The perceived effectiveness of a suicide assessment virtual simulation module for undergraduate nursing students

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Contributions

I, *Yusuf Hamidi*, am the primary investigator and author of this Master of Science in Nursing thesis research study. I contributed to the creation, development, and production of the virtual simulation depicted in the thesis work. I contributed to the identification, development, and writing of the research question, purpose of study, importance of study, literature review, philosophical underpinning, conceptual framework, methodology, data analysis, data findings, and implications to nursing practice, research, and education.

Dr. Jane Tyerman is the thesis supervisor for this thesis research study. Dr. Tyerman contributed to the creation, development, and production of the virtual simulation depicted in the thesis work. Dr. Tyerman played an integral role in the thesis development, including the development of the research question, providing feedback to written thesis work, and providing guidance when selecting an appropriate, research paradigm, design, and methods. Furthermore, Dr. Tyerman is an editor of the thesis work.

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Abstract

Nursing students' knowledge deficits, lack of experience, personal biases, and anxiety can ultimately create vulnerability, avoidance, and discriminatory behaviours toward people experiencing a mental health disruption. Nursing students express the need for more innovative educational opportunities to refine skills and enhance knowledge specific to suicidal identification and risk assessment. Virtual simulation has increased significantly within healthcare education to supplement, enhance, and support learning since the beginning of the COVID-19 pandemic. A virtual simulation education module focused on suicidal ideation and assessment of risk was designed and implemented to strengthen the learning, preparedness, and confidence of nursing students providing care in a mental health setting. The purpose of this study is to explore the perceived effectiveness of a suicidal ideation – assessment of risk virtual simulation module for undergraduate nursing students. The sample consisted of third-year nursing students enrolled in a mental health in nursing course from Ottawa, Ontario (N = 130). The research design is a mixed methods explanatory sequential design whereby the dominant data resides in the quantitative portion of the research study. The research study was divided into Phase I, referred to as the quantitative portion, and Phase II, referred to as the qualitative portion. In Phase I, the effectiveness of the virtual simulation focused on suicidal ideation and assessment of risk and were measured using the Simulation Effectiveness Tool-Modified (SET-M). The SET-M is a 19-item quantitative Likert scale tool used to measure the effectiveness of a simulation and its components after its completion. In Phase II, semi-structured interviews were the primary method for qualitative data collection to provide greater insight into Phase I of the research study.

The quantitative findings demonstrated a simulation experience that was supportive of the nursing students' learning, specifically in relation to nursing skills and assessments, problem-solving, clinical decision-making, and communication skills. The quantitative results demonstrated the importance of structure and guidance to achieve the desired outcomes of the simulation. Thematic analysis of the semi-structured interviews revealed that the virtual simulation on suicidal ideation and assessment of risk was associated with increases in learning, preparedness, confidence, knowledge, critical reflection, and a decrease in anxiety regarding suicide ideation and assessment of risk.

The virtual simulation module on suicidal ideation and assessment of risk reinforces the need for various educational modalities to engage and increase the preparedness of nursing students entering clinical placement.

Keywords*: Mental health, nursing, suicidal ideation, nursing student, simulation*

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"You can't achieve anything entirely by yourself. There's a support system that is a basic requirement of human existence…" – Michael Schur

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List of Abbreviations

ANOVA	Analysis of Variance
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
COVID-19	Coronavirus Infectious Disease-19
EI	Emotional intelligence
INACSL	International Nursing Association of Clinical and Simulated Learning
MEDLINE	Medical Literature Analysis and Retrieval System Online
NLN	National League of Nursing
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
VSG	Virtual Simulation Game

Chapter One

Introduction

Introduction

Background

Suicidal ideation involves thoughts of attempting to harm oneself with the intent to die by suicide (Lockman & Servaty-Seib, 2016). Suicide is a growing public health concern in Canada, as more than ten Canadians die by suicide each day (Government of Canada [GoC], 2021). Specifically, death by suicide is the second leading cause of death for students in postsecondary education (Lockman & Servaty-Seib, 2016). Suicide is the third highest cause of death amongst youth and adolescents, as 800,000 people die by suicide each year (World Health Organization [WHO], 2019).

The Coronavirus Infectious Disease-19 (COVID-19) pandemic has negatively impacted peoples' overall quality of life, cognitive development, and physical, psychological and emotional health (Li et al., 2020). For university students, the pandemic increasingly adds to the ambiguity, difficulty, physical, and mental exhaustion of postsecondary studies (Gallego-Gómez et al., 2020). According to the Mental Health Commission of Canada, 52% of participants stated a decline in their mental health since social distancing was initiated (Brief et al., 2020). Social or physical distancing is the act of reducing close contact with members exterior to the household to minimize transmission of infection (Rossolatos, 2020). Risk factors related to mental health deterioration within the COVID-19 lens include social isolation, healthcare barriers, financial stressors, predisposition to mental illness, suicidal thoughts, and elevated risk of contracting COVID-19 (Brief et al., 2020). Nonetheless, it is essential to note that a deterioration in an person’s mental health, such as suicidal ideation, has been prevalent worldwide, and risk factors are not only associated with the COVID-19 pandemic.

Nursing students' knowledge deficits, lack of experience, personal biases, and anxiety can ultimately create vulnerability, avoidance and discriminatory behaviours towards people experiencing mental health challenges (Nicholls et al., 2011). The Canadian Federation of Mental Health Nurses states that undergraduate nursing students lack the required education and clinical experience to adequately provide patient-centred care to individuals experiencing mental illness (Tyerman et al., 2020). A systematic literature review conducted by Vandyk (2015) focused on mental health and addiction education in undergraduate nursing curricula in Canada. According to Vandyk (2015), 28% of Canadian nursing programs do not offer a mental health clinical placement, and 22% of Canadian nursing programs do not provide a separate nursing mental health course. This lack of mental health education and clinical practice contributes to an evident gap in nursing students' self-efficacy regarding the assessment of suicide risk, thus leading to stigmatizing behaviours, discrimination, and increased anxiety (Castaneda-Guarderas et al., 2016; Tyerman et al., 2021). Furthermore, nurses specializing in a field with little emphasis on mental health nursing often feel a lack of preparation and poor self-confidence when providing care to individuals with mental health concerns (Tyerman et al., 2020).

Entry-to-practice competencies in the undergraduate nursing curriculum for mental health and addiction include six essential indicators to provide adequate care for those experiencing a mental health illness and crisis (Canadian Association of Schools of Nursing [CASN], 2015). The six core competencies include (1) promoting mental health care and managing mental health illnesses through professional and regulatory standards, (2) using critical thinking skills and collaborating with the individual, family, and interprofessional team when developing a plan of care, (3) providing person-centred care throughout the lifespan with regards to a mental illness, (4) conducting mental health care following the Canadian Nurses Association (CNA) Code of

Ethics, (5) advocating for mental health services and care in collaboration with the individual, family, and interprofessional team, and (6) reflecting on clinical practice and knowledge when providing care to an individual experiencing a mental illness (CASN, 2015).

Nursing students and post-graduate nurses express the need for more innovative educational opportunities to refine skills and enhance knowledge specific to suicidality identification and risk assessment (Brief et al., 2020; Tyerman et al., 2020). Nursing students and practicing nurses may lack the critical thinking skills and application of knowledge essential in the early recognition and identification of suicidal ideation (Heyman et al., 2015). It is crucial for nursing students and post-graduate nurses to acquire the necessary skills, training, and knowledge to recognize signs of deteriorating mental health and suicidal ideation (Heyman et al., 2015). By doing so, students and new graduates can identify and implement appropriate assessments and interventions to effectively manage individuals experiencing suicidal ideation (Heyman et al., 2015).

Within the nursing baccalaureate program, students are expected to develop various skills at a certain standard to provide competent care within the nursing profession (Lily et al., 2012). Nursing students must attain a certain degree of theoretical knowledge, develop a solid critical thinking perspective, expand psychomotor capabilities, improve self-awareness, and continuously reflect on their perception of self-efficacy (Lily et al., 2012).

To enhance student learning, educators must adapt to learners' needs that maximize engagement and satisfaction (Albarrak et al., 2021). Simulation-based learning (SBL) has long been recognized for the integral role it plays in healthcare education. By providing students with realistic clinical scenarios experienced in clinical practice, simulation has been shown to develop or enhance learner knowledge, skills, and attitudes (Lopreiato et al., 2016).

Clinical simulation scenarios provide students with the opportunity to engage and practice in mock clinical scenarios to bridge the theory and clinical practice gap (Cant & Cooper, 2017; Larue et al., 2015). Virtual simulation (VS) is an increasingly popular, accessible, and in-demand form of SBL educational modality. It provides students with online modules and gamification to foster and incorporate learning of specific encounters and scenarios, greater preparation for the clinical setting, increase in confidence, communication, and understanding of various patient contexts and scenarios (Keys et al., 2020). Gamification is the use of gaming elements to foster and empower students to achieve objectives in a learning environment through gaming and play (Brooks, 2021). The need for interactive, technologically advanced, and effective educational tools is vital in bridging the theory-clinical practice gap evident in nursing (Markwick & Sacco, 2021).

Virtual simulation has increased significantly within healthcare education to supplement, enhance, and support learning since the beginning of the COVID-19 pandemic (Schuler et al., 2021). VS is a useful teaching strategy to enhance the learning of undergraduate nursing students, specifically with the rise in technological use in healthcare, and education. Born after 1995, Generation Z-ers are known as ‘digital natives.’ Their formative years were shaped by a drastically different world than previous generations (e.g., Millennials), resulting in unique learning expectations. As digital natives who are technologically savvy, they have an abundance of information at their fingertips, allowing them to be proactive in their learning. They primarily connect with peers via smartphones or social media, which can foster feelings of isolation and depression (Hampton & Wiggins, 2020). This ability to receive instant gratification to information accessed through the internet results in a shorter attention span than students from previous generations (Hampton & Wiggins, 2020). Therefore, innovative, technologically

advanced, and engaging educational material, such as simulation and VS, can foster enhanced learning and clinical skills acquisition for Generation Z learners (Hampton & Wiggins, 2020).

Simulation-based learning (SBL) is a valuable teaching strategy within health professional education, and is an effective tool to augment student critical thinking, knowledge, and skills application, consequently increasing an individual's level of self-efficacy (Al Gharibi et al., 2021; Keys et al., 2020; Tyerman et al., 2019). Simulation-based learning (SBL) enhances learning by exposing learners to apply clinical knowledge during realistic simulation clinical scenarios delivered virtually or in-person (Cant et al., 2019). The International Nursing Association of Clinical and Simulated Learning (INACSL) developed Standards of Best Practice that guide developing, facilitating, evaluating, and debriefing SBL opportunities (Watts et al., 2021). The clinical simulation processes vary based on the conceptual framework utilized by the researcher; however, it must take into consideration the context and purpose of the simulation, the learner's expectation, the design process, objectives, outcomes, and should include aspects of the participant and facilitator role (Cowperthwait, 2020; Jeffries et al., 2015).

Suicide assessment of risk is an important but challenging concept covered in undergraduate psychiatric nursing courses. Until students have their first interaction with patients who are experiencing suicidal ideation, they may not know what to expect from the patients or themselves. However, most didactic lessons do not allow students opportunities to practice this skill in the undergraduate nursing curriculum. According to Luebbert & Popkess (2015), there has been no standardization of suicide assessment teaching in the nursing baccalaureate program. The use of SBL strategies has been associated with being productive and valuable to the development of communication and assessment skills for nursing students (Luebbert & Popkess, 2015). A quantitative study by Luebbert and Popkess (2015) demonstrated the intervention group

exhibited greater self-confidence in learning after experiencing a simulation session than those who experienced traditional lecture education on suicide. A study conducted by Cooper et al. (2013) identified that a standardized patient experience for nursing students in the mental health course was linked to an overall increase in self-efficacy, empathy, confidence in therapeutic communication skills, and ability to uphold professionalism. Suicide assessment of risk is relevant in the current state of knowledge delivered in mental health courses in nursing education. According to a qualitative survey study conducted by Lily et al., (2012), nurses who have undergone a simulation experience during their undergraduate degree recall using the information or skill from the simulation into real-life clinical practice, such as during psychiatric emergencies.

By implementing SBL strategies, such as VS, nursing students can derive meaning from significant clinical situations (i.e., suicidal ideation) within a psychologically safe environment (Turner & Harder, 2018). Psychological safety and learning in a psychological safe environment includes the concept of making mistakes without negative consequences that can impact the learner and patient (Turner & Harder, 2018). Learning in a psychologically safe environment includes the use of a professional, educated, and positive facilitator who is approachable, knowledgeable, and skillful regarding the simulation (Turner & Harder, 2018). Furthermore, having increased familiarity and confidence with the simulation environment, equipment, objectives, responsibilities, and expectations enhances learner preparation, and psychological safety in the learning environment (Turner & Harder, 2018).

Simulations are composed of three phases, including pre-simulation, scenario, and debriefing (Lucktar-Flude, 2020). Pre-simulation phase is separated into two stages, including the presimulation preparation and the prebriefing (Tyerman et al., 2019). The presimulation

preparation educational tools help students in acquiring the necessary knowledge, and skills prior to commencing the simulation (Tyerman et al., 2019). For instance, pre-simulation preparation activities include textbook readings, lectures, self-assessment reflective questions, web-based modules, and care plans (Tyerman et al., 2019). Prebriefing includes orientating learners to the simulation environment prior to commencing the simulation activity (Tyerman et al., 2019). The facilitator situates the participants to the simulation environment, provides further context in regards to expectations and roles, and learning outcomes (Tyerman et al., 2019). Strategies to maintain a psychologically safe environment during pre-simulation preparation include transparent, clear, and concise expectations, facilitator accountability, respect for learners, and being detail-oriented (Rudolph & Simon 2014). The scenario includes the implementation and commencement of the simulation experience whether in-person or virtually. By establishing a collective agreement between learners and the facilitator regarding the simulation environment and establishing rules and regulations during the simulation experience (scenario) can be effective in maintaining a psychologically safe environment (Rudolph & Simons, 2014). Lastly, debriefing occurs after the simulation experience in which learners undergo a reflective process in collaboration with other members in the simulation scenario (Lopreiato et al. 2016). Strategies to maintain psychological safety during the debriefing process include transparency, acknowledgement and validation of learners' experience, upholding confidentiality and privacy, and debriefing in a secure private area (Kolbe et al., 2020).

Content that elicits high emotions, such as death and dying, mental health, and suicidal ideation, requires facilitators to establish and maintain a psychologically safe environment. A psychologically safe learning environment allows learners to actively engage in simulation without fear of failure or meeting unrealistic expectations (Rudolph & Simon 2014). Clinical

facilitators and educators must clarify learning expectations, immerse in the simulation, engage in the fictional environment, draw participants in the scenario, facilitate a student-centred design, and respect the learners' perspective, to establish a safe learning environment for students (Rudolph & Simon 2014).

Purpose of Study

The purpose of this study is to explore the perceived effectiveness of a *Suicidal Ideation: Assessment of Risk* virtual simulation module for undergraduate nursing students.

Research Question

1. What is the perceived effectiveness of the *Suicidal Ideation: Assessment of Risk* virtual simulation module (pre-simulation preparation, virtual simulation, debriefing) for undergraduate Bachelor of Science in Nursing (BScN) students enrolled in a mental health nursing course at the University of Ottawa?

Importance of Study

The findings of this study support the critical thinking, self-efficacy, and clinical decision-making skills of undergraduate nursing students by offering an innovative educational modality to support competent mental health care. This study allowed participants to navigate emotionally charged content within a psychologically safe environment to safeguard learners' mental health and well-being. The study findings informed VS education, nursing education and practice. Participants were exposed to a realistic clinical experience involving assessing an individual with suicide ideation and conducting risk assessments. Additionally, this SBL experience provided learners with greater mental health awareness, and uptake in learner performance with mental health care approaches. Nursing students entering a clinical placement in mental health will have opportunities to prepare, practice, and refine communication,

assessment, and critical thinking skills. Simulation-based learning offers the ability to provide students with greater certainty and knowledge of practice skills. Nursing students who completed the virtual simulation can better understand effective strategies to support individuals at risk of self-harm (Goh et al., 2016). Furthermore, the implementation of a virtual simulation centered on suicidal ideation allowed students the ability to meet expected levels of performance, and the capacity to successfully complete a specific skill (Townsend & Scanlan, 2011). By enhancing knowledge, the virtual simulations could improve future nursing students' negative attitudes toward individuals experiencing mental health issues, ability to handle multiple demands of a particular situation, and ultimately enhance patient safety and quality nursing care provided (Goh et al., 2016).

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Chapter Two

Literature Review

Literature Review

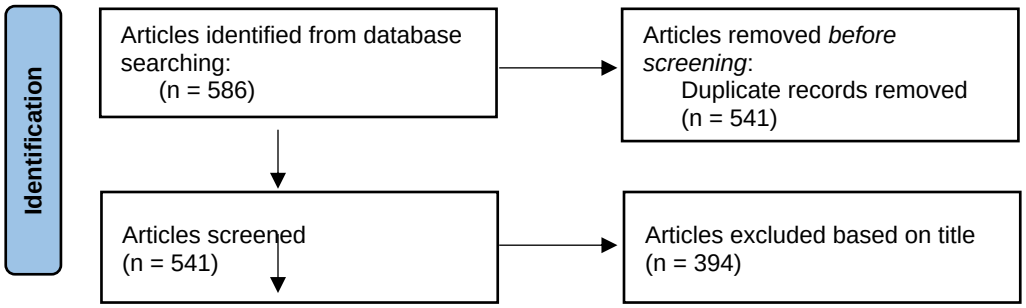
Search Strategy

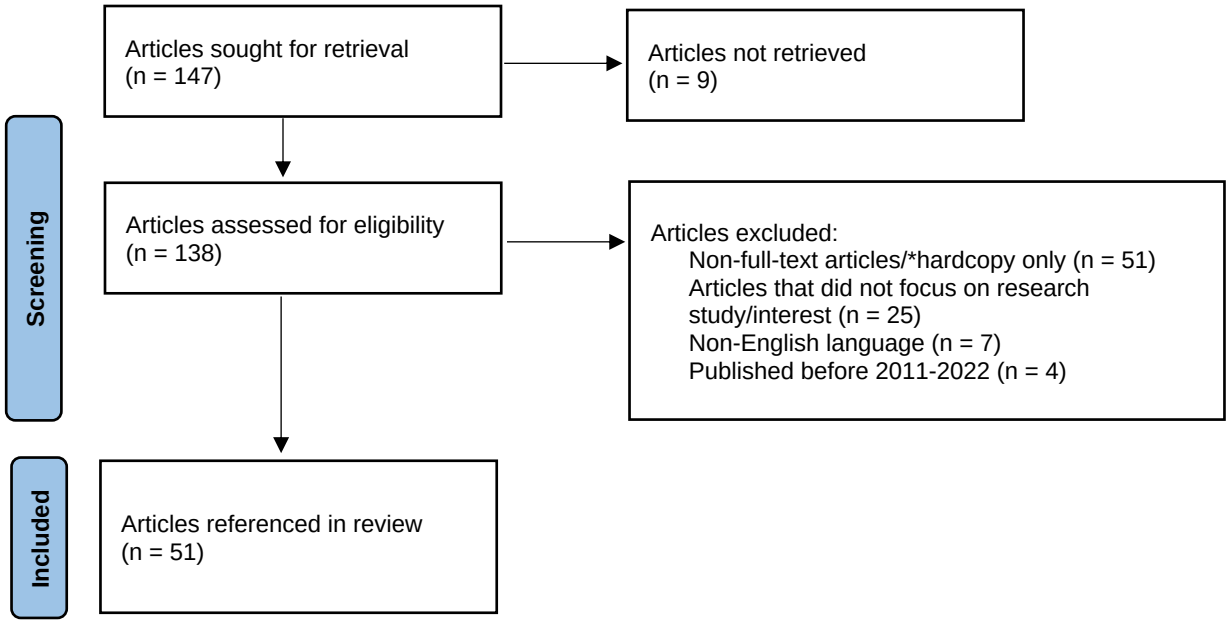
In this chapter, I will provide an overview of the literature, including definitions of key concepts, including traditional clinical education, SBL, gamification and VS, perceived self-efficacy, emotional intelligence, clinical decision-making, and suicidal ideation.

The literature review was first conducted in November 2021 and then ran a second time in March 2022 to identify new or missed sources. The search strategy was developed with the assistance of the University of Ottawa Health Sciences Librarian. The relevant databases included Medical Literature Analysis and Retrieval System Online (MEDLINE - Ovid), Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsychINFO, and Embase Classic + Embase. The four main concepts included: a) self-efficacy, b) nursing students, c) simulation education or patient simulation, and d) mental health. Within each major concept, keywords with relevant syntaxes, such as truncations and proximity searching in the title, abstract and keywords section, was completed (Appendix A). Within each central concept, the keywords were combined using "OR," and the four major concepts were combined using "AND" (Appendix A). The search criteria were limited to: a) full-text articles, b) available in English language, c) peer-reviewed journals, and d) published within the years of 2011-2022.

Figure 1.

Flow chart diagram according to the PRISMA guideline





*Hardcopy (*n* = 2) were not retrievable due to restrictions due to the COVID-19 pandemic at the time of the literature review.

Traditional Clinical Education

The effectiveness of traditional clinical experiences in undergraduate nursing has been questioned for more than five decades, especially when compared to SBL. In response to this need, a systematic review of quantitative studies focusing on student learning outcomes was conducted to examine the best evidence to base decisions regarding the use of traditional clinical experience in prelicensure programs (Leighton et al., 2021). The study followed Joanna Briggs Institute and Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (Leighton et al., 2021). The study reported no sufficient evidence found to support traditional clinical models as nursing practice resulting in an empty study review (Leighton et al., 2021). The studies lacked quantitative outcomes as self-reports of self-confidence were more commonly reported (Leighton et al., 2021). This requires educators to consider educational opportunities that support enhanced critical thinking, clinical decision-making, and leadership opportunities

(Leighton et al., 2021). SBL has been shown to be a valuable teaching tool to support learning in healthcare education (Forondo et al., 2020; Labrague et al., 2018; Levett-Jones et al., 2019).

A study conducted by Albarrak et al. (2021) surveyed medical students' (n = 701) perceptions of various types of blended learning techniques in courses to assess the perception of technologically based education modalities. The study found that traditional teaching methods, such as live lectures and seminars, decreased perceived self-efficiency and unmet adverse learning outcomes (Albarrak et al., 2021).

A study conducted by Markwick & Sacco (2021) used a quasi-experimental design to compare teaching methods for an undergraduate nursing health assessment course. The study results found significant differences in mean grades for most assignments using technology-enhanced interactive classrooms (Markwick & Sacco, 2021). Lectures and seminars are traditional modes of teaching utilized in the nursing Baccalaureate program to understand and synthesize theory-driven courses (Markwick & Sacco, 2021). This, coupled with mandatory clinical placements in various settings, allow nursing students to apply foundational understanding and critically reflect on the knowledge acquired from traditional teaching methods to provide competent patient care and generate clinical decision-making skills (Markwick & Sacco, 2021).

However, there is an apparent gap between theory and clinical practice whereby students are challenged to retain and apply theoretical knowledge in the clinical placement due to delays in practice opportunities from when the knowledge was retained (Markwick & Sacco, 2021). Students' self-efficacy, learning, and engagement can be enhanced by accessing and using various educational modules, simulations, and other pedagogical tools, thus bridging the theory-clinical practice gap (Markwick & Sacco, 2021). SBL can be implemented through various

methods, such as low-fidelity or high-fidelity anatomical mannequins with or without technological advancement and virtual simulation through enhanced software (Markwick & Sacco, 2021).

Simulation-based Learning (SBL) for Mental Health Nursing

Nursing students are exposed to a broad set of clinical skills and opportunities in clinical placement, although unique challenges may arise in mental health placements. Acute psychiatric interactions may be limited for nursing students during their clinical experience, primarily due to patient safety concerns (Lily et al., 2012). Therefore, nursing students have opportunities to develop cognitive, behavioural, and emotional skills related to mental health and psychiatric acuity, ideally using clinical simulation (Lily et al., 2012). Within a controlled and psychologically safe environment, nursing students are supported to achieve structured learning outcomes before working as autonomous professionals (Turner & Harder, 2018).

A simulation experience of a wrist-cutting suicide attempt in a psychiatric nursing emergency explored the integration of the simulation experience in an undergraduate nursing course (Lily et al., 2012). The simulation integrated concepts of psychiatric emergency care, contraband, environmental assessment, and personal safety. Learning outcomes included communication, teamwork, planning and implementation of evidence-based interventions. Participants included undergraduate nursing students, and the simulation took place in either the simulation lab or clinical setting, depending on the availability of resources. A standardized rating scale on perceived learning was implemented immediately following the scenario. Results indicated learners perceived improved learning and developed an enhanced understanding of safety within psychiatric patient care (Lily et al., 2012).

According to a study conducted by Luebbert & Popkess (2015), the use of SBL in assessing suicidal risk demonstrated an increase in self-confidence, student preparation, and satisfaction compared to traditional teaching methods. The study involved an experimental, two-group post-test design using undergraduate BScN nursing students (n = 34). Learner's perceived self-confidence, satisfaction, and perceptions of educational practices (active learning, collaboration, and fit with learning styles) were evaluated using the Student Satisfaction and Self-Confidence in Learning (SSSCL) and the Educational Practices Questionnaire (EPQ) (Jeffries, 2012). The control group was provided content via traditional lecture format, while the experimental group completed a high-fidelity (standardized patient) simulation focusing on assessing suicidal risk. The experimental group demonstrated a significant difference ($p < 0.01$) in student scores of self-confidence, satisfaction, and student perceptions of the educational practices (active learning, collaboration, and appeal to diverse learning styles) when compared to the lecture format.

According to a study conducted by Lin (2015) the implementation and utilization of SBL had a profound positive impact on achieving clinical outcomes, increase confidence, and decrease anxiety levels among nursing students. The study involved a pretest and post-test design to assess the effectiveness of SBL in enhancing the self-efficacy and performance in nursing students at a university in Taiwan (n = 98) (Lin, 2015). Data collection methods included four questionnaires and a performance assessment, assessing pre- and post-test anxiety, and skills performance (Lin, 2015). Results of this study demonstrated a significant increase in self-efficacy, skills performance, and learning of nursing students using SBL (Lin, 2015).

Gamification and Virtual Simulation (VS)

As an innovative SBL instructional strategy, gamification is defined as the application of gaming elements in a non-gaming setting that increases motivation, behaviour change, knowledge, and self-efficacy (Dichev & Dichev, 2017; Keys et al., 2020; Luctkar-Flude et al., 2021; Tyerman et al., 2021). Gamification or scenario-based learning requires the learner to engage in the content (Kapp, 2017). Games are primarily created and designed to navigate through a certain environment, solve puzzles, outwit opponents, and reach a certain goal within the context of the game (Brooks, 2021). Gamification applies game-playing elements to empower, encourage, and engage students in the learning environment and achieve learning outcomes through learning how to play the game (Brooks, 2021).

Virtual simulation games (VSGs), a form of gamification, are animated or video-based clinical scenarios that integrate simulation and gaming features to promote learner engagement and critical thinking (Brooks, 2021). VSGs or VS integrate teaching pedagogy, such as the Experiential Learning Theory (Kolb, 1984), nursing theory, including Benner Novice to Expert Theory (Benner, 1984) with game-based learning theories, such as the Cognitive Load Theory for Multimedia Learning (Sweller, 2011). VSGs are computer-based interactive online simulations comprised of a series of short video vignettes followed by critical thinking questions (Cant, 2017; Tyerman et al., 2021). VSGs focus on specific theoretical knowledge in nursing that require the learner's assessments, interventions, and responses (Atthill et al., 2021). For instance, the Canadian Alliance of Nurse Educators Using Simulation (CAN-Sim) provides a breadth of VS topics relevant to the clinical setting for nursing students, nurses, learners, and nursing educators to support learning (CAN-Sim, 2023). VSGs or VS are of value in nursing education as it supports learners to critically reflect on decision-making, improve communication, and engage students in providing and receiving constructive feedback within a psychologically safe

environment for more significant learning and personalized experience (Markwick & Sacco, 2021).

VS typically involves three separate sections including: pre-briefing, scenario, and debriefing (Watts et al., 2021). Design and implementation should follow the Healthcare Simulation Standards of Best Practice (Watts et al., 2021). During the presimulation section, learners are provided with the adequate resources, readings, and content to prepare and situate to the simulation process (Watts et al., 2021). The scenario section is the simulation content provided by the facilitator which learners often complete asynchronously on their own (Watts et al., 2021). The debriefing phase occurs after completion of the VS content in which learners use self-guided reflective questions and/or facilitator-led methods to debrief the VS content completed (Watts et al., 2021). The implementation of VS has been associated with overall benefits to learning, communication, problem-solving skills, and confidence (Cant & Cooper, 2017).

A systematic review by Tyerman et al., (2019) reviewed the effectiveness of presimulation preparation and briefing for healthcare professionals and students. The objective of the systematic review was to identify the effectiveness of presimulation preparation on the knowledge, attitudes, self-efficacy and anxiety among students (Tyerman et al., 2019). As noted in the systematic review, overall agreement that the inclusion of presimulation preparation fosters greater learning outcomes for students than traditional teaching methods or no preparation at all (Tyerman et al., 2019). This is important to take into consideration for this VS on suicidal ideation assessment of risk as participants will be assessed on perceived effectiveness of the VS on presimulation preparation alongside the scenario and debriefing.

Simulation Outcomes

Perceived Self-Efficacy

Perceived self-efficacy is an essential learner outcome in nursing education, particularly related to learner performance (Robb, 2012). Perceived self-efficacy is defined as a learner's beliefs about their ability to meet the expected levels of performance (Townsend & Scanlan, 2011). Similarly, according to Doménech-Betoret et al. (2017), self-efficacy is a noun firmly embedded in psychology, involving an individual's belief in their capability to successfully complete a specific task/skill/activity. Individuals with adequate self-efficacy can handle multiple demands and situations about a particular task (Townsend & Scanlan, 2011).

Self-efficacy was first introduced by Albert Bandura (1977) through research psychology (Townsend & Scanlan, 2011). During the social learning theory period, Bandura described self-efficacy as the individual's capability to complete tasks. However, in 1986, Bandura reconstructed his theory into the social cognitive theory to widen the theory's scope due to the evolving research on the dynamics of a human being (Townsend & Scanlan, 2011). Personal, behavioural, and environmental factors influence human functioning, thus aiding in the development of self-efficacy. In 1997, Bandura evolved the theory to what is now known as the self-efficacy theory, allowing for a greater understanding of human change and shared beliefs (Robb, 2012). The use of self-efficacy is referenced in multiple disciplines and professions, such as nursing and nursing research (Robb, 2012).

Perception is heavily influenced by beliefs, thoughts, and behaviour about the self (Grewal et al., 2019). Self-perception theory involves individual development of attitudes, values, and norms based on observing their behaviours (Goldstein & Claldini, 2007). This theory highlights that perception is based on individual experiences influenced by contextual factors and

cognitive biases (Goldstein & Claldini, 2007). Therefore, perception varies amongst students, specifically concerning the integration of educational technologies (Schuler et al., 2021).

A study conducted by Albarrak et al. (2021) surveyed medical students' (n = 701) perceptions of various types of blended learning techniques in courses to assess the perception of technologically based education modalities. The study's findings identified that traditional teaching methods, such as live lectures and seminars, decreased perceived self-efficiency and unmet adverse learning outcomes (Albarrak et al., 2021).

A study conducted by Bruff et al. (2013) interviewed ten students throughout a ten-week blended teaching approach to assess and explore the perception of self-paced learning, technologically based education modalities, and the impact on student satisfaction and effectiveness. The study's findings noted an increase in student perception satisfaction with blended learning, including in-person activities and virtual simulation elements (Burff et al., 2013; Schuler et al., 2021). Perception of oneself inherently impacts decision-making, as it is driven by cognitive processes and personality traits (Farçic et al., 2020; Schuler et al., 2021).

Self-efficacy is the strongest contributor, influence, and attribute to clinical decision-making (Farçic et al., 2020). According to a study conducted by Farçic et al. (2020), nurses with an increased perceived self-efficacy have a higher sense of control, advocate for treatment-related decisions, and provide improved quality of care (Farçic et al., 2020; Schuler et al., 2021; Lin 2015). An increase in self-efficacy allows nurses and nursing students to develop a greater sense of autonomous control and decision-making by critically reflecting on alternative options, patient values, needs, consequences and outcomes of interventions and continuously seeking new and improved relevant information (Farçic et al., 2020).

A concept analysis of self-efficacy (Perry, 2011) identifies five key characteristics (attributes) that individuals with high levels of perceived self-efficacy possess: (1) confidence, (2) capability, (3) persistence, (4) resilience, and (5) emotional intelligence. Confident learners strongly believe in their ability to perform and carry out a specific task (Townsend & Scanlan, 2011). Moreover, a persistent nursing student understands that completing a challenging task requires time, practice, and overcoming obstacles (Townsend & Scanlan, 2011). Furthermore, a resilient nursing student perseveres through stressful situations and performs to a high degree of effectiveness (Perry, 2011; Townsend & Scanlan, 2011).

A second concept analysis relating to self-efficacy by Voskuil & Robbins (2015) describes antecedents as events that occur before a concept that influences and construct individual belief of self-efficacy. Four antecedents specific to self-efficacy include direct experience, indirect experience, social encouragement, and psychological condition (Voskuil & Robbins, 2015). Direct experience refers to overcoming obstacles to master skills through ongoing direct practice and participation, thus motivating the individual to challenge other complex skills and behaviours (Voskuil & Robbins, 2015). Furthermore, witnessing another nursing student, clinician, or other healthcare provider succeed in a specific task inherently allows the nursing student to believe they can succeed in the same task through increased self-efficacy (Townsend & Scanlan, 2011; Voskuil & Robbins, 2015). Social encouragement refers to the social support group that challenges a nursing student's perceived capability and ability to complete a task (Voskuil & Robbins, 2015).

Bland & Wood (2011) identify the consequences of implementing self-efficacy behaviours in the clinical setting, which include: behavioural, performance quality, and perseverance (Robb, 2012). Nursing students with high self-efficacy exhibit approach behaviour,

the idea of moving towards challenge and success through performance (Robb, 2012). Additionally, nursing students who strongly perceive self-efficacy within a specific field are more likely to perform the same or similar tasks, thus leading to exceptional performance quality (Townsend & Scanlan, 2011). Moreover, nursing students with adequate self-efficacy can persevere through difficult situations because they are motivated to achieve a specific goal through continuous practice despite past failures (Robb, 2012). On the contrary, nursing students with inadequate self-efficacy exhibit avoidance behaviour, the idea of moving away from challenging tasks, thus leading to failure and uncertainty (Robb, 2012). Low self-efficacy results in negative self-talk, doubt, and increased failure attempts, thus leading to poor quality of care (Robb, 2012). Additionally, nursing students with low self-efficacy will directly exhibit a lack of perseverance as they are prone to giving up after one attempt at a skill or task (Townsend & Scanlan, 2011).

Self-efficacy is prominent in healthcare, specifically nursing education (Townsend & Scanlan, 2011). Self-efficacy is a strong determinant of nursing students' clinical performance, career goals, and perceived capability (Townsend & Scanlan, 2011).

Emotional Intelligence

Non-technical clinical skills involved in providing care to individuals with mental health concerns often require high levels of emotional intelligence. Emotional intelligence (EI) is the ability to process information about emotions and use this information to guide an individual's thinking and behaviour (Mayer & Salovey, 1997). Emotional intelligence refers to understanding the action, thoughts, and emotions of all individuals involved in care (Perry, 2011). Supporting nursing students' EI development promotes essential nursing skills such as clinical decision-making (Kozlowski et al., 2017; Magnano et al., 2016).

The establishment of a therapeutic relationship between the patient and the mental health nurse has a significant impact on patient outcomes (Bacha et al., 2019). Supporting nursing students to establish the skills necessary for positive therapeutic relationships can be due to the nature of the setting. Exposure to aggression and violence are high-risk experiences for nursing students (De Looff et al., 2019). For those working in community and home settings, their work can be unpredictable, fluid, and at times volatile (Emerson & Pollner, 2019). Student nurses with higher EI will be able to examine, appraise, and process their own and others' emotions, supporting effective coping associated with the emotional demands of psychiatric nursing practice (Kozlowski et al., 2017; Magnano et al., 2016)

A confident, capable, persistent, resilient, and emotionally intelligent nursing student possesses the key characteristics for attaining a high level of self-efficacy, thus succeeding in the clinical setting (Townsend & Scanlan, 2011). Individual attributes such as overconfidence, narcissism, doubt, uncertainty, and depression can threaten an individual's self-efficacy, thus negatively impacting their perception and impeding performance (Robb, 2012). Whereas individuals exhibiting a positive attitude, resilience, and self-trust can successfully perform a task (Robb, 2012).

Clinical Decision Making

Clinical decision-making is a key competency in providing adequate and safe care within the nursing profession (Bing-Jonsson et al., 2021). Nursing students impact the decision-making process of patients and family members by considering patient needs, safety, and values (Farçic et al., 2020). Decision-making is a complex process resulting from critical thinking skills (Farçic et al., 2020). Nursing students develop critical thinking skills through direct clinical practice, simulations, past experiences, and foundational theoretical knowledge, thus influencing

prioritization, time management, and responding to clinical scenarios (Farçic et al., 2020). Nursing students predominately rely on the nursing care process, consisting of an assessment, diagnosis, planning, implementation, and evaluation to make competent and effective decisions (Farçic et al., 2020). Decision-making for nursing students undergoes a methodical process, including collecting patient data through assessments, identifying issues, formulating a plan of care, intervening appropriately, and evaluating the goals of care (Farçic et al., 2020). Furthermore, intuition plays a role in formulating decisions in the clinical setting as nursing students gain work experience, exposure, and opportunities (Farçic et al., 2020).

Nursing Assessment – Suicidal Ideation

According to the National College Health Assessment, approximately 16% of Canadian students in a postsecondary education have seriously contemplated suicide (University of Saskatchewan, 2022). Furthermore, according to the Mental Health Commission of Canada (MHCC) and the Canadian Alliance of Student Associations (CASA), 75% of post-secondary students reported a decrease in mental health due to the impact of the COVID-19 pandemic (CASA, 2022). Additionally, 74% of post-secondary students reported a worsening in pre-existing mental health concerns, and 61% stating new mental health decline (CASA, 2022). Particularly, vulnerable students, such as visible minorities (i.e., international students) were significantly impacted by the pandemic (CASA, 2022). For this reason, a VS module on suicidal ideation within the COVID-19 pandemic through the perspective of a visible minority was established to highlight the rapid rise in mental health concerns due to isolation during the pandemic. Throughout postsecondary education, students will experience stressful situations regarding academics, career, interpersonal relationships, and finance (Lockman & Servaty-Seib, 2016). Therefore, understanding risk and protective factors for students is crucial in detecting

suicidal ideation (Lockman & Servaty-Seib, 2016). Protective and risk factors predominately focus on underlying mental health problems, substance use, gender, academic performance, financial status, religious affiliation, and level of education (Wong et al., 2011). According to Joiner's (2005) interpersonal theory of suicide (ITS), suicidal ideation is heavily based on interpersonal dynamics. Specifically, an individual's perceived burdensomeness and belongingness (Lockman & Servaty-Seib, 2016). Stressful life occurrences may enable or trigger permanent hopelessness for students with a perceived burden on loved ones and a lack of belonging to a social group (Lockman & Servaty-Seib, 2016).

Suicidal ideation and a deterioration in a patient's mental health are complex, difficult, and sensitive situations for practicing nurses and nursing students, regardless of the clinical setting and level of experience (Castaneda-Guarderas et al., 2016; Tyerman et al., 2021). Establishing a therapeutic relationship between the nurse and patient in the healthcare setting, especially involving high emotional content, such as suicidal ideation, requires high levels of provider-perceived self-efficacy, emotional intelligence, strong clinical decision-making, and assessment skills (Castaneda-Guarderas et al., 2016; Tyerman et al., 2021). A healthcare provider's negative attitude, stigmatizing behaviour, and lack of mental health education can negatively impact the quality of care (Nicholls et al., 2011; Tyerman et al., 2020).

Nursing students' capability to adequately assess suicidal ideation is strongly reliant on theoretical and clinical knowledge, self-efficacy, personal attitudes and biases, and clinical decision-making skills (Luebbert & Popkess, 2015). Due to negative attitudes, increased anxiety, lack of time, fear of provoking patient harm, and decreased self-efficacy, nursing students can often inadequately assess or poorly conduct suicide risk assessments (Luebbert & Popkess,

2015). Adequate understanding and competent decision-making regarding suicidal ideation assessment of risk can mitigate the stigma associated with mental illness (Nicholls et al., 2011).

This is further compounded by nurses' perceived lack of available educational resources to support effective psychiatric care practices (Castaneda-Guarderas et al., 2016). According to a study by Lake (2008), patients undergoing suicidal ideation rarely volunteer to express suicidal thoughts unless asked directly by nursing staff or physicians (Mospan et al., 2017). The stigma associated with the diagnosis of mental illness creates barriers to accessing appropriate healthcare, thus rendering this population vulnerable (Tyerman, 2014).

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Chapter Three

Philosophical Underpinning & Conceptual Framework

Philosophical Underpinning

Paradigms are the philosophical foundation of individual beliefs, and help in guiding nursing research by providing a framework and lens through a set of beliefs and practices within the nursing discipline (Weaver & Olsen, 2006). Paradigms produce knowledge related to discipline-specific knowledge gaps (Weaver & Olsen, 2006). Furthermore, paradigms are sets of philosophical underpinnings that derive research approaches, such as qualitative and quantitative methods (Weaver & Olsen, 2006). Four major paradigms are frequently referred to within nursing research, namely constructivism, post-positivism, critical theory, and finally pragmatism (Weaver & Olsen, 2006). The philosophical underpinning of this study is pragmatism, and it is closely associated with a mixed methods design. Mixed-methods research utilizes qualitative and quantitative perspectives and viewpoints in theory and practice to investigate the underlying purpose of a study (Johnson et al., 2007). Pragmatism is associated with mixed methods review because it allows for the most relevant methodology based on the purpose of the study. Pragmatism is a paradigm that offers a unique lens to guiding research rather than being fixed on a singular paradigm (Biesta, 2010). Pragmatism utilizes both quantitative and qualitative research within a single study, as empirical outcomes assess the phenomena, and methodology is driven by the objectives (Johnson & Onwuegbuzie, 2004; Pansiri, 2005). The researcher holds a subjective reflection throughout the research and an objective lens in data analysis (Shannon-Baker, 2016). The pragmatic paradigm focuses on producing solutions and outcomes to problems (Johnson & Onwuegbuzie, 2004; Shannon-Baker, 2016).

Pragmatism is a philosophical approach that emerged in the United States in the late 19th century, with roots in the work of Charles Peirce, William James, and John Dewey (Dewey, 1916; James, 1907; Pierce, 1903). It is often characterized as a rejection of traditional

philosophical approaches that emphasize abstract concepts and metaphysical speculation in favor of a more practical, empirical approach to knowledge and truth (Dewey, 1916; James, 1907; Pierce, 1903).

Ontology is the branch of philosophy that deals with the nature of reality (Dewey, 1916). Pragmatism is often associated with a view of reality that emphasizes process, change, and evolution (Dewey, 1916). This view is sometimes referred to as process metaphysics. According to this view, reality is not fixed and unchanging, but is constantly evolving and developing over time (Dewey, 1916). In this sense, reality is not something that exists independently of human experience, but is always being constructed through human action and interaction (Dewey, 1916; James, 1907; Pierce, 1903).

Epistemology is the branch of philosophy that deals with the nature of knowledge and belief (Dewey, 1916). Pragmatism emphasizes the practical, experiential, and contextual nature of knowledge (Dewey, 1916). According to this perspective, knowledge is not a fixed and absolute truth, but is always contingent on the particular context in which it is acquired and used (Dewey, 1916; James, 1907; Pierce, 1903). This view is reflected in the work of William James, who argued that "truth happens to an idea" (James, 1907). In other words, the truth or validity of a belief depends on its usefulness in a particular context or situation. Pragmatists also emphasize the importance of empirical inquiry and experimentation in the acquisition of knowledge (James, 1907).

Methodology is the branch of philosophy that deals with the methods and procedures used in the acquisition of knowledge (Dewey, 1916). Pragmatism emphasizes the importance of practical experimentation and inquiry in the acquisition of knowledge. Pragmatists argue that knowledge is not acquired through abstract reasoning and speculation, but through practical

experience and experimentation (Pierce, 1903). This perspective is reflected in the work of Charles Peirce, who developed the method of abduction, which involves the generation of hypotheses based on practical observations and experience (Pierce, 1903).

Reflexivity Statement

My personal interest in SBL developed throughout my undergraduate degree while participating in the Undergraduate Research Opportunity Program (UROP). Working as a research assistant for Dr. Jane Tyerman, I was able to support and collaborate in the development of bilingual simulations. More specifically, I was able to work alongside research experts from across Canada in the creation of a suicide assessment simulation within the context of COVID-19 through the development of learning outcomes, critical thinking decision points, filming, and finally, assisting in module assembly.

The focus on suicide assessment and mental health stems from personal clinical experience and its relevance in the educational curriculum. Suicidal ideation and a deterioration in a patient's mental health are complex, difficult, and sensitive situations for nursing students, regardless of the clinical setting and experience. Personally, I dealt with an elevated sense of anxiety and stress during my clinical placement in mental health than in any other practicum. I had difficulty establishing therapeutic nurse-client relationships with patients experiencing significant mental health issues and engaging in emotionally charged conversations with patients, especially regarding suicide, suicide ideation, and mental illness. I lacked confidence in the mental health clinical setting, which resulted in feelings of anxiety and may have impacted my clinical learning. Interestingly, low clinical self-efficacy during mental health placement is typical for undergraduate nursing programs (Brief et al., 2020; Tyerman et al., 2020). Practicing

nurses and nursing students have repeatedly called for greater educational opportunities specific to suicidal identification and risk assessment (Brief et al., 2020; Tyerman et al., 2020).

Conceptual Framework

The study is framed by the National League of Nursing (NLN) and Jeffries Simulation Theory (Jeffries, 2021; Jeffries et al., 2015) (see Figure 2). The Jeffries simulation model is a suitable framework for understanding and conceptualizing the simulation education's design, implementation, and evaluation (Cowperthwait, 2020). The NLN/Jeffries Simulation Framework is highly recognized in nursing education and intends to identify the principles and practices for SBL (Cowperthwait, 2020). This framework was first disseminated in healthcare education in 2005 to provide structure and support to the educational modality (Cowperthwait, 2020). Between 2005-2012, the model evolved from a model/framework to a middle-range theory to what is now known as the NLN/Jeffries Simulation Theory (Cowperthwait, 2020). The NLN/Jeffries Simulation Theory consists of various concepts, including the context, background, simulation design, simulation experience, facilitator and educational strategies, participants, and outcomes (Cowperthwait, 2020).

The context refers to the setting and circumstances that may have a vital impact on the simulation (Jeffries et al., 2015). The context also refers to the purpose of the simulation, such as evaluating the simulation impact within an academic or clinical practice setting (Jeffries et al., 2015). The background refers to the simulation and learner expectations, benchmarks, and goals to better support the intended population (Cowperthwait, 2020; Jeffries et al., 2015). The design refers to the elements that aid in developing the simulation (Jeffries et al., 2015). The simulation design includes the learning objectives and outcomes that assist in developing the overarching purpose of the simulation (Jeffries et al., 2015).

Furthermore, aspects of the simulation design can be changed while the simulation experience is ongoing (Jeffries et al., 2015). In addition, the participant and facilitator roles and briefing strategies are discussed in the simulation design phase (Jeffries et al., 2015). The simulation experience is the environment where the simulation takes place (Jeffries et al., 2015). The simulation must occur within a psychologically safe environment, allowing participants to collaborate, learn, interact, and experience the simulation (Jeffries et al., 2015). The facilitator promotes trust, engagement, and a positive learning experience to increase a safe educational environment (Cowperthwait, 2020; Jeffries et al., 2015).

The facilitator uses educational strategies, such as prebriefing, cues, and debriefing, to better support participants in achieving the learning outcomes (Cowperthwait, 2020). Furthermore, participants' innate and modifiable attributes impact the simulation outcomes (Jeffries et al., 2015). For instance, the participant's level of anxiety, self-confidence, age, and readiness for the simulation impact the simulation (Jeffries et al., 2015). Outcomes are separated into three focused groups: participant, patient, and system outcomes (Jeffries et al., 2015). The participant outcomes include whether the simulation impacted self-confidence, readiness, change in attitudes and skills, and knowledge transferred to clinical practice (Jeffries et al., 2015). These outcomes are also known as the participant's reaction, learning, and behavioural changes (Jeffries et al., 2015). The simulation experience directly impacts patient care as it allows participants to transfer knowledge from the educational experience to the clinical practice for better health outcomes (Jeffries et al., 2015). Finally, the system outcomes refer to the overall benefit to the organization, such as cost-effectiveness and change in practice (Jeffries et al., 2015).

The NLN/Jeffries Simulation Theory has several key strengths, such as its ability to emphasize or substitute positive clinical knowledge, skills, and attitudes in an organized manner

(Groom et al., 2014; Ravert & McAfooes, 2014). Simulation can amplify a real-life experience technologically advanced and interactive (Groom et al., 2014). However, the NLN/Jefferies Simulation Theory encountered limitations and challenges throughout its development (Ravert & McAfooes, 2014). For instance, the lack of a standardized title impacted literature review results (Ravert & McAfooes, 2014). Moreover, the theory lacks consistent and standardized terminology (Ravert & McAfooes, 2014). For instance, terms such as teacher and facilitator were used interchangeably with inconsistent differentiation (Ravert & McAfooes, 2014).

The NLN/Jeffries Simulation Theory has been described as both a theoretical and conceptual framework and a model (LaFond & Van Hulle Vincent, 2013). According to Jacqueline Fawcett, a conceptual model is abstract and non-observable, whereas a theory is concrete, observable, and specific (LaFond & Van Hulle Vincent, 2013). The NLN/Jeffries Simulation Theory is concrete, observable, and has testable concepts, therefore applicable to a theory (LaFond & Van Hulle Vincent, 2013). In particular, the NLN/Jeffries Simulation Theory is a middle-range theory because of the specific application to nursing education, concrete concepts, and relationships between the concepts (LaFond & Van Hulle Vincent, 2013). The NLN/Jeffries Simulation Theory is typically used in simulation-related research in nursing education.

The NLN/Jeffries Simulation Theory and its concepts closely reflect pragmatism, and its applicability in clinical nursing education. The VS on suicidal ideation is framed using the concepts stated in the NLN/Jefferies Simulation Theory which help nursing students understand complex nursing issues, such as suicidal ideation and assessment of risk through analyzing the concepts via debrief, understand new learned concepts, and utilize knowledge application in the

clinical nursing setting. Therefore, the conceptual framework of this research study closely relates to pragmatism.

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Chapter Four

Methodology

Methodology

Design

The study utilized a mixed-methods explanatory sequential design whereby the dominant data resides in the quantitative portion. The research study is designed in two phases. Phase I involved the quantitative portion of the research study whereby participants completed the Simulation Effectiveness Tool – Modified (SET-M) to determine participants' perceived effectiveness of the VS module (pre-simulation preparation, simulation experience, debriefing). Phase II involved the qualitative portion of the research study whereby voluntary subset of participants from Phase I completed individual interviews. An explanatory sequential mixed methods design was appropriate for the study as the qualitative data collected in Phase II of the study built on and explained the quantitative data collected in Phase I, thus providing greater insight into the research question (Polit & Beck, 2021). The explanatory research design underwent nested sampling, whereby voluntary participants in the qualitative phase are a subset of the participants from the quantitative phase (Polit & Beck, 2021). The intervention implemented in the study is a VS module on the risk assessment of suicidal ideation.

Intervention: Virtual Simulation (VS)

The design and development of the VS module included the collaboration of a team of nursing educators, mental health experts, 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 content of the workshop meetings included the development of learning outcomes, simulation scenario, storyboard, and the pre- and post-assessment rubric. The simulation was developed following the CAN-Sim VS design process which aligns with the Healthcare Simulation Standards of Best Practice (2021) and the

Jeffries Simulation Framework, whereby the theoretical foundations, pre-briefing, participation, and debriefing aspects of the simulation process were reviewed, discussed, and analyzed (Tyerman et al., 2021). The filming of the simulation was filmed in both English and French versions. Afterwards, the VS scenario was assembled and created using Articulate Storyline software, and VSG design templates developed by CAN-Sim. The VS module provides specific learning outcomes, and a pre-evaluation learning outcomes assessment rubric based on perceived competence to meet learning outcomes, game, reflective questions, and debrief (Luctkar-Flude et al., 2019; Luctkar-Flude et al., 2020).

The VS module depicts the therapeutic actions of a suicidal ideation assessment of risk for a patient experiencing mental illness. The focus of a suicidal ideation assessment of risk supports all learning objectives set out for suicide and mental health assessment, including instructions on how to provide safe telehealth discussions by maintaining privacy and confidentiality. The VS module was filmed as a telehealth encounter on Zoom© and provides the perspective of both the nurse and patient to provide an immersive experience for the learners and provide greater non-verbal cues and portrayal with regards to assessment of suicidal risk. The VS module begins with a case summary to provide the participants with important and relevant information regarding the context of the scenario. The learner is then immersed within a virtual simulated telehealth environment where they are required to function as a therapeutic nurse providing mental health support to a patient. The VS module includes video clips followed by critical thinking questions. Each critical thinking question provides three response options. The response options include one correct and two non-optimal answers based on common errors with specific rationale to provide participants with greater understanding of the material. If learners select the correct response, they are guided to the next scenario whereby the simulation

advances. If learners select the incorrect response, they are guided to a scenario whereby the actions are not therapeutic and are provided with a rationale, and then redirected to select another response. The VS module was completed on a certain week of the course per the course professor's discretion. The VS was debriefed in-person with the course professor following completion of the VS at home. The course professor used a blend of reflective questions and facilitator-led methods to ensure adequate debriefing of the VS module. The course professor debriefed the content of the module by navigating through the VS experience as a group and reflecting on the correct and incorrect statements. When undergoing the VS, students have unlimited attempts and no time constraints.

Sample

The population of interest was third-year nursing students in the undergraduate Bachelor of Science in Nursing (BScN) program enrolled in the mental health in nursing course (NSG3320/NSG3720). The study's independent variable was the completion of the VS scenario by participants. The dependent variables was the perceived self-efficacy, clinical decision-making, anxiety, attitudes, knowledge, and simulation effectiveness which was measured after the intervention.

Participants for the study were recruited from the University of Ottawa, BScN program that are currently in their third year of study in the English, French immersion, or French stream. The sampling design included the following participant inclusion criteria: (a) registered as a full-time or part-time student at the University of Ottawa in the BScN program, (b) enrolled in the 2022 Fall Mental Health in Nursing (NSG3320/NSG3720) course English, French, or French Immersion nursing stream,(c) able to speak and write in English, and (d) has prior VS experience. The only exclusion criteria to the study were students that could only read and write

in French, as the instrument implemented in the study is an English validated tool with no permission to translate in other languages.

The sampling plan represented characteristics closely approximating the target population, including undergraduate nursing students with simulation laboratory learning and clinical practice. Upon review of the University of Ottawa BScN program course structures, the most practical sample were third-year nursing students who are in the midst of their studies, who had received formal education in suicide risk assessment, and have had previous simulation and clinical practice experience. Third-year nursing students were an ideal sample as they were familiar with simulation components, including roles and responsibilities which is crucial when completing an emotionally sensitive VS module (Tyerman et al., 2020). Additionally, third-year nursing students who had experience with previous post-simulation debriefing, which promotes engagement, enhances psychological safety, and facilitates introducing a newer debriefing framework as students are familiar with the debriefing process.

Moreover, third-year nursing students are able to utilize the education provided in the VS module for the remainder of their studies. The SET-M is written in English with no permission to translate in other languages (i.e., French), however the VS module was available in both English and French languages.

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 third-year Mental Health in Nursing theory course in the English, French Immersion, or French stream. All students enrolled in the mental health course were required to complete the VS module on (Suicidal Ideation: Assessment of Risk) and SET-M evaluation as part of the course

requirement. After completing the VS module, students were invited to participate in the study to share the results of their SET-M scores. As determined by the course professor, students who participated in the simulation received a 1% bonus mark which was allocated at the end of their course evaluation.

Phase I. Students completed the VS module, and SET-M tool as part of the course requirement (Appendix B). Students were asked if they agreed to participate in the study and share their SET-M evaluation with the primary researcher. Students completed a survey on SurveyMonkey.

Phase II. Participants who agreed to share their SET-M evaluation were invited to participate in a semi-structured interview for further analysis of the simulation effectiveness. The primary investigator (PI) reached out to consenting participants interested in participating in the interview after completing the SurveyMonkey. Interviews took place a week after the implementation of the VS module and completion of the SET-M tool (September 2022 – November 2022).

Sample Size

Phase I. Convenience sampling technique, a form of non-probability sampling, was used to recruit eligible third-year nursing students. Convenience sampling technique, also referred to as volunteer sampling, is the recruitment of participants that 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 sampling process. Particularly, the convenience sampling technique is beneficial for recruiting participants in a specific clinical setting (Polit & Beck, 2021).

The sample size was calculated using the University of California, Los Angeles (UCLA) Statistical Methods and Data Analytics G*Power software for *t*-tests (UCLA, 2016). The following parameters were inputted: d= 0.5, α= 0.05, β = 0.95, and the recommended sample size calculated was a total of 45 participants. The size of the Mental Health in Nursing theory course involved approximately 130 students from the English cohort, and 80 students in the French cohort for a total of approximately 210 students. However, provided there was an expected 30% response rate, the minimum number of participants was anticipated to be 30.

Phase II. Nested sampling or a nested relationship was used to recruit participants for the qualitative interviews in Phase II. This means the qualitative participants are a subset of the participants in the quantitative strand (Polit & Beck, 2021). Therefore, a smaller portion of the participants who completed the SET-M also completed the qualitative interview. The recommended small sample size was a total of 5-10 participants (Hellums, 2018). There was no gold standard sample size for the qualitative portion of the research study. However, through a literature search of research studies with the use of SET-M in a qualitative analysis, the researcher recruited 10 participants for a saturated analysis. Saturated analysis in qualitative data collection is the way in which repetitious data is being collected due to no new information and/or themes being presented by participants (Polit & Beck, 2021). This can provide empirical confidence for researchers that there is sufficient data collected on a particular topic. The participant range of up to 5-10 participants allows for flexibility and greater saturation of data.

Recruitment

Phase I. The recruitment plan for Phase I was conducted through various means, including:

1. A recruitment poster (Appendix C), a poster detailing the research description, objectives, and inclusion criteria. The course announcement included the researcher's contact

information. The research poster was posted on the course Brightspace Announcement page with the course professor's permission.

2. Two weeks prior to the study, the researcher provided a brief five-minute in-person presentation during the third-year undergraduate mental health course (NSG3320/3720) to explain the purpose of the study and invite participants in the study.
3. As an incentive, participants who agreed to share their SET-M evaluation in Phase I of the study were entered into a draw to win one of 10 $25 Starbucks gift cards for participants.

Phase II. The recruitment plan for Phase II included:

1. Upon completion of the SET-M, participants were asked if they would be interested in a short interview by the researcher. An additional $25 Starbucks gift card was provided to all participants who complete the qualitative interview in Phase II with a maximum of ten participants.

Data Collection

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

The effectiveness of the VS focused on suicidal ideation and assessment of risk were measured using the SET-M (Leighton et al., 2015a) (Appendix B). The SET-M is a 19-item quantitative tool that includes three subscales: pre-briefing (assigned readings and lecture content), scenario (VS experience), and debriefing (reflective questions and in-person debrief with course professor). The tool was developed by Leighton et al. (2015) to measure the effectiveness of a simulation after its completion. Participants respond to questions based on a 3-point Likert scale, whereby response options range from (1) do not agree, (2) somewhat agree, or (3) strongly agree (Leighton et al., 2015a). The SET-M is an appropriate instrument for the

quantitative portion of the mixed methods sequential design as it directly collects quantifiable data regarding whether the VS was perceived to be effective. Furthermore, the SET-M instruments includes a section for participants to include statements and reflective comments regarding the VS experience. The authors of the SET-M tested internal consistency reliability regarding each subscale (Leighton et al., 2015b). The internal consistency reliability results for each subscale are as indicated: pre-briefing ($\alpha = 0.833$), learning ($\alpha = 0.852$), confidence ($\alpha = 0.913$), and debriefing ($\alpha = 0.908$) (Leighton et al., 2015b). The SET-M consists of 19 items, and the overall internal consistent reliability is $\alpha = 0.936$, indicating strong tool reliability (Leighton et al., 2015b). The tool is designed for both in-person and VS. It is available in English only.

Phase II: Semi-Structured Interview Guide

The researcher used semi-structured interviews as the primary method for qualitative data collection. Semi-structured interviews are individual discussions between participants and the primary researcher/interviewer (Polit & Beck, 2021). The interviews are considered semi-structured as the researcher develops prompting questions and prepares a written topic guide of questions to be covered; however, the participants' thoughts are not structured but rather explored (Polit & Beck, 2021). This means that the researcher used a set of written prompting questions and topics to facilitate and guide the discussion but encouraged and allowed the participants to express their thoughts freely and describe their experiences as they see fit (Polit & Beck, 2021). The researcher used probing questions to facilitate greater discussions and explanations through the use of open-ended questions (Polit & Beck, 2021). The benefits of employing semi-structured interviews are that it allows participants to share their attitudes, understanding, and personal narratives (Polit & Beck, 2021). Furthermore, semi-structured

interviews are flexible and enable researchers to collect qualitative-rich information about the participants, exploring and building on the quantitative portion of the research study (Polit & Beck, 2021). The interview guide was developed in collaboration with the thesis committee.

Following the post-simulation in-class debriefing session conducted by the course professor, individual interviews were conducted, lasting between 10-20 minutes. The semi-structured interviews included six open-ended questions pre-approved by the thesis committee (Appendix D). Once participants provided verbal consent, the researcher organized and conducted individual interviews. Due to anticipated continued restrictions of COVID-19, interviews were conducted over the secured Zoom © video-conferencing platform. Participants selected the location suitable to their preferences when completing the interview. Interviews were recorded using the University of Ottawa's Zoom's © recording feature. Video recordings assisted the researcher in obtaining accurate verbal and non-verbal data. Participants were informed they could turn off the video feed if preferred and refrained from answering any questions they did not wish to discuss.

Data collection involved three types of data collection tools. The SET-M tool was available to all students via SurveyMonkey upon completion of the VS module intervention. The question "Do you agree to participate in the study?" had 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"

By answering "*Yes, I agree to participate in the study and share my SET-M scores*", participants consented to participate and share the results of their SET-M scores. Consenting participants then proceeded to the study's sociodemographic survey (Appendix G). Those who

clicked "*No, I do not agree to participate in the study and will not share my SET-M scores*" were taken to a thank you page and exited the Survey Monkey.

Participants who completed the demographic survey were then asked if they would like to participate in a short interview with the researcher. The researcher's contact information was provided via email address. Data collection also occurred through Zoom© with participants in phase II of the study.

Upon completion of the SET-M, participants were asked if they consented to share their SET-M and demographic survey results. Participants who share their results were entered to win one of 10 Starbucks gift cards valued at $25. Furthermore, participants were asked if they would be interested in a short interview with the researcher. If participants decided to participate in the semi-structured interview, a $25 Starbucks gift card was provided to compensate for their time. The PI shared the transcription with the participants using a encrypted password. Participants were allocated and advised of up to two weeks to respond back to the PI regarding transcription review, after which any feedback received was not incorporated into the research project.

Data Analysis

Research study findings were derived from both quantitative and qualitative data. Quantitative data from the sociodemographic and SET-M questionnaire involved descriptive and inferential statistical analyses. Qualitative data were analyzed using thematic analysis of semi-structured virtual interviews.

Quantitative Data Analysis. For the quantitative portion of the study, both descriptive and inferential statistical analyses were used. Data analysis was conducted using the Statistical Package for Social Science (SPSS) version 27. Descriptive statistics, median, percentages, and standard deviations (*SD*) were used to report sociodemographic data, including sample

characteristics, to evaluate differences across participant demographic to assess for extreme scores and to assess for distribution (Polit, 2010). Inferential statistics were used to identify the presence of relationships or differences between the SET-M scores (Polit, 2010). Tests for normality were completed to determine if the data were normally distributed and to assess for the need to use non-parametric tests for inferential statistical analyses. Inferential statistics were used to identify relationships or differences between participant characteristics and SET-M scores to determine the perceived effectiveness of the VS. The Cronbach's alpha for the SET-M scores were calculated to assess internal reliability and consistency across each subscale and totality of the subscales.

Qualitative Data Analysis. The qualitative data analysis process began during the data collection stages and involved several steps. The steps included transcribing data from interviews, developing a coding scheme to code data into meaningful units and themes, and connecting and relating common themes (Polit & Beck, 2016). Each interview was transcribed verbatim by the researcher for this study, and line-by-line analysis was conducted by the PI and thesis advisor (JT). Thematic analysis is a qualitative data analysis method that closely relates to the outlined steps and identifies conceptual themes and patterns across data and transcripts (Polit & Beck, 2016). Through a thematic analysis, similarities, and inconsistencies among data from the semi-structured interview sessions may be analyzed and compared. Accordingly, the process of a thematic analysis approach can be displayed in a tabular format to showcase the transcribed data, condensed meaning units, codes, and themes (Polit & Beck, 2016). The qualitative analysis provided greater insight and depth to the quantitative data and research question.

Ethical Considerations

At the end of the SET-M, participants were provided with the study Letter of Information (Appendix E) and consent to participate in the study (Appendix F). Research Ethics Board (REB) approval was obtained from the University of Ottawa on September 7, 2022 (Appendix H). The primary researcher and all members of the thesis committee have completed the Tri-Council Policy Statement 2 (TCPS-Core2). The TCPS-Core2 is an ethical guidance course that members must complete if research involves human participants. The primary researcher obtained verbal consent by all participants prior to the beginning of each interview, clearly indicating that participants may withdraw from the study at any point. For Phase I of the study, each participant was assigned an identification numbers (1-100) to maintain the confidentiality of personal identifiers. During Phase II of the research study, voluntary participants were assigned pseudonyms to uphold confidentiality.

An electronic copy of the study Letter of Information form was provided to students to review prior to enrolment (Appendix E). The Letter of Information included any indication of the data being published or presented in research presentations. Students were made aware that participation is voluntary and that they could withdraw from the study at any time with no consequences. Participants were notified in the Letter of Information that they would remain anonymous. Participants' data was accessed using a unique identifiable participant number. All data information, including participant information, sociodemographic forms and results, was secured in an encrypted password file on a password-protected university-encrypted computer. The PI obtained verbal consent by reading and communicating the consent form to the eligible participant, such as the purpose of the study, risks, benefits, and confidentiality (Appendix I). The PI asked at the end of the verbal consent whether the participant consents to participate in the study. When agreed to participate, the interview proceeded. If participants disagreed to

participate, the interview did not begin, and the participation was terminated. Verbal consent was obtained through audio recording at the beginning of the interview.

The participants were reassured that only the researcher would have access to this information (no personal identifiers), and the records will be stored for a 5-year period. The primary researcher clearly stated that participation was voluntary and had no impact on their course mark. All files were securely stored in a locked filing cabinet that only the primary researcher could access. Interviews took place virtually through Zoom©, and participants had the option of being recorded with or without the inclusion of video. Each interview was transcribed verbatim, and access to electronic and paper data was stored in a secure manner and will be retained for a minimum of five years after the completion of the study.

Due to the sensitive nature of the topic and its potential impact on psychological or emotional health, each participant was provided with information pertaining to the Crisis Help Line for Ontario residents and the University of Ottawa Mental Health and Wellness contact information. The researcher ensured that participants were comfortable discussing and proceeding with discussion topics throughout the interview and notified they could refrain from answering any questions they felt uncomfortable discussing. If participants were uncomfortable or felt distressed at any time, the University of Ottawa Mental Health and Wellness contact information was provided for assistance. To my knowledge, no participant requested or were in need of the University of Ottawa Mental Health and Wellness contact information.

The transcripts were sent via email (uOttawa email only). Security measurements were in place, specifically a password encryption to access the document. Participants were provided with a timeline of when comments were to be provided and when text could be changed. Participant uOttawa email addresses were linked to the SurveyMonkey to receive information on

whether the individual would like to participate in the study or chose not to disclose information. Therefore, the PI and supervisor had the participants names, specifically those who participated in the interview and maintain confidentiality by not sharing names with external members. All data information, including participant information, sociodemographic forms and results, were secured in an encrypted password file on a password-protected university-encrypted computer.

Obtaining consent for sharing SET-M evaluation and filling out the sociodemographic questionnaire took place after the completion of the VS, and SET-M evaluation. The PI shared and provided the informed consent and letter of intent form for the shared SET-M and before completing the in-person debrief with the course professor. By agreeing at the end of the SET-M evaluation to share the results with the PI and by accepting to fill out the sociodemographic questionnaire, the student consented to participate in this part of the study. At the end of the sociodemographic questionnaire, the individual was asked if they were interested in participating in the individual semi-structured interview.

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Chapter Five

Results

Results

The data analysis from the research study were divided into quantitative and qualitative results. The quantitative portion of the data analysis focus on descriptive and inferential statistical analyses from the sociodemographic data and SET-M questionnaire. The qualitative portion of the data analysis focus on three main themes, including (a) learning and preparation, (b) confidence and anxiety, and (c) knowledge and critical thinking. The three main themes were identified through the semi-structured virtual interviews. Lastly, participants included anecdotal statements regarding the VS experience.

Quantitative Results

Descriptive Statistics

A total of 165 students completed the sociodemographic survey and SET-M questionnaire as part of their undergraduate mental health course. Of those, N =130 consented to participate in the study. Regarding participant characteristics (Table 1), the participants ranged from 18 to 31 years of age and older. In terms of gender, 93.1% (*n* = 121) self-identified as female, 5.4% (*n* = 7) as male, 0.80% (*n* = 1) as non-binary, and 0.80% (*n* = 1) indicated they preferred not to disclose. The majority of participants, 70.8% (*n* = 92), were White/Caucasian, followed by 10.8% (*n* = 14) African Canadian/African American, East Asian 7.7% (*n* = 10), and 5.4% (*n* = 7) self-identified as West Asian.

Of the N = 130 participants, 61.5% (*n* = 80) were enrolled in the English stream, 10.0% (*n* = 13) in the French Immersion stream, and 28.5% (*n* = 37) in the French stream of the BScN nursing program at the University of Ottawa. As both the English and French Immersion cohort of students are taught in the same mental health course, the two groups were merged for 71.5%

(*n* = 93). When asked about fluency in languages, 100.0% (*n* = 130) of participants are fluent in writing and reading in English, and 50.8% (*n* = 66) are fluent in writing and reading in French.

Of the N= 130 participants, 62.3% (*n* = 81) indicated previous nursing experience (e.g., Personal Support Worker, Health Care Aid, Nursing Aid); 93.9% (*n* = 122) of the participants have not completed any educational workshops or certification related to suicide risk assessment. Furthermore, only 7.7% (*n* = 10) students had completed their mental health in nursing clinical placement, alongside 30.8% (*n* = 40) who are currently completing their placement, and 61.5% (*n* = 80) who have yet to begin the mental health clinical practicum.

Table 1

Participant characteristics, sociodemographic, simulation and nursing experience

Characteristic (N = 130)	**Number (%)**
Male	7 (5.4)
Female	121 (93.1)
Non-binary	1 (0.8)
Prefer not to enclose	1 (0.8)
Other (please specify)	0 (0)
18 – 21 years	106 (81.5)
22 – 24 years	15 (11.6)
25 – 31 years and above	9 (6.5)
African Canadian, African American	14 (10.8)
Caucasian	92 (70.8)
Canadian Indigenous (First Nation, Inuit, Métis)	6 (4.6)
East Asian (e.g., Chinese, Japanese, Korean)	10 (7.7)
South Asian (e.g., Indian, Pakistani, Sri Lankan)	7 (5.4)
Southeast Asian (e.g., Cambodian, Filipino, Vietnamese)	5 (3.9)
West Asian (e.g., Iranian, Afghan, Lebanese, Palestinian, Syrian)	7 (5.4)
Latin American (e.g., Mexican, South American)	2 (1.5)
Prefer not to enclose	0 (0.0)
Other (please specify)	1 (0.8)
English Stream	80 (61.5)
French Immersion Stream	13 (10.0)
French Stream	37 (28.5)
Suicide risk assessment education and workshop	
Yes	5 (3.9)
No	122 (93.9)
Mental Health Clinical Placement	

Completed	10 (7.7)
Currently Completing	40 (30.8)
To be completed	80 (61.5)

As displayed in Table 2, the frequencies, percentages, means, and standard deviations of each SET-M subscale statements are represented. The SET-M was separated into 3 categories with subscales (Prebriefing, Scenario, and Debriefing), and measured on a 3-point Likert scale; 1 = Do Not Agree, 2 = Somewhat Agree, 3 = Strongly Agree, with a weight of 3-2-1 respectively. The maximum weighted average range for each subscale is as follows: prebriefing = 6.0, scenario = 27.0, and debriefing = 15.0. The weighted average for prebriefing subscale was 3.1 (SD = 1.1) with more than 40.0% of participants strongly agreeing with the statements. Furthermore, the weighted average for the scenario subscale was 16.1 (SD = 6.1) with more than 33.1% (*n* = 43) of participants strongly agreeing with the statements. Lastly, the weighted average for debriefing subscale was 7.2 (SD = 2.7) with more than 41.5% (*n* = 54) of participants strongly agreeing with the statements.

As displayed in Table 3, the Cronbach Alpha of each SET-M subset are represented. The Cronbach's Alpha for each subscale is the following: prebriefing (2 items) at 0.82, scenario (10 items) at 0.84, and debriefing (5 items) at 0.82. Furthermore, the Cronbach Alpha for the sum of all subscales (17 items) is 0.89. These scores are more than 0.80 which are consistent with the tool's original Cronbach's Alpha, thus demonstrating reliability. This indicates good internal reliability and consistency across each subscale and the totality of the subscales.

Table 2

*Simulation Effectiveness Tool-Modified (SET-M) subscale statement results (*N *= 130)*

SET-M Subscales and Statements	Strongly Agree (%)	Somewhat Agree (%)	Do Not Agree (%)	Median	SD
Prebriefing (2 items)					
Prebriefing increased my confidence.	52 (40.0)	74 (56.9)	4 (3.1)	2.0	0.54
Prebriefing was beneficial to my learning.	80 (53.9)	58 (44.6)	2 (1.5)	1.0	0.53
Scenario (9 items)					
I am better prepared to respond to changes in my patient's condition.	78 (60.0)	50 (38.5)	2 (1.5)	1.0	0.52
I am more confident of my nursing assessment skills.	72 (55.4)	54 (41.5)	4 (3.1)	1.0	0.56
I felt empowered to make clinical decision.	45 (34.6)	77 (59.2)	8 (6.2)	2.0	0.57
I had the opportunity to practice my clinical decision-making skills.	78 (60.0)	44 (33.9)	8 (6.2)	1.0	0.61
I am more confident in communicating with my patient.	73 (56.2)	50 (38.5)	7 (5.4)	1.0	0.60
I am more confident in my ability to teach patients about their illness.	42 (32.3)	68 (52.3)	20 (15.4)	2.0	0.67
I am more confident in my ability to report information to health care team.	59 (45.4)	60 (46.2)	11 (8.5)	2.0	0.63
I am more confident in providing interventions that foster patient safety.	67 (51.5)	58 (44.6)	5 (3.9)	1.0	0.57
I am more confident in using evidence-based practice to provide nursing care.	48 (36.9)	72 (55.4)	10 (7.7)	2.0	0.60
Debriefing (5 items)					
Debriefing contributed to my learning.	93 (71.5)	36 (27.7)	1 (0.8)	1.0	0.47
Debriefing allowed me to verbalize my feelings before focusing on the scenario.	54 (41.5)	64 (49.3)	12 (9.2)	2.0	0.64
Debriefing was valuable in helping me improve my clinical judgement.	81 (62.3)	47 (36.2)	2 (1.5)	1.0	0.52
Debriefing provided opportunities to reflect on my performance during simulation.	86 (66.2)	40 (30.8)	4 (3.1)	1.0	0.54
Debriefing was a constructive evaluation of the simulation.	79 (60.8)	47 (36.2)	4 (3.1)	1.0	0.55

Table 3

Simulation Effectiveness Tool-Modified (SET-M) subscale and Cronbach's Alpha

SET-M Subscales	Mean (SD)	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items
Prebriefing (2 items)	1.6 (0.50)	0.819	0.819
Scenario (11 items)	1.6 (0.39)	0.836	0.838
Debriefing (5 items)	1.4 (0.41)	0.811	0.816
Total (18 items)	1.6 (0.35)	0.887	0.887

Note: 2 items from the scenario subscale was omitted.

Table 4 indicates the mean differences amongst each age group in regard to the prebriefing, scenario, debriefing, and total SET-M subscales. In particular, the data analysis shows that participants aged 18-24 believed that the virtual simulation's prebriefing, scenario and debriefing had a greater impact on confidence, preparation, and learning than participants aged 25 and above. This finding suggests that virtual simulation fosters enhanced learning and clinical skills acquisition for Generation-Z learners than students from previous generations, such as Millennials.

Table 4

SET-M scores by age group

Subscale	Age (in years)	N	Mean (SD)
Prebriefing	18 – 21	106	1.52 (0.48)
	22 – 24	15	1.87 (0.55)
	25 – 31 years and older	9	1.47 (0.41)
Scenario	18 – 21	106	1.62 (0.38)
	22 – 24	15	1.65 (0.39)
	25 – 31 years and older	9	1.48 (0.39)
Debriefing	18 – 21	106	1.45 (0.42)
	22 – 24	15	1.45 (0.44)
	25 – 31 years and older	9	1.26 (0.26)
Total	18 – 21	105	1.56 (0.34)
	22 – 24	15	1.62 (0.37)
	25 – 31 years and older	2	1.41 (0.32)

Inferential Statistics

The Kolmogorov-Smirnov test was used to test for normality (see Table 5). The Kolmogorov-Smirnov test was used as the non-parametric test for inferential statistical analysis as $n > 50$. As the score was $p < 0.05$, there was significant evidence indicating that the variables do not follow a normal distribution, therefore, the data contains extreme values inhibiting a symmetrical distribution and resulting in skewed results.

Table 5

The Kolmogorov-Smirnov Test of Normality

Subscale	**Statistic**	**df**	**Sig.**
Prebriefing	0.26	130	< 0.01
Scenario	0.09	130	0.02
Debrefing	0.20	130	< 0.01

The Kruskal-Wallis H test was used to analyze the relationship between age and four dependent variable groups (prebriefing, scenario, debriefing, and total SET-M) on an ordinal level (see Tables 6). The Kruskal-Wallis H test is also a non-parametric test and an alternative to the one-way ANOVA to allow for more than two group comparisons. As $p > 0.05$, the prebriefing, scenario, debriefing, and total SET-M scores and independent variable of age were not statistically significant. This indicates that there is no significant relationship between the SET-M scores and the independent group of age.

Table 6

Relationship between SET-M scores and age group: The Kruskal-Wallis H Test

Subscale	**Kruskal-Wallis H**	**df**	**Asymp. Sig.**
Prebriefing	7.21	3	0.65
Scenario	3.21	3	0.36
Debrefing	0.28	3	0.96
Total	2.60	3	0.46

The Mann-Whitney U test was the non-parametric test used to analyze the statistical significance of the relationship among two independent groups in the variables previous nursing experience and language of course and the dependent variables (prebriefing, scenario, debriefing, and total SET-M). As $p > 0.05$, the prebriefing, scenario, debriefing, and total SET-M scores and independent variables of language of course, and previous nursing experience were not statistically significant (see Table 7 and 8). This indicates there is no significant difference in the outcome between previous nursing experience and language of course.

Table 7

Relationship between SET-M scores and nursing experience: Mann-Whitney U Test

Statistical Test	**Prebriefing**	**Scenario**	**Debriefing**	**Total SET-M**
Mann-Whitney U	1901.50	1823.50	1969.50	1942.50
Wilcoxon W	3126.50	5144.50	3194.50	5263.50
Z	-0.43	-0.78	-0.07	-0.20
Asymp. Sig (2-tailed)	0.67	0.44	0.94	0.84

Table 8

Relationship between SET-M scores and language of course: Mann-Whitney U Test

Statistical Test	**Prebriefing**	**Scenario**	**Debriefing**	**Total SET-M**
Mann-Whitney U	1195.00	1316.50	1379.50	1273.00
Wilcoxon W	1898.00	2019.50	2082.50	1976.00
Z	-1.79	-0.96	-0.60	-1.22
Asymp. Sig (2-tailed)	0.74	0.34	0.55	0.22

Qualitative Results

A total of eight interviews were conducted after completion of the virtual simulation and debriefing session. Thematic analysis was completed for each interview. A total of three themes emerged from the thematic analysis, including learning and preparation; confidence and anxiety; and finally, knowledge and critical thinking. To ensure confidentiality, pseudonyms were used for each participant who completed the interview with the researcher (Appendix J).

Theme One: Learning and Preparation

A main theme that emerged during the interview process was enhanced learning and preparation for clinical practice. Participants felt the virtual simulation was a practical and useful resource. Participants highlighted the learning benefit and increased preparation for their current or upcoming mental health clinical practicum. This included how to ask appropriate questions related to suicidal ideation, having a better understanding of the patient population, and providing greater situational awareness of those patients who might be experiencing suicidal ideation. This was perceived as important to extend learning and better prepare them for real clinical experiences. For instance, Alex stated,

> *[…]I know that I'm going to be encountering like patients and individuals in my field that go through like suicidal ideations […] so me being able to ask the right questions and kind of like understand what the patient is going through and being able to help them as much as possible is really like helpful for […the simulation] is a good example for us to like refer, when we are in a real-life situation with a patient*

In addition, Bailey explained the importance of simulation for students who have no previous clinical experience in a focused setting. Bailey stated,

> *[…] Before we go in[to our clinical placement] it just it gives us like a little bit of an experience of like [situations] we might encounter… like something we might experience in real-life.*

Cassandra mentioned the importance of witnessing an example of a discussion between a nurse and patient, especially in a mental health setting to better prepare students, and increase clinical decision making. Cassandra stated,

> *It kind of helps like nursing students just see how we should be reacting or like how we should not be reacting to certain situations. For example, the substance abuse that was mentioned, like [the nurse] didn't like give her own opinion, [and] no body language was displayed. That is a good basis for us to follow[…]this virtual [simulation], kind of gives me like something to expect […] It's a good guide I would say*. […] *I know that mental health is a big [topic], and it's not all facts, [as it is also] intuition. I think the virtual sim helps you put your thoughts into categories and like into what you should be saying or doing or not doing.*

In the interview, Danielle mentioned the benefits of implementing virtual simulation in the mental health course as it increased preparation for entering clinical placement. Danielle stated,

> *I think first of all it gives you an idea, and experience on the patient encounter… I also think it's useful because when you're in clinicals, you're going to be stressed meeting your patient, and maybe sometimes you're not really picking up [on] all the cues that [the patient is] giving you … I felt like this was an easy way to kind of get introduced to thinking about everything on your [mental status exam]. So, I think it's useful because it's almost like a practice test […] I like being able to take what we learned in our theory courses and see [how] it applies.*

Erica also discussed the importance of virtual simulation to better prepare students entering the clinical setting. Erica stated,

> *I think it's something that [nursing students] will probably all run into whether it actually ends up being as intense as it was in the [virtual simulation] […] I think it's really helpful that we all get this baseline knowledge before we are actually nurses and before we are actually in the clinical setting where its real life.*

When asked about the connection between the virtual simulation and knowledge development of undergraduate nursing students, participants identified the importance of visual learning, especially in the context of psychiatric nursing. Participants indicated limitations to learning when only obtaining information from course textbook readings, as it does important contextual information, such as verbal and non-verbal communication strategies, essential for quality mental health nursing care. Virtual simulation experiences enhance learning through various modalities including video vignettes, rationale for correct and incorrect responses, debriefing to support reflection, and detailed explanations for both right and incorrect responses to critical thinking questions. For instance, Alex stated,

> *I think listening to the tone of voice, facial expressions, and like the interaction between the interviewer and patient is very important. Just reading it off [a textbook], you're not able to see the different outcomes for reactions… [With] the simulation, if you press a wrong answer then you can see an explanation of why it isn't the best answer… You kind of see an overall output of things which is really helpful […] I think the communication and how you're speaking [is something] you don't get from just reading off [the] textbook… Watching the simulation and like seeing how the nurse actually [demonstrates] those like therapeutic techniques is like a lot more like effective in my*

> *opinion. It is like a real-life way of physically and visually seeing how everything is kind of, like put together.*

Furthermore, Danielle stated,

> *I felt like being able to actually see, it's different from learning about like suicide risk in textbooks… Actually, having an example … and actually being able to like look at their mood and affect … it was just way different. It is really useful because in clinicals we are going to actually be seeing people and it's not just going to be like reading. I can categorize how to approach a patient, and the best way, like systematically how I can assess them and figure out what their needs are. So, I really enjoyed it.*

Similarly, Erica highlighted the simulation as being a good summarizing intervention to blend all theoretical knowledge into a near-real-life situation. Erica explained the cohesiveness, comprehensiveness, and critical thinking skills developed throughout the virtual simulation experience. Erica stated,

> *I think it's really helpful in that it puts it all together in one scenario. When you learn about these sort of things from the textbook, [it is] like here's what to look out for, and then a little while later, it's like here's the risk assessment form – like it's not altogether, it's just these little pieces that you're remembering and memorizing. I find with a sim, it's putting it all together and you actually do not need much memorizing, it's more thinking about it. When you think about it, in turn, then you memorize it and you actually understand it. Yeah, I feel like having an actual scenario to think back on as well, like say this happened to you in a real situation, and you felt kind of stuck, you can think back to the sim, like okay what did the nurse say?*

Theme Two: Confidence and Anxiety

An increase in the perceived self-efficacy was highlighted. Participants shared that the virtual simulation helped increase their self-confidence and decrease anxiety-related feelings. According to the participants, the virtual simulation on suicidal ideation and assessment of risk helped build communication skills, therapeutic techniques, understanding of patient situations, and intuition. For instance, Alex stated,

> *As nursing students… it takes experience to be able to smoothly communicate with patients, and like, getting that confidence just going into clinicals[…] I feel like as a student, getting that confidence, and getting used to smoothly talking to patients […] knowing what to say is a little hard at first, but simulations like this, I feel like we need more of these so then starting off clinicals it's less nerve-wracking.*

During the interview, Bailey mentioned the impact of the virtual simulation on feelings of anxiety. Bailey disclosed,

> *As a student who's learning these new skills and these therapeutic communications, it's good to practice like what you might do [in] certain scenario[s], like kind of in a virtual simulation before I have to do it in real life. I feel like if you [go into] real life first there's like a lot of pressure to say the right things and do the right things, [as] this is the patient's real life … As students, to have that sense of relief almost – to practice… it's good to know that like in a virtual simulation you can like make mistakes and learn from your mistakes. If you make mistakes in real life like it could have real life consequences and could have negative effects on the patient. […] It is nice to get the virtual simulation, just so that like, I'm more confident in my thought process. […] I feel like more confident in my response and ability to help [patients].*

When asked how the virtual simulation either positively or negatively impacted self-efficacy to transfer knowledge to clinical practice, Erica stated,

> *I think it gives you more confidence than you would have otherwise just based on learning it in another way, say like in a textbook. It gives you practice, and it gives you the opportunity to fail or get things wrong, and in doing that, you already know things you struggle with, so when it comes to real life you have like more confidence. It's kind of like lab and clinical where this is your place to learn, please ask questions, [and] make mistakes.*

Moreover, Fanny explained the virtual simulation's benefit for learners with minimal experience who are waiting to begin their mental health clinical practicum. Fanny stated,

> *I haven't done mental health placement, [and] I also haven't really worked in [the mental health] field like any sort of experience, so I find it just helps me [because] you do have a bit of experience, and you have something to go off of that might simulate the real life. It gives a little bit of confidence which I think is a benefit, especially if you get the questions right and everything, you might feel that more capable when you do go in[to placement]… it kind of just set us off on the right step… Even if you do have experience, I think it's always still good to continue to learn.*

In contrast to Fanny who completed the virtual simulation prior to the beginning of their mental health placement, Gabriella completed the virtual simulation upon completion of their mental health placement. Gabriella stated,

> *I just finished my mental health clinical [a day after] I did [the] virtual simulation. I found it really good to have an example of how direct the nurse was talking with like the patient in this case. It wasn't awkward in the interview, [the nurse was] being direct,*

> *asking questions, and there wasn't any hesitation. I found that really good, and when I was asking my patients [after completing the virtual simulation], I found I was more confident with being direct, [especially] while I was doing my [mental status] evaluation, and suicide evaluation questions. I found that that it was really good in terms of like being able to apply into real life.*

Helene described how the simulation improved self-efficacy and confidence for those currently completing their mental health practicum. Helene stated,

> *I think the simulation could help improve self-efficacy, [and] confidence because it was sort of an experience opportunity in a setting that's safer and comfortable. If [students] had to do this sort of intervention or interaction with someone who had suicidal thoughts in a real setting, where the person was really in danger, they might feel scared or unsure. [With simulation,] you get feedback, and you learn from it, and so it helps you be more confident for a real-life situation… The simulation explains different approaches to take as well… which can be helpful when you are faced with a situation like that… You won't feel so overwhelmed and not know when where to start.* […] *Before entering or while you're entering clinical placement, I think making mistakes is an integral part of the learning experience. Unfortunately, making mistakes while you're already in person is not great, because it puts at risk the other person, the patient, or the patients like, quality of care. I think the opportunity for virtual sim is so you can pretend [the patient] is a real person, [however,] they're not and you can try different things to see what is right or what is the correct approach or the wrong approach… So, when you go into a real setting you will know okay, I'm confident that I know not to do this, or I know that this is an important component to include. When you are in a completely new situation you will*

feel more anxious, and the anxiety [can] cloud your judgement. When you go into [clinical, it can] reduce [the] overwhelming feeling[s].

Theme Three: Knowledge and Critical Thinking

Another theme that emerged involved enhanced knowledge and critical thinking. A common theme of understanding various perspectives was highlighted. Participants discussed the value to the development of knowledge. Perceived enhanced knowledge development was supported through exposure to different viewpoints and perspectives of their peers. This opportunity was perceived to increase knowledge, comprehension, and perception. For instance, Alex stated,

When we actually did [the scenario and debrief] together as a class, I got to see other people's perspective… I got to see overall, different opinions about how situations can be like, approached… I definitely liked debriefing together as a group because when I am just talking about it with myself, I feel like I do not reflect on it as much or process it as deep. When I am in a group, I am talking about [the scenario] more and looking at different perspectives and not just looking at one perspective or approach. It's [retained] much better because you're getting to understand different ways of thinking about one specific topic.

Furthermore, Cassandra disclosed,

Well, I remember as a group, people would input their thoughts as to what the best responses should be for some questions, and there were disagreements as to what the answer would be. I found it interesting to see how everyone's mind just works, and what we rank is more important or not as important… It was great experience to learn different perspectives and ways to approach care.

During the interview, Danielle mentioned the benefits to debriefing as a large class versus a self-debrief. Danielle stated,

> *I did the sim at home and then we completed it in class. I felt I got more of what was happening, and it helped me being able to talk it out loud with others in the class. People in the class had different perspectives and ideas and I would not have thought about those things when I was choosing my answers… I didn't always get the right [answers], so it was a good idea to do the debrief because it helped me understand it better.*

Fanny further elaborated,

> *I thought [debriefing as a group] was interesting… It was really nice to do it as a class, and to hear other people's perspectives. I definitely heard things that maybe I wouldn't have thought of, if I was just doing it on my own so, being able to do it in class opens my perspective a bit and I got to learn even more, which I thought was really beneficial.*

SET-M Comments

The SET-M contains a section for participants to anonymously disclose their thoughts on the simulation experience and provide feedback (Leighton et al., 2018). The participants provided the following statements after completing the simulation experience:

> *"I would like to see more simulations about mental health and how to react as a nurse and what to say,"*
>
> *"[The simulation] helped me learn more about suicide and suicide risk,"*
>
> *"I liked completing the simulation individually and then as a group,"*
>
> *"The simulation was educational and helped me put into practice my nursing skills,"*
>
> *"The simulation helped me practice my skills in a safe environment before performing them with a real patient,"*

"[The simulation] highlighted the need to take an approach that is non-judgemental so that the individual knows they are safe to discuss how they perceive their current situation… It allows for more open dialogue."

Summary

All students enrolled in this third-year of the BScN program have had prior experience with SBL, whether in-person or, more recently, virtual simulation learning due to the COVID-19 pandemic. As students had prior simulation experience, specifically with VS modules, there may be an uptake in learning adaptation and familiarity, which may have contributed to student engagement in the study. Due to the mean differences among age groups, the age of the participants influenced the perceived effectiveness of the scenario of the simulation as there were statistically significant results present in the scenario subset of the SET-M scores. As the scenario requires technology and technological capabilities to successfully navigate through the simulation, this finding is indicative that an innovative and technologically advanced educational modality, such as VS provides Generation-Z learners with enhanced clinical and learning acquisition. However, the results are statistically non-significant, therefore there was no significant impact on age and effectiveness of the VS.

The sociodemographic survey collected data on previous nurse-related, and mental health-related experiences to assess for potential impact on the effectiveness of the simulation. The participant's previous experience in nursing and mental health had no impact on the perceived effectiveness of the simulation, as there was no statistical significance across the SET-M subscales. This can indicate that participants with or with no previous experience in nursing and/or mental health nursing engaged and benefited from the VS on suicidal ideation and assessment of risk.

Overall, the virtual simulation on suicidal ideation and assessment of risk was linked to an increase in learning preparedness, confidence, understanding of various perspectives, and a decrease in anxiety. Learning and preparedness were related to a dynamic learning modality and increase in knowledge specific to the linked clinical practicum. Confidence and a decrease in anxiety were due to an increase in communication skills, knowledge understanding, and critical thinking skills. Additionally, knowledge and critical thinking were linked to sharing thoughts and viewpoints through debrief sessions with multiple classmates and the instructor. Lastly, the SET-M comments provided by the participants highlight the need for more SBL and VS strategies implemented in the nursing curriculum

Chapter Six

Discussion

Discussion

The discussion chapter presents a detailed discussion of the SET-M in the context of the presimulation preparation, scenario, and debriefing. The discussion also presents implications for nursing education, practice, and areas for future research.

The purpose of this study was to explore the perceived effectiveness of a suicidal ideation assessment of risk virtual simulation module for undergraduate nursing students. The research question for the study was: What is the perceived effectiveness of the suicidal ideation assessment of risk virtual simulation module (pre-simulation preparation, virtual simulation, debriefing) for undergraduate Bachelor Science of Nursing (BScN) students enrolled in a mental health nursing course at the University of Ottawa?

To address the purpose and research question of this study, data were collected using the SET-M instrument, sociodemographic survey, and semi-structured interviews. Descriptive and inferential statistical analysis was used to analyze the quantitative portion of the research study, and thematic analysis was used for the qualitative portion of the research study. The study was framed using the NLN/Jefferies Simulation Framework, and it was an appropriate conceptual framework as it provided an understanding and conceptualizing of the simulation education's design, implementation, and evaluation (Cowperthwait, 2020). The virtual simulation *Suicidal Ideation: Assessment of Risk*, closely reflects, and follows the NLN/Jeffries Simulation Theory. The context of the simulation experience is virtual with an evaluation of the simulation on clinical practice impact (Jeffries et al., 2015). The background of the simulation is to understand the perceived effectiveness of the simulation on student learning, clinical decision-making, preparation, and self-efficacy. The facilitator of the simulation promoted a positive learning environment, and engagement to increase a safe educational environment (Cowperthwait, 2020;

Jeffries et al., 2015). The facilitator used educational strategies, such as reflective debriefing questions and responses to better support the learning outcomes and achievement of participants (Cowperthwait, 2020).

The sociodemographic survey of third-year nursing students in the BScN program closely reflects the nursing profession with respect to age, gender self-identify, and ethnicity. For instance, a nursing statistic conducted by the Canadian Institute for Health Information [CIHI, (2021)] stated that about 91% of regulated nurses in Canada self-identify as female, therefore, contributing to the knowledge that nursing is a predominately female-led profession (Canadian Nurses Association [CNA], 2021). In the research study, 93.1% of participants self-identified as female, thus closely reflecting the nursing profession in general (Table 1). Furthermore, according to a study conducted by Jefferies et al. (2018), the nursing profession in Canada is predominately Caucasian. This reflects the sociodemographic survey conducted in the study, as 70.8% of participants identified as Caucasian.

The semi-structured interviews were implemented and conducted to support and provide greater depth and breadth to the perceived effectiveness of the VS module regarding suicide and assessment of risk. The qualitative portion of the study provides a greater understanding and explanation of the findings from the quantitative portion of the research study by providing greater insight on the effectiveness of the VS on learning, preparation, self-efficacy, clinical decision-making, knowledge, and critical thinking. The quantitative results closely demonstrate the structure and guidance to achieving desired outcomes reflected by the simulation. The qualitative data demonstrated the majority of participants agreed with the increase in learning, preparedness, and confidence through the simulation experience – whether the participants strongly or somewhat agreed with the statements. The anecdotal statements provided by the

participants indicated and demonstrated a simulation experience that was supportive of the nursing students learning, specifically within nursing skills, assessments, problem-solving, clinical decision-making skills, and communication. The virtual simulation module reinforces the need for various educational modalities to engage and increase nursing students' preparedness to enter clinical placement.

Simulation Effectiveness Tool-Modified (SET-M)

According to Leighton et al. (2018), there is no established method for evaluating the SET-M scores; however, it is important to focus on the lowest-scoring subscales and statements to assess whether there is a need to modify or change the simulation delivery. Leighton et al. (2018) suggest that if more than 25% of participants select "Do Not Agree," to a specific subscale statement, then facilitators should reflect on potential reasonings for the low score and implement necessary changes and modifications to the simulation experience. In the research study's SET-M results, there are no statements in which participants marked over 25% for "Do Not Agree".

Presimulation Preparation

The Healthcare Simulation Standards of Best Practice mention three phases to simulation, including the presimulation preparation (Watts et al., 2021). During the presimulation preparation of a simulation experience, learners are provided with the necessary resources, readings, and content to prepare and situate the simulation process before commencing the scenario (Watts et al., 2021). The prebriefing statement results displayed in Table 2 demonstrate that more than 96% of participants agreed (strongly agreeing or somewhat agreeing) with the statements that prebriefing increased confidence, and was beneficial to learning. This significant positive experience demonstrated by the participants shows the effectiveness of prebriefing

before experiencing the simulation scenario. The assigned readings, resources, and content provide greater support to students in achieving the learning outcomes of the simulation experience. According to a systematic review by Tyerman et al., (2019), the implementation of presimulation preparation activities lead to greater learning outcomes than traditional approaches or no preparation. Therefore, based on this result, the pre-simulation preparation and prebriefing was perceived to be effective for undergraduate BScN students enrolled in the mental health in nursing course. Specifically to virtual simulation presimulation, there are limited publications investigating the effectiveness of VS presimulation preparation on learning outcomes. However, the systematic review by Tyerman et al., (2019) suggests the use of presimulation preparation as a learning method to enhance student acquisition of learning outcomes prior to completing the simulation experience.

Virtual simulation and SBL have been associated with an increase in learning and preparation as it exposes students to apply theoretical and clinical knowledge during realistic simulation experiences delivered virtually or in person (Cant et al., 2019; Luebbert & Popkess, 2015). As stated by Rudolph & Simon (2014), clear expectations, respect for learners, and detail allow for learners to learn and prepare in a psychologically safe environment. The VS presimulation preparation provided students with the ability to prepare for the simulation and subsequently for their clinical placement in a psychologically safe environment through clear and detailed expectations (i.e., learning objectives, and rubric), emphasis on learning with no risk of harming others (i.e., explanation of simulation by PI).

Suicidal ideation and a deterioration in a patient's mental health status are complex and difficult situations for nursing students. This coupled with the lack of required education, can lead to stigmatizing behaviours; therefore, students must be provided with the necessary

presimulation preparation, education tools, and modalities to prepare and learn about certain challenging and complex topics before entering the clinical simulation scenario and setting (Nicholls et al., 2011; Tyerman et al., 2020). Overall, the presimulation preparation positively impacted the learning and preparation of nursing students, thus providing evidence in support of the effectiveness of the VS module for third-year nursing students in the mental health in nursing course.

Scenario

The VS scenario followed the Healthcare Simulation Standards of Best Practice (Watts et al., 2021). The VS scenario follows an international student with mental illness during the COVID-19 pandemic. It was paramount to include a scenario of a visible minority with mental illness due to the rise of suicidal ideation and mental illness in post-secondary students during the COVID-19 pandemic (CASA, 2022). During the simulation, the VS scenario has been associated with positively impacting the nursing assessment skills, mental health care, confidence, clinical decision-making, communication, teaching, and nursing safety for third-year nursing students. The NLN/Jeffries Simulation Theory is separated into three focused outcome groups, including the participant, the patient, and the system outcomes (Jeffries et al., 2015). The participant encompasses whether the simulation had an impact on multiple outcomes, including self-confidence (Jeffries et al., 2015). VS and SBL have been associated with an increase in confidence (Keys et al., 2020). Furthermore, students who have had VS and SBL experience during their nursing school journey exhibited greater self-confidence in learning than those who experienced traditional lecture format education (Luebbert and Popkess, 2015).

The implementation of the VS experience had an overall increase in participant confidence and in turn, decreased feelings associated with anxiety. In particular, the data results

shown in Table 2 demonstrate that more than 50% of students strongly agree with the following statements: "I am better prepared to respond to changes in my patient's condition," "I am more confident of my nursing assessment skills," "I had the opportunity to practice my clinical decision-making skills," “I am more confident in communicating with my patient,” “I am more confident in providing interventions that foster patient safety.” In addition, based on the findings of an empty systematic review by Leighton et al., (2021), there is no reported evidence supporting the use of traditional clinical models in nursing practice, educators must take into consideration other educational modalities to foster greater confidence in the learning environment (Leighton et al., 2021). In the simulation scenario, more than 92% of participants felt more confident using evidence-based practice to provide nursing care. These scenario statements are aligned with the desired outcomes and learning objectives of the VS module.

Virtual simulation and SBL are valuable teaching tools to support learning in healthcare education and increase self-confidence among nursing students (Foronda et al., 2020; Labrague et al., 2018; Levett-Jones et al., 2019). Overall, the VS experience had a positive impact on the self-efficacy of participants, thus providing evidence in support of the effectiveness of the VS module for third-year nursing students in the mental health in nursing course. Furthermore, as mentioned by Rudolph & Simons (2014), strategies to maintain psychologically safety includes establishing a collective agreement between the learners and facilitators, establishing rules and regulations during the scenario, and emphasizing clear expectations, such as the security of causing no real harm can create for a psychological safe environment. As referenced by Bailey, having the psychological safety of undergoing a simulation without penalty gives students the ‘relief’ of practicing nursing assessment skills, communication, patient safety, and clinical decision-making skills, thus leading to an ultimate decrease in feelings associated with anxiety

and increase in confidence through ongoing practice, learning, and sense of security. The VS module has been associated with overall benefits to learning, communication, problem-solving skills, and confidence. Based on this result, the simulation (scenario) was perceived to be effective for undergraduate BScN students enrolled in the mental health in nursing course.

Debriefing

An experimental study by Verkuyl et al., (2018) was conducted to develop further understanding and knowledge regarding the effectiveness of various debriefing methods post-virtual simulation experience. Three debriefing methods were implemented in the study, including in-person debrief, synchronous virtual debrief, and self-debrief (Verkuyl et al., 2018). Participants included first-year BScN students in a Canadian institution and were sectioned into three groups based on debriefing method (Verkuyl et al., 2018). The survey and focus group results demonstrated a significant increase in self-efficacy and knowledge gain from using the three different debriefing methods (Verkuyl et al., 2018). However, there was no evidence supporting the use of one particular debriefing method over another as there were no significant differences in outcomes between groups (Verkuyl et al., 2018). Nonetheless, there is evidence supporting the use of debriefing methods, such as in-person debriefing after a virtual simulation experience (Verkuyl et al., 2018).

The VS experience debriefing phase occurred after students independently completed the scenario in a psychologically safe environment. The course professor used self-guided reflective questions and facilitator-led methods to debrief the VS module. The course professor reviewed the theoretical content regarding suicide, suicide risk, non-suicide risk, assessment, intervention, planning, and more. After presenting the theoretical content, the course professor began the VS experience with the entirety of the class. The course professor went through each simulation

question and scenario with the class. The students were asked to answer the simulation scenarios based on their understanding, and each scenario was explained through understanding the thought process. The course professor was a moderator, allowing each student to express their thought process and rationale for their clinical decision-making. The simulation experience sparked a healthy and engaging debate regarding the simulation scenario in which further understanding, and application of the theoretical content were reinforced in the clinical setting.

An entry-to-practice competency in the undergraduate nursing curriculum for mental health and addiction includes using critical thinking skills when developing a plan of care (CASN, 2015). Nursing students may lack the critical thinking and clinical decision-making skills required in the early recognition and identification of suicidal ideation (Heyman et al., 2015). The VS on suicide and assessment of risk is a valuable teaching method to augment student critical thinking and knowledge through debriefing. As displayed in Table 2, the majority of students perceived the VS on suicidal ideation and assessment of risk debriefing sessions to contribute to overall learning. In particular, 71.5% of participants strongly agreed that debriefing contributed to their learning. Furthermore, 62% of participants strongly agreed that debriefing had an impact on their clinical judgment and self-reflection. Finally, more than 60% of participants strongly agreed that debriefing was a constructive evaluation. Nursing students need to acquire the necessary critical thinking and decision-making skills to identify, assess, intervene, and manage challenging situations related to a person's deteriorating mental health or suicidal ideation (Heyman et al., 2015). The VS experience is an innovative educational modality to support competent mental health care by fostering the critical thinking and clinical decision-making skills of undergraduate nursing students. The debrief demonstrated that a structured debrief facilitated by the course professor significantly impacted the participants learning, self-

reflection, and clinical judgment. Debriefing with an expert in the related field allows students to further reflect and increase their knowledge of the subject matter, thus building on further critical thinking skills. Based on this result, the debriefing was perceived to be effective for undergraduate BScN students enrolled in the mental health in nursing course. Overall, the VS experience had a positive impact on knowledge uptake, and critical thinking through debriefing the VS experience. This provides the perceived effectiveness of the VS module for third-year nursing students in the mental health in nursing course.

Implications for Nursing Education, Practice, and Research

Simulations have long been recognized for their integral role in healthcare education, including nursing. Implementing the VS on suicide and assessment of risk as an educational tool in the undergraduate BScN program allows students to bridge the theory and clinical practice gap evident in nursing through an interactive, effective, and technologically advanced educational modality (Markwick & Sacco, 2021). Nursing education provides students with the necessary theory and clinical education, and experience to foster a new graduate nurse who is a self-directed learner, effective communicator, knowledge worker, evolving professional, and critical thinker. The VS experience provides students with realistic clinical scenarios to further develop or enhance learner knowledge, skills, and attitudes to enrich and develop the core competencies outlined in nursing school (Lopreiato et al., 2016). The findings of this research study have important implications for healthcare professionals, such as nursing students undergoing clinical placements. For instance, educators and facilitators can provide the VS experience as an interactive method of gaining further knowledge and insight about suicide, suicide risk, and assessment of risk. This study can be practical for educators and students to understand and address the protective and risk factors and signs and indications of a patient’s deteriorating

mental health status. The findings of this study can be used in nursing education and practice to foster greater learning, preparation, self-confidence, knowledge, and critical thinking among undergraduate BScN students.

During the one-on-one interviews, the primary investigator was well-versed and knowledgeable about the VS content, concepts, use of simulation, and benefits to nursing practice. An expert or experienced educator or facilitator is required to discuss and debrief the content of this VS experience due to the sensitive nature of the topics covered in the simulation. Utilizing a skilled, knowledgeable, and experienced facilitator or educator will allow students to disclose and provide a depth and breadth of experience and knowledge within a psychologically safe environment that promotes engagement, growth, and safety for students. The debriefing took place in the mental health nursing classroom and was facilitated by the course professor, an expert in the field of mental health nursing. If proceeding with large classroom debriefs in future situations, it is advised that the debrief be facilitated by an educator or a facilitator who has expertise and experience in the field. For instance, the CASN Canadian Certified Simulation Nurse Educator (CCSNE) Certificate provides certification for educators to become healthcare simulation experts in the educator role and further understand the facilitator responsibility (CASN, 2023). The topics discussed in the simulation are sensitive and can have an impact on the mental health and well-being of students if not debriefed adequately. Resources and support available to students in their respected Faculty and school are recommended to be discussed and distributed throughout the debriefing session.

Areas for Future Research

The VS module took place in an outpatient setting through telehealth to depict the reality of the COVID-19 pandemic. Future research may want to incorporate a VS module on suicide

and risk assessment through an inpatient setting lens, as most clinical placements in the undergraduate BScN program take place in inpatient settings. Furthermore, the research study only sampled the undergraduate BScN program from one University. Results collected from different Universities and collaborative BScN programs in Ontario have the potential to provide greater depth and insight into the perceived effectiveness of suicide and assessment of risk VS. In addition, it may be of interest to compare and contrast the perceived effectiveness of the VS for nursing students who undergo a mental health clinical placement earlier versus later in the undergraduate BScN program.

During the data collection phase of the research study, all interviews conducted with participants were completed after completing and debriefing the VS module. It may be of interest to collect data, such as interviews at different points during the simulation experience (i.e., pre- and post-test) to see how participants would respond to similar interview questions regarding the VS module and perceived effectiveness throughout the experience. Furthermore, future research could involve collecting data from facilitators, and educators to further understanding of the topic. Future research could incorporate different sources of data collection to analyze the perceived effectiveness of the VS module on suicide and assessment of risk, such as a pre-and post-knowledge test, clinical decision-making, longitudinal study to gain further insight into the effects of a VS module.

Furthermore, there is a need for research on the effectiveness of VS experience in nursing education. While there have been several studies that have shown positive results, there is a need for more rigorous research studies that can provide more conclusive evidence of the effectiveness of VS. Studies that compare the learning outcomes of students who participated in

a VS regarding suicidal ideation to those who did not can help to establish the effectiveness of VS in nursing education.

Secondly, there is a need for research on the design and implementation of VS regarding suicidal ideation in nursing education. Simulations can be designed in many different ways, and the effectiveness of a VS can depend on the quality of its design. Research studies that investigate the best practices for designing and implementing VS specific to suicidal ideation and mental health in nursing education can help educators create effective simulations that achieve the desired learning outcomes.

Thirdly, there is a need for research on the long-term impact of VS in nursing education. While many studies have focused on the immediate effects of VS activities, there is a need to investigate whether the skills and knowledge gained from VS are retained over time. Longitudinal studies that follow nursing students over several months or years can help to establish the long-term impact of VS (i.e., suicidal ideation) in nursing education.

Lastly, there is a need for research on the scalability and sustainability of VS in nursing education. Research studies that investigate the scalability and sustainability of VS in nursing education can help to establish the feasibility of using VS on a larger scale. The challenges and obstacles to obtaining and accessing VS for educators, facilitators and students needs further research. For instance, the cost effectiveness of low-fidelity and high-fidelity simulation, the accessibility of in-person and virtual simulations, and age/generation.

In conclusion, while VS show promise as a gamification technique in nursing education, there is still much research that needs to be done to fully understand their potential. Future research studies should focus on the effectiveness, design and implementation, long-term impact, and scalability and sustainability of VS in nursing education.

Strengths and Study Limitations

The strengths of the study include innovation as the VS was directly implemented in a nursing theory course which provides students the opportunity to apply theoretical knowledge in a clinical-like situation. Another strength of the study includes the number of participants, as the estimated sample size was 45 and the study yielded a total of 130 participants. Furthermore, the study utilized a validated and reliable tool, and a mixed-methods approach to provide greater depth and breadth to the research question and understanding of the phenomena. Additionally, another strength to the study includes meeting data saturation. Moreover, the strength of the study is the identification of a psychologically safer environment as students could make mistakes with no consequences or risk to patient safety. Lastly, the use of convenience sampling targeted participants who can provide rich, in-depth detail of experiences on the given topic of interest leading to a strength of the study.

The limitations of the study must be acknowledged and discussed, despite best efforts to ensure high-quality research. The limitations of this study include minor software and technology issues, time constraints, and language barriers. As the simulation was presented virtually, there is always a risk of technological, programming, and software issues. As one respondent stated, *"there were a few minor bugs in the programming,"* which have since been resolved. Furthermore, data collection was conducted over one semester as a single-site study (September – December 2022), thus limiting the generalizability to all third-year undergraduate BScN students. Lastly, despite the French undergraduate BScN cohort participating in the study, permission was not granted to translate the SET-M into French. This became a significant barrier for students who can only read and write in French and were interested in participating in the study.

Conclusion

The study was a mixed-methods explanatory sequential design, whereby the purpose of the study was to explore the perceived effectiveness of a suicidal ideation assessment of risk virtual simulation using quantitative research as the dominant data and qualitative research to support the findings of the quantitative data. The research question "What is the perceived effectiveness of the *Suicidal Ideation: Assessment of Risk* virtual simulation module (pre-simulation preparation, virtual simulation, debriefing) for undergraduate Bachelor Science of Nursing (BScN) students enrolled in a mental health nursing course at the University of Ottawa?" was explored using the Healthcare Simulation Standards of Best Practice. Based on the quantitative findings through the SET-M, and qualitative findings through semi-structured interviews, the VS module had a positive outcome and perceived effectiveness on learning, preparation, self-efficacy, and understanding for third-year undergraduate BScN students.

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Appendix A

Literature Search Strategy

Table A1

Literature search strategy

Concept	**Keywords**
Self-efficacy	"self-efficacy" OR "self efficacy"
Students, Nursing	"undergrad" OR Baccalaureate* OR Bachelor* OR Adj4 "nurs* student*
Simulation training or patient simulation	"Learn*" OR "virtual" OR "patient" OR "game" OR "train*" OR Adj3 simulation
Mental health / Suicidal ideation	Suicid* ideation* OR suicid* assessment OR suicid* risk assessment

Appendix B

SET-M Instrument

Figure A1

Simulation Effectiveness Tool – Modified (SET-M)

1

Simulation Effectiveness Tool - Modified (SET-M)

After completing a simulated clinical experience, please respond to the following statements by circling your response.

PREBRIEFING:	Strongly Agree	Somewhat Agree	Do Not Agree
Prebriefing increased my confidence	3	2	1
Prebriefing was beneficial to my learning.	3	2	1
SCENARIO:			
I am better prepared to respond to changes in my patient's condition.	3	2	1
I developed a better understanding of the pathophysiology.	3	2	1
I am more confident of my nursing assessment skills.	3	2	1
I felt empowered to make clinical decisions.	3	2	1
I developed a better understanding of medications. (Leave blank if no medications in scenario)	3	2	1
I had the opportunity to practice my clinical decision making skills.	3	2	1
I am more confident in my ability to prioritize care and interventions	3	2	1
I am more confident in communicating with my patient.	3	2	1
I am more confident in my ability to teach patients about their illness and interventions.	3	2	1
I am more confident in my ability to report information to health care team.	3	2	1
I am more confident in providing interventions that foster patient safety.	3	2	1
I am more confident in using evidence-based practice to provide nursing care.	3	2	1
DEBRIEFING:			
Debriefing contributed to my learning.	3	2	1
Debriefing allowed me to verbalize my feelings before focusing on the scenario	3	2	1
Debriefing was valuable in helping me improve my clinical judgment.	3	2	1
Debriefing provided opportunities to self-reflect on my performance during simulation.	3	2	1
Debriefing was a constructive evaluation of the simulation.	3	2	1
What else would you like to say about today's simulated clinical experience?			

Leighton, K., Ravert, P., Mudra, V., & Macintosh, C. (2015). Update the Simulation Effectiveness Tool: Item modifications and reevaluation of psychometric properties. *Nursing Education Perspectives, 36*(5), 317-323. Doi: 10.5480/1 5-1671.

Appendix C: Recruitment Poster

Third Year Nursing Students Needed for Research!

Are you a third-year nursing student at the University of Ottawa enrolled in the English, French Immersion, or French stream mental health course? If so, you may be interested in this study about suicide assessment of risk. ***Enter to win of 1 of 10 $25 Starbucks gift cards for participating in the study!***

uOttawa

We are looking for eligible students to participate in a study that involves exploring the perceived effectiveness of a suicide assessment virtual simulation module.

Why are we doing this study?

- ✓ To benefit the critical thinking, and clinical decision-making skills of undergraduate nursing students.
- ✓ To navigate an emotionally charged topic in a psychologically safe environment.
- ✓ To have an enhanced understanding of suicide ideation and assessment of risk which will provide greater mental health awareness.

Participation would involve:

1. Sharing your Simulation Effectiveness Tool-Modified (SET-M) results of the suicide assessment virtual simulation module with the primary investigator.
2. Filing out a sociodemographic questionnaire (3-5 minutes).
3. Participants also have the option in taking part in an audio- and video-recorded 15–20-minute semi-structured interview on Zoom to explore your experience and perceived effectiveness of the virtual simulation module.

Eligibility Criteria

a) Registered as a full-time or part-time student at the University of Ottawa in the BScN program
b) Enrolled in the 2022 Fall Mental Health in Nursing (NSG3320/NSG3720) course English, French, or French Immersion nursing stream
c) Able to speak and write in English.
d) has prior virtual simulation experience.

Please contact the primary investigator for more information about the study:
Yusuf Hamidi, RN, BScN, MScN(c)
University of Ottawa, Faculty of Health Sciences, School of Nursing
This study is under the supervision of Dr. Jane Tyerman and ethics approval has been obtained from the University of Ottawa Research Ethics Board

À la recherche d'étudiants de troisième année en sciences infirmières pour participer à une étude !

Êtes-vous un étudiant en sciences infirmières de troisième année à l'Université d'Ottawa, inscrit au cours de santé mentale en anglais, en immersion française ou en français ? Si oui, vous pourriez être intéressé par cette étude sur l'évaluation du risque de suicide. **Participez pour avoir la chance de gagner 1 de 10 cartes-cadeaux Starbucks de 25 $ pour votre participation à l'étude !**

uOttawa

Nous recherchons des étudiants éligibles pour participer à une étude qui consiste à explorer l'efficacité perçue d'un module de simulation virtuelle d'évaluation du suicide.

Pourquoi faisons-nous cette étude ?

Pour améliorer la pensée critique et les compétences de prise de décision clinique des étudiants en soins infirmiers de premier cycle.
Pour aborder un sujet chargé d'émotion dans un environnement qui est psychologiquement sécuritaire.
Pour avoir une meilleure compréhension de l'idéation suicidaire et de l'évaluation du risque, ce qui permettra une plus grande sensibilisation à la santé mentale.

La participation impliquerait

1. Remplir (en choisissant de participer et en consentant) le formulaire en ligne du Simulation Effectiveness Tool-Modified (SET-M) après avoir terminé le module de simulation virtuelle sur l'évaluation du risque de suicide.
2. Remplir une enquête sociodémographique.
3. Choisir de participer à un entretien semi-structuré de 15 à 20 minutes enregistré sur Zoom pour explorer l'expérience et l'efficacité perçue du module de simulation virtuelle.

Critères d'admissibilité

a) Être inscrit comme étudiant à temps plein ou à temps partiel au programme de baccalauréat en sciences infirmières de l'Université d'Ottawa.
b) Être inscrit au cours de santé mentale en soins infirmiers (NSG3320/NSG3720) de l'automne 2022, en anglais, en français ou en immersion française.
c) Capable de parler et d'écrire en anglais
d) Avoir une expérience préalable de la simulation virtuelle.

Veuillez contacter l'investigateur principal pour plus d'informations sur l'étude :
Yusuf Hamidi, RN, BScN, MScN(c)
Université d'Ottawa, Faculté des sciences de la santé, École des sciences infirmières
Cette étude est sous la supervision de la Dr Jane Tyerman et l'approbation éthique a été obtenue du Comité d'éthique de la recherche de l'Université d'Ottawa.

Appendix D

Semi-Structured Interview Questions

1. What do you feel is the connection between the virtual simulation on suicidal ideation assessment of risk and the development of knowledge among undergraduate nursing students?
2. What do you see as the connection between the virtual simulation module and the perceived self-efficacy among undergraduate nursing students?
3. Discuss your thoughts on how you perceive participating in a virtual simulation specific to suicidal ideation can impact a nursing students' perceived ability to provide safe care in the clinical setting.
4. What do you see as the most significant benefits of using this virtual simulation module in an undergraduate nursing program in the clinical setting?
5. What do you see as the most significant challenges of using this virtual simulation module in an undergraduate nursing program in the clinical setting?
6. What are your thoughts on debriefing as a group, such as in-person lectures or small focused groups?

Appendix E

Letter of Information

uOttawa

L'Université canadienne
Canada's university

Title of the study: The perceived effectiveness of a suicide assessment virtual simulation module for undergraduate nursing students

Investigators
Yusuf Hamidi, RN, BScN, MScN (c) (Principal Investigator)
School of Nursing, Faculty of Health Sciences, University of Ottawa
451 Smyth Rd., Ottawa, ON K1H 8M5
Email:

Dr. Jane Tyerman, RN, PhD, CCSNE, Associate Professor (Supervisor)
School of Nursing, Faculty of Health Sciences, University of Ottawa
451 Smyth Rd., Ottawa, ON K1H 8M5
Telephone #: 613-562-5800 ext. 8609
Fax #: 613-562-5443
Email:

Invitation to Participate:

You are invited to participate in the abovementioned research study conducted by Yusuf Hamidi 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:

The purpose of this study is to explore the perceived effectiveness of a suicidal ideation assessment of risk virtual simulation module for undergraduate nursing students.

Research Question

What is the perceived effectiveness of the suicidal ideation assessment of risk virtual simulation module (pre-simulation preparation, virtual simulation, debriefing) according to undergraduate Bachelor Science of Nursing (BScN) students enrolled in a mental health nursing course at the University of Ottawa?

Participation:

My participation will consist of

1. Completing the assigned 15–30-minute virtual simulation module on suicide ideation and assessment, as outlined in the NSG3320/NSG3720 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 the principal investigator
4. Choosing to participate in a video-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 for the study will be recruited from the University of Ottawa, BScN program that are currently in their third year of study in the English, French immersion, and/or French stream. The sampling design includes the following participant inclusion criteria: (a) registered as a full-time or part-time student at the University of Ottawa in the BScN program; (b) enrolled in the 2022 Fall Mental Health in Nursing (NSG3320/NSG3720) course English, French, or French Immersion nursing stream; (c) able to speak and write in English and/or French, and (d); has prior virtual simulation experience.

Appendix F

Consent Form: SET-M & Sociodemographic Survey

uOttawa

L'Université canadienne
Canada's university

Title of the study: The perceived effectiveness of a suicide assessment virtual simulation module for undergraduate nursing students

Investigators
Yusuf Hamidi, RN, BScN, MScN (c) (Principal Investigator)
School of Nursing, Faculty of Health Sciences, University of Ottawa
451 Smyth Rd., Ottawa, ON K1H 8M5
Email:

Dr. Jane Tyerman, RN, PhD, CCSNE, Associate Professor (Supervisor)
School of Nursing, Faculty of Health Sciences, University of Ottawa
451 Smyth Rd., Ottawa, ON K1H 8M5
Telephone #: 613-562-5800 ext. 8609
Fax #: 613-562-5443
Email:

Invitation to Participate:

You are invited to participate in the abovementioned research study conducted by Yusuf Hamidi 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:

The purpose of this study is to explore the perceived effectiveness of a suicidal ideation assessment of risk virtual simulation module for undergraduate nursing students.

Participation:

Participation will consist of

5. Sharing your Simulation Effectiveness Tool-Modified (SET-M) results of the suicide assessment virtual simulation module with the primary investigator.
6. Filing out the sociodemographic questionnaire which will take 3-5 minutes to complete.

Please note: The suicide assessment virtual simulation module is a required component of your NSG3320/NSG3720 course. However, choosing to not participate in the study will **not** affect your grade or course in any way. There is **no** penalty for not participating.

Risks:

There are no foreseeable risks to the participation in the two listed activities.

Benefits:

The findings of the study have the potential to benefit the critical thinking, and clinical decision-making skills of undergraduate nursing students in providing adequate competent mental health care. The study will allow participants to navigate an emotionally charged topic in a psychologically safe environment all by safeguarding their health and well-being. The findings of the study will support virtual simulation education, nursing education and practice. Participants will have an enhanced understanding of suicide ideation and assessment of risk which will provide greater mental health awareness and mitigate anxiety with mental health care approaches, and stigmatizing behaviors.

Conservation of Data:

Consent forms, participant information, sociodemographic form, and SET-M results will be kept in a secure manner. All data will be secured in an encrypted password file on a password-protected computer only accessible by the principal investigator (Yusuf Hamidi). All data will be kept for five years.

Confidentiality and Privacy:

I have received assurance from the researchers that the information I will share will remain strictly confidential. I understand that the contents will be used only to collect data on the sociodemographic form, and the Simulation Effectiveness Tool-Modified (SET-M) results 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:

To thank you for your contribution to the research project, you will be given the option to enter your name in a draw to win a Starbucks gift card valued at $25. The draw is open to all research participants who enter their name in the draw, regardless of whether they decide to withdraw from further participating in the research project.

Upon completion of the study, a name will be randomly selected amongst those who have entered and the person whose name is drawn will be informed by email. To win the prize, the person must correctly answer a skill testing question. If the person cannot be reached within 14 days from the date of the draw, the prize will be awarded to the second name that is randomly selected and so on until the prize has been awarded. The odds of winning a prize will depend on the number of eligible entries received. The prize must be accepted as awarded or forfeited and cannot be redeemed for cash.

Your name and email address that you provide when you enter the draw is collected for the purposes of contacting you if your name is selected in the draw. Your name and the contact information you have provided will be kept confidential and then destroyed once the prizes have been awarded.

We reserve the right to cancel the draw or cancel the awarding of the prize if the integrity of the draw or the research or the confidentiality of participants is compromised. The draw is governed by the applicable laws of Canada.

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. Course instructors will not know who has agreed to participate in this study. 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 responses from the sociodemographic questionnaire and the SET-M results, the researchers may be unable to retrace individual datasets.

If I have any questions about the study, I may contact the researcher (Yusuf Hamidi) 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) or telephone (613-562-5387).

It is recommended that I keep/print/save a copy of this consent form for my records.

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 asked if I am interested in participating in the individual semi-structured interview.

Appendix G

Sociodemographic Questions

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

    e. 28-30 years
    f. 31 years or older

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

Appendix H

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-07-22-7985 - REG-7985 - Certificat d'approbation éthique / Certificate of Ethics Approval

(English message follows)

Cher/Chère Yusuf Hamidi,

Veuillez trouver ci-joint le certificat d'approbation éthique pour le projet intitulé «The perceived effectiveness of a suicide assessment virtual simulation module for undergraduate nursing students ».

Le certificat est valide jusqu'au : 06-09-2023

Please note that if you want to recruit students of the French stream you need to translate the recruitment text, the questionnaire and the consent form, apply for approval of modification in order to have them approved before you use them.

I wish you pleasant and fruitful research activities.

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 ou en composant le 613-562-5387.

Vous pouvez voir votre demande en vous connectant à votre compte eReviews.

Cordialement,

Germain Zongo
Responsable d'éthique en recherche

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

Dear Yusuf Hamidi,

Please find attached the certificate of ethics approval for your research project titled "The perceived effectiveness of a suicide assessment virtual simulation module for undergraduate nursing students ".

This certificate is valid until: 06-09-2023

Please note that if you want to recruit students of the French stream you need to translate the recruitment text, the questionnaire and the consent form, apply for approval of modification in order to have them approved before you use them.

I wish you pleasant and fruitful research activities.

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 or by telephone at 613-562-5387.

You can view your project at any time by logging into eReviews.

Best regards,

Germain Zongo

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

550 Cumberland Street, Room 154
Ottawa, Ontario K1N 6N5 Canada

613-562-5387 • 613-562-5338 • ethique@uOttawa.ca / ethics@uOttawa.ca
www.recherche.uottawa.ca/deontologie I www.recherche.uottawa.ca/ethics

Université d'Ottawa
Bureau d'éthique et d'intégrité de la recherche

University of Ottawa
Office of Research Ethics and Integrity

H-07-22-7985 - MOD1-7985 - Modification approuvée / Modification Approved

(English message follows)

Cher/Chère Yusuf Hamidi,

Merci d'avoir soumis une demande de modification pour votre projet de recherche intitulé «The perceived effectiveness of a suicide assessment virtual simulation module for undergraduate nursing students ».

Ces modifications ont été approuvées et sont assujetties au certificat d'approbation éthique, valide jusqu'au 06-09-2023.

The French translated documents to recruit students in the French stream have been added to the application form.

Si vous avez des questions, n'hésitez pas à communiquer avec le Bureau d'éthique au ethique@uottawa.ca ou au 613-562-5387.

Vous pouvez voir votre demande en vous connectant à votre compte eReviews .

Cordialement,

Safaa Lamhoujeb
Coordonnateur de l'éthique
Président(e) : Daniel Lagarec
CÉR : Comité d'éthique de la recherche en sciences de la santé et sciences / Health Sciences and Sciences Research Ethics Board

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

Dear Yusuf Hamidi,

Thank you for submitting a modification request for your research project titled "The perceived effectiveness of a suicide assessment virtual simulation module for undergraduate nursing students ".

These modifications are now covered under the certificate of ethics approval, valid until 06-09-2023.

The French translated documents to recruit students in the French stream have been added to the application form.

If you have any questions, please contact the Ethics Office at ethics@uottawa.ca or 613-562-5387.

You can view your project at any time by logging into eReviews .

Best regards,

Safaa Lamhoujeb
Ethics Coordinator
Chair: Daniel Lagarec
REB: Comité d'éthique de la recherche en sciences de la santé et sciences / Health Sciences and Sciences Research Ethics Board

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

Attachement(s) / Attachment(s)

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

613-562-5387 • 613-562-5338 • ethique@uOttawa.ca / ethics@uOttawa.ca
www.recherche.uottawa.ca/deontologie I www.recherche.uottawa.ca/ethics

Appendix I

Consent Form: Semi-structured Interviews

uOttawa
L'Université canadienne
Canada's university

Title of the study: The perceived effectiveness of a suicide assessment virtual simulation module for undergraduate nursing students

Investigators
Yusuf Hamidi, RN, BScN, MScN (c) (Principal Investigator)
School of Nursing, Faculty of Health Sciences, University of Ottawa
451 Smyth Rd., Ottawa, ON K1H 8M5
Email:

Dr. Jane Tyerman, RN, PhD, CCSNE, Associate Professor (Supervisor)
School of Nursing, Faculty of Health Sciences, University of Ottawa
451 Smyth Rd., Ottawa, ON K1H 8M5
Telephone #: 613-562-5800 ext. 8609
Fax #: 613-562-5443
Email:

Invitation to Participate:

You are invited to participate in the abovementioned research study conducted by Yusuf Hamidi 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:

The purpose of this study is to explore the perceived effectiveness of a suicidal ideation assessment of risk virtual simulation module for undergraduate nursing students.

Participation:

Participation will consist of taking part in an audio- and video-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 discussing feelings or emotions regarding suicide, suicidal ideation, and mental health. Voluntary participants will engage in semi-structured interviews regarding sensitive topics that may cause or reinforce feelings such as anxiety, depression, stress, and other related emotions related to mental illness.

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 findings of the study have the potential to benefit the critical thinking, and clinical decision-making skills of undergraduate nursing students in providing adequate competent mental health care. The study will allow participants to navigate an emotionally charged topic in a psychologically safe environment all by safeguarding their health and well-being. The findings of the study will support virtual simulation education, nursing education and practice. Participants will have an enhanced understanding of suicide ideation and assessment of risk which will provide greater mental health awareness and mitigate anxiety with mental health care approaches, and stigmatizing behaviors.

Conservation of Data:

Consent forms, participant information, audio- and video-recorded interviews, and/or transcripts will be kept in a secure manner for a duration of five years. All data will be secured in an encrypted password file on a password-protected computer only accessible by the principal investigator (Yusuf Hamidi).

Confidentiality and Privacy:

I have received assurance from the researchers that the information I will share will remain strictly confidential. I understand that data collection will only be obtained through 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.

I understand that 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:

All participants who volunteer and consent to participate in a short (15-20 minute) semi-structured interview with the primary investigator will be compensated with a $25 Starbucks gift card.

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. I have the option of turning off my video during video-recorded sessions at any point and/or request that the session stop being audio- and/or video-recorded. 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. Course instructors will not know who has agreed to participate in this study. I may withdraw at any time and the data collected will be destroyed.

If I have any questions about the study, I may contact the researcher (Yusuf Hamidi) 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) or telephone (613-562-5387).

It is recommended that I keep/print/save a copy of this consent form for my records.

Acceptance: By providing verbal consent before the interview, I understood the consent form and to participate in the research study as outlined by the primary investigator.

Appendix J

Thematic Analysis of Interviews

Table A2

Thematic analysis of interview with Alex

Question	Direct Quote	Condensed Meaning	Codes	Theme(s)
What do you feel is the connection between the virtual simulation that you completed on suicidal ideations and how it can develop knowledge among undergraduate nursing students like yourself?	"Well I'm because I'm in like specifically nursing I know that I'm going to be encountering like patients and individuals in my field in my career that go through like suicidal ideations or not even like just mental health issues like I feel like everyone at a point does go through it so me being able to ask the right questions and kind of like understand what the patient is going through and being able to help them as much as possible is really like helpful for students to go through from the start of listening to the simulation in like understanding that."	I know that I am going to be encountering patients in my field that go through suicidal ideation and mental health issues Everyone at a point does go through it Being able to ask the right questions and understand what the patient is going through to help them as much as possible is helpful for students	Suicidal ideation happens in any setting Asking right questions and understanding the patient Helpful for students	Preparation Learning Knowledge
What would you say is the difference or kind of what are the benefits to you know the virtual	"It's because I think like listening the tone of voice listen to your facial expressions listen to like how you react to things and how you like, like the interaction between the interviewer and like the patient is very like important	Listening to the tone of voice, looking at facial expressions, listening to reaction and interaction between interviewer and patient is important	Visual learning is important especially in mental health Reading textbook does not provide same stimulation	Preparation Learning

simulation rather than just to talk about in class like what do you see any type of connection between the virtual simulation specifically to the knowledge development of undergraduate nursing students?	just reading it off like you're not you're not able to see like the different outcomes for reactions you just you here like what the right way of right way of talking isn't right the right answer but you don't the simulation like if you press a wrong answer then you can you can see like a kind of a debrief or kind of like an explanation of why this isn't the best answer why this is isn't the best way of going about like answering or I'm talking to the patient so you kind of see an overall output of things which is really helpful."	Reading it off you're not able to see the difference outcomes or reactions you just have the right way Simulation if you press a wrong answer you can see a debrief or explanation of why this is not the best answer You can see an overall output of things which is really helpful	Simulation provides rationale, debrief and explanations for right and wrong answers Able to see outcomes	
What would you see as the connection between the virtual simulation module and kind of the perceived self-efficacy of undergraduate nursing students like yourself and by pressing self-efficacy I mean you know things like self-ability,	"Definitely like the confidence like as like nursing students it's like I think it takes experience to like being able to smoothly like communicate with patients and like getting that confidence like just going into clinicals again in my mental health placement right now like before when starting it might like objective was to like being able to talk to patients deescalating situations an like understanding the situation before like saying something and knowing what to say properly and how to stay properly the	Confidence as nursing students takes experience like smoothly communicating with patients When the nurse said the wrong answer, the patient responded back with a reaction. This helps students understand how to speak with patients and make connections. Simulations like this help students gain confidence by	Confidence for nursing students stems from good communication skills. Simulation helps students build communication skills, and connections. Simulation helps students gain confidence by practicing communication skills and understanding patient situations. Simulation reduces anxiety.	Confidence Anxiety Knowledge

capability, confidence, comfortability. Those are kind of theme words that kind of correlate to self-efficacy.	simulation like when let's say the nurses asks the wrong question like for example, it focus on the substance use instead of talking about the coping mechanisms you kind of react to it like why are we talking about the specific problem instead of like of looking at the bigger picture right so the connection I think it's just really like understanding how to speak that's like always … I feel like a student like getting that confidence getting used to like smoothly talk to patients and like knowing what to say is a little hard at first but simulations like this like I feel like we need more of these like this so then starting off clinicals like it's a little bit more like less … it's less like nerve wracking I guess like and knowing what to say and how to say it I guess. Yeah, and it's just a technique as well later we're kind of restating statements re phrasing statements being able to listen like active listening or watching the nurse do that with the patients so it's like a good example for us to like to refer from when we in real life must do that with patience.”	getting used to smoothly talking to patients and like knowing what to say. Need more simulation so then when starting clinicals its less nerve wracking. Knowing what to say and how to say it. The simulation provides good communication techniques (restating statements, rephrasing, actively listening, watching). It is a good example to refer from when we are in a real life with patients	Require more simulation prior to start of clinical. Provides good communication techniques Good reference tool	

After you did the virtual simulation, how did it impact your perceived ability to provide safe care in the clinical setting?	“One thing I did like recognize how much a nurse like how much the nurse affected the patient an like by just saying like giving reassurance in building the trust of like if you need help I'm going to be there and then the patient said something like on longer lines like most people don't keep promises and you did so I think like that like just small things that nurses do like just talking to patient and just calling asking how they are and like reconnecting when they need like those small things like can have a big impact and I think before what I said I didn't think too much of it I think like the patient like it's like before even mental health like placement and before the psych simulation I feel like I feel like nurse like talking to like the patients I didn't think that can create that much of an impact on the patient when specifically when they have like suicide big intense thoughts about suicidal ideations I didn't think me just saying like how your day how are	I liked how the nurse had an impact on the patient by giving reassurance and building trust. The small things that nurses do has a big impact. Before the simulation, I did not think that talking to patients can create that much of an impact, especially when they have suicide or big intense thoughts about suicidal ideation. I didn’t think me just saying how are you feeling or asking questions can actually help them and create trust or change their perspective in life. I am going to be more aware of whatever I am going to say and how it can impact the patient	Nurses / nursing students have impact on patients through trust and communication. Communication has a big impact, unaware of this prior to simulation. More aware of interaction with patients.	Critical Thinking Knowledge Preparation

	you feeling or like what like just like focusing on them and asking them questions can actually help like affect how they are thinking or even create like a trust trusting or change their perspective in life kind of thing like mainly like main ideas like just the way the nurse was talking to the patient and just simple like questions like how you feeling today is there any changes and like what do you feel unsafe like that created that seem like it created a big difference in the patient slave a knife like me as a nurse like went in my clear now that like I know that just saying like small things like that can affect the patient. I'm going to be more aware of like this whatever I'm going to be saying it can affect help the patient not like help the patient not like coming back from like suicidal ideations or stop or like less think less about suicidal ideations yeah."			
What do you see as the most significant benefits to using this virtual	"I don't know if I like kind of answered it before but like I think the communication and how you're speaking the tone of voice which you don't get from just	The communication and the tone of voice, you don't get that from just reading off textbook	Simulation helped with communication and understanding therapeutic skills.	Learning Preparation

simulation module an undergraduate nursing setting for clinical practice or clinical setting specifically?	reading like just reading off textbook. Like learning about like what therapeutic like we like in my mental health in me like I think it was process recording we did talk about like the therapeutic communication techniques and how what we're using an interview but that's just reading off and that's me like looking up stuff about techniques and like how silence and how active listening and gestures can impact. Watching the simulation and like seeing how the nurses actually showing those like therapeutic techniques is like a lot more like effective in my opinion like it's like a real-life way of like physically actually visually seeing how all that at how everything is kind of like put together and like comes out like together and it kind of like an overall result of everything put together I think."	We did talk about what therapeutic communication techniques are important in mental health and what we're using in an interview but that's just reading off. Watching the simulation and like seeing how the nurse shows those therapeutic techniques is a lot more effective in my opinion. It is like a real-life way of physically and visually seeing how all of it put together and comes together. Overall result of everything put together	Reading does not apply knowledge as well as simulation. More effective in understanding therapeutic communications	
What would you say are the most significant challenges to implementing this virtual	"Well the only thing I can think of right now is like because it's an interview it's a virtual care it so you're just looking at the like first of all you're looking at one perspective and then you're all	Because its an interview and virtual care you are unable to see the full perspective so you are just looking at a screen.	"sim-ism" Virtual vs in-person simulation	Virtual limitation

simulation and the undergraduate nursing program and how it kind of impacts the clinical setting?	like one story and then also you're not you're kind of not looking at the body like movements and how you're like kisses there's a lot to like therapeutic technique it's not just the way you like told you speak it's like the way your way you're like in you place yourself as a nurse and like how you're talking to where you're talking to them and like how you like your posture your like way of just like I think it's just the limitation of like virtual sim like being on a screen versus like being in a room and watching like the interaction of like them together in front of each other"	Not able to look at body movements which are a lot of therapeutic communication skills. Difference between screen and being in a room watching the interaction together.		
I want to get to know your thoughts on the debriefing as a group or what are your thoughts on completing it individually at home in a psychologically safe environment and then going	"So when I did it the night before it alone I was just going through it I was looking like I was making my own like assumptions about like different situations and then like looking into it that day when we actually did it like together I got to see other people's perspective so obviously like we all like we're going to approach patients in a different way we're going to speak in a different tone even though we all have a similar idea of like how we can how we	I was making my own assumptions about the different situations. Doing it together, I was able to see other people's perspective. We are going to approach patients in a different way, we are going to have different tone even though we all have similar ideas.	Able to discuss scenario together as class Able to understand different viewpoints and perspectives Able to talk as a group about best answers and why.	Critical Thinking

together as a group in class and kind of breaking down the simulation. So, what are your thoughts on that?	can talk and what they're predicting techniques were going to use obviously different people lake approach a situation talk to patient differently so in there like in the class like we were people were able to like say different questions, different answers like the different options they had people had different ideas of which question which answer would be right so I got to see like what their perspective is it in like and the other like why they think this way and why like they think a different answer would be correct and make a lot of times like what they were saying was correct but then we were able to kind of talk through why the best answer would be this so can I just seeing like overall like different opinions about how situations can be like approached."	People were able to say different questions, different answers, different opinions they had. People had different ideas of which questions would be right. I got to see their perspective and how they think. We were able to talk through why the best answer. Overall different options about situations can be approached.		
From your perspective believe that debriefing as a group is beneficial or do you think doing	"Definitely like together like as a group because like when I'm like just talking about like when I just think about it myself I feel like I don't like I reflect on it but like it doesn't stick as well because I'm just like I think about it and then the process like it's not as deep I	I liked debriefing as a group because I do not reflect on it as much alone whereas when I'm in a group I am able to look at different perspectives and not just looking at one angle.	Debriefing as a group more beneficial. Able to understand different viewpoints.	Critical Thinking Knowledge

it individually is more beneficial?	think of a connection I make whereas when I'm in a group like that I'm just like I'm thinking about it more I'm like looking at different perspectives and not just looking at one perspective like different angles of one approach it just sticks away better because you're getting to understand like different ways of thinking about one specific topic if I give you can like whereas like it's kind of like if you're like studying for example you're kind of like you're doing one way of like learning and then if you're in a group and you get you try to learn in different ways at the same topic it's you're repeating your repeating the process of trying to understand the concept and like your understanding it better because the repetitiveness and the different ways of approaching the lake studying same thing same thing about like the simulation your you're like looking from different perspectives repetition”	It sticks way better because you’re getting to understand different ways of thinking about one specific topic. Able to understand it better because of the repetitiveness	Able to understand better and have it retained longer. (comprehensive)	