

**A Pilot Study Evaluating the Perceived Effectiveness of a Virtual Simulation Module to Enhance  
Nursing Care and Diabetes Self-Management Education Among Persons Experiencing Homelessness**

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### **Reflexivity Statement**

My interest in diabetes self-management among persons experiencing homelessness stems from personal, clinical, and professional experiences that have shaped my understanding of health inequities and systemic barriers. On a personal level, my sibling has been experiencing homelessness for the past five years. Supporting my brother has given me a unique insight into the multifaceted obstacles individuals face in precarious circumstances—particularly the difficulty of accessing healthcare, community resources, and social support. This experience has instilled a commitment to addressing health disparities and ensuring that vulnerable populations receive equitable and compassionate care.

During my undergraduate studies, I had the privilege of working with the Sudbury Temporary Overdose Prevention Society (STOPS), an organization dedicated to meeting the needs of marginalized communities. Through visiting various homeless shelters, I witnessed firsthand the challenges faced by persons experiencing homelessness. Many struggled to meet their basic needs, especially during the harsh winter months. These experiences revealed significant gaps in healthcare delivery and in my own nursing education. While I had developed technical skills during nursing school, I realized I lacked the critical knowledge required to assess and manage chronic conditions such as diabetes within the context of homelessness. This highlighted a broader need for curricula that adequately address the social determinants of health and prepare future nurses to fulfill their social accountability responsibilities.

My master's studies allowed me to work within a complex diabetes program, where I encountered the intricacies of blood glucose monitoring and diabetes education. Educating persons who identify as homeless to monitor their blood glucose levels and make healthier choices required a depth of understanding that I initially found challenging. To better empathize

with the person's experiences, I chose to wear a Libre 2 glucose sensor for two weeks.

Immersing myself in the daily routine of a person living with diabetes offered invaluable insights. While I began with consistent adherence to checking my blood glucose levels before and after meals, the routine became increasingly challenging to sustain over time. By the second week, I relied on sensor alarms rather than proactively monitoring my levels. This experience not only enhanced my empathy for the challenges faced by persons managing diabetes but also highlighted the complexities of integrating routine glucose monitoring into daily life, particularly for those navigating additional socioeconomic and systemic barriers. It underscored the need for more patient-centred approaches in diabetes education and support systems.

My clinical experiences in the Emergency Department further reinforced the importance of advocacy and holistic care. I frequently encountered persons experiencing homelessness who were also managing diabetes, many of whom lacked access to consistent follow-up care and essential supplies such as wound care materials. These encounters revealed the compounded challenges of addressing both chronic illness and social vulnerability. I grappled with the complexities of advocating for individuals while navigating the limitations of available resources and systemic structures. These experiences emphasized the importance of building trust, fostering effective communication, and addressing the medical and psychosocial dimensions of care, especially during discharge planning and care coordination. However, this experience highlighted areas where my own preparation felt insufficient, particularly in meeting the broader social and emotional needs of this population.

I am dedicated to contributing to a healthcare system that prioritizes compassion, inclusivity, and accountability, empowering persons experiencing homelessness to better manage their health and achieve improved outcomes, addressing health inequities and advocating for

systemic changes that ensure equitable, comprehensive care for persons living with chronic conditions in vulnerable circumstances.

## **Contributions**

I, Mercedes Lock, am the lead investigator and author of this Master of Science in Nursing thesis research project. I played a significant role in creating, developing, designing, and implementing the virtual simulation presented in this thesis study. My contributions include formulating the research question, defining the study's purpose, highlighting its significance, conducting the literature review, establishing the philosophical foundation and conceptual framework, outlining the methodology, analyzing the data, interpreting the findings and implications for nursing practice, research, and education.

Dr. Jane Tyerman is the thesis supervisor. Dr. Tyerman contributed to creating, developing, and producing the virtual simulation depicted in the thesis work. Dr. Tyerman played an integral role in the thesis development, including developing the research question, providing feedback on the written thesis work, and providing guidance when selecting an appropriate research paradigm, design, and methods.

Professor Isabelle Giroux is the thesis committee member for this thesis research study. Professor Giroux contributed significantly to the study's methodology and data analysis portion by providing constructive feedback and playing an integral role in implementing the study intervention. Furthermore, Professor Giroux is an editor of the thesis.

Dr. Marian Luctkar-Flude is a thesis committee member and editor for this thesis research study. Dr. Luctkar-Flude contributed to creating, developing, and producing the virtual simulation depicted in the thesis work. Dr. Luctkar-Flude contributed significantly to the methodology and data analysis portion of the study by providing constructive feedback.

Ashley Jackson is a co-investigator for this research study, whose mentorship and collaboration were instrumental throughout the ethics submission process.

Victoria Cole, the health sciences librarian at the University of Ottawa, contributed to developing this study's comprehensive literature search strategy.

## Abstract

**Background:** Type 2 diabetes disproportionately affects persons experiencing homelessness due to barriers related to the social determinants of health. Nursing students often report feeling unprepared to address the complex contextual factors in clinical practice.

**Purpose:** This pilot study examined the perceived effectiveness of a virtual simulation module designed to support undergraduate nursing students' learning about diabetes self-management in the context of homelessness.

**Methods:** A two-phase sequential multi-methods descriptive design informed by Kolb's Experiential Learning Theory was used. Phase I included quantitative data collected using the Simulation Effectiveness Tool-Modified (SET-M). Phase II involved semi-structured interviews analyzed using thematic analysis. Participants included fourth-year Bachelor of Science in Nursing students (n = 11) enrolled in Nursing Practice and Complex Care Situations (NSG4430) at the University of Ottawa.

**Results:** Quantitative findings in Phase I indicated high perceived effectiveness across SET-M subscales, particularly in clinical reasoning, communication, and discharge planning. Qualitative analysis in Phase II identified three themes: (1) Preparedness and contextual understanding, (2) Building confidence and clinical reasoning in a safe learning environment, and (3) Integrating knowledge through reflection.

**Conclusion:** Virtual simulation may be an approach for advancing equity-orientated diabetes self-management and the social determinants of health into undergraduate nursing education. The intervention highlights the potential to enhance student learning and clinical reasoning in caring for vulnerable populations. Further research with larger and multi-site samples is recommended to evaluate its broader impact.

## Acknowledgements

*“Learning is the process whereby knowledge is created through the transformation of experience.” – David Kolb.*

The journey through my Master of Science in Nursing (MScN) program has been challenging and rewarding, providing opportunities for personal and professional growth. This thesis would not have been possible without the support, guidance, and encouragement of several incredible individuals to whom I am sincerely grateful.

First and foremost, I would like to express my heartfelt gratitude to my thesis supervisor, Dr. Jane Tyerman, for your unwavering support, guidance, and expertise. From our earliest collaborations, you have consistently inspired me with your dedication to improving student learning and patient outcomes, as well as your commitment to research excellence. I am genuinely thankful for your mentorship and the opportunities you have provided to enhance my learning and growth. To my thesis committee members, Dr. Isabelle Giroux and Dr. Marian Luctkar-Flude, thank you for your invaluable feedback, thought-provoking discussions, and dedication throughout this process. I appreciate your insights and constructive critiques, which have significantly enriched this study, and I sincerely appreciate your time, effort, and expertise.

Finally, I dedicate this thesis to my family, whose love and support have been the cornerstone of my success. Thank you for your confidence in me and for always encouraging me to pursue my goals. To my parents, Barb and Marc, I am thankful for the constant encouragement and love that have been my foundation throughout my journey. To my daughter, Sapphire, you are a continuous source of inspiration and resilience, which has been my greatest motivation to push forward, even during the most challenging times. I hope that someday, you see these words and realize that you are my motivation to create positive change in the world. To

my fiancé, Matt, I am grateful for your patience, unwavering belief in me, and unconditional support and love, even when I have doubted myself, which have fueled my determination to pursue my dreams. Thank you for standing by my side and being my partner in this journey.

A special thank you to my former professor, Laura Killam, RN, MScN, whose mentorship and encouragement have had a profound impact on my academic and professional development. I am grateful for your support, which has been invaluable in helping me navigate the challenges and opportunities during graduate studies.

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### **List of Abbreviations**

|         |                                                                      |
|---------|----------------------------------------------------------------------|
| BScN    | Bachelor of Science in Nursing                                       |
| CAN-Sim | Canadian Alliance of Nurse Educators Using Simulation                |
| CASN    | Canadian Association of Schools of Nursing                           |
| CINAHL  | Cumulative Index to Nursing and Allied Health Literature             |
| CNA     | Canadian Nurses Association                                          |
| INACSL  | International Nursing Association of Clinical and Simulated Learning |
| MEDLINE | Medical Literature Analysis and Retrieval System Online              |
| NLN     | National League of Nursing                                           |
| PiT     | Point-in-Time                                                        |
| PI      | Primary Investigator                                                 |
| REB     | Research Ethics Board                                                |
| SBL     | Simulation-based Learning                                            |
| SD      | Standard Deviation                                                   |
| SET-M   | Simulation Effectiveness Tool – Modified                             |
| TCPS-2  | Tri-Council Policy Statement 2                                       |
| VS      | Virtual Simulation                                                   |

## **Chapter One:**

### **Introduction**

## Background

Virtual simulations (VS) have emerged as a transformative tool in nursing education, providing a safe and interactive platform for students to enhance their knowledge and develop critical skills. These simulations are particularly valuable in managing chronic conditions such as type 2 diabetes (Heyn et al., 2023). Leveraging advanced technologies, such as interactive modules, virtual reality (VR), and augmented reality (AR), VS realistic patient encounters and complex clinical scenarios, allowing students to gain practical insights into diabetes care and management (Brown, 2015). While simulation advancements hold significant promise, the field of VS nursing education is still evolving. Further exploration is required to optimize content areas, refine educational outcomes, and improve teaching methodologies (Liu, 2020; Shin & Rim, 2023). Recent health education frameworks increasingly recommend using the term “*person*” rather than “*patient*” to promote inclusive and collaborative care relationships (Canadian Interprofessional Health Collaborative, 2024). However, the term “*patient*” or “*person(s)*” is used throughout this thesis to refer specifically to individuals diagnosed with diabetes who are receiving healthcare services within clinical contexts.

The increasing prevalence of type 2 diabetes globally and in Canada highlights the urgency for innovative educational strategies. It is estimated that the global prevalence of type 2 diabetes will increase by 50% by 2030 (Cordier et al., 2020; Kendall et al., 2010). In Canada, this trend is particularly alarming among vulnerable populations. For instance, Indigenous communities are projected to experience a 214% increase in the incidence of type 2 diabetes between 2000 and 2030 (Cordier et al., 2020). Socioeconomic disparities further exacerbate this issue, as lower-income individuals face higher rates of type 2 diabetes due to limited access to healthcare, food insecurity, and other social determinants of health (Bird et al., 2015). The

management of type 2 diabetes is complicated by associated comorbidities, including depression, diabetes distress, and chronic kidney disease, which necessitate holistic and integrated care approaches (Nanayakkara et al., 2018; Rapattoni et al., 2021).

### **Social Determinants of Health and Homelessness**

The social determinants of health (SDOH) play a pivotal role in the incidence and management of type 2 diabetes. The determinants encompass a range of elements, such as income, education, housing, and healthcare access, that significantly shape health outcomes (Government of Canada, 2024; Daniel et al., 2018). The determinants of health (DOH) are essential in shaping overall health outcomes and can lead to disparities in health management and outcomes. Vulnerable populations, particularly person experiencing homelessness, face substantial barriers to effective diabetes management, such as unstable living conditions, mental illness, and limited access to nutritious food (Campbell et al., 2019). Barriers to healthcare often stem from unstable living conditions, which can result in inconsistent access to medical care and diabetes management resources.

In Canada, homelessness remains a significant and growing public health concern. Recent national Point-in-Time (PiT) counts indicate that approximately 60,000 person's experience homelessness on any given night, with adjusted estimates suggesting this number may exceed 67,000 nationwide (Employment and Social Development Canada, 2024). Additionally, national shelter data indicate that over 118,000 individuals accessed emergency shelters in 2023, reflecting widespread housing instability nationwide (Employment and Social Development Canada, 2024). However, according to Statistics Canada (2023), these figures likely underestimate the true extent of homelessness because they may not fully account for hidden forms such as couch surfing or temporary staying with others, which is difficult to

quantify. Among homeless populations, the prevalence of diabetes is significantly higher than in the general population, reflecting broader health inequities (Scott et al., 2022).

### **Challenges in Nursing Education**

Nursing students often report feeling unprepared to address the complex needs of individuals managing both diabetes and social vulnerabilities. Traditional nursing curricula focus heavily on the biomedical aspects of care, with limited emphasis on the SDOH and its impact on patient outcomes (Rosewilliam et al., 2020; Thornton & Persaud, 2018). Simulation-based learning offers a practical solution to bridge this gap by providing opportunities to apply theoretical knowledge in realistic, immersive environments. These simulations enhance clinical competence and foster critical thinking skills, enabling students to address the multifaceted challenges faced by marginalized populations (Cant & Cooper, 2007; Fenske et al., 2015).

### **Simulation in Nursing Education**

Virtual simulations addressing type 2 diabetes management provide a unique opportunity to teach students about the complex interplay between clinical care and social factors. Virtual simulations often involve scenarios where students manage diabetes among vulnerable populations, such as those with limited access to healthcare or experiencing housing instability (Astroth et al., 2018). Virtual simulations provide meaningful and authentic learning experiences, enabling students to develop a deeper understanding of patient needs while advancing their critical thinking and decision-making capabilities (Killam et al., 2024).

The effectiveness of virtual simulations is improved by a structured approach that typically includes three phases: pre-simulation, scenario implementation, and debriefing. (Luctkar-Flude, 2020). In the pre-simulation phase, students prepare through activities such as reviewing textbooks, completing self-assessment modules, and familiarizing themselves with

care plans (Tyerman et al., 2019). The prebriefing component further supports learners by clarifying expectations, setting learning objectives, and establishing a psychologically safe environment (Rudolph & Simon, 2014). During the simulation implementation, students engage in realistic patient encounters, applying their knowledge to address real-life clinical challenges. Finally, the debriefing phase offers a critical opportunity for reflective learning, where students analyze their performance and discuss insights gained from the experience (Kolbe et al., 2020).

Ensuring psychological safety during simulation is paramount for high-stakes content, such as managing complex diabetes cases. Facilitators play a key role in creating a supportive and student-centred learning environment by clearly outlining goals, guiding participants through realistic scenarios, and fostering a sense of psychological safety (Rudolph & Simon, 2014). Authenticity in simulation scenarios further enhances their educational value, enabling students to develop practical skills and empathy for the unique circumstances their patients face (Killam et al., 2024).

In summary, virtual simulations represent a powerful educational tool for addressing the multifaceted challenges of type 2 diabetes management in nursing education. Using virtual simulation, including prebriefing, simulation implementation, debriefing, and a focus on holistic care, simulations can help to prepare future nurses to deliver patient-centred care to diverse populations. As the prevalence of type 2 diabetes continues to rise, the role of virtual simulations in equipping nursing students with the necessary skills and knowledge is increasingly important.

### **Purpose of Study**

The purpose of this pilot study is to examine the perceived effectiveness of a virtual simulation module for undergraduate nursing students that explores the impact of *determinants of health on chronic disease self-management*. The broader health professions education

literature often uses the term learners to refer to individuals engaged in education across the professional learning continuum (Canadian Interprofessional Health Collaborative, 2024), experiential learning theory similarly conceptualizes participants in educational processes as learners (Kolb, 1984). However, the term students is used throughout this thesis to accurately reflect the undergraduate study population. Perceived effectiveness refers to students' self-reported learning outcomes, confidence, preparedness, and perceived impact of the simulation experience as measured by the SET-M instrument and qualitative interviews.

### **Research Question**

What is the perceived effectiveness of a virtual simulation module on the *determinants of health on chronic disease self-management*, exploring the impact of homelessness on type 2 diabetes self-management for undergraduate Bachelor of Science in Nursing (BScN) students enrolled in the Nursing Practice and Complex Care Situations (NSG4430) at the University of Ottawa, to answer the sub-questions:

1. How do nursing students perceive the effectiveness of the pre-simulation preparation?
2. How do nursing students perceive the effectiveness of the virtual simulation experience?
3. How do nursing students perceive the effectiveness of the debriefing process?

### **Importance of Study**

The findings of this pilot study contribute to the growing body of knowledge supporting simulation-based learning (SBL) as a transformative approach in nursing education. Through immersive clinical scenarios, students can develop a nuanced understanding of the barriers to diabetes management faced by patients who identify as homeless, including challenges with diet,

income, access to healthcare services, and medication adherence. SBL not only enhances their confidence in providing patient-centred care but may also reduce anxiety associated with managing chronic conditions complicated by determinants of health, fostering empathy for individuals living with complex health challenges.

This study highlights the importance of improving key nursing skills, including communication, assessment, and care planning. It suggests that simulation-based learning (SBL) prepares students to meet diverse patient needs and effectively manage the social and environmental factors that influence diabetes care. Moreover, virtual simulations focused on diabetes care enable students to meet competency standards in critical areas, including patient education, blood glucose monitoring, and care planning, thereby improving their preparedness for future practice.

Utilizing VS to educate students about the DOH and chronic health conditions emphasizes the importance of adopting a holistic perspective in nursing education to improve patient safety, health outcomes, and the quality of care delivered to individuals with type 2 diabetes. This pilot study helps understand the gap between theory and practice, offering valuable insights for educators, policymakers, and healthcare professionals seeking to improve nursing education and, ultimately, outcomes for populations disproportionately affected by diabetes.

Within the Canadian context, nursing education is guided by competency frameworks emphasizing social justice, relational practice, and responsiveness to the social determinants of health. Integrating virtual simulation modules that explicitly address homelessness and chronic disease management aligns with national expectations for socially accountable nursing education. This study, therefore, contributes not only to simulation scholarship but also to advancing Canadian nursing's commitment to equity-oriented practice and population health.

**Chapter Two:**  
**Literature Review**

## Search Strategy

This chapter provides an overview of the literature, search strategy, and key concepts relevant to the phenomenon of interest, including diabetes self-management, nursing education related to diabetes and homelessness, and simulation-based and virtual simulation learning in healthcare.

The literature review was initially conducted in April 2024, then repeated in January 2025 and again in January 2026 to identify new or missing sources. The search strategy was developed with guidance from the University of Ottawa Health Sciences Librarian. The databases included Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medical Literature Analysis and Retrieval System Online (MEDLINE - Ovid), Scopus, PubMed, EMBASE, and the Cochrane Library, as well as hand searches, citation searching and grey literature sources. Citation searching involved examining the reference list of relevant articles. Grey-literature and website searches were conducted to identify potentially relevant articles, contextual materials, and additional references; however, only peer-reviewed publications meeting the eligibility criteria were included in the final literature synthesis.

The four main concepts include: a) Diabetes, b) nursing students, c) simulation education or patient simulation, and d) homelessness. Keywords and appropriate syntaxes, such as truncations and proximity searches, were used within each major concept to search the title, abstract, and keywords sections (Appendix A). Boolean operators "OR" and "AND" were used to refine the search parameters of the main concepts.

The search criteria included: a) were published between 2014 and 2026; b) were available in English; c) addressed diabetes self-management, nursing or health-professions education, simulation-based education, virtual simulation, homelessness, vulnerable populations, or the

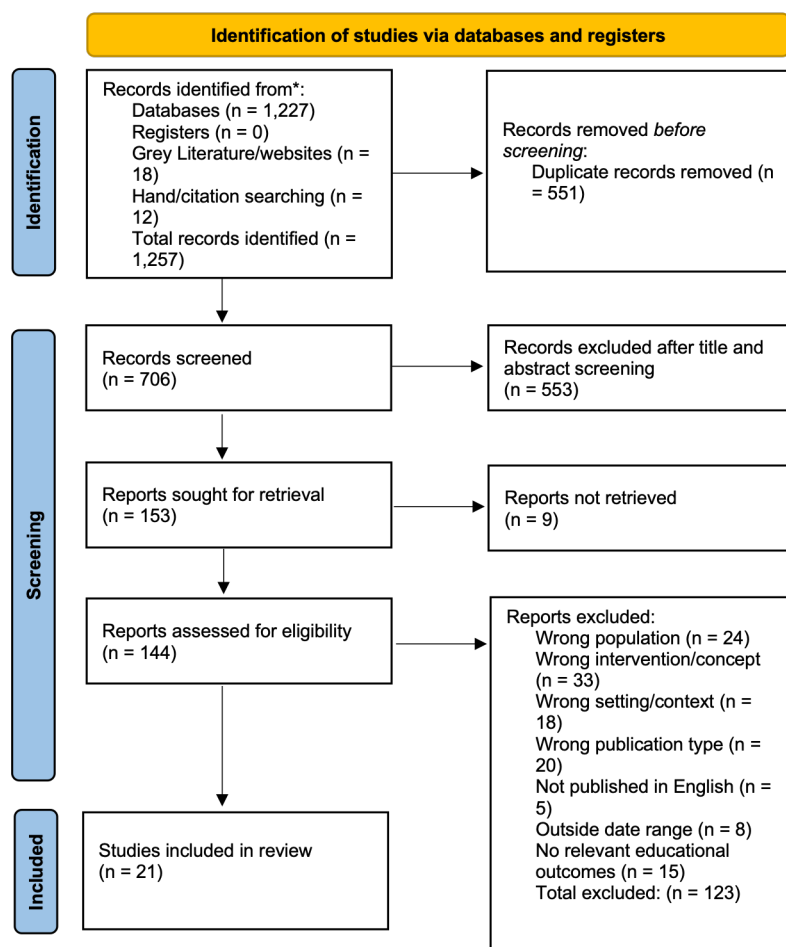
social determinants of health; and d) provided findings relevant to the purpose of the literature review. Articles were excluded when they: a) examined a population that was not relevant to the review; (b) did not address a relevant intervention or concept; c) focused on a setting or context unrelated to the review; d) used an ineligible publication type or research design; e) were not available in English; f) were published outside the specified date range; or g) did not report outcomes relevant to nursing education, simulation education, diabetes self-management, homelessness, or the social determinants of health.

The literature identification and selection process identified 1,257 articles (Figure 1). Of these, 1,227 were identified through electronic databases, 18 through grey literature or website searches, and 12 through hand and citation searches. Prior to screening, 551 duplicate records were removed, leaving 706 records for title and abstract screening. During title and abstract screening, 553 articles were excluded for not meeting the eligibility criteria. The full texts of 153 potentially relevant reports were sought for retrieval. Nine reports could not be retrieved, leaving 144 reports for full-text eligibility assessment.

Of the 144 full-text articles assessed, 123 were excluded for the following reasons: wrong population (n = 24), wrong intervention or concept (n = 33), wrong setting or context (n = 18), wrong publication type or research design (n = 20), not published in English (n = 5), published outside the eligible date range (n = 8), and no relevant educational outcomes (n = 15). A total of 21 studies met the eligibility criteria and were included in the literature review.

**Figure 1**

*PRISMA 2020 Flow Diagram of the Literature Search and Study Selection Process*



\* CINAHL, MEDLINE, Scopus, PubMed, EMBASE, and Cochrane Library.

Note. Adapted from the PRISMA 2020 flow diagram (Page et al., 2021). Searches were initially conducted in April 2024 and updated in January 2025 and January 2026.

## Diabetes Self-management

The self-management of diabetes can be challenging, and several studies identified common themes affecting patients' ability to follow treatment regimes. Barriers to diabetes self-management have been commonly described in the literature and in the qualitative, exploratory pilot study by Rojas-Guyler et al. (2014), which investigated the difficulties of (n = 27) military

men who identify as homeless in Canada and the United States in managing diabetes through semi-structured interviews. The article found that person's have difficulty preventing diabetes complications due to limited knowledge of how to prepare healthy foods (Rojas-Guyler et al., 2014). The study also found that patients with prior knowledge of diabetes scored higher on multiple-choice questions about self-management practices, indicating that knowledge level is a barrier to self-management (Rojas-Guyler et al., 2014). In a complementary study, Campbell et al. (2021) utilized photovoice methodology to explore the barriers faced by eight homeless person's with type 2 diabetes in Canada. Participants captured photos depicting their lived experiences and provided narrative interpretations. The photovoice method illustrated deep personal challenges, including limited access to and support services, and the cumulative impact of homelessness on diabetes self-care over time (Campbell et al., 2021). Similar conclusions were reached by Keene et al. (2018) and Tewahido and Berhanem (2017), who identified systemic inadequacies, such as limited access to educational resources and healthcare.

The qualitative descriptive study by Tewahido and Berhanem (2017) aimed to describe typical self-management practices among (n = 13) patients with type 2 diabetes in a rural setting in Ethiopia. The researchers used semi-structured interviews and thematic analysis to categorize patients diagnosed with type 2 diabetes as compliant, confused, or negligent (Tewahido & Berhanem, 2017). The findings reveal that patients often lack knowledge of the importance of day-to-day self-management behaviours; however, implementing health changes can be challenging in rural areas, as patients often rely on medication to manage diabetes (Tewahido & Berhanem, 2017). Furthermore, a lack of awareness contributes to difficulties in diabetes self-management, including blood glucose control (Tewahido & Berhane, 2017).

This aligns with Grewal et al. (2021), who employed a semi-quantitative participatory

research design and used concept mapping to prioritize 48 barriers to diabetes self-management among (n = 96) health and social care providers, including physicians, nurses, diabetes educators, dietitians, shelter staff, and social service providers working with vulnerable populations and (n = 32) person's with lived experience of homelessness and diabetes in Ontario. Grewal et al. (2021) found that providers and patients hold different perceptions of diabetes self-management, which affects providers' ability to develop solutions to improve patients' self-management. McSweeney et al. (2023) explored group and individual self-management educational strategies of n = 96 health and social care providers in Canada. The study found that generic diabetes curricula may be a barrier, as this approach meets only some patients' needs (McSweeney et al., 2023). Collectively, Campbell et al. (2021), Grewal et al. (2021), McSweeney et al. (2023), Rojas-Guyler et al. (2014), and Tewahido & Berhanem (2017) highlight the need for personalized, knowledge-driven, and accessible approaches to diabetes care.

### **Nursing Education Regarding Diabetes**

Nursing students play an essential role in educating and supporting person's with diabetes. Kang and Suh (2018) provided diabetes education to year 3 (n = 93) nursing students in South Korea and examined their learning outcomes, experiences, and self-efficacy. The researchers discussed the positive effects of education on understanding chronic illness and the students' role in supporting patients' diabetes self-management (Kang & Suh, 2018). Students found that knowledge gained about diabetes enhanced their ability to provide patient-centred care (Kang & Suh, 2018). The findings indicated that when students participate in their education, they feel a sense of ownership in supporting and educating patients (Kang & Suh, 2018).

Gordon et al. (2018) used quantitative, quasi-experimental methods to explore nursing students from two nursing programs in the United States. The study aimed to assess and develop skills through a combination of diabetes education teaching methods. Gordon et al. (2018) and Kang and Suh (2018) both found that targeted education sessions on diabetes improved learners' ability to apply classroom knowledge to clinical settings, resulting in higher grades and greater confidence in diabetes management. Researchers further found that nursing students who participated in diabetes-specific education sessions effectively bridged the gap between classroom knowledge and clinical application, thereby enhancing their ability to teach patients with diabetes (Gordon et al., 2018; Kang & Suh, 2018).

The qualitative descriptive study by DeLenardo et al. (2019) examined (n = 266) nursing students who used multiple learning tools, including online self-testing questions about diabetes, after increasing their confidence in the pathophysiology of diabetes. This aligns with previous findings by Kang & Suh (2018), further emphasizing the role of targeted diabetes education in enhancing self-efficacy. The qualitative descriptive study by Singleton et al. (2021) included (n = 166) institutions from (n = 28) states participating in a virtual simulation on diabetes to emphasize the importance of tailored diabetes education programs that meet nursing students' specific needs, advocating personalized approaches over generic ones.

DeLenardo et al. (2019), Gordon et al. (2018), Kang and Suh (2018), and Singleton et al. (2021) all found that knowledge was a critical factor in the education and preparation of nursing students to care for person's with diabetes and through educational materials, students reported feeling better equipped to support person's with chronic illnesses. Among students using educational materials on diabetes, most reported that they could better support person's with

chronic illness, and most described the positive effects of learning about chronic illness in nursing education (DeLenardo et al., 2019; Kang & Suh, 2018; Singleton et al., 2021).

### **Nursing Education Regarding Vulnerable Populations**

Nursing education prepares students to care for diverse and vulnerable populations. In particular, the qualitative, descriptive research conducted by Yaphe et al. (2023) included (n = 96) health and social care providers working in diabetes-related organizations or with homeless individuals across (n = 5) Canadian urban centres and (n = 38) organizations in Canada. Yaphe et al. (2023) aimed to develop a conceptual framework tailored to the distinctive needs of homeless individuals by identifying and describing common approaches used by healthcare providers to improve engagement and diabetes care. The findings by Yaphe et al. (2023) identified several key approaches and strategies healthcare providers, including nurses, use to provide diabetes care for person's experiencing homelessness, including holistic care, person-centred behaviours by building trust, lower-barrier organizational structures to be flexible, and including harm reduction during care (Yaphe et al., 2023). The researchers emphasized the need for healthcare providers to address the social determinants of health, such as housing instability, mental health and substance use, to provide better support (Yaphe et al., 2023).

Moreover, the researchers DeLenardo et al. (2019), Gordon et al. (2018), Kang and Suh. (2018), and Liu et al. (2021) address vulnerable aspects of the social determinants of health for nursing students, such as housing instability, mental health, and substance use, which were found to be important considerations in fostering holistic diabetes care among vulnerable populations. Campbell et al. (2021) used narratives from individuals with lived experience to emphasize the need to provide learners with opportunities to build knowledge and skills to address the unique needs of person's experiencing homelessness and chronic illnesses such as diabetes, which may

improve healthcare outcomes and promote health equity among vulnerable populations.

### **Nursing Education Regarding the Social Determinants of Health (SDOH)**

An integrative qualitative review by Liu et al. (2024) synthesized literature to identify effective methods for familiarizing Bachelor of Science in Nursing (BSN) students with the SDOH. Liu et al. (2024) aim to determine which teaching interventions are most effective in the BSN program. The findings by Liu et al. (2024) emphasized the importance of interdisciplinary teamwork and advocated for quantitative assessments to determine teaching effectiveness. The teaching strategies identified in Liu et al. (2024) included curriculum-based learning, service learning, and international outreach experiences. Simulation or virtual simulation approaches were not reported in the review by Liu et al. (2024), highlighting a gap in the literature on simulation-based methods for teaching nursing students about the social determinants of health.

### **Homelessness**

Homelessness or housing instability presents unique and significant challenges to person's with diabetes and their healthcare providers. Keene et al. (2018) used a qualitative, grounded theory approach to explore perceptions of (n = 40) person's living homeless or in subsidized housing in the United States. The aim of the study was to assess person's ability to maintain blood glucose levels, analyze the influence of expenses on diabetes self-management routines, and examine how housing access shapes patients' ability to prioritize diabetes care (Keene et al., 2018). The researchers emphasized the intricate relationship between diabetes self-management, housing access, and costs among low-income adults, highlighting how housing instability can compromise self-management practices (Keene et al., 2018). According to Tewahido and Berhane (2017), in a qualitative descriptive study of (n = 13) patients with type 2 diabetes facing homelessness in a rural setting found that person's often neglect their health due

to resource limitations.

Additionally, Ebied and Eldardery (2021) explored the lived experiences of (n = 30) older women in Egypt facing homelessness who manage diabetes without access to basic human needs, such as food, using a qualitative phenomenological approach. The researchers used a questionnaire to collect participants' personal and medical data, followed by semi-structured interviews with open-ended questions to elicit their experiences (Ebied & Eldardery, 2021). The article emphasized the importance of addressing multiple dimensions of homelessness, including age, mental health, and environmental factors, to effectively manage diabetes (Ebied & Eldardery, 2021). In the study by Campbell et al. (2021), the researchers demonstrated person's difficulties in following dietary recommendations by printing photographs of food provided in shelters, taken by individuals with lived experience of homelessness, to illustrate that the food is often unhealthy, high in carbohydrates, and the nutritional information is unknown.

Homelessness makes it increasingly difficult to access food, medical care, and social support, creating challenges in the management of diabetes (Campbell et al., 2021; Ebied & Eldardery, 2021; Keene et al., 2018). The qualitative studies detailed the challenges faced by persons experiencing homelessness (Campbell et al., 2021; Ebied & Eldardery, 2021; Keene et al., 2018). Most researchers found that persons cannot manage homelessness and diabetes without the proper information and assistance (Campbell et al., 2021; Keene et al., 2018; Tewahido & Berhane, 2017).

### **Simulation-Based Learning and Diabetes**

Simulation-based learning in diabetes education has been explored through various innovative approaches. DeLenardo et al. (2019) found that the interactive nature of digital storytelling and questions among (n = 266) nursing students in Canada not only increased

learners' knowledge about diabetes but also helped them understand its effects on patients and their families. Gordon et al. (2018) used mastery teaching modelling using vignettes, videos, and simulation-based learning in two baccalaureate of science nursing (BSN) programs in the United States. As a result of the simulations, students improved their skills by modelling nurses' behaviours, thereby enabling them to intervene and practice critical thinking (Gordon et al., 2018). In addition, Mauro et al. (2018) used simulated patient encounters and high-fidelity simulations with (n = 570) baccalaureate students and (n = 57) faculty members to evaluate simulation-based strategies for chronically ill patients to deepen understanding of diabetes care in population health competencies to address the different needs of individuals with diabetes. The study found that various approaches engaged students authentically, fostering empathy and understanding of chronic diseases, such as diabetes (Mauro et al., 2018).

The studies by DeLenardo et al. (2019), Gordon et al. (2018), and Mauro et al. (2018) demonstrate the effectiveness of simulation-based learning in diabetes education by providing students with practical, hands-on experiences that enhance their skills, critical thinking abilities, and empathy towards patients with chronic conditions like diabetes. The articles also highlighted the interactive and engaging nature of simulation-based learning, which allows students to empathize with patients and understand the complexities of diabetes care (DeLenardo et al., 2019; Gordon et al., 2018; Mauro et al., 2018).

### **Virtual Simulation and Diabetes Education**

Virtual simulation has become a valuable tool in nursing education, especially in implementing diabetes management. Lu et al. (2021) conducted a quantitative, cross-sectional study in China using a mobile platform (WeChat) to survey (n = 883) nursing interns' understanding, attitudes, perspectives, and use of a diabetes virtual simulation. The researchers

found that nursing interns have a limited understanding of and utilization of diabetes virtual simulation teachings, as it is not typically used as a teaching method (Lu et al., 2021). The research highlights a gap in traditional teaching methods and finds that innovative methods, such as virtual simulation, are beneficial, increasing learners' critical thinking in hypoglycemia treatment (Lu et al., 2021).

Singleton et al. (2022) carried out a quantitative randomized control trial study by investigating (n = 171), 2nd year nursing students using a non-immersive virtual reality simulation named “Shadow Health” as a teaching method to improve nursing students’ short-term knowledge about hypoglycemia in diabetes management in the United Kingdom. Students used a computer to complete the virtual simulation, thereby increasing their engagement in a safe environment to learn and practice at their convenience (Singleton et al., 2022). The study demonstrated that students in the experimental group improved recognition of hypoglycemia because the virtual reality simulation provided instant feedback and realistic scenarios offered learners opportunities to practice essential tasks (Singleton et al., 2022).

Kang and Suh (2018) conducted a mixed-methods, quasi-experimental study to develop and evaluate smartphone-based virtual simulations on diabetes for nursing students using Android phones. This innovative approach aimed to better equip students by integrating virtual reality into nursing education (Kang & Suh, 2018). Virtual reality allows students to interact with life-like person’s to help prepare them for real-world patient care scenarios (Kang & Suh, 2018). The articles by Kang & Suh (2018), Lu et al. (2021), and Singleton et al. (2022) collectively emphasize the vital role of technology in supporting students' learning to navigate the intricacies of diabetes and homelessness management, while developing the skills to provide patient care for individuals with diabetes.

Additionally, Xu et al. (2025) developed and evaluated a virtual simulation-based diabetes care teaching program (“D training”) for nursing interns completing hospital-based clinical placements in departments commonly involved in diabetes care, including endocrinology, cardiology, nephrology, ophthalmology, and surgical units at a tertiary hospital in China. The article noted that traditional clinical placements may limit students’ opportunities to repeatedly practice complex diabetes care skills due to time constraints and patient safety considerations. To address this gap, the virtual simulation program was created to enable students to engage in interactive clinical scenarios that strengthen clinical reasoning and decision-making in diabetes care. Using a single-centre, parallel-group randomized design ( $n = 69$ ), interns were assigned to a virtual simulation intervention ( $n = 34$ ) or traditional face-to-face clinical teaching ( $n = 35$ ). The intervention was delivered over four weeks and combined standard in-person orientation/lectures with app-based virtual scenario practice targeting blood glucose monitoring, insulin injection, and hypoglycemia management. The D training program incorporated 3D simulation, theoretical modules, interactive scenario simulations, and a question-and-answer feature supported by educators. Compared with the control group, interns who used the virtual simulation program demonstrated significantly higher post-intervention self-directed learning and clinical thinking skills, along with improved practical performance in core diabetes care tasks. The findings suggest that diabetes-specific virtual simulation programs may strengthen learners’ self-directed learning and clinical reasoning while supporting safe, repeated skills practice in preparation for clinical care. Virtual simulation approaches not only enhance students’ understanding of diabetes self-management but also increase learners’ readiness and confidence to provide quality care to patients through interacting with tools that replicate real-world diabetes scenarios (Kang & Suh, 2018; Lu et al., 2021; Singleton et al.,

2022; Xu et al., 2025).

### **Summary of the Literature**

This literature review suggests that although virtual simulation has been widely used to educate nursing students in diabetes management, the existing body of literature is characterized by a predominance of studies focused on the biomedical management and acute glycemic events to improve clinical reasoning. To date, there is limited evidence describing simulation interventions that explicitly integrate homelessness and the SDOH into chronic disease discharge planning.

However, a simulation-based module has been demonstrated to be an effective learning instrument for enhancing knowledge. Implementing an authentic experience may be an effective method for educating nursing students about diabetes self-management among homeless person's, enabling them to apply these skills in clinical settings. Despite this, research on the perceived significance of this learning technique remains limited. This gap underscores the need for a pilot study to evaluate the perceived effectiveness of a virtual simulation module designed for nursing students to address diabetes self-management among person's experiencing homelessness.

While existing literature demonstrates that simulation-based learning enhances knowledge acquisition and clinical reasoning in diabetes education, much of the evidence focuses on biomedical management or acute glycemic events rather than on integrating structural determinants of health into discharge planning. Furthermore, many studies prioritize short-term knowledge outcomes without examining how simulation prepares students to navigate complex social vulnerabilities. Few investigations explicitly address how simulation can foster structural competency, equity-oriented discharge planning, or relational approaches to care for person's

experiencing homelessness. This gap highlights the need for educational interventions that move beyond technical skill acquisition to incorporate social accountability and systems-level thinking within nursing education. This sets the stage for the conceptual framework discussed in Chapter Three.

**Chapter Three:**  
**Philosophical Underpinning and Conceptual Framework**

### **Philosophical Underpinning**

The epistemological approach that is most fitting for the research study is pragmatism. Paradigms are beneficial in research contexts examining complex phenomena (Polit & Beck, 2021). As a philosophical stance, pragmatism originated in the late 19th century in the United States with key figures such as Charles Sanders Peirce, William James, and John Dewey. It is a philosophical approach that emphasizes the practical consequences of beliefs, the importance of experience, and the idea that the meaning of concepts is found in their practical applications (Dolan et al., 2022). Pragmatism centres on the practicality and usefulness of knowledge. It suggests that knowledge is a tool for problem-solving and that the value of knowledge lies in its application to real-world situations (Younas, 2020). Pragmatist paradigms are grounded in the belief in practical outcomes and applications of knowledge to address the usefulness of the intervention in the practice environment (Dolan et al., 2022; Morgan et al., 2014; Salehian et al., 2016; Vandyk et al., 2017).

Epistemology and pragmatism reject the idea of knowledge as static and absolute, emphasizing that knowledge evolves through experience and experimentation and is valued for its practical application (Deering et al., 2020). This perspective aligns with the notion that nursing knowledge should be practical, actionable, and contextually relevant to improve patient outcomes and healthcare practices (Foronda et al., 2020).

From an ontological perspective, pragmatism views reality as dynamic and context-dependent, suggesting that truth is what works in a particular context rather than an absolute, fixed entity (Deering et al., 2020). This view aligns with the idea that reality is shaped by human experiences and actions, emphasizing the importance of understanding how actions influence experiences (Deering et al., 2020).

Pragmatism is a paradigm that creates solutions to real-world problems, ideas, actions, and results (Polit & Beck, 2021). Pragmatism has found significant application in nursing education, research, and practice. The methodology correlates with the fundamental paradigm and theoretical perspective guiding the approach to design, data collection, analysis, interventions, and various methods (Polit & Beck, 2021). When considering the development and evaluation of a virtual simulation module on the impact of homelessness on type 2 diabetes self-management, a pragmatic approach would involve designing the module to address practical challenges persons face in managing their condition while experiencing homelessness. The module provides actionable strategies and interventions that can be implemented in real-world settings to improve diabetes self-management outcomes for persons. Additionally, the evaluation of the module should prioritize assessing its effectiveness in improving patient outcomes and its practical utility in addressing the unique needs of persons experiencing homelessness.

Therefore, adopting a multi-method research approach aligns with the philosophical underpinnings and methodology of the research study (Polit & Beck, 2021). Multi-method research focuses on outcomes, particularly in healthcare and nursing research. Pragmatism complements multi-methods research, offering the flexibility to use quantitative and qualitative approaches to address research inquiries (Johnson & Onwuegbuzie, 2004; Polit & Beck, 2021). In nursing education, virtual simulation has become increasingly prevalent as a teaching tool to enhance student learning outcomes (Kyaw et al., 2019). Virtual simulation technologies have been integrated into health professions education to provide immersive learning experiences that simulate real-world clinical scenarios, allowing students to practice skills in a safe and controlled environment (Algozo et al., 2018). This aligns with the pragmatic view that knowledge should be practical and applicable to real human experiences (Doane & Varcoe, 2005).

### **Conceptual Framework**

The study is framed by Kolb's Experiential Learning Theory (ELT) (Kolb, 1984; Kolb & Kolb, 2005). Kolb's Experiential Learning Theory (ELT) is a foundational educational framework emphasizing learning as a process driven by experience and reflection. Developed by David Kolb, ELT posits that effective learning occurs when person's engage in a cyclical process.

The primary concepts within the research study are diabetes self-management, undergraduate students, homelessness, and simulation-based learning in diabetes and nursing education. Kolb's (1984) experiential learning theory (ELT) is a beneficial framework guiding the research study as it applies to simulation-based learning and nursing education. Researchers often use ELT in a variety of educational settings to teach learners by using virtual simulation and developing learning experiences (Lattacher & Wdowiak, 2020; Wang & Chugh, 2013; Wang et al., 2006).

Kolb's (1984) ELT suggests that learning is an iterative process where learners actively engage and immerse themselves in the educational environment to create knowledge. Kolb's (1984) ELT includes a four-stage cycle: (1) concrete experience, (2) reflective observation, (3) abstract conceptualization, and (4) active experimentation. Fundamentally, concrete experiences enable learners to encounter real-life circumstances and fully engage with an activity or experience. A practical activity could be a simulation-based learning module about a real-world scenario. Reflective observation incorporates learners objectively reflecting on their experiences to consider different perspectives. Debriefing sessions can be used to reflect on the potential implications of actions. The process of abstract conceptualization involves categorizing learned concepts to draw meaningful conclusions from the experiences. The outcome of active

experimentation is the learner's ability to apply newly acquired knowledge in a new setting.

Kolb's (1984) ELT operates in a cyclical pattern. As students reach the final stage, the learning process begins again, ensuring learners continuously gain new knowledge.

The four-stage ELT cycle is closely associated with using a simulation-based module in undergraduate education to teach learners about diabetes and homelessness. Kolb's theoretical framework provides a foundation for designing educational experiences that accommodate diverse learning needs and promote transformative, lifelong learning. Nursing students can directly engage in concrete experiences by assuming the position of the nurse and patient. Observation reflection encompasses learners' pre- and post-debriefing of their experiences with the class in an open discussion and asking questions, deepening their understanding of essential concepts. Learners then use abstract conceptualization to analyze newly learned concepts about diabetes self-management among person's experiencing homelessness to draw conclusions and apply experimentation through learned knowledge in clinical practice or after graduation. In this study, the prebriefing aligns with abstract conceptualization in Phase I, as students review foundational information, learning objectives, and contextual information related to diabetes and the determinants of health prior to the simulation. The simulation aligns with concrete experience in Phase I, allowing learners to actively engage in clinical decision-making during a realistic simulation of discharging a patient. A structured debrief in Phase II aligns with reflective observation, providing opportunities for a facilitated, guided reflection discussion and critical analysis of novice nurses' actions and decision-making processes. Finally, future clinical application aligns with active experimentation as students consider how insights from the simulation can be transferred to real-world practice. Therefore, the research study is designed to align with Kolb's (1984) ELT, enabling students to effectively navigate the experiential learning

cycle.

The International Nursing Association of Clinical and Simulated Learning (INACSL) Standards of Best Practice Simulation Design (2016) will guide the development and implementation of the virtual simulation module to enhance learning outcomes and ensure consistency and safety. The standards include establishing clear learning objectives and evidence-based scenarios, including pre-evaluation, debriefing techniques, and continuously improving simulation practices through feedback, which aligns with Kolb's experiential learning theory.

## **Chapter Four:**

### **Methodology**

## **Design**

The study utilized a two-phase sequential multi-methods pilot design, with the dominant data residing in the quantitative component. The pilot study was selected to assess the perceived effectiveness and preliminary outcomes prior to a larger-scale evaluation. The pilot study is designed in two distinct phases. In Phase I, participants completed the Simulation Effectiveness Tool – Modified (SET-M) to assess their perceptions of the effectiveness of the virtual simulation (VS) module, which included pre-simulation preparation, the simulation experience, and debriefing. Pre-simulation preparation refers to the assigned readings and preparatory learning materials completed before the simulation. Prebriefing refers to the orientation provided prior to the simulation that clarifies expectations and introduces the scenario context. Prior to completing the VS, students engaged in preparatory learning activities, including assigned readings and educational content about diabetes self-management and the social determinants of health. The activities served as the prebriefing component, designed to orient learners to the simulation objectives. Phase II involved the qualitative portion of the research study, in which a voluntary subset of Phase I participants completed individual interviews. A two-phase sequential descriptive multi-methods design is suitable for the pilot study, as the data collected during Phase II allow quantitative findings to be contextualized and enriched through qualitative exploration of students' experiences (Polit & Beck, 2021). The descriptive research design used nested sampling, whereby voluntary participants in the qualitative phase were a subset of those in the quantitative phase (Polit & Beck, 2021). The intervention implemented in the study is a VS module on type 2 diabetes and homelessness.

### **Intervention: Virtual Simulation (VS)**

The virtual simulation, "Type 2 Diabetes and Homelessness," is designed to provide an

immersive learning experience that aligns with Kolb's Experiential Learning Theory (Kolb, 1984). The simulation aims to bridge theoretical knowledge with real-world application by engaging students in a structured learning cycle that enhances their understanding of the complexities of diabetes management in vulnerable populations. The simulation is an innovative educational tool for nursing students, fostering clinical decision-making, self-efficacy, and preparation for real-world practice in addressing social determinants of health. The simulation facilitator used reflective questions and evidence-based guidelines on diabetes care for vulnerable populations to support students' learning outcomes.

The development of the VS was a collaborative effort involving nursing educators, diabetes specialists, dietitians, lived experiences, and virtual simulation-based learning educators from across Canada. After four meeting sessions, the researcher gained more knowledge and understanding of simulation design and learning. The simulation design process included meeting four times to establish learning objectives, a simulation scenario, and a storyboard, and to develop pre- and post-assessment rubrics.

The simulation was created following the Canadian Alliance of Nurse Educators using Simulation (CAN-Sim) VS design process, which aligns with the Healthcare Simulation Standards of Best Practice (2021) and Kolb's experiential learning cycle, whereby the theoretical foundations, pre-briefing, participation, and debriefing aspects of the simulation process were reviewed, discussed, and analyzed (Tyerman et al., 2021). Scenes for the VS were filmed using a Go-Pro camera and assembled using Articulate Storyline software. The VS module was made available in both English and French. The VS module provides specific learning outcomes and a pre-evaluation learning outcomes assessment rubric based on perceived competence to meet learning outcomes, games, reflective questions, and debriefing (Luctkar-Flude et al., 2019;

Luctkar-Flude et al., 2020).

The VS module on Type 2 diabetes and homelessness focuses on discharge practices and addresses key learning objectives related to diabetes management, social determinants of health, and patient-centred discharge planning. The module is designed to enhance student learners' understanding of the challenges faced by homeless person's in managing diabetes after hospital discharge, including medication access, follow-up care, and self-management barriers.

The VS takes place in a hospital room, designed to offer an immersive experience that allows participants to view the situation from both the nurse's and the patient's perspectives. The module begins with a case summary, offering relevant background information about the patient's hospitalization, diabetes history, and social circumstances. Learners are then placed in the role of a nurse responsible for conducting a discharge conversation, ensuring the patient understands their medication regimen, dietary recommendations, glucose monitoring, and available community resources.

Throughout the simulation, learners engage with video clips followed by critical thinking questions. Each question presents three response options: one correct choice and two non-optimal responses, reflecting common errors in discharge planning. If the nursing student selects the correct response, the scenario progresses, reinforcing best practices for patient education and support. If the nursing student selects an incorrect response, the simulation provides feedback explaining why the choice was suboptimal and redirects them to reconsider their approach.

The VS module was assigned during a designated week in the Nursing Practice and Complex Care Situations (NSG4430) course, with an in-person debriefing session led by the course professor following completion of the module at home. During the debrief, students reviewed the simulation as a group, analyzing both correct and incorrect responses through

reflective discussion and facilitator-guided insights. The debrief emphasized the importance of clear communication, assessing the patient's readiness for discharge, and addressing potential barriers to diabetes self-management among person's experiencing homelessness. Nursing students were allowed unlimited attempts to complete the VS module, ensuring they had the opportunity to explore different decision-making pathways and reinforce their understanding of effective discharge practices for vulnerable populations.

### **Sample**

The population of interest was fourth-year nursing students in the undergraduate Bachelor of Science in Nursing (BScN) program enrolled in the Nursing Practice and Complex Care Situations (NSG4430) course. Participants for the study were recruited from the University of Ottawa's BScN program and are currently in their fourth year of study. The sampling design included the following participant inclusion criteria: (a) registered student at the University of Ottawa in the BScN program; (b) enrolled in the Nursing Practice and Complex Care Situations (NSG4430) course.

### **Setting**

The setting of the research study took place in an Ontario-based university with students enrolled in the undergraduate BScN program. Specifically, participants were recruited from the fourth-year Nursing Practice and Complex Care Situations (NSG4430) course at the University of Ottawa in the BScN program. All students enrolled in the Nursing Practice and Complex Care Situations were required to complete the VS module on "Type 2 diabetes and homelessness."

### **Procedures**

#### ***Phase I: Quantitative data collection***

Students voluntarily completed the VS module and SET-M tool. After completing the VS

module, students were invited to participate in the study to share the results of their SET-M scores. Students were then emailed a consent survey using SurveyMonkey to indicate if they voluntarily agreed to participate in the study and share their SET-M evaluation with the primary researcher. and the SET-M evaluation as part of the course requirement.

### ***Phase II: Qualitative data collection***

Subsequently, nursing students who consented to share their SET-M evaluation were invited to a semi-structured interview to further analyze the simulation's effectiveness. A SurveyMonkey was emailed to nursing students to obtain consent, and the primary investigator (PI) contacted interested participants to arrange semi-structured interviews. Interviews occurred after the implementation of the VS module and completion of the SET-M tool (October 2025 – December 2025).

### **Sample Size**

#### ***Phase I***

A convenience sampling technique, a form of non-probability sampling, was used to recruit eligible fourth-year nursing students. A convenience sampling technique, also referred to as volunteer sampling, involves recruiting participants who come forward and identify themselves (Polit & Beck, 2021). Researchers employing a convenience sampling technique aim to obtain diverse data and represent multiple experiences of a particular topic (Polit & Beck, 2021). According to Polit & Beck (2021), convenience sampling is an easy, efficient, and economically accessible way for the sampling process. The convenience sampling technique is beneficial for recruiting participants in a specific clinical setting (Polit & Beck, 2021).

#### ***Phase II***

Nested sampling was used to recruit nursing students for the qualitative interviews.

Nested sampling occurs when participants from the quantitative component comprise a lesser portion of the qualitative sample (Polit & Beck, 2021). Therefore, a smaller subset of the participants who completed the SET-M additionally completed the qualitative semi-structured interview. There is no standardized sample size for a qualitative study; however, including 3-8 participants has been used for similar studies (Hamidi et al., 2024). The sample size is also consistent with the exploratory aims of pilot research and is intended to inform the feasibility and design of future, larger-scale studies.

Additionally, the researcher identified relevant studies using SET-M through a literature search and recruited 3 participants for an initial exploratory qualitative analysis. While qualitative research often aims to achieve data saturation, a small sample size of ( $n=3$ ) in this pilot study limits the ability to fully reach saturation. Therefore, the findings should be interpreted as preliminary and exploratory, consistent with the pilot nature of the study.

## **Recruitment**

### ***Phase I***

The recruitment was conducted through various methods, including:

1. A recruitment poster (Appendix C) outlining the research description, objectives, expectations, inclusion criteria, benefits, and the researcher's contact information. The research poster was posted on the course Brightspace Announcement page with the approval of the course professor.
2. Two weeks before the study, the researcher delivered a brief three-minute presentation via Zoom to the fourth-year undergraduate Nursing Practice and Complex Care Situations (NSG4430) class to explain the study's purpose and invite participants to participate in the study.

3. As an incentive, nursing students who agreed to share their SET-M evaluation in Phase I of the study received a \$10 Starbucks gift card.

## ***Phase II***

The recruitment included:

1. After completing the SET-M, the researcher invited nursing students to a semi-structured interview. Nursing students who participated in the interviews received an additional \$10 Starbucks gift card.

## **Data Collection**

### ***Phase I: Simulation Effectiveness Tool – Modified (SET-M) Instrument***

The effectiveness of the VS focusing on type 2 diabetes and homelessness was measured quantitatively using the SET-M (Leighton et al., 2015). The SET-M is a 19-item quantitative tool comprising subscales: pre-briefing (assigned readings and lecture content), scenario (VS experience), and debriefing (reflective questions and in-person debrief with the course professor). The SET-M was developed by Leighton et al. (2015) to measure the effectiveness of a simulation after it is completed. The SET-M utilizes a 3-point Likert scale, allowing participants to express their level of agreement or disagreement through a series of statements ranging from “3 = strongly agree” to “1 = strongly disagree” (Leighton et al., 2015).

The SET-M is a suitable tool for the quantitative phase of a multi-methods two-phase design, as it gathers measurable data on the perceived effectiveness of the VS. Additionally, the SET-M includes an open-ended section for nursing students to share reflections on their VS experience. The SET-M demonstrates strong internal consistency reliability across subscales (Leighton et al., 2015): pre-briefing ( $\alpha = .833$ ), learning ( $\alpha = 0.852$ ), confidence ( $\alpha = 0.913$ ), and debriefing ( $\alpha = 0.908$ ), with an overall reliability of  $\alpha = 0.936$ . The SET-M is available in

English only for in-person and virtual simulations.

### ***Phase II: Semi-Structured Interview Guide***

Semi-structured interviews conducted by the researcher was the primary tool used to collect the qualitative data. Semi-structured interviews involve an individual discussion between the participant and the primary researcher/interviewer (Polit & Beck, 2021). The interviews are considered semi-structured as the researcher develops thought-provoking questions and prepares a written guide for the questions to be covered; however, the participants' thoughts are not structured but instead explored (Polit & Beck, 2021). The researcher utilized a guide of written prompts to direct the discussion while allowing nursing students the freedom to share their thoughts and experiences in their own words (Polit & Beck, 2021). The researcher also used probing and open-ended questions to encourage deeper discussions and more detailed explanations of participant experiences (Polit & Beck, 2021). The advantage of using semi-structured interviews is that it encourages participants to share experiences, opinions, and perceptions (Polit & Beck, 2021). Additionally, semi-structured interviews are flexible and allow researchers to collect qualitative-rich information about the nursing students' experiences while enhancing and expanding on the quantitative component of the research study (Polit & Beck, 2021). The interview guide was created in collaboration with the thesis committee.

Following the in-class debriefing session led by the course professor, three individual semi-structured interviews, each lasting 10–15 minutes, were conducted. The interviews included six open-ended questions (Appendix D). Once participants provided consent, the researcher organized and conducted the interviews. The interviews were performed and audio-recorded over the Zoom video-conferencing platform. Nursing students were informed that they may refrain from answering questions they do not wish to discuss.

Three data collection tools were utilized in the study. The SET-M tool was accessible to all nursing students via SurveyMonkey after they completed the VS module intervention. Before proceeding, participants had to respond to the question, “Do you agree to participate in the study?” followed by one of two options:

*“Yes, I agree to participate in the study and share my SET-M scores.”*

*“No, I do not agree to participate in the study and will not share my SET-M scores.”*

Selecting *“Yes, I agree to participate in the study and share my SET-M scores,”*

Nursing students consented to participate and share the results of their SET-M scores. Consenting participants then proceeded to the study’s sociodemographic survey (Appendix F). Those who selected *“No, I do not agree to participate in the study and will not share my SET-M scores”* were directed to a thank-you page and exited SurveyMonkey.

Nursing students who completed the demographic survey were then invited if they would like to participate in a short interview with the researcher by responding to the following question: *“Do you agree to participate in the study?”* followed by one of two options:

*“Yes, I agree to participate in the study and semi-structured interview.”*

*“No, I do not agree to participate in the study and will not participate in the semi-structured interview.”*

Nursing students who chose *“No, I do not agree to participate in the study or the semi-structured interview”* were redirected to a thank-you page and exited SurveyMonkey. Those who selected *“Yes, I agree to participate in the study and the semi-structured interview”* were taken to a response page requesting their preferred meeting dates, times, email addresses, and pseudonyms. The researcher’s contact details were shared via email address.

After completing the SET-M, nursing students were asked if they consented to share their

SET-M and demographic survey results. Participants who shared their results received a \$10 Starbucks gift card. Additionally, nursing students were asked if they would be interested in a short interview by the researcher. If nursing students decided to participate in the semi-structured interview, a \$10 Starbucks gift card was provided to compensate for their time.

### **Data Analysis**

The study findings were based on both quantitative and qualitative data. In the quantitative phase, all participants completed the VS, which served as the study intervention. The primary dependent variables were participants' scores of the SET-M, including the prebriefing, scenario, debriefing items, and overall SET-M scores. These scores were measured following completion of the virtual simulation and represented participants' perceived effectiveness of the simulation experience. For the Mann–Whitney U analyses, the independent variables were participants' previous nursing-related experience and previous education, workshops, or certifications related to diabetes and homelessness. The dependent variables were the prebriefing, scenario, debriefing items, and overall SET-M scores. The quantitative data from the sociodemographic and SET-M were analyzed using descriptive and exploratory inferential statistics. The statistical analyses were conducted for exploratory purposes only, which is consistent with the objectives of a pilot study. Meanwhile, qualitative data obtained through semi-structured virtual interviews were analyzed thematically.

### **Quantitative Data Analysis**

The quantitative data were analyzed statistically, and inferential statistics were performed. The data were analyzed using the 27th version of the Statistical Package for the Social Sciences (SPSS). The sociodemographic data were analyzed using descriptive statistics, including mean (*M*), median, percentiles, and standard deviation (*SD*), to summarize the sample

characteristics. Descriptive statistics was used to examine variations in participant demographics, identify potential outliers, and assess the distribution of the dataset (Polit, 2010).

Internal consistency reliability of the SET-M was assessed using Cronbach's alpha coefficients for each subscale and for the overall scale. Cronbach's alpha evaluates the extent to which scale items are interrelated and consistently measure the underlying construct (Polit, 2010). The Cronbach's alpha coefficient from each subscale and the total scale from the SET-M scores were calculated to evaluate the internal consistency and construct reliability. The Cronbach's alpha was calculated to assess the extent to which items in the SET-M are interrelated and consistent in statistically measuring the data (Polit, 2010).

Normality tests were carried out to determine the normal distribution pattern and evaluate the appropriateness of non-parametric tests. Since the sample size was small and normality assumptions was not met, non-parametric inferential tests was applied to examine potential relationships and differences among SET-M scores across participant characteristics (Polit, 2010). The SET-M scores were interpreted descriptively, with higher mean scores indicating greater perceived effectiveness of the simulation. Scores closer to three represent stronger agreement with statements related to learning, confidence, and debriefing effectiveness. Leighton et al. (2018) describe the SET-M as designed to measure learners' perceptions of simulation effectiveness rather than objective learning outcomes.

### **Qualitative Data Analysis**

The analysis of the qualitative data began during the data collection phase II. The interview data were analyzed using Braun and Clarke's (2006) six-phase approach to thematic analysis. The analysis began with familiarization with the data through repeated reading of the interview transcripts. Each semi-structured interview was transcribed verbatim using the

University of Ottawa (uOttawa) Zoom transcription function, and a line-by-line analysis using Microsoft Excel. Through a detailed, systematic analysis of the data and triangulation of the data transcription, the accuracy of the qualitative data is captured, ensuring the quality and reliability of the data are credible to draw valid conclusions (Polit & Beck, 2021). Initial codes were then generated by identifying meaningful features of the data relevant to the research question.

Related codes were grouped into potential themes, which were subsequently reviewed and refined by comparing them with the coded extracts and the overall dataset. The themes were then defined and named to clearly represent the patterns identified within participants' experiences.

Representative participant quotations were selected to illustrate and support the final themes.

Throughout the analytic process, the developing codes, themes, and interpretations were reviewed and discussed with the thesis advisor (JT) to support the credibility and refinement of the analysis. Thematic analysis closely aligns with these steps and assists in recognizing conceptual themes and inconsistencies across the data within qualitative data transcripts to extract valuable findings and conclusions (Polit & Beck, 2021). The thematic analysis allowed for the comparison between themes and inconsistencies in the semi-structured interview data (Polit & Beck, 2021). The findings from the thematic analysis of the semi-structured interview were synthesized in a table format to illustrate the transcribed data and condense meanings, units, codes, and themes (Polit & Beck, 2021).

To enhance trustworthiness, several strategies were employed. Credibility was supported through prolonged engagement with the data and iterative review of interview transcripts. An audit trail was maintained to document analytic decisions and theme development. Reflexive journaling was used to acknowledge and bracket the researcher's prior clinical experiences with homelessness and diabetes care. Dependability was enhanced by maintaining consistent

interview procedures and structured coding processes. Confirmability was addressed through transparent documentation of theme development, and illustrative quotations were used to ground interpretations in participant narratives.

### **Ethical Considerations**

During each individual Phase I and Phase II, participants were provided with an electronic copy of the study Letter of Information (Appendix D) and consent to participate in the study (Appendix E; Appendix H). Ethical approval for the study was obtained from the University of Ottawa's Research Ethics Board (REB) on September 29, 2025 (Appendix G). The primary researcher and all thesis committee members have successfully completed the Tri-Council Policy Statement 2 (TCPS-Core2). The primary researcher obtained verbal consent from all nursing students before the beginning of each interview. All participants were informed that their participation was voluntary and they had the right to withdraw at any time. In Phase I of the study, participants were assigned identification numbers (1-100) to ensure the confidentiality of their personal information. During Phase II of the research study, participants were asked to provide a pseudonym or were assigned one to maintain confidentiality.

All data, including participant details, sociodemographic forms, and results, were stored securely in an encrypted, password-protected file on a personal computer and on a password-protected Dropbox account. To ensure confidentiality, participants were informed that only the researcher and supervisor would have access to the data. Interviews were conducted virtually, audio recorded using Zoom, and transcribed verbatim. All participants were offered the opportunity to review their transcripts, and the collected data was securely stored for a minimum of five years post-study. After the retention period, all digital files will be permanently deleted, and any paper records securely shredded.

## **Chapter Five:**

### **Results**

## **Results**

The data analysis from the research study was divided into quantitative and qualitative results. The quantitative portion of the data analysis focused on descriptive and inferential statistical analyses from the sociodemographic data and SET-M questionnaire. The qualitative portion of the data analysis focused on three main themes identified through the semi-structured virtual interviews. Lastly, participants included anecdotal statements regarding the VS experience. The results are presented to describe preliminary trends and nursing students' perceptions observed in this pilot study and should not be interpreted as definitive evidence of effectiveness.

### **Quantitative Results**

#### ***Descriptive Statistics***

A total of 16 undergraduate nursing students completed the virtual simulation and SET-M questionnaire, and all consented to participate in the study and share their data for analysis. However, five participants did not answer the demographic question concerning previous diabetes- and homelessness-related education or experience. This variable was required to classify participants into comparison groups for the Mann–Whitney U analyses, and these five participants were excluded from the quantitative analyses. Therefore, the descriptive, reliability, normality, and inferential analyses presented in Tables 1–6 were based on the 11 participants who had complete data for all variables included in the analyses. The virtual simulation was successfully integrated into the NSG4430 course, and participating students completed the simulation module and evaluation measures. The successful completion of the virtual simulation module and SET-M evaluation by participating students also provides preliminary evidence supporting the feasibility of implementing the intervention within an

undergraduate nursing course. The participant characteristics are summarized (see Table 1).

Most participants identified as women (n=10, 90.91%), while one participant identified as non-binary (n=1, 9.09%). Most participants were between 19 and 21 years of age (n=10, 90.91%), and one participant was between 22 and 24 years of age (n=1, 9.09%). Among the ethnicity categories reported, three participants identified as Caucasian, two as African Canadian or African American, two as East Asian, and two as Southeast Asian. Participants were able to select more than one ethnicity category. Three participants (27.27%) reported having completed previous education, workshops, or certifications related to diabetes and homelessness, while eight participants (72.73%) reported no previous education in these areas. At the time of participation, 100% of the participants (N = 11) had completed a clinical placement.

**Table 1**

*Participant Characteristics*

| Characteristic                    | Category                          | n (%)      |
|-----------------------------------|-----------------------------------|------------|
| Gender identity                   | Man                               | 0 (0.0)    |
|                                   | Woman                             | 10 (90.91) |
|                                   | Non-binary                        | 1 (9.09)   |
|                                   | Prefer not to disclose            | 0 (0.0)    |
| Age group                         | 19–21 years                       | 10 (90.91) |
|                                   | 22–24 years                       | 1 (9.09)   |
| Ethnicity (Select all that apply) | African Canadian/African American | 2 (20.0)   |
|                                   | Caucasian                         | 3 (30.0)   |
|                                   | East Asian                        | 2 (20.0)   |
|                                   | Southeast Asian                   | 2 (20.0)   |
|                                   | Prefer not to disclose            | 0 (0.0)    |

|                                       |     |           |
|---------------------------------------|-----|-----------|
| Previous nursing experience           | Yes | 7 (63.64) |
|                                       | No  | 4 (36.36) |
| Prior diabetes/homelessness education | Yes | 3 (27.27) |
|                                       | No  | 8 (72.73) |

Note. The ethnicity item was labelled in the survey as “select all that apply.”

The SET-M is organized into three subscales: prebriefing, scenario, and debriefing. The prebriefing subscale included two items, 11 scenario items, and five debriefing items, for a total of 18 items. One scenario item, “I developed a better understanding of medications,” was omitted from the analysis because medication management was not included in the VS and the item was considered not applicable. Items were assessed using a 3-point Likert scale ranging from 1 = *Do not agree*, 2 = *Somewhat agree*, to 3 = *Strongly agree*, with higher scores indicating greater perceived simulation effectiveness. The scale scores were calculated as the mean of the items within each subscale rather than as a summed score.

The individual SET-M subscale items results was analyzed (see Table 2). Participants generally reported favourable perceptions of the virtual simulation, with most means falling between ‘somewhat agree’ and ‘strongly agree’. In the prebriefing subscale, eight participants (72.73%) strongly agreed that prebriefing increased their confidence, while three participants (27.27%) somewhat agreed. The same response pattern was observed for the statement that the prebriefing was beneficial to their learning. The prebriefing items had a mean score of 2.73, indicating that participants perceived the preparatory components of the virtual simulation positively.

The scenario subscale items’ means ranged from 2.36 to 2.82. The highest rated scenario items were having the opportunity to practise clinical decision-making skills, feeling more

confident communicating with the patient, and feeling more confident providing interventions that foster patient safety. In each of the scenario subscale items, nine participants (81.82%) strongly agreed and two participants (18.18%) somewhat agreed, with a mean score of 2.73. Participants also reported favourable perceptions of feeling empowered to make clinical decisions and using evidence-based practice to provide nursing care. In both items, eight participants (72.73%) strongly agreed, and three participants (27.27%) somewhat agreed, with a mean score of 2.73. The lowest-rated scenario item was feeling more confident reporting information to the health care team. Five participants (45.45%) strongly agreed, five participants (45.45%) somewhat agreed, and one participant (9.09%) did not agree with this statement, with a mean of 2.36. Overall, although the scenario item was feeling more confident reporting information to the health care team item was rated as the lowest mean, participants' responses remained between somewhat agree and strongly agree, indicating favourable perceptions of the VS.

The debriefing subscale means ranged from 2.55 to 2.82. The highest-rated debriefing items were that the debriefing helped to improve clinical judgement, provided opportunities to reflect on performance, and provided a constructive evaluation of the simulation. For each of these items, nine participants (82.82%) 'strongly agreed', and two participants (18.18%) somewhat agreed, with a mean of 2.82. Six participants (54.55%) strongly agreed, and five participants (45.45%) somewhat agreed that debriefing contributed to their learning, with a mean of 2.55. Seven participants (63.64%) strongly agreed, three participants (27.27%) somewhat agreed, and one participant (9.09%) did not agree that debriefing allowed them to verbalize their feelings before focusing on the scenario, reflecting a mean of 2.55. Overall, participants perceived the debriefing as beneficial for reflection, clinical judgement, and learning.

**Table 2***Simulation Effectiveness Tool-Modified (SET-M) item results*

| Subscale    | Statement                                                                         | Strongly agree<br>n (%) | Somewhat agree<br>n (%) | Do not agree<br>n (%) | M    |
|-------------|-----------------------------------------------------------------------------------|-------------------------|-------------------------|-----------------------|------|
| Prebriefing | Prebriefing increased my confidence.                                              | 8 (72.73)               | 3 (27.27)               | 0 (0.0)               | 2.73 |
|             | Prebriefing was beneficial to my learning.                                        | 8 (72.73)               | 3 (27.27)               | 0 (0.0)               | 2.73 |
| Scenario    | Better prepared to respond to changes in the patient's condition.                 | 6 (54.55)               | 4 (36.6)                | 1 (9.09)              | 2.45 |
|             | Better understanding of the pathophysiology of the disease process.               | 7 (62.5)                | 3 (27.27)               | 1 (9.09)              | 2.55 |
|             | More confident in nursing assessment skills.                                      | 7 (63.64)               | 3 (27.27)               | 1 (9.09)              | 2.55 |
|             | Felt empowered to make clinical decisions.                                        | 8 (72.73)               | 3 (27.27)               | 0 (0.0)               | 2.73 |
|             | Opportunity to practice clinical decision-making skills.                          | 9 (81.82)               | 2 (18.18)               | 0 (0.0)               | 2.82 |
|             | More confident in prioritizing care and interventions.                            | 6 (54.55)               | 5 (45.45)               | 0 (0.0)               | 2.55 |
|             | More confident in communicating with the patient.                                 | 9 (81.82)               | 2 (18.18)               | 0 (0.0)               | 2.82 |
|             | More confident in teaching patients about their illness.                          | 6 (54.55)               | 5 (45.45)               | 0 (0.0)               | 2.55 |
|             | More confident in reporting information to the health care team.                  | 5 (45.45)               | 5 (45.45)               | 1 (9.09)              | 2.36 |
|             | More confident in providing interventions that foster patient safety.             | 9 (81.82)               | 2 (18.18)               | 0 (0.0)               | 2.82 |
|             | More confident in using evidence-based practice to provide nursing care.          | 8 (72.73)               | 3 (27.27)               | 0 (0.0)               | 2.73 |
|             | Debriefing contributed to my learning.                                            | 6 (54.55)               | 5 (45.45)               | 0 (0.0)               | 2.55 |
| Debriefing  | Debriefing allowed me to verbalize my feelings before focusing on the scenario.   | 7 (63.64)               | 3 (27.27)               | 1 (9.09)              | 2.55 |
|             | Debriefing was valuable in helping me improve my clinical judgement.              | 9 (81.82)               | 2 (18.18)               | 0 (0.0)               | 2.82 |
|             | Debriefing provided opportunities to reflect on my performance during simulation. | 9 (81.82)               | 2 (18.18)               | 0 (0.0)               | 2.82 |
|             | Debriefing was a constructive evaluation of the simulation.                       | 9 (81.82)               | 2 (18.18)               | 0 (0.0)               | 2.82 |

Note. The SET-M was scored using 18 items. SET-M responses were coded 1 = do not agree, 2 = somewhat agree, and 3 = strongly agree.

The SET-M subscale means and Cronbach's alpha coefficients were calculated (see

Table 3). The prebriefing subscale had the highest mean score of 2.73, followed by the debriefing subscale with a mean of 2.71, and the Scenario subscale reflecting a mean of 2.63. The overall SET-M mean was 2.66. These findings indicate that participants generally rated the virtual simulation between somewhat effective and strongly effective across all three subscales. Cronbach's alpha coefficients were calculated to examine the internal consistency of the SET-M subscales and total scale. The two-item prebriefing subscale had a Cronbach's alpha of 1.00, indicating that participants responded consistently across the two items. However, this value should be interpreted cautiously because the subscale contained only two items and the analysis was based on a small sample.

The 11-item Scenario subscale had a Cronbach's alpha of 0.61, indicating lower or questionable internal consistency within this sample. This suggests that the Scenario items may not have measured the same underlying construct as consistently as the other subscales. However, the small sample size may have contributed to the lower reliability estimate.

The five-item Debriefing subscale had a Cronbach's alpha of 0.80, indicating good internal consistency. The overall 18-item SET-M had a Cronbach's alpha of 0.84, also indicating good internal consistency. Therefore, although the reliability of the Scenario subscale was lower, the complete SET-M demonstrated acceptable to good internal consistency in this sample.

**Table 3**

*SET-M subscale summary and internal consistency*

| Subscale    | Items | M    | Cronbach's $\alpha$ |
|-------------|-------|------|---------------------|
| Prebriefing | 2     | 2.73 | 1.00                |
| Scenario    | 11    | 2.63 | 0.61                |
| Debriefing  | 5     | 2.71 | 0.81                |

|             |    |      |      |
|-------------|----|------|------|
| Total SET-M | 18 | 2.66 | 0.84 |
|-------------|----|------|------|

Note. Scale scores were computed as the mean of the items within each scale.

### Inferential Statistics

Inferential statistical analyses were conducted to determine whether participants' SET-M scores differed according to previous nursing-related experience and previous diabetes- and homelessness-related education. Before conducting the group comparisons, the distributions of the SET-M subscale scores were examined using the Kolmogorov–Smirnov test for normality (see Table 4).

The Scenario scores did not significantly differ from a normal distribution,  $D = 0.200$ ,  $p = 0.200$ . Similarly, the Debriefing scores did not significantly differ from a normal distribution,  $D = 0.237$ ,  $p = 0.083$ . Therefore, the normality assumption was not rejected for the Scenario or Debriefing subscales. Although only the Prebriefing subscale demonstrated a statistically significant deviation from normality, non-parametric tests were selected because of the small sample size, the three-point response scale, and the non-normal distribution of at least one subscale. Mann–Whitney U tests were therefore used to compare SET-M scores between the independent groups.

**Table 4**

#### *Kolmogorov-Smirnov Test for Normality*

| Subscale    | Kolmogorov-Smirnov | N  | Sig        |
|-------------|--------------------|----|------------|
| Prebriefing | 0.448              | 11 | $p < .001$ |
| Scenario    | 0.200              | 11 | 0.200      |
| Debriefing  | 0.237              | 11 | 0.083      |

A Mann–Whitney U test was conducted to examine whether SET-M scores differed between participants with previous nursing-related experience ( $n = 7$ ) and participants without

previous nursing-related experience ( $n = 4$ ) (see Table 5). There was no statistically significant difference in prebriefing scores between participants with and without previous nursing-related experience,  $U = 13.50$ ,  $Z = -0.122$ ,  $p = 0.903$ . There was also no statistically significant difference in Scenario scores,  $U = 8.00$ ,  $Z = -1.147$ ,  $p = 0.251$ . The debriefing scores did not significantly differ between the two groups,  $U = 14.00$ ,  $Z = 0.00$ ,  $p = 1.000$ . Similarly, there was no statistically significant difference in total SET-M scores based on previous nursing-related experience,  $U = 8.50$ ,  $Z = -1.054$ ,  $p = 0.292$ . The findings indicate that no statistically significant differences in participants' perceptions of the virtual simulation were detected based on whether they had previous nursing-related experience. However, because the sample and group sizes were small, and the analysis reflects the absence of statistically significant findings, the results should not be interpreted as proof that the groups were identical.

**Table 5**

*SET-M Subscale and Total Scores by Nursing Experience: Mann-Whitney U Test*

| Subscale    | Mann-Whitney U | Z      | Asymp. Sig (2-tailed) |
|-------------|----------------|--------|-----------------------|
| Prebriefing | 13.5           | -0.122 | 0.903                 |
| Scenario    | 8.0            | -1.147 | 0.251                 |
| Debriefing  | 14.0           | 0.000  | 1.00                  |
| Total SET-M | 8.5            | -1.054 | 0.292                 |

A second series of Mann–Whitney U tests was conducted to examine whether SET-M scores differed between participants who had completed previous education, workshops, or certifications related to diabetes and homelessness ( $n = 3$ ) and participants who had not completed previous education in these areas ( $n = 8$ ) (see Table 6). There was no statistically significant difference in Prebriefing scores between participants with and without previous

diabetes- and homelessness-related education,  $U = 7.50$ ,  $Z = -1.186$ ,  $p = 0.236$ . There was also no statistically significant difference in Scenario scores,  $U = 11.00$ ,  $Z = -0.206$ ,  $p = 0.836$ .

Debriefing scores did not significantly differ between the groups,  $U = 11.00$ ,  $Z = -0.216$ ,  $p = 0.829$ . Similarly, no statistically significant difference was found in the total SET-M scores,  $U = 9.00$ ,  $Z = -0.621$ ,  $p = 0.535$ . The findings indicate that previous diabetes- and homelessness-related education was not significantly associated with participants' perceptions of the effectiveness of the virtual simulation. This analysis examined previous education, workshops, or certifications and should not be described as an analysis of previous diabetes clinical nursing experience.

**Table 6**

*SET-M Subscale and Total Scores by Previous Diabetes and Homelessness Related Education:*

*Mann-Whitney U Test*

| Subscale    | Mann-Whitney U | Z      | Asymp. Sig (2-tailed) |
|-------------|----------------|--------|-----------------------|
| Prebriefing | 7.50           | -1.186 | 0.236                 |
| Scenario    | 11.00          | -0.206 | 0.836                 |
| Debriefing  | 11.00          | -0.216 | 0.829                 |
| Total SET-M | 9.00           | -0.621 | 0.535                 |

Overall, participants reported favourable perceptions of the virtual simulation, with mean SET-M scores approaching strongly agree across the prebriefing, scenario, and debriefing subscales. The overall SET-M and Debriefing subscales demonstrated good internal consistency, while the Scenario subscale demonstrated lower internal consistency. The Mann–Whitney U analyses did not identify statistically significant differences in SET-M scores based on previous nursing-related experience or previous diabetes- and homelessness-related education. These

findings suggest that participants' perceptions of the virtual simulation were relatively consistent across the experience and education groups examined. However, the results should be interpreted cautiously because of the small sample and unequal group sizes. The upcoming section presents the qualitative findings to offer insight into students' experiences with the virtual simulation.

## **Qualitative Results**

Phase II explored the undergraduate nursing students' perceptions of the diabetes and homelessness virtual simulation through semi-structured interviews (Appendix I). Three participants completed the individual interviews after the virtual simulation and debriefing session. Thematic analysis revealed three themes: (1) Preparedness and Contextual Understanding, (2) Building Confidence and Clinical Reasoning in a Safe Learning Environment and (3) Knowledge Integration, Reflection, and Practice Application. The themes reflect the participants' perceptions of the pre-simulation preparation, virtual simulation experience, and debriefing of the intervention. Each participant who completed an interview with the researcher was assigned a pseudonym.

### ***Theme One: Preparedness and Contextual Understanding***

All nursing students described the pre-simulation preparation activities as foundational to their understanding and engagement with the virtual simulation. Students emphasized that the preparatory resources enhanced their contextual understanding of the complex challenges associated with managing diabetes while experiencing homelessness. The activities also enabled nursing students to enter the simulation with greater awareness and readiness.

Sarah highlighted the importance of preparatory readings in shaping the simulation's clinical context. Sarah explained:

*[...]I think that one is really helpful, because it kind of set like why we are even talking*

*about this to begin with. I think it's a really good background knowledge to have, because this is kind of a situation where they treat the discharge planning a little bit more different compared to other people who are dealing with the similar situation, but have different like housing situations and financial security and whatnot.*

Similarly, Mary described the preparation materials as effective in supporting each critical thinking and contextual awareness, particularly for learners with limited prior experience. Mary stated:

*[...]it's good to have those sorts of things before the sim, especially if you don't have a ton of experience.[...]the links, I think, are great resources and tools just kind of get you in the headspace of thinking critically about those things and how they might interconnect to get you prepared for the sim.*

Students also reported that the pre-simulation preparation reduced uncertainty and supported preparedness for engagement with the simulation. The structured pre-simulation preparation enhanced learners' preparedness and contextual understanding, supporting a holistic appreciation of patients' medical, social, and mental health needs prior to engaging in clinical decision-making. Nadia explained that the preparatory phase clarified expectations and helped establish a psychologically safe learning environment, which provided a clearer understanding of expectations and mitigated uncertainty about the scenario. The pre-simulation activities enabled participants to focus on the learning objectives. Nadia Stated:

*[...]I think doing like the pre sim preparation is very like helpful, because it kind of gives you an idea of what you're going into before you get there. [...]it kind of gets you thinking prior to actually doing the simulation. [...]it gives you a bit better background.*

Overall, the structured pre-simulation preparations enhanced learners' preparedness and

contextual understanding of diabetes management among the homeless population, enabling them to better appreciate patients' needs before engaging in clinical decision-making.

***Theme Two: Building Confidence and Clinical Reasoning in a Safe Learning Environment***

The second theme reflected the nursing students increased confidence and enhanced clinical reasoning following the engagement with the virtual simulation. Students described the simulation as a psychologically safe environment that allowed them to explore clinical decision-making without fear of harming a real patient. Nadia stated:

*[...]reflect on options that are available when we are in a clinical setting, it kind of allowed me to address some of my questions or some things that I was unsure about before actually dealing hands on with a patient myself as like a registered nurse, [...]it just allowed me to kind of think about these things in a safe environment where I'm able to kind of learn and understand and also get that kind of like information on to why this might be the better, best answer possible. And then also just seeing, like I said, what might be more available. It's allowing me to kind of think about what I've seen in clinical and what I could maybe offer to patients as I see them come in and out.*

Nursing students reported that opportunities to make decisions, receive feedback, and review rationales contributed to improved confidence in clinical reasoning. Mary stated:

*[...]It pushes your critical thinking as well, because it's not just like, not, not every person is going to have an insulin pen they can take home, or, you know, access to appointments, or they're in between homes, and it's a lot going on.*

Mary emphasized the importance of understanding the rationale behind responses to the decision point questions in the virtual simulation. The inclusion of explanations for both correct and incorrect options supported deeper learning and helped learners feel more confident in

prioritizing care. Mary stated:

*[...] if I get a question wrong, but I don't know why it's wrong or why not be the most helpful choice, it doesn't really help anything, like I'm I just think, Oh, I'm wrong, and I don't know why this is right, or why this is wrong. So, I like the rationale there.*

Although students identified challenges, particularly when prioritizing overlapping options. The challenges were perceived as realistic and beneficial. Sarah reflected:

*Trying to figure out what to prioritize at that time, [...] what to delegate to community resources [...] it was difficult, but it definitely made me think more.*

Nursing students also contrasted the simulation with traditional classroom learning, noting that the interactive self-paced design supported independent decision-making. Collectively, these experiences contributed to increased confidence and strengthened clinical reasoning in a safe learning environment.

### ***Theme Three: Integrating Knowledge through Reflection to Support Holistic Clinical Practice***

The debriefing and reflective components of the virtual simulation were identified as critical to consolidating learning into clinical practice. Students described the virtual simulation as facilitating the integration of theoretical knowledge with clinical application through reflection and active engagement. The reflective elements of the simulation provided opportunities to pause to consolidate learning and connect the experience to a real-world nursing context. Sarah stated:

*[...] reflecting on the aspects and how it kind of relates to practice specifically and how we can apply into practice is also really helpful. So yeah, I like the reflection after it.*

Similarly, the reflective component was meaningful and valuable. Nadia stated:

*[...] it gives kind of some, like, thought-provoking questions, and then makes you kind of*

*like pause and reflect.[...]which I think is really important in practice.*

Students frequently connected the simulation to prior clinical experiences, particularly frustrations related to discharge planning and limited community supports. Nadia stated:

*[...]Many patients are sent home without the appropriate supplies in place, and it's super frustrating, because then you're just seeing people come back in and out without ever finding a solution to the problem. So by being able to kind of see some of the steps that we can take in order to better help them, and also recognizing the importance of involving the interdisciplinary team, like social work and whatnot, to help the patient be more equipped based on their situation.*

Mary also reinforced the importance of holistic care and interdisciplinary considerations. Mary stated:

*[...] it really does push you to kind of think about all of these things and the holistic view of a person.*

Students reported that the simulation encouraged holistic thinking by requiring the integration and consideration of medical management, mental health and social circumstances.

*[...]it's really hard because you don't, you don't really think about how like, easy it can be if you have the resources, but if you have nothing, like it's really hard, [...]if you can't feed yourself, or you don't have reliable access to groceries or adequate nutrition. Well, it's that's like a big part of being able to manage your diabetes. [...]really does push you to kind of think about all of these things and the holistic view of a person.*

## **Summary**

An exploratory analysis examining sociodemographic variables found no statistically significant differences in perceived simulation effectiveness by age, nursing experience, or

demographic characteristics. Overall, the virtual simulation exploring self-management of type 2 diabetes in the context of homelessness was associated with increased perceived learning, preparedness, and confidence among nursing students. Students reported a better understanding of the complexities of holistic diabetes care, particularly the influence of social determinants of health on discharge planning, self-management, and patient outcomes.

The qualitative findings further illustrated that learning and preparedness were supported by the simulation's structured design and the opportunity to apply theoretical knowledge in a realistic, patient-centred context. Increased confidence and clinical reasoning were attributed to the safe learning environment that provided opportunities for independent decision-making and guided reflection. The debriefing and reflective components of the simulation were particularly influential in supporting holistic thinking and integrating knowledge into clinical practice.

**Chapter Six:**  
**Discussion**

## **Discussion**

The purpose of this pilot study was to evaluate the perceived effectiveness of a virtual simulation module focused on type 2 diabetes self-management within the context of homelessness for undergraduate nursing students. The research question guiding this pilot study explored students' perceptions of the effectiveness of the virtual simulation components, including presimulation preparation, the simulation scenario, and debriefing. The multi-method design allowed quantitative findings from the SET-M to be complemented by qualitative insights from the interviews, providing a richer understanding of nursing students' perceptions of the virtual simulation.

The pilot study was guided by Kolb's Experiential Learning Theory and evaluated using the SET-M and semi-structured interviews, which supported the design, implementation, and evaluation of the virtual simulation. Findings from both the quantitative and qualitative phases indicate that the simulation was perceived as an effective educational modality for supporting learning related to diabetes management, the social determinants of health, and holistic nursing care.

### **Simulation Effectiveness Tool-Modified (SET-M)**

When interpreting the SET-M results, Leighton et al. (2018) suggest that there is no standardized scoring framework, and attention should be directed to focusing on lower-scoring items to identify areas for potential improvement. Leighton et al. (2018) further suggest that facilitator reflection is necessary when more than 25% of participants select "Do not agree" for a given statement. In this pilot study, no SET-M items exceeded this threshold, indicating that nursing students generally perceived the simulation as effective and that no immediate modifications to the simulation delivery were necessary.

### **Presimulation Preparation Activities**

Presimulation preparation has been identified as a key component of effective simulation-based learning, particularly in virtual environments where learners engage independently. Presimulation activities were identified as foundational to supporting nursing students' readiness and engagement. Students described the preparatory materials as helpful in establishing expectations, clarifying learning objectives, and situating the simulation within a realistic clinical context. Nursing students reported that the presimulation structure provided the necessary background on the challenges of managing diabetes while unhoused, helping situate the simulation in a real-world context. The nursing students noted that the activities before the simulation helped reduce uncertainty and provided a review of the social determinants of health, illustrating how these factors relate to the discharge of a patient with diabetes who is experiencing homelessness. This finding is consistent with the existing literature, which emphasizes the importance of presimulation preparation activities for novice student nurses to optimize learning outcomes (Tyerman et al., 2019).

### **Virtual Simulation Scenario**

The simulation scenario was designed to reflect the complexities of managing type 2 diabetes in the context of homelessness, including barriers related to food insecurity, access to supplies, and limited community resources. Nursing students consistently characterized the scenario as highly realistic, thought-provoking, and reflective of the challenges encountered in clinical practice, moving beyond task-oriented care to require the integration of clinical and social factors into patient care. Nursing students described the VS as enabling them to view the scenario from both the nurse's and the patient's perspectives, which appeared to deepen learners' understanding of the lived experience of homelessness and its impact on diabetes self-

management. This finding aligns with the current literature, which suggests that authenticity and realism are key contributors to positive outcomes in simulation-based learning (Cant & Cooper, 2017; Kim et al., 2024). These findings suggest that nursing students perceived the virtual simulation as effective, irrespective of prior clinical exposure or demographic background. The results may indicate that the simulation design supported inclusive engagement and learning among diverse groups of undergraduate nursing students.

Students reported that the interactive, self-paced nature of the virtual simulation supported independent decision-making and critical thinking by allowing them to explore different pathways in a simulated environment that would not harm a patient. The authenticity of the VS scenario described by students encouraged them to adopt a more holistic nursing perspective and reinforced the importance of considering the social determinants of health in clinical outcomes. Students stated that the scenario's realism highlighted the need to consider a “holistic view of a person,” including mental health, nutrition, and environmental barriers. These findings highlight the existing literature suggesting that authentic, context-rich simulations improve learners’ ability to recognize psychosocial factors, including contextual barriers, prioritizing care, and supporting the integration of social determinants of health alongside clinical nursing care (Cant & Cooper, 2017). The need to consider both clinical and social factors emphasized holistic nursing practice and encouraged learners to move beyond task-focused care while acknowledging contextual barriers influencing health outcomes.

### **Facilitated Debriefing**

The debriefing and reflective components were identified as influential in consolidating learning and supporting knowledge integration within the learning experience. Students described the debriefing process as valuable for exploring multiple perspectives, reflecting on

decision-making, and connecting the simulation experience to future practice. Through structured reflective conversations, nursing students analyzed their decision-making and explored the rationale behind both correct and incorrect options. The results align with the reflective observation and abstract conceptualization phases of Kolb's Experiential Learning Cycle (Kolb, 1984). Through debriefing, many participants were able to connect the simulation to prior clinical experiences, including frustrations with inadequate discharge planning for marginalized persons.

Nursing students described debriefing as helpful for understanding the impact of unstable housing on medication adherence and nutrition, which, in turn, improved discharge planning practices, interdisciplinary collaboration, patient-centred care, more educational opportunities and the need for proactive community supports. The findings reinforce the role of debriefing as a cornerstone of simulation-based learning (INACSL, 2021). Structured debriefing methods offer nursing students the opportunity to review essential aspects of their experiences and consider how the knowledge, skills, and perspectives they have acquired can be applied in practical clinical settings, thereby supporting reflective thinking in a safe and confidential environment (Decker et al., 2021). In this pilot study, a facilitator-guided debriefing provided a psychologically safe space for future nurses to reflect on stigma, discharge challenges, improvements in healthcare practices, and ethical considerations when caring for person's experiencing homelessness.

### **Integration of Social Determinants of Health**

A key contribution of this pilot study is the explicit focus on integrating the social determinants of health into simulation-based nursing education. Nursing students reported an increased awareness of how housing instability, food insecurity, and limited access to healthcare

complicate diabetes self-management. Nursing students found that including the social determinants of health along with a chronic disease promoted the application of learning beyond the simulation environment, particularly in relation to holistic and equitable care for marginalized populations.

Virtual simulation educational approaches have been shown to enhance empathy and reduce uncertainty by allowing learners to engage with complex social situations (Hamidi et al., 2024). The present pilot study supports the use of virtual simulations as an educational approach to enhance understanding of the social determinants of health and to prepare future nursing professionals for clinical practice.

### **Implications for Nursing Education, Practice, and Research**

The findings of this multi-method pilot study have important implications for nursing education. Embedding a chronic disease management simulation alongside the social determinants of health may improve nursing students' readiness to address health inequities and lead to improved patient outcomes. Virtual simulations that exclusively integrate the social determinants of health can improve nursing students' preparedness to care for person's experiencing complex social and health challenges. Incorporating simulations focused on diabetes management and homelessness may support the development of reflective and socially accountable nursing practice. Exposing students to realistic discharge planning challenges may better prepare future nurses to advocate for patients and engage in interdisciplinary collaboration.

In nursing practice, findings support further evaluation of simulations addressing health inequities and chronic disease management alongside traditional educational approaches, which may help bridge the theory-practice gap. There is a need for research that highlights gaps in traditional nursing curricula regarding social accountability and the care of marginalized persons.

Additional simulations that include the determinants of health can help prepare future nurses to assess social barriers and tailor diabetes education for marginalized persons.

### **Areas for Future Research**

Future research should move beyond perceived effectiveness to examine objective learning outcomes, behavioural change in clinical practice, and long-term impacts on patient care. In particular, the use of validated performance-based measures and observational assessments would strengthen the evidentiary basis for evaluating educational interventions.

The development of larger, multi-site studies is warranted to enhance generalizability and assess the scalability of virtual simulation across diverse educational and clinical contexts. Longitudinal study designs that examine knowledge retention over extended periods and the transfer of skills to real-world clinical practice would deepen the understanding of the simulation's long-term impact. Additionally, comparative studies evaluating virtual simulation alongside traditional educational modalities such as face-to-face instruction, case-based learning, and hands-on education may offer valuable insights into the most effective strategies for teaching complex social and clinical concepts. These investigations could help identify the strengths and limitations of each approach, guiding the development of more effective, integrated educational programs that better equip learners for real-world practice challenges.

### **Strengths and Study Limitations**

A key strength of this study is its multi-method design, which allowed an initial evaluation and exploration of learners' perceptions, experiences, engagement, and data-collection procedures. Integrating quantitative and qualitative data strengthened the interpretation of findings and provided depth and understanding to the evaluation of the simulation.

However, the pilot design, small sample size, and single-site sample limit

generalizability, and the exploratory nature of the statistical analysis precludes causal inference. Although an a priori power analysis indicated a required sample size of ( $n = 45$ ) participants to detect a medium effect size with adequate statistical power, the final sample consisted of ( $n = 11$ ) nursing students. As this study was designed as a pilot evaluation, the smaller sample size limits statistical power and the ability to detect subtle effects. Therefore, quantitative findings should be interpreted as exploratory and hypothesis-generating rather than confirmatory.

Additionally, the use of convenience sampling from a single academic institution limits the generalizability of findings. Participant self-selection may have introduced response bias, as students with stronger opinions about simulation or social justice content may have been more likely to consent to participate. As such, findings should not be generalized beyond similar educational contexts without further replication.

Future studies with larger, multi-site samples are warranted to strengthen statistical inference and external validity. The findings should therefore be interpreted as preliminary and intended to inform and guide refinement and future scholarly research rather than to establish the definitive effectiveness of the virtual simulation and SET-M results.

## **Conclusion**

This pilot study provides preliminary evidence supporting the perceived effectiveness of a virtual simulation module focused on type 2 diabetes self-management among person's experiencing homelessness. The simulation was implemented within an undergraduate nursing course, and students completed the module and evaluation measures. Findings from the SET-M and qualitative interviews highlight that the simulation supported student learning, clinical reasoning, and awareness of the challenges faced by person's experiencing homelessness. While the sample size was small, the pilot study contributes to the growing body of evidence supporting

simulation-based learning as a strategy to prepare future nurses to care for vulnerable persons.

Future research with larger and multi-site samples is recommended to further evaluate the impact of virtual simulation in conjunction with the determinants of health in nursing education and clinical practice.

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## Appendix A

### *Literature Search Strategy*

| Concept                                   | Keywords                                                                                   |
|-------------------------------------------|--------------------------------------------------------------------------------------------|
| Self-management                           | “self-management” OR “self-manage*”                                                        |
| Students, Nursing                         | “undergrad” OR Baccalaureate* OR Bachelor* OR Adj4 “nurs* student*”                        |
| Simulation training or patient simulation | “Learn*” OR “virtual” OR “patient” OR “train*” OR Adj3 simulation                          |
| Diabetes / Diabetes type 2                | Diabet* OR “type 2 diabetes                                                                |
| Homelessness                              | “homeless*” OR “unhoused” OR “unsheltered” OR “housing instability” OR “transient housing” |

## Appendix B

### Recruitment Poster

#### Nursing Students!

You are invited to participate in a research study to evaluate the effectiveness of a virtual simulation.



Participate by scanning here!

The ethical aspects of this study have been reviewed and approved by the University of Ottawa Research Ethics Board. Ethics approval number: 10697. You have the right to withdraw from the study at any time without any consequences. If you have any concerns about your rights as a participant, please contact the University of Ottawa Research Ethics Office at [ethics@uottawa.ca](mailto:ethics@uottawa.ca) or call (613) 562-5800 ext. 5387.



#### Aim

To evaluate undergraduate nursing students' perceived effectiveness of a virtual simulation module exploring the impact of the determinants of health on chronic disease self-management.

#### Interested or have questions?

Please contact:  
Primary Investigator: Mercedes Lock or thesis student Dr. Jane Tyerman.



#### Who can participate?

All students registered in the Nursing Practice and Complex Care Situations (NSG4430) course at the University of Ottawa.

#### Optional

Participating in the study is voluntary and not part of any course requirement.



#### What to expect?

1. Virtual Simulation (15-30 min): Complete an online interactive scenario about diabetes and homelessness.
2. Survey (15 min): Share your perceptions using the Simulation Effectiveness Tool-Modified (SET-M).
3. Optional Interview (15-30 min): Discuss your experience via Zoom.

#### Benefits of Participating

Participants will receive a \$10 Starbucks gift card after completing the Simulation Effectiveness Tool (SET-M). Participants will receive an additional 10\$ Starbucks gift card for participating in the interviews.



## **Appendix C**

### *Semi-Structured Interview Questions*

The semi-structured interview questions will be used to learn about your insights using the Modified Simulation Effectiveness Tool (SET-M) as a guide, including pre-briefing, simulation-based learning, and debriefing. Please take a moment to share your experiences.

1. Please share your experience with the pre-simulation preparation sessions.
2. Do you feel better prepared to apply the knowledge from the simulation into practice?
3. Did you experience any challenges in the simulation? If so, how did you navigate them?
4. What aspects of the debriefing session did you find the most valuable?
5. Was the debriefing session valuable in meeting learning outcomes? Why or why not?
6. Do you prefer using the SET-M as a method to learn about providing holistic care to patients with diabetes while also experiencing homelessness, compared to traditional teaching practices? If not, why?

## Appendix D

### *Letter of Information*



**Title of the study:** Perceived Effectiveness of Virtual Simulation Module to Enhance Nursing Care and Self-management of Diabetes among the Homeless Population.

#### **Investigators**

Mercedes Lock, RN, BScN, MScN (student) (Principal Investigator)  
School of Nursing, Faculty of Health Sciences, University of Ottawa, 451 Smyth Rd.,  
Ottawa, Ontario K1H 8M5

Dr. Jane Tyerman, RN, PhD, CCSNE, Associate Professor (Supervisor) School of Nursing,  
Faculty of Health Sciences, University of Ottawa, 451 Smyth Rd.,  
Ottawa, Ontario K1H 8M5

Ashley Jackson, RN, BScN, MScN, PhD(c), CCNSE (Co-Investigator)  
School of Nursing, Faculty of Health Sciences, University of Ottawa  
451 Smyth Rd., Ottawa, ON K1H 8M5  
School of Nursing, Faculty of Health Sciences, Loyalist College of Applied Arts & Technology  
376 Wallbridge-Loyalist Road  
Belleville, Ontario K8N 5B9

#### **Invitation to Participate:**

You are invited to participate in the abovementioned research study conducted by Mercedes Lock, Dr. Jane Tyerman, and Ashley Jackson. This study is being conducted for academic purposes to fulfill the requirements of the Master of Science in Nursing program. This is a Master's Thesis project that is under the supervision of Professor Dr. Jane Tyerman and may be published.

#### **Purpose of the Study:**

This study examines the perceived effectiveness of a simulation-based module incorporating pre-simulation preparation, virtual experiences, and debriefing to guide nursing students in addressing type 2 diabetes among homeless individuals in clinical practice

#### **Research Question**

What is the perceived effectiveness of a virtual simulation module encompassing pre-simulation preparation, virtual experiential learning, and post-simulation debriefing, exploring the impact of homelessness on type 2 diabetes self-management?

**Participation:**

My participation will consist of

1. Completing the 15–30-minute virtual simulation module on Type 2 diabetes and homelessness, as outlined in the course.
2. Completing the Simulation Effectiveness Tool-Modified (SET-M) form online after the completion of the virtual simulation module.
3. Choosing to participate and consent to share the SET-M results with the principal investigator.
4. Choosing to participate in an audio-recorded 15–30-minute semi-structured interview on Zoom after the completion of the virtual simulation module and completion of the SET-M to explore the experience and perceived effectiveness of the virtual simulation module.

**Inclusion Criteria**

Participants in the study will be recruited from the University of Ottawa. The sampling design includes the following participant inclusion criteria: (a) registered as a full-time or part-time student in the BScN program at the University of Ottawa (b) registered in the Nursing Practice and Complex Care Situations (NSG4430) at the University of Ottawa.

## Appendix E

### *Consent Form: SET-M and Sociodemographic Survey*



**Title of the study:** Perceived Effectiveness of Virtual Simulation Module to Enhance Nursing Care and Self-management of Diabetes among the Homeless Population.

#### **Investigators**

Mercedes Lock, RN, BScN, MScN (student) (Principal Investigator)  
School of Nursing, Faculty of Health Sciences, University of Ottawa, 451 Smyth Rd.,  
Ottawa, Ontario K1H 8M5

Dr. Jane Tyerman, RN, PhD, CCSNE, Associate Professor (Supervisor)  
Faculty of Health Sciences, University of Ottawa, 451 Smyth Rd.,  
Ottawa, Ontario K1H 8M5

Ashley Jackson, RN, BScN, MScN, PhD(c), CCNSE (Co-Investigator)  
School of Nursing, Faculty of Health Sciences, University of Ottawa  
451 Smyth Rd., Ottawa, ON K1H 8M5  
School of Nursing, Faculty of Health Sciences, Loyalist College of Applied Arts & Technology  
376 Wallbridge-Loyalist Road  
Belleville, Ontario K8N 5B9

#### **Invitation to Participate:**

You are invited to participate in the abovementioned research study conducted by Mercedes Lock, Dr. Jane Tyerman, and Ashley Jackson. This study is being conducted for academic purposes to fulfill the requirements of the Master of Science in Nursing program. This is a Master's Thesis project that is under the supervision of Professor Dr. Jane Tyerman and may be published.

#### **Purpose of the Study:**

This study examines the perceived effectiveness of a simulation-based module incorporating pre-simulation preparation, virtual experiences, and debriefing to guide nursing students in addressing type 2 diabetes among homeless individuals in clinical practice.

#### **Participation:**

Participation will consist of:

1. Sharing your Simulation Effectiveness Tool-Modified (SET-M) results of the virtual simulation module with the primary investigator.
2. Filling out the sociodemographic questionnaire will take 3-5 minutes to complete.

Please note: The virtual simulation module on type 2 diabetes and homelessness is not a required

component of your course in the Nursing Practice and Complex Care Situations (NSG4430) at the University of Ottawa. Not participating in the study will **not** affect your grade or course, and there is **no** penalty for not participating.

### **Risks:**

Participation in this study will entail voluntarily providing personal information in a sociodemographic form and discussing feelings related to patients with chronic health issues and homelessness. Voluntary participants will engage in semi-structured interviews and debriefing regarding sensitive topics that may cause or reinforce feelings such as discomfort, stress, sadness, anxiety, and other psychological emotions. Choosing to participate in the study is voluntary and will have no impact on academic grades as the Virtual simulation, Simulation Effectiveness Tool-Modified (SET-M), and semi-structured interview is not a course requirement in the Nursing Practice and Complex Care Situations (NSG4430). Neither researcher ML nor JT have any authority over the students in the Nursing Practice and Complex Care Situations (NSG4430) and do not teach in the fourth year of the nursing program.

I have received assurance from the primary investigator that every effort will be made to minimize these risks, such as having the options and right to withdraw from the study at any time, refuse to answer any questions without fear of reprisal or ill-treatment and be provided with contact information for supportive on-campus resources such as the University of Ottawa Mental Health and Wellness program.

### **Benefits:**

The study's findings have the potential to benefit undergraduate nursing student's critical thinking and clinical decision-making skills in providing adequate and comprehensive care to patients with multifaced needs. The study will allow participants to navigate a sensitive subject in a psychologically safe environment by protecting students' health and well-being. The findings of the study will support simulation-based education learning, nursing education, self-efficacy, and increased practical skills. Participants will gain an enhanced understanding of diabetes self-management and the determinants of health, which will provide a greater awareness of homelessness and mitigate discomfort with holistic care interventions.

### **Conservation of Data:**

Participant consent forms, information, a sociodemographic form, Simulation Effectiveness Tool-Modified (SET-M) results, audio-recorded interviews, and transcripts will be kept secure. All data will be locked in a password-encrypted file, only accessible by the principal investigator (Mercedes Lock) and the thesis supervisor (Dr. Jane Tyerman). The data will be kept secure for five years, and the results will be published.

### **Confidentiality and Privacy:**

I have received assurance from the researchers that the information I share will remain strictly confidential. I understand that the contents will be used only to collect data on the sociodemographic form, Simulation Effectiveness Tool-Modified (SET-M) results, and interview outcomes to determine the perceived effectiveness of the virtual simulation module. My identity will remain anonymous. My data will only be accessible with a unique participant identification number. No published material will contain personal information or personal identifiers.

Some parts of the study will require the use of online services. To minimize the risk of security breaches and to help ensure my confidentiality, it is recommended that I use standard safety measures, such as signing out of my account, closing my browser, and locking my device when I am no longer using it/when I have completed the study.

**Compensation:**

Participants will receive a \$10 Starbucks gift card to complete the Simulation Effectiveness Tool (SET-M).

**Voluntary Participation:** I am under no obligation to participate, and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions without suffering any negative consequences. There will be no repercussions related to my standing in the course, in the School of Nursing, or with the University of Ottawa should I choose not to participate, withdraw, and/or refuse to answer any questions. While I may withdraw at any time, all data gathered until the time of withdrawal may not be removed or may still be used in the study. Given the anonymous nature of the study, the researchers may be unable to retrace individual datasets.

If I have any questions about the study, I may contact the researcher (Mercedes Lock) or their supervisor (Dr. Jane Tyerman). If I have any questions regarding the ethical conduct of this study, I may contact the Office of Research Ethics and Integrity via email ([ethics@uottawa.ca](mailto:ethics@uottawa.ca)) or telephone (613) 562-5800 ext. 5387)

**Acceptance:** By agreeing at the end of the SET-M evaluation to share the results with the primary investigator and by accepting to fill out the sociodemographic questionnaire, I consent to participate in this part of the study. At the end of the sociodemographic questionnaire, I will be sent another SurveyMonkey questionnaire if I would like to voluntarily participate in the individual semi-structured interview.

## Appendix F

### *Sociodemographic Questions*

1. How do you self-identify?
  - a. Man
  - b. Woman
  - c. Non-binary
  - d. Prefer not to disclose
2. Ethnicity (please select all that apply)
  - a. African Canadian, African American
  - b.
  - c. Caucasian
  - d. Canadian Indigenous (First Nation, Inuit, Métis)
  - e. East Asian (e.g., Chinese, Japanese, Korean)
  - f.
  - g. South Asian (e.g., Indian, Pakistani, Sri Lankan)
  - h. Southeast Asian (e.g., Cambodian, Filipino, Vietnamese)
  - i. West Asian (e.g., Iranian, Afghan, Lebanese, Palestinian, Syrian)
  - j. Latin American (Mexican, South American)
  - k. An ethnicity not listed. If so, please specify
  - l. Prefer not to disclose
3. Age group
  - a. 18 years or younger
  - b.
  - c. 19-21 years
  - d. 22-24 years
  - e.
  - f. 25-27 years
  - g. 28-30 years
  - h. 31 years or older
4. In which stream are you enrolled?

- a. English stream
- 5. French Immersion stream
  - a. French stream
- 6. Which languages are you fluent in both writing and speaking? (Select all that apply)
  - a. English
  - b. French
- 7. Do you have previous nursing experience (e.g., PSW, HCA, nursing aid)?
  - a. Yes
  - b. No
- 8. Have you completed any education (workshop, certification) related to diabetes and homelessness discharging practices?
  - a. Yes. Please list related education
  - b. No
- 9. Are you currently completing your mental health clinical placement?
  - a. Completed
  - b. Currently completing
  - c. To be completed

## Appendix G

### *Research Ethics Board (REB) Approval*

**Université d'Ottawa**

Bureau d'éthique et d'intégrité de la recherche

**University of Ottawa**

Office of Research Ethics and Integrity

#### **H-10-24-10697 - REG-10697 - Certificat d'approbation éthique / Certificate of Ethics Approval**

*(English message follows)*

Cher/Chère Mercedes Lock,

Veillez trouver ci-joint le certificat d'approbation éthique pour le projet intitulé «Perceived effectiveness of a virtual simulation module to enhance nursing care and self-management of diabetes among the homeless population. ».

Le certificat est valide jusqu'au : 03-02-2026

Recherche financée : veuillez faire suivre une copie du certificat au [Service de gestion de la recherche](#).

Si vous avez des questions, n'hésitez pas à communiquer avec le Bureau d'éthique à [ethique@uottawa.ca](mailto:ethique@uottawa.ca) ou en composant le 613-562-5387.

Vous pouvez voir votre demande en vous connectant à votre compte [eReviews](#).

Cordialement,

Riana Marcotte  
Responsable d'éthique en recherche

*Ceci est une réponse automatisée, merci de ne pas répondre à ce courriel.*

Dear Mercedes Lock,

Please find attached the certificate of ethics approval for your research project titled "Perceived effectiveness of a virtual simulation module to enhance nursing care and self-management of diabetes among the homeless population. ".

This certificate is valid until: 03-02-2026

Funded research: A reminder that you must provide a copy of this certificate to [Research Management Services](#).

If you have any questions, please contact the Ethics Office at [ethics@uottawa.ca](mailto:ethics@uottawa.ca) or by telephone at 613-562-5387.

You can view your project at any time by logging into [eReviews](#).

Best regards,

Riana Marcotte  
Protocol Officer

*This is an automated message. Please do not reply directly to this email.*

#### **Attachement(s) / Attachment(s)**

[approvalLetter1738682578441.pdf](#)

550, rue Cumberland, pièce 154    550 Cumberland Street, Room 154  
Ottawa (Ontario) K1N 6N5 Canada    Ottawa, Ontario K1N 6N5 Canada

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## Appendix H

### *Consent Form: Semi-structured Interviews*



**Title of the study:** Perceived Effectiveness of Virtual Simulation Module to Enhance Nursing Care and Self-management of Diabetes among the Homeless Population.

#### **Investigators**

Mercedes Lock, RN, BScN, MScN (student) (Principal Investigator)  
School of Nursing, Faculty of Health Sciences, University of Ottawa, 451 Smyth Rd.,  
Ottawa, Ontario K1H 8M5

Dr. Jane Tyerman, RN, PhD, CCSNE, Associate Professor (Supervisor) School of Nursing,  
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Ashley Jackson, RN, BScN, MScN, PhD(c), CCNSE (Co-Investigator)  
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#### **Invitation to Participate:**

You are invited to participate in the above-mentioned research study conducted by Mercedes Lock and Dr. Jane Tyerman. This study is being conducted for academic purposes to fulfill the requirements of the Master of Science in Nursing program. This is a Master's Thesis project that is under the supervision of Professor Dr. Jane Tyerman and may be published.

#### **Purpose of the Study:**

This study examines the perceived effectiveness of a simulation-based module incorporating pre-simulation preparation, virtual experiences, and debriefing to guide nursing students in addressing type 2 diabetes among homeless individuals in clinical practice

#### **Participation:**

Participation will consist of taking part in an audio-recorded 15–20 minute semi-structured interview on Zoom to explore your experience and perceived effectiveness of the virtual simulation module.

#### **Risks:**

Participation in this study will entail voluntarily providing personal information in a sociodemographic form and discussing feelings related to patients with chronic health issues and homelessness. Voluntary participants will engage in semi-structured interviews and debriefing regarding sensitive topics that may cause or reinforce feelings such as discomfort, stress, sadness, anxiety, and other psychological emotions. Participation in the study is voluntary and will not affect academic grades, as the Virtual simulation, Simulation Effectiveness Tool-Modified (SET-M), and semi-structured interview are not course requirements in Nursing Practice and Complex Care Situations (NSG4430). Neither researcher ML nor JT has any authority over the students in Nursing Practice and Complex Care Situations (NSG4430) and does not teach in the fourth year of the nursing program.

I have received assurance from the primary investigator that every effort will be made to minimize these risks, such as having the options and right to withdraw from the study at any time, refuse to answer any questions without fear of reprisal or ill treatment, and be provided with contact information for supportive on-campus resources such as the University of Ottawa Mental Health and Wellness program.

### **Benefits:**

The study's findings have the potential to benefit undergraduate nursing student's critical thinking and clinical decision-making skills in providing adequate and comprehensive care to patients with multifaced needs. The study will allow participants to navigate a sensitive subject in a psychologically safe environment by protecting students' health and well-being. The findings of the study will support simulation-based education learning, nursing education, self-efficacy, and increased practical skills. Participants will gain an enhanced understanding of diabetes self-management and the determinants of health, which will provide a greater awareness of homelessness and mitigate discomfort with holistic care interventions.

### **Conservation of Data:**

Participant consent forms, information, a sociodemographic form, Simulation Effectiveness Tool-Modified (SET-M) results, audio-recorded interviews, and transcripts will be kept secure. All data will be locked in a password-encrypted file, only accessible by the principal investigator (Mercedes Lock) and the thesis supervisor (Dr. Jane Tyerman). The data will be kept secure for five years, and the results will be published.

### **Confidentiality and Privacy:**

I have received assurance from the researchers that the information I share will remain strictly confidential. I understand that the contents will be used only to collect data on the sociodemographic form, Simulation Effectiveness Tool-Modified (SET-M) results, and interview outcomes to determine the perceived effectiveness of the virtual simulation module. My identity will remain anonymous. My data will only be accessible with a unique participant identification number. No published material will contain personal information or personal identifiers. Some parts of the study will require the use of online services. To minimize the risk of security breaches and to help ensure my confidentiality, it is recommended that I use standard safety measures, such as signing out of my account, closing my browser, and locking my device when I am no longer using it/when I have completed the study.

### **Compensation:**

Participants will receive a \$10 Starbucks gift card for participating in the semi-structured interviews.

**Voluntary Participation:** I am under no obligation to participate, and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions without suffering any negative consequences. There will be no repercussions related to my standing in the course, in the School of Nursing, or with the University of Ottawa should I choose not to participate, withdraw, and/or refuse to answer any questions. While I may withdraw at any time, all data gathered until the time of withdrawal may not be removed or may still be used in the study. Given the anonymous nature of the study, the researchers may be unable to retrace individual datasets.

If I have any questions about the study, I may contact the researcher (Mercedes Lock) or their supervisor (Dr. Jane Tyerman). If I have any questions regarding the ethical conduct of this study, I may contact the Office of Research Ethics and Integrity via email ([ethics@uottawa.ca](mailto:ethics@uottawa.ca)) or telephone (613) 562-5800 ext. 5387.

## Appendix I

### *Thematic Analysis of Interviews*

**Table A2**

*Thematic Analysis of An Interview with Mary*

| Question                                                                  | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Condensed Meaning                                                                                                                                               | Codes                                                                                                                                       | Theme(s)                                                                                             |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Please share your experience with the pre-simulation preparation sessions | Yeah, I definitely think it's good to have those sorts of things before the sim, especially if you don't have a ton of experience. I feel like, personally, I'm not like an expert or anything, but I've had some level of experience dealing with clients with disabilities and also clients who happen to be homeless. So I think that was good for me to have some of that experience. But otherwise, the links, I think, are great resources and tools just kind of get you in the headspace of thinking critically about those things and how they might interconnect to get you prepared for the sim. | <ul style="list-style-type: none"> <li>• Pre-simulation materials supported mental preparation and critical thinking about diabetes and homelessness</li> </ul> | <ul style="list-style-type: none"> <li>• Pre-simulation preparation</li> <li>• Critical thinking</li> <li>• Contextual awareness</li> </ul> | <ul style="list-style-type: none"> <li>• Preparedness</li> <li>• Contextual understanding</li> </ul> |

| Question                                                                               | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Condensed Meaning                                                                                                                                                                              | Codes                                                                                                                                                                                                                             | Theme(s)                                                                                                                               |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Do you feel better prepared to apply the knowledge from the simulation into practice?  | Yeah, it's interesting, because, like I said, I've had experience kind of dealing with those two things separately, but you never really think about, you know, what happens if it's two, kind of two of those factors together? But I think that I learned a lot from the sim. I like that it has, like the questions in between that kind of get you to think about what might be the appropriate option and why? So, yeah, I think that it would be good, even just as a student like, to be able to go to my instructor or my primary nurse and say, Hey, I think this person's struggling with this. You know, what are the steps that we can take within the hospital to help them be ready for discharge and be successful with bath | <ul style="list-style-type: none"> <li>• The simulation highlighted the combined impact of diabetes</li> <li>• Homelessness beyond prior isolated experiences</li> </ul>                       | <ul style="list-style-type: none"> <li>• Integration of prior experience</li> <li>• Compounded vulnerability</li> </ul>                                                                                                           | <ul style="list-style-type: none"> <li>• Preparedness</li> <li>• Contextual understanding</li> </ul>                                   |
| Did you experience any challenges in the simulation? If so, how did you navigate them? | I like that it doesn't just give you one try, like you have a couple tries to see what you think might be the right answer, and it gives you the rationale. Is the other thing, because I find that if I get a question wrong, but I don't know why it's wrong or why not be the most helpful choice, it doesn't really help anything like I'm I just think, Oh, I'm wrong, and I don't know why this is right, or why this is wrong. So I like the rationale there. I also think the actors did a really good job.                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>• Guided questions promoted active clinical reasoning.</li> <li>• Feedback and multiple attempts supported learning without fear of failure.</li> </ul> | <ul style="list-style-type: none"> <li>• Decision-making</li> <li>• Clinical reasoning</li> <li>• Guided learning</li> <li>• Psychological safety</li> <li>• Rationale-based feedback</li> <li>• Learning from mistake</li> </ul> | <ul style="list-style-type: none"> <li>• Building confidence.</li> <li>• Clinical reasoning in a safe learning environment.</li> </ul> |

| Question                                                               | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Condensed Meaning                                                                                                                | Codes                                                                                                          | Theme(s)                                                                                                                              |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| What aspects of the debriefing session did you find the most valuable? | Just the mental health, health piece, again, being in there is really important, because I feel like that is something that tends to get overlooked, especially on medicine floors. I've the experience I have with more homeless patients was actually on the mental health floors. So it's interesting, because there are so many barriers to things just because, like, they don't have a permanent address, or, like, they don't have a reliable means of transportation for follow up appointments, it's hard to kind of keep things going. So I think that was also a really important part to have in there, because it's really big, and I feel like some people can kind of skip over that part and overlook it, and being in the hospital itself is really stressful, and it's hard on a lot of people, so I think it's really important to look at that too. | <ul style="list-style-type: none"> <li>• Inclusion of mental health enhanced realism.</li> <li>• Holistic assessment.</li> </ul> | <ul style="list-style-type: none"> <li>• Mental health integration.</li> <li>• Holistic assessment.</li> </ul> | <ul style="list-style-type: none"> <li>• Building confidence</li> <li>• Clinical reasoning in a safe learning environment.</li> </ul> |

| Question                                                                                 | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Condensed Meaning                                                                                                                             | Codes                                                                                                            | Theme(s)                                                                                                                            |
|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <p>Was the debriefing session valuable in meeting learning outcomes? Why or why not?</p> | <p>I actually liked this is kind of a story. I was on the phone with my mom, and we have relatives who are in Africa, and their situation, obviously is not the greatest. And one of my family members actually has diabetes, and it is very poorly managed, and it's really hard because you you don't, you don't really think about how like, easy it can be if you have the resources, but if you have nothing, like it's really hard, like you were saying, If you can't to feed yourself, or You don't have reliable access to groceries or adequate nutrition.</p> <p>Well, it's that's like a big part of being able to manage your diabetes. Well. So I think the sim valuable because it really does push you to kind of think about all of these things and the holistic view of a person. It pushes your critical thinking as well, because it's not just like, not, not every person is going to have an insulin pen they can take home, or, you know, access to appointments, or they're in between homes, and it's a lot going on. So I think it's, it was a really good sense kind of push you to consider all aspects of a person, and not just whatever they might have presented to the hospital with.</p> | <ul style="list-style-type: none"> <li>• Reflection emphasized the importance of addressing basic needs before disease management.</li> </ul> | <ul style="list-style-type: none"> <li>• Social determinants of health.</li> <li>• Unmet basic needs.</li> </ul> | <ul style="list-style-type: none"> <li>• Integrating knowledge through reflection to support holistic clinical practice.</li> </ul> |

| Question                                                                                                                                                                                                  | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Condensed Meaning                                                                                                               | Codes                                                                                                                           | Theme(s)                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Do you prefer using the SET-M as a method to learn about providing holistic care to patients with diabetes while also experiencing homelessness, compared to traditional teaching practices? If not, why? | Yeah, I would say yes, I am a very interactive learner. Obviously, classes are great, but they only go so far. I mean, at the end of the day, you're sitting in a classroom and someone's kind of talking at you, so it's not really giving you the space to make decisions. I also like the V sim because I'm doing it on my own. I find that sometimes in class, even if there are questions asked to the group like other people are answering so quick before I can even get the chance to think and do it on my own. So I do really like that. And I think the actors having real people is a great touch, because it just feels more real, like when you can see somebody, a real human who like acting, but you know, they're going through it, it makes you think a little bit more, rather than if it was just like a cartoon or something like that. | <ul style="list-style-type: none"> <li>• Experiential learning supported independent decision-making and engagement.</li> </ul> | <ul style="list-style-type: none"> <li>• Experiential learning.</li> <li>• Autonomy.</li> <li>• Reflective practice.</li> </ul> | <ul style="list-style-type: none"> <li>• Integrating knowledge through reflection to support holistic clinical practice.</li> </ul> |

**Table A3***Thematic Analysis of An Interview with Sarah*

| Question                                                                              | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Condensed Meaning                                                                                                                                                                                                            | Codes                                                                                                                                                                                                           | Theme(s)                                                                                               |
|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Please share your experience with the pre-simulation preparation sessions.            | <p>So particularly, I think the article on the challenges of managing diabetes while homeless, I think that one is really helpful, because it kind of set like why we are even talking about this to begin with. I think it's a really good background knowledge to have, because this is kind of a situation where the treat the discharge planning a little bit more different compared to other people who are dealing with the similar situation, but have different like housing situations and financial security and whatnot.</p> <p>But I think, yeah, there's also the down and out with diabetes. I think that one is also very helpful, because it's kind of things that we don't really consider all the time, I think working in hospital. So I think it is certainly more helpful to have this information, because it kind of, you know, sets, that's the sets the mood for what we're trying to learn through the simulation</p> | <ul style="list-style-type: none"> <li>• Pre-simulation readings provided essential background and rationale for the simulation focus.</li> <li>• Preparation materials framed expectations and learning context.</li> </ul> | <ul style="list-style-type: none"> <li>• Presimulation preparation.</li> <li>• Background knowledge.</li> <li>• Purpose of learning.</li> <li>• Learning orientation.</li> <li>• Contextual framing.</li> </ul> | <ul style="list-style-type: none"> <li>• Preparedness.</li> <li>• Contextual understanding.</li> </ul> |
| Do you feel better prepared to apply the knowledge from the simulation into practice? | Trying to figure out what to prioritize at that time, you know what to delegate to community resources and stuff like that.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>• Simulation enhanced understanding of prioritization and resource delegation.</li> </ul>                                                                                             | <ul style="list-style-type: none"> <li>• Prioritization.</li> <li>• Discharge planning.</li> <li>• Community resource.</li> </ul>                                                                               | <ul style="list-style-type: none"> <li>• Preparedness</li> <li>• Contextual understanding.</li> </ul>  |
| Did you experience any challenges in the simulation? If so, how did                   | I feel like it was, well, I feel like with a lot of the simulations, you just gotta keep trying to select different, I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• Complexity of decision-making reflected real-</li> </ul>                                                                                                                            | <ul style="list-style-type: none"> <li>• Clinical complexity.</li> <li>• Competing</li> </ul>                                                                                                                   | <ul style="list-style-type: none"> <li>• Building confidence</li> <li>• Clinical</li> </ul>            |

| Question                                                               | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Condensed Meaning                                                                                                                                    | Codes                                                                                                                              | Theme(s)                                                                                                                          |
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| you navigate them?                                                     | guess, combinations of the different options. But I think it did, because I think after, you know, get it wrong a certain number of times, it'll, like, pull up with the correct answer and then provide, like, the rationale for it. So I think that's helpful to have. I think it would be kind of nice to see like ghost, I don't know, I can't remember if it goes through in depth, like each option, but I think also providing rationale as to why. Why the wrong options are also incorrect, or, like, why they would not be prioritized at this moment. So I think maybe a little bit more detail of each one, just because it does seem like there's a lot of overlap with some of the answers, but I mean it at the end of the day, it does make sense. It's just it's a aspect of it that we don't really think about a lot. | <ul style="list-style-type: none"> <li>world clinical ambiguity.</li> <li>Rationale-based feedback supported learning despite difficulty.</li> </ul> | <ul style="list-style-type: none"> <li>priorities.</li> <li>Feedback.</li> <li>Rationale.</li> <li>Learning from error.</li> </ul> | reasoning in a safe learning environment.                                                                                         |
| What aspects of the debriefing session did you find the most valuable? | I mean, I think they're all very helpful, like resources in the beginning is, I think, very helpful for kind of figuring out what are the challenges to help answer the questions during the simulation. But I think the at the end of it being able to kind of go in and think about all the different aspects that are like, not exactly worded in that specific way during the same in question. Kind of reflecting on the aspects and how it kind of relates to practice specifically and how we can apply into practice is also really helpful. So yeah, I like the                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>Reflection supported transfer of learning to clinical practice.</li> </ul>                                    | <ul style="list-style-type: none"> <li>Reflection.</li> <li>Knowledge transfer.</li> <li>Practice application.</li> </ul>          | <ul style="list-style-type: none"> <li>Integrating knowledge through reflection to support holistic clinical practice.</li> </ul> |

| Question                                                                                 | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Condensed Meaning                                                                                                                                                                   | Codes                                                                                                                                                                                                 | Theme(s)                                                                                                                            |
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|                                                                                          | <p>reflection after it.</p> <p>yeah, I mean, I feel like with with a lot of simulations, it's kind of hard to think about, it's kind of hard to imagine it in a situation, because sometimes it goes a little bit smoother than it normally would in real life, I think. But it is kind of figuring out one, one way that we can kind of tackle these situations, because it varies so much in reality. So yeah, more and more, so considering, like the different parts of it, as opposed to the whole simulation, like trying to recreate that in real life is, really, is likely not going to happen. But yeah, thinking about taking little aspects of and how that can be applied into practice instead.</p> |                                                                                                                                                                                     |                                                                                                                                                                                                       |                                                                                                                                     |
| <p>Was the debriefing session valuable in meeting learning outcomes? Why or why not?</p> | <p>I think it definitely tackled more so like the the number five, the provide, I think that was something that, again, we don't really learn a lot about until We get into practice. So I think the debriefing really helped kind of consolidate all that information that we learned from, you know, one scenario and how we can use it in different situations, and how it can be kind of, or what resources are out there, what are the different aspects that they would need help on?</p> <p>Because, like, we would just consider, you know, like insulin in, you know, in hospital, or think about, you know, wound care, but then in</p>                                                                 | <ul style="list-style-type: none"> <li>• Debriefing consolidated learning and supported generalization.</li> <li>• Debriefing expanded focus beyond hospital-based care.</li> </ul> | <ul style="list-style-type: none"> <li>• Knowledge consolidation.</li> <li>• Debriefing.</li> <li>• Holistic care.</li> <li>• Community context.</li> <li>• Social determinants of health.</li> </ul> | <ul style="list-style-type: none"> <li>• Integrating knowledge through reflection to support holistic clinical practice.</li> </ul> |

| Question                                                                                                                                                                                                  | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Condensed Meaning                                                                                                                                                                                                                                       | Codes                                                                                                                                                                                                                                                       | Theme(s)                                                                                                                                                                                                                                                                                     |
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|                                                                                                                                                                                                           | the community, it's also about diet and stuff like that. So I think that's also very helpful in kind of isolating that kind of information out of the simulation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                              |
| Do you prefer using the SET-M as a method to learn about providing holistic care to patients with diabetes while also experiencing homelessness, compared to traditional teaching practices? If not, why? | <p>I feel like it's very like, it's based on, it's very subjective, I would say, so I don't it's definitely a different approach. I think it can be like applied with the learning. I don't think it necessarily kind of takes away from learning, because I think there is some sort of value and being tested on stuff, because there are some things that are less subjective that we would still need to, you know, be proficient in. But I think it's very helpful. These types of things are very helpful, especially in, like, lab stuff, because it's not really like we're gonna learn. We're not learning, you know, step by step, how really to do some things, it's more so like applying it, and how we would actually do it in the clinical setting. So I think it does somewhat, though, contribute to like, our actual learning, because again, the little prompts that they have for like rating how we feel that we've learned about certain things, I think, is kind of helpful in being able to pick out what the simulation was kind of used for and what we were supposed to kind of grasp from the simulation.</p> <p>Which I feel like is sometimes a little</p> | <p>Simulation supported applied learning beyond theoretical instruction.</p> <p>Simulation viewed as complementary rather than replacement for traditional learning.</p> <p>Realism enhanced awareness of resourcefulness and community-based care.</p> | <ul style="list-style-type: none"> <li>• Experiential learning.</li> <li>• Application to practice.</li> <li>• Blended learning.</li> <li>• Complementary pedagogy.</li> <li>• Authenticity.</li> <li>• Community resources.</li> <li>• Realism.</li> </ul> | <ul style="list-style-type: none"> <li>• Building confidence.</li> <li>• Clinical reasoning in a safe learning environment</li> <li>• Preparedness</li> <li>• Contextual understanding</li> <li>• Integrating knowledge through reflection to support holistic clinical practice.</li> </ul> |

| Question | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Condensed Meaning | Codes | Theme(s) |
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|          | <p>bit confusing, because we do so many of them, they're kind of like, Oh, are we just like, make believe, like, in a situation that is not really realistic, but there's a lot of like, specific skills that we can Pick out to be applied into other situations. So, yeah, I think it can be used, like it is helpful in conjunction with some other sort of method of teaching. So, you know, like, med surge.</p> <p>No, I feel like it was pretty good, though it was. I feel like it was a little bit more realistic compared to some of the other simulations that I've done with the can sim. So it was very interesting, because I don't think I've ever seen anyone like use a sanitary pad for, like, foot ulcers, for diabetic foot ulcers. So I think it's really interesting to see how people are using resources in the community. I think it's also really helpful, especially because now we're doing community so we're learning more so about like the discharge planning and stuff like that, and what resources person's can find in the community. So it's definitely something that I've been more like conscious of when doing research for my final project for my community placement</p> |                   |       |          |

**Table A4***Thematic Analysis of an Interview with Nadia*

| Question                                                                  | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Condensed Meaning                                                                                                                                                                                                                                                                                                                    | Codes                                                                                                                                                                                                                                   | Theme(s)                                                                                               |
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| Please share your experience with the pre-simulation preparation sessions | <p>Yeah, I would say that I think doing like the pre sim preparation is very like helpful, because it kind of gives you an idea of what you're going into before you get there. So I found that to be good. I kind of took, took as much from it as I possibly could, kind of going into it. And I've done some Sims previously. I was in Jane Tyerman's class, and I know she is, like, a big sim girl, so we did some of those. But yeah, no, I think it's good, because it kind of gets you thinking prior to actually doing the simulation. And then, like I said, just getting a better idea of the topic before you're kind of being asked to respond how you would in a normal situation, so it gives you a bit better background.</p> <p>Yeah, I would say it definitely helped me feel prepared.</p> <p>I think just like the fact that it, it gives kind of some, like, thought provoking questions, and then makes you kind of like pause and reflect, I guess before you get started. Was, was what I would say, was pretty useful for me.</p> | <ul style="list-style-type: none"> <li>• Pre-simulation preparation supported understanding of expectations and content prior to the simulation.</li> <li>• Preparation encouraged early cognitive engagement and background knowledge.</li> <li>• Pre-simulation materials promoted reflection prior to active learning.</li> </ul> | <ul style="list-style-type: none"> <li>• Presimulation preparation.</li> <li>• Orientation to learning.</li> <li>• Cognitive readiness.</li> <li>• Background knowledge</li> <li>• Reflection.</li> <li>• Critical thinking.</li> </ul> | <ul style="list-style-type: none"> <li>• Preparedness.</li> <li>• Contextual Understanding.</li> </ul> |

| Question                                                                              | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Condensed Meaning                                                                                                                                                                                                                                                                                                                                                                                  | Codes                                                                                                                                                                                                                                                                                  | Theme(s)                                                                                                                                                                                            |
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| Do you feel better prepared to apply the knowledge from the simulation into practice? | <p>Yeah, I would say for sure. I think, I think one of the things I've noticed a lot as a nursing student has been that many patients are sent home without the appropriate supplies in place, and it's super frustrating, because then you're just seeing people come back in and out without ever finding a solution to the problem. So by being able to kind of see some of the steps that we can take in order to better help them, and also recognizing the importance of involving the interdisciplinary team, like social work and whatnot, to help the patient be more equipped based on their situation. As I recognize, it's not necessarily possible to fix every single situation that exists, but doing what we can with the resources that we have in order to provide them with as much as we possibly can to hopefully see them succeed in their situation without them having to constantly be dependent on the hospital when that's not necessarily what they need. They just need better support in the community.</p> <p>Just by giving us opportunities to kind of reflect on options that are available when we are in a clinical setting, it kind of allowed me to address some of my questions or some things that I was unsure about before actually dealing hands on with a patient myself as like a registered nurse, for example, even</p> | <ul style="list-style-type: none"> <li>• Simulation enhanced preparedness for discharge planning and continuity of care.</li> <li>• Emphasized interdisciplinary collaboration to support patient success.</li> <li>• Simulation supported confidence development through safe clinical reasoning practice.</li> <li>• Rationale-based feedback strengthened decision-making confidence</li> </ul> | <ul style="list-style-type: none"> <li>• Discharge planning.</li> <li>• Care continuity.</li> <li>• Interdisciplinary care.</li> <li>• Community supports.</li> <li>• Psychological safety; clinical reasoning.</li> <li>• Feedback.</li> <li>• Justification of decisions.</li> </ul> | <ul style="list-style-type: none"> <li>• Preparedness.</li> <li>• Contextual understanding</li> <li>• Building Confidence.</li> <li>• Clinical Reasoning in a Safe Learning Environment.</li> </ul> |

| Question                                                                                      | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Condensed Meaning                                                                                                                                                                  | Codes                                                                                                                                                                                      | Theme(s)                                                                                                                                                                                                                          |
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|                                                                                               | <p>as a student, I recognize that I'm constantly learning and growing, and I think that'll continue throughout my career, but I would say that it just allowed me to kind of think about these things in a safe environment where I'm able to kind of learn and understand and also get that kind of like information on to why this might be the better, best answer possible. And then also just seeing, like I said, what might be more available. It's allowing me to kind of think about what I've seen in clinical and what I could maybe offer to patients as I see them come in and out.</p>                                                                                                                                              |                                                                                                                                                                                    |                                                                                                                                                                                            |                                                                                                                                                                                                                                   |
| <p>Did you experience any challenges in the simulation? If so, how did you navigate them?</p> | <p>Um, I think just by kind of recognizing that there are some difficulties when it comes to dealing with patients who might be like experiencing homelessness or other situations. I found mental health, my placement for mental health, I really like had some parallel kind of to this simulation. So I guess in general, like just making kind of a choice based on the situation is definitely something that I think I can work in and grow, because every situation is different, but I've definitely seen parallels to this particular sim, maybe not necessarily in that it was like diabetes, but I've had a lot of mental health patients that went back into the community without any sort of support and just end up back at a</p> | <ul style="list-style-type: none"> <li>• Challenges prompted reflection rather than disengagement.</li> <li>• Reflection linked emotions to advocacy and proactive care</li> </ul> | <ul style="list-style-type: none"> <li>• Reflective decision-making.</li> <li>• Situational judgment.</li> <li>• Advocacy.</li> <li>• Prevention.</li> <li>• Holistic thinking.</li> </ul> | <ul style="list-style-type: none"> <li>• Building Confidence.</li> <li>• Clinical Reasoning in a safe learning environment.</li> <li>• Integrating knowledge through reflection to support holistic clinical practice.</li> </ul> |

| Question | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Condensed Meaning | Codes | Theme(s) |
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|          | <p>shelter or not accepted into a shelter because of their mental health issues. So I think overall, like there weren't super huge challenges, but it definitely was just something that kind of made me pause to reflect on what might be the best option. But I would say overall, it was quite straightforward and like very well explained. If ever there was one that I maybe put that I then realized after the fact this would be more appropriate option.</p> <p>I would say just just feeling like emotionally frustrated because of the situation that was in place. I think obviously it was a great example of, like, working together with other people. So I think for me, the frustration came from what I've seen in clinical and in practice that was not parallel to this, where patients are not given that sort of support that they need in order to succeed, like on my mental health unit, I actually had a patient who was diabetic, and they were not allowing him to self-administer insulin, and because it's a mental health unit, they're not used to medical interventions very much. So he was incredibly depressed, and they did not give him his insulin and the appropriate timeframe, so he was just, like, Absolutely, just super upset as he should be, like, just losing it. And I think that's also frustrating, because then they're</p> |                   |       |          |

| Question                                                               | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Condensed Meaning                                                                                     | Codes                                                                                           | Theme(s)                                                                                                                           |
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|                                                                        | adding to his chart. Oh, you know, patients angry and yelling at staff, but it's just being able to recognize that some of these things are so avoidable if we just are proactive with their approach. So I guess that was kind of the emotional reaction I had was not so much with the particular sim. I thought it was amazing and great to see that people were actually making efforts. I think it was just more so tied into what I have seen not being appropriate, and maybe some people that forget why they got into healthcare in the first place and are losing that kind of the aim, which is to help people.                                    |                                                                                                       |                                                                                                 |                                                                                                                                    |
| What aspects of the debriefing session did you find the most valuable? | <p>I would say, like just, just again being, being kind of brought into it after the fact, and recognizing what you kind of were experiencing, and choosing, it kind of allowed you to Again, pause and reflect, which I think is important in practice. So I would say the ability to kind of do that kind of intrinsically was very helpful for me.</p> <p>I would say overall, I was pretty, like, impressed with kind of the setup of it, and there weren't really any things that I thought were missing or needed to be expanded on. I think it kind of hit on all the marks that I personally like thought should have been hit on. So, yeah, okay</p> | <ul style="list-style-type: none"> <li>• Debriefing reinforced reflective practice skills.</li> </ul> | <ul style="list-style-type: none"> <li>• Debriefing.</li> <li>• Reflective practice.</li> </ul> | <ul style="list-style-type: none"> <li>• Integrating knowledge through Reflection to Support holistic clinical practice</li> </ul> |

| Question                                                                                 | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Condensed Meaning                                                                                                                                                                                                                    | Codes                                                                                                                                                         | Theme(s)                                                                                                                            |
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| <p>Was the debriefing session valuable in meeting learning outcomes? Why or why not?</p> | <p>Yeah, I would say going into it and seeing at the start of the SIM too, what the expected learning outcomes were, was helpful, because then I could kind of tailor my learning based on what I was expecting to be learning so it being able to, then again, kind of tie that into what I had done throughout the whole sim, but kind of sandwiching it, I guess, between what you're expected to learn and what you feel like you actually have learned after the fact was very helpful.</p> <p>I would say, like anything that was probably one of the ones that was mostly like parallel to sort of what I have seen. Because I think as just based on what I have seen in practice, that's definitely like a huge thing. And I think the sim was a good, good thing to have, because it's not one of those stereotypical Sims where it's like patient comes in, what do you need to do, and then doesn't have any focus on what's happening after they are leaving the hospital. So I appreciated the fact that it kind of had maybe something that is definitely a common outcome, because I have seen a lot of patients that are experiencing homelessness that are not given appropriate supports. So being able to kind of experience a sim where there was a positive outcome from what was happening during the sim for</p> | <ul style="list-style-type: none"> <li>• Clear alignment between learning objectives and outcomes supported learning consolidation.</li> <li>• Focus on post-discharge and community care enhanced realism and relevance.</li> </ul> | <ul style="list-style-type: none"> <li>• Learning outcomes.</li> <li>• Consolidation.</li> <li>• Discharge focus.</li> <li>• Community-based care.</li> </ul> | <ul style="list-style-type: none"> <li>• Integrating knowledge through reflection to support holistic clinical practice.</li> </ul> |

| Question                                                                                                                                                                                                  | Direct Quote                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Condensed Meaning                                                                                                                                                                                                         | Codes                                                                                                                                                                            | Theme(s)                                                                                                                              |
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|                                                                                                                                                                                                           | someone that was going through that maybe also tying into, like mental health aspects of it as well, because obviously he was going through some other things in his personal life, such as grief and whatnot. So I think being able to approach that learning outcome was was one of the ones that really kind of stood out for me.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                           |                                                                                                                                                                                  |                                                                                                                                       |
| Do you prefer using the SET-M as a method to learn about providing holistic care to patients with diabetes while also experiencing homelessness, compared to traditional teaching practices? If not, why? | I would say so, because I think it just kind of allows you to experience it a little bit better than you do. Maybe in class, I find, for me, the most learning that I have happens when I'm on units and when I'm actually kind of being forced to make decisions I know too, like, you know, you can study and study and then often this information just kind of falls out of your brain after the fact. But with these situations, you can kind of pause and think about something you've already experienced, and that comes a lot quicker to me than the book knowledge. So I would say, having it kind of be explored in a more like situational way, where I recognize that not every situation is going to be the same, but we can definitely tie in to other situations that we've experienced a little bit easier than we can tie into, like, what we've read in A textbook kind of thing. | <ul style="list-style-type: none"> <li>• Learning through experience supported knowledge retention and transfer.</li> <li>• Experiential learning perceived as more effective than didactic instruction alone.</li> </ul> | <ul style="list-style-type: none"> <li>• Knowledge retention.</li> <li>• Situational learning.</li> <li>• Experiential learning.</li> <li>• Application to real life.</li> </ul> | <ul style="list-style-type: none"> <li>• Building Confidence</li> <li>• Clinical Reasoning in a safe learning environment.</li> </ul> |