Others were either just quiet or didn't know . . . it depends, but some do seem to have some knowledge regarding nutrition.

Alyssa expanded on the role of nurses as educators by offering her thoughts regarding the role nurses should play with nutrition counseling and chronically ill patients. She stated:

> You know, with diabetics, like you know, tell them like, say it's somebody newly diagnosed with type 2 diabetes. And they're like, oh, the world's gonna end. Everything is this and that . . . I'm never gonna eat such and such. I'm like, no, you are gonna eat such and such, but you have to eat in moderation.

In summary, the findings consistently revealed the prospective nursing students viewed nutrition as an essential element in nursing education that should be integrated into nursing programs. Additionally, there are numerous roles nurses can play as patient

nutrition educators to instill confidence in patients as well as develop their own confidence with increased nutrition literacy.

Research Question 2: Do Prospective Nursing Students Believe They Will be Sufficiently Trained in Clinical Nutrition During Nursing School and be Able to Apply it Clinically?

Nurse Nutrition Literacy

Understanding and applying nutrition knowledge and skills to all aspects of health care are extremely important, and all health care professionals need basic training to effectively assess dietary intake and provide appropriate guidance, counseling, and treatment to their patients (Nursing School Hub, n.d.). Since the profession's formal beginnings, nutrition has been a part of nursing care, with "taking food" being the second-most crucial aspect. Prior to the establishment of the discipline of dietetics, nurses initially had the responsibility of preparing and serving food to the sick (Englert et al., 1986). Nutrition was and still is a testable topic on the RN licensure examination, even though the mandatory required educational hours in basic nutrition and diet therapy for RN licensure were eliminated (Englert et al., 1986). Currently, the NCLEX-RN includes nutrition topics such as nutrition assessment and monitoring, as well as diet therapy (National Council of State Boards of Nursing, 2023).

This section addresses the subthemes of (a) nursing education in nursing school, which was addressed by 13 participants and coded 66 times; and (b) nurse clinical application of nutrition, which was also addressed by 13 participants and coded 51 times.

Nutrition Education in Nursing School. When asked about the inclusion of nutrition education in nursing school, Kayla stated:

> Yeah, I think maybe it might be easier to just have it as one course. So, you know all that information, and you've studied it in detail. But I think it could also be incorporated just into the curriculum and into the classes that are already being taken. Personally, I prefer a whole course for it just so you know, the whole scope of it. Because I feel like the timeframe for a class that's in you know, in person per semester. I feel like that gives you enough time to really learn the subject material for a class. So, there should be at least one course and then sprinkled into others as well.

Samantha had reservations regarding nutrition education in nursing school, expressing concerns about receiving adequate training to be able to effectively provide guidance to patients. Her thoughts were that nurses could provide guidance, but she was uncertain about the quality of the information they could give. She commented:

> I think nurses could potentially just go in with like, if they have like, a class, like from the nursing degree, but how good are they really going to be? How are they really going to because it's just one class.

Jake had similar concerns about the level of expertise regarding nutrition education in nursing school. He was concerned about appearing professional and instilling confidence in patients. He stated, "Nutrition is definitely something I need to understand more and have, you know, a little more intelligence and talking about it with my patients. I don't want to just come off like I saw something on a commercial." Aiden also expressed his concerns regarding receiving an adequate level of nutrition training in nursing school, stating:

> I think it comes down to, what is the experience or what is the practicality of doing so. I think it is experience based. I think that is also why it's so important to improve education on that just and have a more universal firm grasp on that.

Theo's views were similar to those of Kayla, Jake, and Aiden with concerns about developing an adequate level of nutrition literacy and his ability to provide nutrition advice to patients after nursing school. Theo was aware that the program he was considering did not offer nutrition as part of the curriculum, and he commented:

> I think they should, I, like, really think like, the program should add it in because I think in the long run, it would be beneficial because I feel like, it would help you like, make it better, like help you become a better nurse. But, whether it's a public or private school, I would think that it should be required. I feel like, because I'm thinking, you know, if you're talking to one of your patients about something and they're having some condition if they follow some appropriate nutrition guidelines and stuff for whatever condition that may have, if they eat correctly, that could alleviate possibly having to take medicine.

Though Theo did believe having nutrition education in the nursing curriculum would better prepare him as a nurse, he felt there were situations when it would not be feasible to add nutrition courses, commenting, "Maybe, you know, I guess the only exception would be say like maybe if someone was in one of those accelerated nursing programs where they are very, very quick, I could see maybe that being like the exception."

Lana, also realizing like Theo that not all nursing programs offer nutrition as part of the curriculum, expressed her concern:

> Some nursing programs have a nutrition course while others do not. I feel that all programs should have a nutrition course, not only so that nurses are able to guide patients but also so that nurses can change and better themselves. So that we have more hospital staff that are a walking/talking example of what health through food and nutrition looks like.

Kayla admitted that she never gave any thought to learning nutrition in nursing school. It was not until she took the researcher's prerequisite courses for nursing school that the topic came up. She shared:

> It's funny you say that because it has never come up. And the only time I ever started thinking about the correlation between the two was when I started taking your class, and you brought it up and I realized well that's true. There really is no nutrition education requirement for nursing. You know, I'm sure you don't really learn too much about it in detail.

Kayla went on to describe an experience she had with an individual who was contemplating nursing as a career:

> A few days ago, I met somebody who wants to do nursing, they haven't really started the journey or anything yet, but they had gotten a degree in some kind of nutrition related something, certificate something, so I was saying to him, I was like, oh, well, that's great that you have that background because not a lot of nurses do. And I think that if you went to school for it, you have a really great background for it. Especially if that was your main focus. I feel like you would definitely have learned more than just the basics.

Mya, who currently worked in the medical field, expressed a lack in confidence in her ability to convey nutrition information due to her education. She reported:

> I'm a medical assistant and my patients, I tried to give them the best knowledge that I know as far as nutrition. So, if I had a better background on nutrition, I feel like I'll be a little bit more confident as to what it is I'm talking about or what it is I'm additionally advising them to do.

Nurse Clinical Application of Nutrition. The ability of nurses to apply nutrition information clinically in patient care is the ultimate purpose of health care provider nutrition literacy. Participants were questioned about their abilities to apply nutrition clinically and in what health care situations.

Lana provided thoughts on what would make an effective health care provider and how to maximize patient compliance in the clinical environment. Her thoughts went beyond the anticipated view of how nutrition knowledge would directly affect patients and addressed a secondary benefit. By presenting a healthy appearance to patients, health care providers can act as role models and demonstrate, in a practical sense, how one should appear. Lana commented:

> The scene now with nurses and doctors, I guess. Not looking very healthy. And it's like you can preach and tell people to eat something or not eat something. But if you're a blob and you are unable to, like, run to the other side of the hospital to help the patient because you're out of breath and your blood pressure and, you're gonna lose. You know, like you're gonna get lightheaded because your blood pressure medication didn't kick in. Right? How much confidence will you instill

> in your patients? If you don't present yourself the way you're saying they should be?

Richard's comments provided a different perspective and related back to the early responsibilities of nurses during the profession's formative years. He explained how nurses might function in the planning of meals for patients who suffered from conditions requiring dietary modification:

> I would hope they can [do that] but that would require standard training of everybody because they can't have a personal, you can't have like a personal bias on . . . what you should be eating and given. So, I think in that type of setting, knowing the world, they would have to be overseen by a nutritionist, doctor of some sort, would have some sort of, but in order to implement nurses should be knowledgeable enough to know about that, like it should be standard. Nurses are more hands on than a lot of other healthcare professionals. Nurses see patients a lot more than other people.

For example, when addressing patients who suffer from obesity or chronic diseases, Richard stated:

> Nurses should be part of a team effort. You got to reinforce this stuff. Everybody's going to trust the doctor because they're the doctor and they have the MD, and they assume that they're more highly trained and they know more than the nurse does. So yes, something should come from a doctor, the reinforcement should come from the nurse because they're working with them and they're also knowledgeable too. But if everybody, if you hear you know, if everybody hears

> the same thing from right, next person, that expert next one, then you start thinking, this has got to be right. This is what I have to do.

Theo had a similar view to Richard's view of reinforcing medical advice and stated patients might be more relaxed discussing nutrition-related issues with nurses because they would feel more comfortable with them rather than with physicians, where there was often a feeling of intimidation associated with hostage bargaining syndrome, where there is an acquiescence to the views of authority figures who maintain power due to their knowledge, prestige, and status (Berry et al., 2017). Theo offered:

> I would say yes, because, as their role for nurses and I would say that too, because I know sometimes, certain diets can help alleviate symptoms or like, if you have chronic illnesses, going back to what I said before, maybe if it's a medicine that you have to take for the rest of your life, if you follow optimal diet the medicine may function better. Or if it's for some other issue, like maybe you don't have to take it anymore because you adjusted your diet and your body did whatever it had to do and like fix itself, that you don't need to take medicine anymore. So, for the chronic I would say more where I think it would be good to go to a nurse. I think it would be good because maybe patients or whoever might feel more comfortable talking about it with a nurse especially if they have a close relationship with it. Versus talking about it with their physician. Not that what they say wouldn't be bad either, but like, maybe it's they're like, intimidated.

Manuel agreed on the clinical role nurses can play with providing nutrition advice and reinforcing the PCP's instructions, but was also concerned about the sheer amount of

nutrition information nurses and other health care providers would need to know to counsel patients regarding diets. His thoughts were as follows:

> As someone who is not a nurse, I'm not sure if that's under, I don't want to say scope of practice, because that's a medical identification. I think that it would be lovely, it would be nice. It'd be great if any health care provider could go up to someone say, you know, let me talk to you about this. Let me talk to you about that. The problem is maintaining knowledge and maintaining expertise, maintaining things like that.

Mya did not express concern over the amount of nutrition knowledge nurses would need and was confident that nurses would be able to provide counseling to patients with documented health conditions, such as obesity, cancer, or heart disease. She viewed nurses as part of the treatment team and stated:

> I think when you are in with the doctor, then you can see a nurse, I think like say for instance, the doctor's meeting with a patient and she's overweight or needs a plan to lose weight. It will I think, it will be conducive, okay. Go to the nurse. She is going to set up a plan with you. And then boom, I said thank you and then you're out the door.

Mya went on the explain the importance of understanding the details of these serious health conditions and how nutrition plays into their development as well as treatment. She offered:

> Yeah, so you will learn about these things like kidneys and heart and whatever the case may be if we're able to learn about nutrition and can correlate to make a

meal plan or whatever kind of plan. They need to keep up with whatever condition they have.

Kayla saw numerous opportunities for nurses to engage in nutrition practice in a clinical environment. She did express concern about how providing sound advice could be challenging given the inferior quality of food provided in hospitals. However, she believed nurses could have a positive impact on diets:

> I think they should be trained to do that. Yeah. I could see it being helpful. With I mean, this would entail the hospital having to provide a little bit better food for the patients, but it would be nice if a nurse could, you know, kind of educate the patient on nutrition and then be able to provide that food for them while they're staying in the hospital. Because I feel like the food in hospitals is typically high in sugar. You know, just the cheapest you can get. I feel like that would be important. But then I would think that that would also have to hold the, like health care system, accountable for other things. So, but I could see, you know, in a nursing home maybe those nurses have specific training on nutrition care for elderly patients. Or maybe if there's a nurse working in pediatrics, they have specific nutrition education for that age group.

Cynthia agreed that nurses could have a positive impact when counseling patients with serious illnesses, stating:

> Definitely, yes. Because as a nurse, you're looking at the holistic wellness of the patient. You can have a diabetic patient and you're telling them what their numbers are supposed to be. If they get low drink a cup of orange juice or milk or

like walk around, you have to have some type of relationship with nutrition to help the patient with an effective care plan.

Sarah had mixed feelings regarding nurses being specifically involved in diet planning in various health care situations. Initially she believed it was not useful, though she did see it as a possibility, commenting:

> I don't think so. Okay, now maybe they could be in the hospital, or they could be in the doctor's office. But there's like a dietician that does like dilutions and like, oh, maybe a nutritionist comes in, but I feel like the nurse should have some input on that too, because if a nurse goes into a patient's room, and then sees something and goes to the doctor and says we need to do something different because this is what I saw.

On the topic of dietary supplements, participants provided supportive comments regarding nurses and their abilities to offer advice on their use. Dickinson et al. (2009) discovered PCPs and nurses are just as likely to use dietary supplements as are other adult population members, and most also advise their patients to do the same. However, the majority of PCPs and nurses say they have not received any formal education or training on the topic of dietary supplements to be able to provide detailed supplement programs. They were interested in continuing their education in this area and recognized that expanded medical education is required for both the specialized subject of dietary supplements as well as the more general topic of nutrition (Dickinson et al., 2009).

Mya revealed she had used nutrition supplements in the past for general health benefits, stating:

I don't use them anymore. But when I first began using the supplements, like I had a supplement where it was dual as like a dietary supplement, so it helped me lose weight. And it helped me focus more and it helped me remember things. Yeah, generally it helped me personally. Yes, it did help me when I took supplements.

Like I'd rather take supplements than like actual medication. So, I took supplements when I first started working out, I would take like your basic supplements or vitamins or whatever the case may be. But yes, I think there's a role for that. Yes.

Mya expressed that nurses should play a role in counseling patients in the use of supplements because of the potential benefit in improving general health. She commented that:

I think it all depends on their health state at the time and what kind of anything they got going on. If they're taking a whole bunch of other medications, but it doesn't hurt to suggest it to them as long as it's you know, conducive to what it is that they're already taking, but I don't see a problem with it. I don't think supplements are always necessary, but it's good to bring it into the patient so you give them more options.

Kayla had similar views regarding the use of supplements for general health benefits and how nurses could play a role in guiding patients in their proper use. She elaborated:

I think that they're good, but you should also do your research about the brand that you're buying, and this is something that I learned from your class. Also, I was not taking any supplements before I started your class. And then you

> mentioned vitamin D, I think you mentioned calcium, magnesium, like taking all those together. So, I started to do a lot of research about it. And then I started to look into which brands I should get, and which ones are actually going to help me in the long run, you know, not with just a bunch of fillers. So, I was able to find some really good vitamins and I've definitely noticed a change in my energy levels and how I'm able to go to sleep and even my skin and everything. So that's definitely been beneficial to me.

The use of supplements for general health benefits was also discussed by Ivanna. She had a positive view of their use and felt they could fit into a clinical approach for supporting general health and that nurses could be important in the function. She stated:

> That's interesting okay. I haven't done so much research on them. But like, I like magnesium supplements. Okay, I find that helps. And I know people in my family take ashwagandha and they find that that really helps. But then there are also some that are just like, is that really gonna work? It depends on the supplement.

Ivanna felt information about supplements for general health benefits should be something provided in nursing school, offering:

> Absolutely. I mean, if it were to benefit their health, we should give them all the information we can, you know, especially for people who are more averse to taking medicine, like I'd prefer something natural. So instead of taking ibuprofen for cramps, I will drink peppermint tea, and it's a natural remedy less chemicals and it tastes amazing.

Kayla followed up regarding her positive view of the use of supplements for general health by adding:

> But I don't think I would feel comfortable giving information about them if I didn't take a formal course about it. So that can create some disparity among nurses, depending upon which school they went to for their nursing degree.

Doctors receive extraordinarily little to no nutrition training in medical school, which limits their ability to effectively talk to patients about nutrition. During 4 years of medical school, fewer than 20 hours are dedicated to nutrition (Minor, 2023). With this documented lack of nutrition-based expertise among primary health care providers, the next most common health care provider with whom patients will have contact is nurses. Similarly, nutrition education is not a mandatory component of all nursing programs leading to the RN credential (Shea et al., 2021).

The topic of nurses specializing in nutrition was addressed and participants agreed on the notion of a standardized way to achieve credible nutrition certification as a nurse nutrition specialist. They related that there was a place on the health care team for such a member; however, concern was raised by some participants that the role was already occupied by dietitians and nurses were trained for other vital roles. Still, the idea of nurses having the choice of specializing in nutrition was acceptable. Theo said:

> I think that that would be something cool. Like a new area to be involved in because I'm kind of thinking, you know, you have all the different specialties that you can get involved up instead of being like a, quote unquote, like basic average, like run of the mill nurse. Like a bedside nurse. I would think that it would be beneficial because then they could, you know, you would still be able to do whatever your typical nurse thing and responsibilities are, but then if you have the

> nutrition training and that additional credential for this specialty that we're saying it should exist.

Sarah related, "that's something I think they could do." She offered that nurses addressing nutrition was a good idea and went on to comment:

> This is one thing you do all day. You could have people in the hospital who you know, yeah, you're talking to him about nutrition, but you have four other patients that have four different conditions. Most of the time when it comes to nutrition, they're going there for one specific reason. It's just nutrition. It's what you're focusing on, you know what I'm saying?

The concept of nurses becoming nutrition specialists is one that lacks a standardized path to practice. There are numerous websites that offer various pathways to becoming a nurse nutrition specialist. Certain sites indicate the title can be earned after the completion of a registered nursing program and achieving licensure, then taking advanced courses, or possibly obtaining an advanced degree and trying to gain employment and experiences in the nutrition field. Still, others suggest gaining certification through agencies that are open to various members of the health care professions to demonstrate competency whereas other certifications only require a high school diploma (Morris, 2023).

Lana commented, "I think that it should be an option for nurses should they wish to take nutrition as a subspecialty." She went on to state:

> Depending on how much the nurse wants to study after becoming an RN . . . if the nurse chooses to continue their education and like me wishes to focus more on helping people understand that so much of our overall health depends upon the

food we consume, then there can be courses that focus on that. There could be a focus on nutrition when pursuing perhaps let's say Nutritional Nurse Practitioner. The concept of a nutritional NP profoundly elevates the necessary level nurse nutrition literacy. The expertise requires to achieve such a distinction would far exceed that which could be obtained in undergraduate nursing school and would require advanced training consistent with the scope of practice of an NP.

Mya was enthusiastic when considering nurses becoming involved and specializing in clinical nutrition. She stated the idea was very appealing and commented:

> Honestly, I'm getting excited about that. I think that's good to be honest. I wouldn't even mind being a nurse nutritionist, it sounds like a great role for a nurse because when you're helping, you're helping somebody become healthier. You're helping them spread knowledge to other people because sometimes maybe there's a patient that comes in that they might not be so knowledgeable about and it helps them learn things about the patient in order for them to like, do more work or more research as far as to how to help the patient and other things. Also, some people, you know, may have already been involved in nutrition, and maybe then they wanted to go on and become a nurse, so they have that background.

Nutrition interventions are crucial and central to the strategies and management of chronic conditions. There is proof that unsaturated fatty acids, vitamins, and bioactive compounds play a part in the management of chronic diseases, as well as the effectiveness of low-glycemic index and low-carbohydrate diets in the treatment of type 2 diabetes (Ojo, 2019).

In summary, when addressing nutrition education in nursing school, prospective nursing students related their concerns that they would not be adequately trained in nutrition and would lack the expertise needed to provide patients with sound advice. They went on to question the ability of nursing schools to adequately train them in nutrition and were in favor of nutrition courses in some form being added to nursing school curricula. This would have the added impact of increasing their confidence when counseling patients regarding nutrition and other clinical matters.

Additionally, regarding nurses' clinical application of nutrition, participant responses suggested they were incredibly supportive of nurses playing significant roles in a health care delivery team by providing various nutrition-related services. For example, counseling patients on topics such as meal and diet planning as well as the importance of and use of dietary supplements proved to be an important concern. This would take on even greater importance when considering patients suffering from chronic diseases. It was expressed that patients would be more comfortable conferring with a nurse on such topics and this would lead to increased compliance. The need for nurses to be more proactive in nutrition counseling was so great that it was expressed that there should be an opportunity for nurses to specialize in nutrition, thereby increasing their nutrition literacy and associated clinical confidence.

Chapter Summary

This research study involved examining prospective nursing students' perceptions of the importance of nutrition education in nursing school and nutrition literacy in nursing practice. The study was directed by two core research questions designed to understand the significance of the phenomenon of nutrition literacy as it relates to nursing

practice. Using a transcendental phenomenological qualitative methodological approach to data gathering and analysis, data were examined with three key themes emerging: (a) general nutrition literacy, (b) health care provider nutrition literacy, and (c) nurse nutrition literacy.

How the data were gathered, processed, and how the study's conclusions came to be were covered in detail in this chapter. The participant population and demographics, sampling techniques, recruitment methods, data transcription and coding, and other topics were also covered. Participants' statements and comments provided support for the base themes that emerged, and these findings explained the significance of prospective nursing students' actual lived experiences with nutrition literacy. The demographics of the participants were summarized in Table 1 and participants' nutrition education backgrounds were summarized in Table 2. Table 3 provided the base themes that emerged as well as the various subthemes. Figure 1 illustrated the overlap and interplay of the three themes that emerged. In Chapter 5, the results are presented together with comparisons to existing published sources. The chapter also contains a discussion of the study's theoretical orientations as well as implications for nursing education, nursing practice, and nursing leadership. Chapter 5 also includes the study's weaknesses and suggestions for future research, future practice, and a conclusion.

CHAPTER 5 DISCUSSION

The objective of this phenomenological study was to investigate prospective nursing students' perceptions of nutrition literacy and their ability to provide nutritional counseling to patients in a clinical setting as RNs. Nurses are frequently the first members of the health care delivery team with whom patients interact in health care settings. Given the significant role nutrition plays in both health and disease, it is crucial to accurately assess patients early while taking their nutritional health status into account. In order to effectively convey nutrition-related information to patients, nurses must be nutritionally literate, which means being familiar with both basic and advanced nutrition concepts (Buxton & Davies, 2013). With this information, nurses can help patients better understand nutrition, which can lead to improved dietary habits and better general health (Buxton & Davies, 2013).

This chapter offers a discussion of the empirical findings and theories related to this research as well as a further summary of the study's results. The ramifications of modifying the curriculum in nursing schools to incorporate nutrition education in both the didactic and clinical phases of education are explored. Additionally, the study's limitations, suggestions for further research, and future practice implications are discussed. The following research questions guided this study:

1. What are prospective nursing students' experiences and beliefs regarding the need for nutrition education in nursing school?
2. What are prospective nursing students' experiences and beliefs regarding whether they will be sufficiently trained in clinical nutrition during nursing school and be able to apply this knowledge clinically?

The interview questions were open-ended to enable participants to share their perceptions of the importance of nutrition literacy related to the field of nursing and whether they would be sufficiently prepared to address nutrition issues in a clinical setting. The researcher completed all the data analysis manually without the aid of qualitative software. The data revealed a number of important findings. These findings are reported in the major sections of this chapter and are related to the two research questions.

Research Question 1

What are prospective nursing students' experiences and beliefs regarding the need for nutrition education in nursing school?

General Nutrition Literacy

According to Silk et al. (2008), nutrition literacy refers to the capacity of individuals to obtain, assimilate, and comprehend nutrition knowledge in order to be able to make wise dietary choices. The findings of this study confirm that prospective nursing students believe nutrition is a valuable and underutilized aspect of health care. The general population is more often than not confused by the topic and often do not realize what they do not know. With a plethora of asserted factual information being directed at the public, they often have difficulties finding reliable and authoritative information that can be applied to everyday life. Prospective nursing students suggested numerous factors contribute to a generally low level of nutrition literacy among the general population as well as among themselves.

It is often considered challenging to be able to adhere to a "balanced" diet that contains the recommended nutrients considered necessary for optimal health. Findings of

this study indicate ignorance and inadequate choices are crucial factors in the failure to eat in a healthy manner and efforts are necessary to promote improved eating patterns.

Young adults are often being pulled in many directions by family, employment, relationship, and school responsibilities, among others. This situation often results in too little time for the planning and implementation of healthy dietary habits. Convenience becomes a necessity and the quality of food assumes a low priority. Additionally, dietary habits established at an early age are generally maintained throughout life and are contributors to the development and progression of chronic and life-threatening diseases (M. C. Nelson et al., 2008).

Home-cooked meals, which are often considered to be superior to meals obtained outside the home, received conflicting views. Findings of this study revealed a long-held belief that a healthier lifestyle is considered achievable by cooking meals at home and avoiding the convenience and variety achievable by eating out. This view was supported by Mills et al. (2017), who found eating home-cooked meals more frequently was linked to several markers of cardio-metabolic health, including adiposity (i.e., increased body fat), cholesterol levels, and the risk of developing diabetes, in addition to a number of other indicators supporting a healthier diet. However, the opposite was also found in the current study, pointing out that the quality of food prepared at home was only as healthy as the ingredients being used. Nutrition literacy is a fundamental factor in being able to prepare healthy meals at home by using quality ingredients in appropriate proportions and avoiding adding ingredients or cooking with additives that are unhealthy. It was suggested within the current study that baking at home with shortening, which contains trans fats, has serious negative health effects as opposed to baking with various oils or

butter. In the absence of this understanding, meals prepared at home may be as bad or worse than those prepared and purchased elsewhere.

Results also showed prospective nursing students believe it is important for nurses to support general nutritional health through improved nutrition literacy. This goal was addressed in the context of not only hospital and nursing home settings, where people are generally older and suffering from more complex health problems, but in the offices of primary health care providers. Despite the fact that nutrition-related issues may be more significant for the elderly and have the potential to cause or worsen existing diseases, Bachrach-Lindström et al. (2007) found nurses who work with the elderly in medical clinics, resident homes, and geriatric rehabilitation centers did not appear to have a positive attitude toward dietary-related tasks. It was postulated that this negative view of a nutrition approach to health management may be the result of inadequate or nonexistent nutrition training in nursing school, resulting in a lack of nutrition literacy. Consistent with the findings of Bachrach-Lindström et al. (2007), Christensson et al. (2003) reported that although nurses working with elderly dementia patients had a positive attitude toward the benefits of nutrition, there were negative attitudes concerning patients' understanding of their nutritional health problems and recommended treatments. This negative attitude, the cause of which was not identified, may be the result of nurses' lack of nutrition skills or their lack of confidence in addressing this unique population. Regardless of the cause, the result will be adverse clinical outcomes due to the lack of motivation and implementation on the part of nurses.

Obtaining Reliable Publicly Available Nutrition Information. It was common for the participants in the current study to suggest finding nutrition information they were

able to apply to their daily dietary habits was usually tied to accessing and interacting with some form of digital technology. This was not surprising as the Digital Revolution, which started in the early 1980s and has progressed at unimaginable speeds ever since, has become forever intertwined in everyday life (Marin et al., 2017). D. U. Yilmaz et al. (2020) concluded that the use of social media was an effective way for health science students, a group to which nurses belong, to develop an increased perception of the benefits of nutrition. Findings of the current study aligned with this view, revealing social media was the most frequently used source for seeking information regarding nutrition or dietary issues. Social media, in its various forms, was described as being a convenient method for looking up information regarding nutrition as well as other forms of health-related information. However, using search engines, most commonly Google, and viewing YouTube and TikTok videos were also classified as favorites when requiring greater depth and clarification of nutrition-related issues.

Importantly, participants were cautious when addressing information discovered through digital technology, admitting that even though the information often appeared to be legitimate and to possess valuable insights to their queries, there was no guarantee that it was in fact accurate. The notion that many of the parties providing this digital information may have an agenda was a regular concern. It was suggested that often, nutrition information was masked in a way that would make it appear valid and as though it was the result of exhaustive scientific inquiry. This was described as an effort to convince the public that the information was valid as a means to sell products or services and garner some form of financial gain. Nevertheless, with this understanding, participants still viewed the information as having some degree of credibility and would,

to various levels, follow it without regard for the potential consequences. The concept of "if it's too good to be true, it probably isn't" was addressed; however, convenience and reluctance to devote additional time to gain greater understanding usually won out.

It was also revealed that digital access to nutrition information extended to the use of television, whether it be traditional, cable, satellite, or internet. Information was usually generated through various food-related programs on networks dedicated to the genre, such as the Food Network or the Cooking Channel. These programs usually portrayed foods in a way that stimulated the imagination and engendered an appeal that would overcome common sense and disregard any potential health concerns. According to a study conducted by Howard et al. (2012), television chefs' recipes usually contain more fat, saturated fat, and sodium than what is recommended by the World Health Organization. Similarly, when considering prepared meals found in supermarkets, ingredients are inconsistent with published dietary recommendations and are considered as potentially harmful. Additionally, Pope et al. (2015) found a pretty clear positive correlation between watching television cooking shows and cooking less healthy foods. It was revealed that people who watch cooking shows are more likely to have a higher BMI, a controversial but generally recognized indicator of being overweight or obese, than any other group.

The current study also revealed ignorance was a crucial factor when addressing general nutrition habits and dietary choices. Food product labels that are not user friendly, difficult language found on labels, and a lack of understanding regarding the jargon describing what is in the product all play a role in inadequate dietary choices and a generally inadequate diet. Couple these difficulties with busy lifestyles and the desire for

convenience, and it is understandable why there is inadequate nutrition literacy among the general population as well as prospective nursing students. Failure to take the time to consult with properly trained professionals or to research reputable sources in the digital environment are contributing factors that result in inadequate nutrition literacy and concomitant nutrition-related health issues.

Discussing Nutrition With Other Prospective Nursing Students. The lack of adequate and reliable nutrition information among the general population as well as prospective nursing students is consistent with this study's finding that there is a consistent lack of discussion regarding nutrition among prospective nursing students. It would seem to be natural for students contemplating a career in health care to discuss a topic as fundamental to human health as diet and nutrition during their time pursuing acceptance to a nursing program. However, participants consistently indicated the topic of nutrition is not really discussed and is not something that comes up in everyday conversation. If the topic is raised, it is very loosely addressed with no degree of detail or consideration for its importance. This finding marks a lack of importance during earlier development when children would learn about the importance of proper nutrition and eating healthy. With this unfortunate foundation established early on, it is no wonder that prospective nursing students, and the general population, do not find nutrition to be an important topic for discussion.

Primary Health Care Professional Nutrition Literacy

Discussing Nutrition With a Primary Health Care Provider. We will continue to miss a significant opportunity to support people in leading longer, healthier lives unless nutrition becomes a regular topic of discussion between patients and health care

providers. The training of medical professionals is an important place to begin. Physicians historically have not received much, if any, training in nutrition, which makes it difficult for them to discuss the topic with patients in a credible and meaningful way. Most students in medical school only receive 20 hours or less of nutrition education during their 4 years of medical school. This amount of time dedicated to nutrition education is considered to be drastically disproportionate when considering the potential health benefits (Nursing School Hub, n.d.).

Findings from the current study support the concern that primary health care providers generally do not address nutrition with their patients. It was noted that as a rule, nutrition is not a topic that is brought up by PCPs as part of a typical clinical interaction. It was also reported that PCPs are unable to provide advice regarding a patient's inadequate diet, proper dietary changes to modify inadequate diets, or to assist patients in a direction or path to implement essential changes to improve their diet. The perception was simply that nutrition is not an issue that is addressed and is not part of the discussion when consulting with patients.

At times PCPs ask, in a somewhat passing manner, what foods are eaten and then provide some very general suggestions on how to positively modify the diet. The idea of completing a diet diary to determine dietary details is never proposed and the level of nutrition information offered is not detailed enough for the patient to make any substantial dietary or nutrition changes to influence their health in a positive way. Additionally, when any discussion of nutrition does occur, the sense was that this is a topic outside the comfort zone of the PCP. This is supported by Parker et al. (2011), who found an undeniable gap between the actual and perceived knowledge of how to

positively modify lifestyles and diets among PCPs. They often claim to be knowledgeable when providing guidance on these matters, but the majority are not, holding false beliefs about their competencies (Parker et al., 2011). Transient attention to nutrition, when it occurs, usually comes at the tail end of discussions related to blood testing or examination findings, such as blood pressure, and is concentrated around dietary salt and fats as being harmful. However, no solid advice or direction from the PCP is offered beyond cutting back on the suspected harmful nutrients. Additionally, when participants revealed that they would eat certain foods that are considered unhealthy, such as fast-food and processed food, the suggestion from the PCP was marginal. A generic statement to cut back on those choices was given, but lacked any degree of detail that would facilitate positive dietary modifications.

Two participants emerged as outliers in this study, indicating their PCPs appeared to have an interest in nutritional health and did initiate a discussion of their nutritional habits. However, even with these positive experiences, there continued to be a lack of sufficiently detailed advice with no substantial follow-up discussion on subsequent visits.

The findings of this study, as identified by the experiences of prospective nursing students, confirm that nutrition is a topic that is not typically addressed by PCPs and indicate there is a disconnect between PCPs and the nutritional health of their patients. When PCPs fail to address nutrition as an important health topic by failing to have that discussion with their patients, it marks their lack of nutrition literacy and a missed opportunity to provide current and effective guidance to patients that could assist in optimizing health and improving quality of life.

Confidence in the Nutrition Information Provided by the Primary Health Care Provider. As might be expected, consistent with the findings associated with discussing nutrition with a health care professional, prospective nursing students generally had little confidence in the nutrition information that was offered. The information offered was often described as being general, incomplete, or universal in nature. This lack of confidence was generated by the evident lack of nutrition literacy of health care professionals and not of a magnitude that would be expected from a licensed health care professional. Patients come to rely on their health care providers as resources for appropriate, dependable, and effective health care. If the PCP is viewed as ill equipped to address the patient's concerns and problems, the patient will lose confidence in that provider (Parker et al., 2011). This can result in the patient losing confidence in health care in general, and then failing to maintain regular health care visits or seek attention when a medical issue arises. Accordingly, problems that may be effectively treated at an early stage may be left to develop into more serious problems that may not respond positively to established therapies.

As discussed earlier, the findings revealed there was a regular absence of follow-up by the PCP when there was some form of nutrition guidance offered. The perception by a prospective nursing student was that if the patient does not display any concern with their nutritional status and how it relates to the prevention or treatment of disease, the PCP is not concerned either and the issue simply is not addressed or pursued. It was suggested that any potential importance that might be associated with nutrition is displaced by whatever other health condition appears to be more significant at the time. In essence, nutrition loses any health-related importance and is relegated to a nonexistent

state as a more familiar and comfortable medical issue is addressed. One participant expressed defeat when stating the PCP simply addressed their obvious obesity issue by suggesting they simply lose weight, without delving any deeper into the complexities of weight management, nutrition, and diet. It was also conveyed that when a PCP did provide nutrition and dietary advice, they provided a preprinted sheet of paper with general guidance for nutrition and dietary modification. The advice was basically a list of dos and don'ts and did not provide a plan based on that individual's specific needs. Patients want to feel a connection with their health care provider and be made to feel they are special and are the center of attention. When a health care provider offers a preprinted sheet of paper with instructions on how to do something, the patient recognizes they are not special and are simply a number, thereby establishing a disconnect with a concomitant loss of confidence.

Because everyone is unique, it is important to realize that each patient will have different nutrition requirements. In order to find out what is best for each patient's goals and health issues, it is crucial to work with them in a individual and personal way.

Research Question 2

What are prospective nursing students' experiences and beliefs regarding whether they will be sufficiently trained in clinical nutrition during nursing school and be able to apply this knowledge clinically?

Nurse Nutrition Literacy

In light of the obvious lack of nutrition-based knowledge among PCPs (Minor, 2023), nurses will be the next most frequent health care professional with whom patients

will interact. Unfortunately, nutrition is not a mandatory component of all nursing programs in the United States (Shea et al., 2021).

The findings of this study indicate prospective nursing students are concerned about their ability to provide current and reliable nutrition advice to their patients in a clinical setting. Nurses often find themselves working in hospitals, nursing homes, private offices, telehealth, urgent care facilities, public health clinics, and home health care, among others (NurseJournal Staff, 2022). An important and justifiable concern of prospective nursing students is their lack of confidence in their ability to provide adequate and evidence-based services to help their patients. There has been a long-standing problem with nutrition education in nursing school, when present, being fragmented or severely limited due to the attention it receives within the nursing curriculum (Lee et al., 2017; Van den Berg et al., 2012; Yfanti et al., 2011). Prospective nursing students believe that without proper nutrition training in nursing school or being unable to provide adequate answers to patients' nutrition questions, nurses will appear unprofessional and fail to offer patients the sense of comfort that comes with knowing they are in good hands. Additionally, having adequate nutrition knowledge will serve to give nurses a greater sense of confidence as they perform their duties, which can only result in improved patient care and patient outcomes.

Prospective nursing students were generally in favor of reducing the use of medications, which they feel are often overprescribed, and adopting a more natural approach to health care through the use of nutrition. Taking numerous medications, also known as polypharmacy, can become a serious health problem in itself. The more medications taken, the higher the likelihood that one will negatively interact with another,

resulting in untoward effects (Katella, 2020). A more holistic approach using nutrition and dietary counseling can help to prevent and treat various health conditions, including some of the most serious chronic health problems. Because patients often spend more time with nurses than with PCPs, an enhanced rapport can develop with the patient gaining increased trust in the nurse. Accordingly, patients may be more prone to follow the advice of the nurse with greater confidence. Properly trained and nutritionally literate nurses will therefore be able to increase patient compliance regarding not only nutrition guidance, but other important aspects of medical care.

Participants agreed that nurses are often the ones who educate patients because they have more time with them. They saw nurses as the members of the health care team who are the true educator of patients. They are able to spend more time with patients and elaborate on what the PCP has said or clarify with the patient information that may be vague or complex. It was also suggested that if a facility had a staff dietitian who was not available or provided services on a limited basis, nurses could fill in the gaps by providing nutritional care.

Nutrition Education in Nursing School. Over 30 years ago, Stotts et al. (1987) reported the scope of practice for all members of the health care team had expanded as a result of developments in nutritional support. At that time, it was recognized that nurses were gaining increasing responsibilities for nutritional assessment, nutrient administration, and evaluation of the therapeutic effects of nutritional support because of their close relationship with, and interest in, how people react to actual or potential health problems. It was proposed at that time that the substantive nutrition content of nursing education should be revised and clinical nutrition experience should be expanded in both

undergraduate and graduate nursing programs (Stotts et al., 1987). The findings of the current study indicate prospective nursing students do not feel the nursing profession has advanced consistent with Stotts et al.'s suggestions.

All participants of the current study were of the opinion that nutrition should be an integral and mandatory component of all nursing programs. There was variation among the participants in terms of how nutrition should be incorporated into nursing education. There were noticeable periods of contemplation and modification of thoughts as the participants tried to articulate how to modify the nursing school curriculum. There were periods of protracted silence as they thought and rethought the issue. This was to be expected as the participants did not have any experience with curriculum development. However, there was still a compelling desire to offer their insights as they had strong feelings on the matter. It was interesting to note how the participants struggled with their responses and there were notable instances in which their mental struggle would manifest into a physical one as they would shift and modify their posture.

Most participants expressed a sense of surprise when they learned that nutrition was not a required course in all nursing programs. Because the participants were applying to different schools, some were aware of the requirements and unassumingly thought that all programs required nutrition education. It was most commonly expressed that all nursing programs should include some form of nutrition education and that nutritionally literate nurses are better nurses and are able to help their patients more effectively. Kris-Etherton et al. (2014) reported there was a need to develop (and teach) evidence-based standards for nutritional care in all programs to keep the focus on the crucial role of nutrition in patient care and ensure graduate nurses possess appropriate nutrition

competencies. It was also suggested that it is necessary to include nutrition in clinical training at all levels to realize best practices and lead to improved patient outcomes. This study identified confidence as a key concern among the participants. It was equated to going into an exam for which they failed to study. Being properly trained in nutrition would make the nurses appear intelligent in the eyes of the patients. This was imperative to these participants. The manner in which they were viewed by patients, an external locus, was directly linked to the participants' perceived confidence and self-esteem. Additionally, it was repeatedly reported that patients would respond better and have better clinical outcomes if they had confidence in the nurse. Hyska et al. (2015) reported that nursing, medical, and allied health students were not happy with the level of nutrition education they were receiving and thought this topic needed to be pursued with increased vigor.

Discussions with participants on how to include nutrition education in nursing school were spirited. Suggestions ranged from having a single dedicated course that would provide the basics of nutrition, to multiple courses with additional training in the clinical phase of school. These findings are consistent with those of Yalcin et al. (2013) supporting the prospect of nutrition education beginning with undergraduate nursing training and continuing into the clinical phase. However, because nutrition was often perceived by the participants to be a complex subject, there was concern that, with all the courses required in nursing school, it would not be possible to learn enough to be clinically successful. Yfanti et al. (2011) addressed this concern, reporting that adding nutrition content to the already-complex nursing school curricula might be difficult given how crowded the programs are with complex subjects. However, the most common

suggestion was providing a single course, but it was unclear if that course should be at the beginning of the program, in the middle, or at the end. It was then suggested that one course may not be enough. So, one course would at times morph into having one course at the beginning of the program and one at the end, with the end course being both a refresher for the first course with the addition of more advanced concepts. It was believed that the advanced concepts would be more easily comprehended because the students would have completed most of the nursing program. Additionally, a variation of the one-course view would include nutrition "sprinkled" within other courses. In this way, it would not be a "one and done" process, but one that was continuously reinforced. It was also common for participants who were already employed in the health care field to suggest that nutrition education should be related to laboratory values. These values were considered to be engrained in their minds and would serve to give both lab values and nutrition a more robust purpose.

Nurse Clinical Application of Nutrition. The findings of this study support the belief that nurses can play a vital role in the clinical application of nutrition-related practices. This role is reinforced by the strong educational foundation nurses have in the basic and clinical sciences. With the addition of nutrition to the nursing curriculum, nurses would likely be able to assume numerous nutrition-related responsibilities in clinical practice.

Focal responsibilities that were suggested included working with patients suffering with chronic diseases and providing nutrition-related follow-up services after consulting with a PCP. In this capacity, and with nurses viewing patients through a holistic lens, they could offer advice and direction with dietary modifications that could

potentially reduce the need for certain medications and promote improved health during treatment. It was also suggested that in hospital and nursing home settings, nurses trained in nutrition could be vital members of the health care delivery team. This was in line with the findings of Dogan et al. (2020) and the need to understand nursing home patients' dietary needs and their right to food, a process that is dynamic and requires regular, daily training to learn through experience. Students benefit by being better equipped to deal with potential real-life nutrition issues from a practice-based, experiential approach to human rights education that emphasizes nutrition care. Because nurses are the health care providers who have regular and daily interactions with hospital patients and nursing home residents, they are usually the ones who will first see issues that require attention.

Participants did have concerns related to the ability of nurses to effectively address nutrition concerns in a clinical setting. They suggested it would be difficult for nurses to maintain the required level of expertise, over time, necessary to provide evidence-based nutrition advice to patients. This was supported by Chepulis and Mearns (2015) when they reported that even when nursing students had previous knowledge of nutrition therapy or received nutrition education in nursing school, their level of nutrition literacy was insufficient. This problem could be addressed by requiring nurses to regularly complete jurisdictionally required continuing education classes that have a mandatory nutrition component.

Another concern was that nurses may not be able to instill the desired degree of confidence and trust if they do not look the part and present with an appearance that projects health. Unfortunately, most nurses do not participate in any form of continuing education focused on nutrition (Arroyo et al., 2008; Crogan et al., 2001). Discussion

centered on how many health care providers, including nurses, are overweight or obese and would fail to be perceived as credible. A "practice what you preach" attitude prevailed, and it was suggested that nurses and other health care providers need to "get their own house in order" before telling others what to do. Van den Berg et al. (2012) supported this notion, identifying in a study of 161 nursing students a high prevalence of overweight and obesity, inadequate eating practices, and a lack of knowledge about important nutrition issues, all of which may limit their effectiveness as future nutrition health representatives. Still, with these concerns, it was consistently reported by the participants that nurses could play a vital role in meal planning for patients in hospitals, nursing homes, and PCP offices. Issues were raised regarding the inferior quality of food served in hospitals and how nurses could keep a close watch on the foods patients are eating and how they can exacerbate failing health. With hospitalized patients, especially geriatric and pediatric patients, nurses are viewed as being valuable members of the meal planning team. It was realized that, even when dietitians are available, nurses see patients the most and are more aware of their status and clinical needs.

The role of nutritional supplements was discussed as most participants either currently take them or have taken them in the past. The view regarding their use was positive and they expressed that nurses could be involved in providing effective guidance in their use. A recurring view was that through the application of nutrition counseling, including the use of supplements, patients may require fewer medications and ultimately suffer from fewer iatrogenic (i.e., relating to or caused by medical examination or treatment) problems. Clearly, the view that medication is overused is a recurrent concern of prospective nursing students. Additionally, with a focus on reducing adverse medical

effects, nurses are considered ideally situated to understand and reduce the possibility of adverse interactions between medications and supplements. Participants felt so strongly about the role supplements can play in health and disease that they suggested a specific course in supplements should be offered in nursing school. Some felt that in the absence of learning about the proper use of supplements in nursing school, they would lack the confidence to guide patients in their use.

It was agreed by all participants that nurses are well positioned to specialize as nurse nutritionists if they desire. These nurses can focus their extensive clinical training and skills in a way that will effectively incorporate nutrition into treatment plans to facilitate positive outcomes in those who are ill and to prevent either disease development or its progression. This specialization would be considered a blending of the fields of nursing and nutrition and could be offered either in nursing school or as a specialization that could be pursued after completion of a nursing program, potentially leading to status as a nutritional NP. This would be an important step in ensuring NPs are current with nutrition information. Warber et al. (2000) reported that slightly over half of NPs use scientific literature as their source for nutrition information, whereas approximately 20% use the lay media for this information. Evidence-based nutrition should be the norm when providing nutrition support to patients and NPs should be properly trained and use evidence-based sources for information. Nutrition programs specifically designed for these nurse specialists would be an effective way to achieve that goal.

Connections to Theoretical Framework

The three learning theories that provided the theoretical framework for this study were the cognitive learning theory (Mukhalalati & Taylor, 2019), the transformative

learning theory (Tsimane & Downing, 2020), and the constructivist learning theory (Tsimane & Downing, 2020). These three theories are consistently identified in the existing literature when addressing nutrition education in nursing school and ideally apply to nursing education as nursing education is divided into distinct phases. The initial phase, which is didactic, includes structured lectures that are delivered in a traditional classroom setting. The subsequent phase is clinical training, where students are exposed to various clinical settings, usually in hospitals, and work closely with licensed professionals to develop practical nursing skills. The learning experiences that occur during these phases are addressed by one or more of the three learning theories making up the theoretical framework.

Cognitive Learning Theory

The cognitive learning theory supports the idea that formal learning environments like schools are the best places for learning to take place. According to Mukhalalati and Taylor (2019), this type of learning entails the creation of explicit, recognizable knowledge that is supported by internally directed activities involving meaning, information processing, perceptions, reflection, metacognition, and memory. From the standpoint of cognitive learning theory, the suggestion that nutrition education start with undergraduate nursing gives credence to this pedagogical strategy and framework. Findings from the current study showed the participants aligned with the position that classroom training in nutrition is a valuable and vital approach to including nutrition education in the nursing curriculum. Although various ways of incorporating this form of cognitive learning were postulated, prospective nursing students were firm in the need to

have at least one nutrition specific course, with the possibility of more being incorporated in the curriculum.

Transformative Learning Theory

The main ways in which learning occurs in a formal way are through verbal or written instructions or demonstrations, according to both the transformative and cognitive learning theories. The transformative learning theory continues by offering a useful framework for establishing and delineating the intricate workings of nursing education. With the interactive and integrative processes that recognize new insights and shifting perspectives, transformative learning explains the cognitive involvement and structural mental changes observed. A presentation that challenges preexisting understanding and beliefs usually initiates the process (Tsimane & Downing, 2020), increasing awareness and encouraging self-reflection. Nutrition is frequently viewed as a complementary or alternative form of health care that falls outside the purview of conventional medical practice. The acknowledged dearth of nutrition education in nursing and medical schools supports this viewpoint. Results of the current study showed the participants were open to learning new nutritional concepts and realized nutrition can play a vital role in health care that can lead to a paradigm shift toward more holistic health care and patient management.

Concepts regarding nutrition and dietary norms were addressed and prospective nursing students conceded that nutrition is a complex subject requiring greater investigating and incorporation in medical practice.

Constructivist Learning Theory

The constructivist learning theory also helps to strengthen and validate nurses' understanding of and appreciation for nutrition protocols in a clinical setting when applied to nursing practice and the role nutrition plays in clinical settings. To increase nurses' competency in offering nutritional guidance and counseling in a clinical setting, experiential learning is advised. Based on real-world applications in the nursing environment, knowledge is actively developed and reinforced by doing (Mukhalalati & Taylor, 2019). Participants in the current study were aware of, and recognized, the importance of the integrated clinical phase of nursing education, which primarily occurs in a hospital setting under the guidance of licensed nurses and other health care professionals.

Theory Triangulation

With the cognitive learning theory, transformative learning theory, and constructivist learning theory forming the theoretical framework for this qualitative study, theory triangulation was employed as a procedure to enhance trustworthiness. This form of triangulation uses different theories to analyze and interpret data through different theoretical lenses. The idea is to look at a phenomenon from different perspectives as a means to better understand qualitative research conclusions from multiple perspectives (N. Carter et al., 2014). The researcher in the present study applied three learning theories to interpret the study's findings and formulate conclusions.

Limitations

This study had several intrinsic limitations. Because a self-administered questionnaire was used to collect certain demographic data, students may have provided

answers they believed were expected or desirable but were not consistent with their actual behavior. Additionally, the study only used information from one school; expanding the sample to other schools might allow for more transferable conclusions. Also, the purposive sample of prospective nursing school students was selected from a school enrollment that may have contained fewer students than in past years, which may have an impact on some of the outcomes. Furthermore, it would be beneficial to gather quantitative data, using a mixed methods approach, to supplement the qualitative data and enable a more enhanced identification of variables influencing study results.

The fact that the researcher was also the former professor of the participants might have influenced how the participants responded during the semi-structured interviews. Prior to collecting any data, this factor was discussed with all study participants. Though the course had concluded, the researcher's perceived power over the participants, who had completed the course, may have caused participants to respond in a way that was consistent with a power dynamic. This could have resulted in biased responses during the interviews and have had a negative impact on the findings. This issue should have been assuaged as all participants were volunteers and participated after the conclusion of the course with this study having no impact on students' grades or course performance.

Also, unlike quantitative research, which looks for generalizability of findings, qualitative research, which studies a specific phenomenon, in a certain population, in a focused location, and in a particular context, strives for transferability of findings (Creswell & Poth, 2018). Transferability can be considered a limitation in qualitative research and efforts must be made to increase the trustworthiness of a study and improve

transferability. Practices used in this study to mitigate transferability as a limitation included (a) accounting for individual biases that might have influenced outcomes, (b) keeping meticulous records, (c) displaying a clear decision trail, (d) making sure data interpretations were consistent and transparent, (e) including rich and detailed verbatim descriptions of participant accounts to support findings, (f) exhibiting clarity in terms of thought processes during data analysis and subsequent interpretations, (g) engaging in respondent validation through member checking (Noble & Smith, 2015), and (h) using theory triangulation (N. Carter et al., 2014).

Recommendations for Future Research

The conclusions derived from this study support the need for future research in nutrition and nursing practice. Because this study was conducted over a brief period of time and at a single community college, future studies should focus on prospective nursing students from other colleges and universities, in other locations, for variable lengths of time to determine whether the results of this study are consistent. Future studies should also examine how nutrition is actually perceived by other members of the nursing community, such as nurses, nurses' assistants, and NPs. Additional studies should also focus on physicians, physician assistants, physical therapists, chiropractors, and other health care professionals to understand how they feel about the use of nutrition in clinical practice.

Future research could adopt a longitudinal methodology in which participants are followed on their journey from being prospective nursing students, to active nursing students, to practicing nurses to examine whether their perceptions of nutrition interventions change over time. Future research could also examine whether alterations in

participants' perceptions and knowledge of nutrition have an effect on their interactions with patients. These interactions are essential to the health care model. Nurses with improved nutrition literacy may be better equipped to deal with patients' nutrition concerns and facilitate improved patient compliance in general. Future research could also explore the possible impact of a positive shift in nurses' nutrition practices on general health care practice. It is possible that other health care providers will develop a more favorable attitude regarding nutrition when working with nurses who are competently trained in clinical nutrition.

The results of this study indicate prospective nursing students value nutrition education in nursing curricula and consider this extra knowledge to be a valuable asset in terms of nurse nutrition literacy. The effects of these changes on patient–nurse interactions and whether they will ultimately alter patient outcomes are still unknown. Clearly, additional research is necessary to determine the benefits of mandatory nutrition education in nursing school and how this improved nutrition literacy among nurses will affect patient outcomes.

Recommendations for Future Practice

This study confirms the need to include nutrition education in nursing school curricula to increase nurses' self-confidence in clinical practice. Improved nutrition education in nursing school will provide graduate nurses with essential tools to provide improved care to patients who are suffering from a variety of nutrition-related health conditions. These improved abilities will also improve nurses' self-confidence in their ability to educate patients about the benefits of proper nutrition. This study also revealed more about the variety of ways in which nurses can apply nutrition knowledge in a

clinical setting and assist the health care team in providing essential nutrition services to patients.

This study's findings have significant educational ramifications that can help developers of nursing education programs identify vital nutrition-related curriculum requirements. Making changes to the formal education programs for future nurses will be necessary to accomplish this goal. The results might open the door to curriculum changes that will enable future nurses to learn nutrition as a core subject rather than just as a supplemental subject or not at all. Additionally, students could continue their nutrition education during the clinical component of their nursing school training, gaining firsthand experience with how health care professionals counsel patients on nutrition.

The results of this study may also have implications for the larger health care system and alter how patients are treated in the future as a result of a greater focus on nutrition education among nurses and other health care professionals. The shift from a focus primarily on illness and treatment to wellness and prevention in health care based on increased attention to nutrition interventions may be represented by significant changes in the approach to patient care. Such a change in the conventional medical paradigm could have significant consequences. Current limitations within the existing system, such the amount of time required for patient education, would need to be addressed as patient interactions change regarding nutritional expectations and needs. The length of patient visits, the way in which care is reimbursed, and the criteria for success may all need to be changed as well. These implications could potentially be used to pinpoint necessary modifications to the existing health care system to better meet the nutritional demands of patients.

Conclusion

The current study showed nursing education is limited in its development of evidence-based clinical nutrition literacy. There are no reports regarding the confidence prospective nursing students have concerning current nursing school curricula and the manner in which nutrition education is applied and nutrition literacy is developed. Additional concerns exist regarding prospective nursing students' confidence in being able to address nutrition-related disorders comprehensively and effectively with their patients upon entering clinical practice.

Nutrition education for undergraduate nursing students has been determined to be inadequate, and there is a critical need to address this deficiency and improve nurses' nutrition literacy (Buxton & Davies, 2013). Substantial gaps in nutrition knowledge exist in the nursing profession and are likely to result in nurses having difficulties providing proper nutrition counseling to their patients following graduation and entrance into clinical practice (Buxton & Davies, 2013).

A necessary foundation is required for the establishment of competent nutrition literacy. Critical thinking skills are imperative in clinical nursing practice and are inexorably linked to academic literacy. A literacy-focused curriculum for undergraduate nursing studies will assist students in developing the high-level communication and critical thinking skills necessary for professional nursing practice (Naber et al., 2014). In the context of nursing, these skills are discipline-specific and should be taught as such so that students can learn the genre, linguistic intricacies, and lexicon relevant to nursing communication. No matter their educational or cultural background, all nursing students should receive discipline-specific literacy instruction.

Integrating academic writing into all subject areas and tests would be an effective way to teach academic literacy because it combines nursing knowledge with the scaffolded development of literacy abilities like academic, informational, and digital literacies (Jefferies et al., 2010). Academic expectations should be communicated to students in a clear and consistent manner, and they should receive constructive criticism aimed at boosting their literacy. This method could act as a link between theory and practice and boost student nurses' professional capacity to become safe and effective nurse practitioners.

A greater understanding of prospective nursing students' perceptions regarding the nutrition education they will receive in nursing school and their views regarding the use of nutrition information in clinical practice is a critical step in facilitating the development of nutrition curricula based on the most appropriate adult learning theories for health care professional education. This study contributes to, and fills the gaps in, the existing literature and provides for a better understanding of prospective nursing students' attitudes and perceptions of clinical nutrition literacy, thereby supporting efforts to include nutrition in all nursing programs. This can be achieved through designing and standardizing an appropriate theory and evidence-based curriculum for nursing education at the classroom and clinical levels.

Improving nutrition literacy among nurses, and all health care professionals, must also be seen as a force to help close the inequity gap that exists in the delivery of health care in general. Nurses and other health professionals must recognize and respond to health and illness as a result of broad social, political, and economic structures. Properly trained nurses and other health practitioners should be committed to advocating for social

justice and addressing the impact of racial and social injustices on the health choices and behaviors of their patients. Increased attention must be directed toward the programs and policies that govern fundamental access to nutrition services that influence health (Msora-Kasago, 2020).

Additionally, nurses and other nutrition professionals must practice with cultural humility and recognize that a person's culture can affect not only their food choices, but also their health behaviors. Nutrition care plans should be individualized and avoid monolithic perspectives of what a "healthy plate" looks like. Rather, interventions should include a variety of nutritious heritage foods that are accessible and acceptable to the patient or client.

In addition to increasing nutrition literacy, interactions with patients must include screening for food insecurity and other determinants of health. Hospitals and clinics can screen patients for food insecurity and partner with local food banks and farmers markets to offer quality produce and groceries in underserved communities for free or at an affordable cost (Msora-Kasago, 2020).

Chronic diseases will continue to be challenging to treat in the years ahead. This study's findings provide insight into prospective nurses' nutrition knowledge, perceptions, and confidence in their ability to understand and recognize the underlying causes and factors contributing to nutrition-related disorders. With this knowledge, nurses will be better able to address these factors and ultimately apply their nutrition literacy in an effective way to help alleviate suffering and diseases related to inadequate nutrition.

APPENDIX A OPEN-ENDED INTERVIEW QUESTIONS

Semi-Structured, Open-Ended Interview Questions

Participant _____ **Date**_____

Open ended interview questions will be used for a face-to-face interview or one that is recorded via Zoom.

Script:

Hello (Pseudonym),
Thank you for taking the time to meet with me today. In this interview, prospective nursing school students will discuss their lived experiences regarding nutrition.

If you feel comfortable, please let me know about your ideas and feelings regarding nutrition. Please be aware that I am recording our talk so that I can recall every detail that you share with me. Is it ok if I record our conversation?

Our conversation is completely confidential, and you may choose to stop the interview at any time. You may also skip any questions if you like.

Did you receive and sign a copy of the consent form? May I begin the interview?

Interview questions

1. Can you discuss any nutrition related health issues you've experienced?
    a. What role do you think nutrition knowledge plays in general health?
    b. How do you think most people get their nutrition information?
    c. How do you get information about nutrition?
    d. How do you feel about the reliability of generally available nutrition information?

2. Have you ever discussed nutrition related issues with your health care provider?
    a. Who initiated the discussion?
    b. What was discussed?
    c. How do you feel about the use of nutrition counseling in general medical practice?
    d. Do you think it is important? Why?
    e. Describe the reliability of nutrition information patients may get from health care providers?

3. Has there been any time when you discussed nutrition with a nurse, and if so, what were their views?

a. Do nurses play a role in nutritional health of patients? Explain.
b. What are your thoughts about requiring nurses to have nutrition knowledge.
c. Why do you feel this way about nurse nutrition knowledge?
d. How could nutrition knowledge in nurses impact patient outcomes?

4. Have you discussed nutrition education with nursing students?
    a. How do you feel about nutrition being taught in nursing schools?
    b. How much nutrition do you feel nursing students should be taught in nursing school?
    c. Should it be mandatory?

5. What topics in nutrition do feel will be most challenging?
    a. What do you think about nurses discussing meal planning?
    b. What do you think about nurses counseling obese patients?
    c. What do you think about nurses counseling patients with chronic diseases?

6. What are your views on the use of supplements?
    a. Do you take nutrition supplements? Why?
    b. Has your health benefited from nutrition supplements? How?
    c. How do you feel about nurses discussing the use of supplements?

7. How do you feel about nutrition being a subspecialty in nursing?

    a. Describe how nurses could gain credentials in a nutrition subspeciality.
    b. How would you feel about specifically seeing patients for the purpose of providing nutrition counseling as a nurse?

APPENDIX B RECRUITMENT FLYER

ST. JOHN'S UNIVERSITY

THE SCHOOL OF EDUCATION

Volunteers Needed for Research Study of Nutrition Literacy.

- Are you considering or activly pursuing acceptance into a acredited nursing program?
- Are you interested in the relationship between nursing and nutrition literacy?
- Have you had any practical life experiences with nutrition and diet?
- You may be eligible for a study that could influence nurition education in nursing school.

You May Qualify If You

- Are 18 years of age or over.
- Are considering a career in nursing.
- Are not currently in a nursing program.
- Have been accepted into a nursing program but have not commenced classes.

Potential Benefits

Participating in this study may improve nursing education regarding nutrition literacy.

Participants will not be compensated.

Participation Involves

- Completing a ten-question demographic survey.
- Participating in a 45-to-60-minute open-ended structured one-on-one interview.
- Being available for a possible follow-up 30-minute interview.
- Reviewing transcript of interview.

FOR MORE INFORMATION

Please contact John J. Spano:

APPENDIX C ST. JOHN'S IRB APPROVAL

Federal Wide Assurance: FWA00009066

Jun 2, 2023 8:43:09 AM EDT

PI: John Spano
CO-PI: Michael Sampson
The School of Education, Education Specialties

Re: Expedited Review - Initial - IRB-FY2023-309 Prospective nursing students' perceptions of the importance of nutrition literacy: A transcendental phenomenological study.

Dear John Spano:

The St John's University Institutional Review Board has rendered the decision below for Prospective nursing students' perceptions of the importance of nutrition literacy: A transcendental phenomenological study.
The approval is effective from June 2, 2023, through May 31, 2024.
Decision: Approved

PLEASE NOTE: If you have collected any data prior to this approval date, the data must be discarded.

Selected Category: Sincerely,

Raymond DiGiuseppe, PhD, ABPP
Chair, Institutional Review Board
Professor of Psychology

APPENDIX D DATA COLLECTION SITE IRB APPROVAL

June 8, 2023

John Spano
St John's University
The School of Education
Queens, NY 11439-9000
john.spano20@my.stjohns.edu
RE:

Dear Mr. Spano,
Please be advised that IRB has approved your request to include as a data collection site for your research project, "Prospective nursing students' perceptions of the importance of nutrition literacy: A transcendental phenomenological study." This approval authorizes the activities described in your expedited approved IRB from St. John's University.

Be advised that changes in the scope or subjects of your research that may occur during the project's work will require approval of IRB. In addition, it is required that any intended publication of your study that advance conclusions identified with its students, faculty, or programs must receive IRB review prior to such publication.

Please accept the Board's best wishes for the success of your study.

Acting Associate Vice-President and Member, IRB

APPENDIX E PARTICIPANT CONSENT FORM

Consent Form

Dear Participant:

You have been invited to participate in a research study entitled, "Prospective nursing students' perceptions of the importance of nutrition literacy: A transcendental phenomenological study." This study will be conducted by John Spano, Department of Education Specialties, School of Education, St. John's University, as part of his doctoral dissertation work. His faculty sponsor is Dr. Michael Sampson, Department of Education Specialties, School of Education, St. John's University.

If you agree to participate in this study, you will be asked to take part in a single interview related to your experiences as a prospective nursing student. The interview will be conducted either face to face or virtually using Zoom, a cloud-based video conferencing application. The interview is anticipated to be a 45-to-60-minute session. The session will be audio recorded and possibly videorecorded. Neither your name nor any other identifying information will be associated with the video recording. Only the research team will be able to listen (view) the recording. The recording will be kept in a secure location and will be transcribed by the researcher and destroyed once the transcriptions are checked for accuracy. Transcripts of your interview may be reproduced in whole or in part for use in presentations or written products that result from this study.

Neither your name nor any other identifying information (such as your voice or picture) will be used in presentations or in written products resulting from the study.

There are no known risks associated with your participating in this research beyond those of everyday life.

Although you will receive no direct benefits, this research may help the investigator understand various issues associated with nutrition literacy in prospective nursing students and may assist in the future development of nursing school curricula.

Confidentiality of your records will be strictly maintained by removing your name and any identifiers will be replaced with a pseudonym. Consent forms will be stored in a separate location from the interview documentation and will be stored in a locked file. Your responses will be kept confidential with the following exception: the researcher is required by law to report to the appropriate authorities, suspicion of harm to yourself, to children, or to others. Your responses will be kept confidential by the researcher.

Participation in this study is voluntary. You may refuse to participate or withdraw at any time without penalty. Nonparticipation or withdrawal will not affect your academic standing.

If there is anything about the study or your participation that is unclear or that you do not understand, if you have questions or wish to report a research-related problem, you may contact John Spano, john.spano20@my.stjohns.edu, St. John's University 8000 Utopia Parkway, Queens NY, 11439 or the faculty sponsor, Dr. Michael Sampson, at sampsom@stjohns.edu, St. John's University, Sullivan Hall, 8000 Utopia Parkway, Queens NY, 11439.

For questions about your rights as a research participant, you may contact the University's Institutional Review Board, St. John's University, Dr. Raymond DiGiuseppe, Chair digiuser@stjohns.edu 718-990-1955 or Marie Nitopi, IRB Coordinator, nitopim@stjohns.edu 718-990-1440.

You have received a copy of this consent document to keep.

Agreement to Participate

Yes, I agree to participate in the study described above.

_____ _____

Signature Date

Yes, I agree to allow the researcher permission to audio and videorecord the session.

_____ _____

Signature Date

APPENDIX F SURVEY DEMOGRAPHIC QUESTIONS

Prospective Nursing Student Demographic Questionnaire

1. With what gender do you identify?
   - ❑ Male
   - ❑ Female
   - ❑ Non-binary
   - ❑ Other (Fill in the blank)
   - ❑ Prefer not to say.

2. What is your age?
   - ❑ Under 20 years
   - ❑ 21 - 23 years
   - ❑ 24 - 26 years
   - ❑ 27 - 29 years
   - ❑ 30 - 34 years
   - ❑ 35 - 39 years
   - ❑ 40 — 49 years
   - ❑ 50 years or more

3. What is your present marital status?
   - ❑ Never Married
   - ❑ Married
   - ❑ Divorced
   - ❑ Separated
   - ❑ Widowed

4. Years of education completed after high school.
   - ❑ 2 years or less
   - ❑ 3 years
   - ❑ 4 years
   - ❑ 5 years
   - ❑ 6 years or more

5. Level of education completed. Select all that apply.
   - ❑ High school diploma
   - ❑ General Education Development (GED) Diploma
   - ❑ Associate's degree
   - ❑ Baccalaureate degree
   - ❑ Master's degree
   - ❑ Doctorate degree

6. Have you taken a formal nutrition course for credit in high school?
   - ❑ Yes
   - ❑ No

7. Have you taken a formal nutrition course for credit in college?
   - ❑ Yes
   - ❑ No

8. Have you taken any informal nutrition education courses?
   - ❑ Yes
   - ❑ No

9. Do you have any documented health conditions related to nutrition?
   - ❑ Yes
   - ❑ No

10. Do you have any undocumented health conditions related to nutrition?
   - ❑ Yes
   - ❑ No

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