

Undergraduate Nursing Students' Knowledge and Self-Efficacy

About Workplace Bullying: A Quasi-experimental Study

by

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Abstract

Workplace bullying among nurses is a prevalent and serious problem in health care settings around the world with detrimental physical, psychological, and organizational consequences. Nursing students and novice nurses are more likely to encounter incidents of workplace bullying in their clinical settings. Although workplace bullying is one of the biggest challenges that the nursing profession faces today, there is a scarceness of interventional research aimed at educating nursing students on effective responses to workplace bullying. Thus, the primary aim of this study was to evaluate the effectiveness of an online educational tool in enhancing knowledge about workplace bullying and in improving self-efficacy and intent to intervene related to workplace bullying among undergraduate nursing students in two Canadian schools of nursing. The study design was quasi-experimental, using a one group pre-test/post-test. Forty-one undergraduate nursing students participated. Recruitment ceased with the onset of the COVID-19 pandemic. Participants completed a demographic questionnaire, a 20-item, self-developed Workplace Bullying Knowledge Assessment tool and the Self-Efficacy to Respond to Disruptive Behaviours (SERDB) scale with an additional item about intent to intervene. Results relative to the effectiveness of the intervention to enhance participants' knowledge, self-efficacy, and intent to intervene are presented from the paired samples t-test and Wilcoxon-Signed Rank test of pre- and post-intervention differences. Additionally, a regression analysis tested for interaction effects of independent participants' variables. Although the educational intervention enhanced nursing students' knowledge about workplace bullying, self-efficacy, and intent to intervene, caution is needed in the interpretation of the statistically significant results due to the small sample size. This study highlighted the importance of including evidence-based educational tools about workplace bullying in nursing curricula. This study adds a substantive contribution to current nursing knowledge by developing and evaluating evidence-based online modules to prepare nursing students in the identification and management of workplace bullying in healthcare settings. Evaluating the effectiveness of the online educational tool was important in discerning its future applicability in undergraduate nursing curricula. Recommendations for future research include further development and testing of the Workplace Bullying Knowledge Assessment tool as well as a longitudinal study to determine outcomes.

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Dedication

I dedicate this dissertation to my father Ali Alraja and my mother Lina Ayasrah, who have been my source of inspiration and strength.

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Table of Contents

Abstract	i
Acknowledgements	ii
Dedication	iii
Table of Contents	iv
List of Tables	vii
List of Figures	viii
Chapter One: Introduction	1
Statement of the Research Problem	1
Significance of the Study	5
Purpose of the Study	7
Definitions of Terms	7
Workplace Bullying.....	8
Self-efficacy.....	8
Senior Nursing Students	8
Chapter Summary.....	8
Chapter Two: Literature Review	10
Workplace Bullying	10
Multiple Definitions of Workplace Bullying.....	11
Workplace Bullying in the Context of This Study	13
Acts of Bullying.....	14
Prevalence of Workplace Bullying.....	15
Theoretical Perspectives.....	16
Research Paradigm	16
Guiding Frameworks	18
Ecological Model of Workplace Bullying.	19
Bandura’s Self-efficacy Theory.	26
Online Educational Intervention	30
Online Learning	31
Online Modules Development and Content	33

Module 1: What is Workplace Bullying?	36
Module 2: How to Manage Workplace Bullying?	36
Module 3: Application of Knowledge.	40
Chapter Summary.....	42
Chapter Three: Design and Methods	43
Methodology	43
Purpose of the Study and Research Questions	43
Study Design.....	43
Setting and Sampling.....	45
Sample Size Estimation	45
Sociodemographic Characteristics	47
Workplace Bullying Knowledge Assessment Tool.....	48
Self-Efficacy to Respond to Disruptive Behaviours (SERDB).....	49
Intent to Intervene.....	52
Covariates	52
Recruitment and Data Collection Procedure.....	53
Data Analysis Plan	55
Ethical Considerations.....	57
Chapter Summary.....	58
Chapter Four: Study Results	59
Sample Characteristics	59
Reliability Test of Outcome Measures.....	61
Online Educational Modules Effectiveness	62
Workplace Bullying Knowledge	63
Self-efficacy.....	64
Intent to Intervene.....	67
Repeated Measures Generalized Linear Regression Model	68
Multiple Repeated Measures Generalized Linear Regression Model	77
Chapter Summary.....	80
Chapter Five: Discussion, Implications and Conclusions.....	81
The Sample Characteristics	82
Knowledge of Workplace Bullying.....	83

Self-efficacy	85
Intent to Intervene	88
Covariate Influences.....	89
Study Strengths	91
Limitations	92
Future Implications	94
Practice Implications	94
Education Implications	94
Research Implications.....	95
Policy Implications	96
Conclusion.....	97
References.....	98
Appendix A.....	118
Appendix B	120
Appendix C	126
Appendix D.....	128
Appendix E	129
Appendix F.....	130
Appendix G.....	131
Appendix H.....	132
Appendix I	136
Appendix J	147

List of Tables

Table 1: Scale Items and Theory-based Dimensions of Self-efficacy	50
Table 2: Participant Demographic Characteristics	60
Table 3: Outcome Measures Reliability (Internal Consistency) Testing.....	62
Table 4: Descriptive Statistics of Knowledge Assessment Tool	64
Table 5: Pre/post-test Mean Scores and Paired t-test Results at CI=95%	64
Table 6: SERDB Scale Pre-test Measures of Central Tendency	65
Table 7: SERDB Scale Post-Test Measures of Central Tendency	65
Table 8: Wilcoxon Signed Rank Test	66
Table 9: Intent to Intervene Pre- and Post-Test Measures of Central Tendency	67
Table 10: Univariate Regression Model (adjusted by a single factor) of Knowledge Assessment Score	69
Table 11: Univariate Regression Model (adjusted by a single factor) of Intent to Intervene Score	70
Table 12: Univariate Regression Model (adjusted by a single factor) of SERDB Total Score....	71
Table 13: Univariate Regression Model (adjusted by a single factor) of SERDB1	72
Table 14: Univariate Regression Model (adjusted by a single factor) of SERDB4	72
Table 15: Univariate Regression Model (adjusted by a single factor) of SERDB5	73
Table 16: Univariate Regression Model (adjusted by a single factor) of SERDB6	74
Table 17: Univariate Regression Model (adjusted by a single factor) of SERDB7	75
Table 18: Univariate Regression Model (adjusted by a single factor) of SERDB8	75
Table 19: Univariate Regression Model (adjusted by a single factor) of SERDB9	76
Table 20: Multiple Regression Model (adjusted by multiple factors) of Knowledge Assessment Score	77
Table 21: Multiple Regression Model (adjusted by multiple factors) Intent to Intervene Score .	77
Table 22: Multiple Regression Model (adjusted by multiple factors) SERDB Total Score.....	78
Table 23: Multiple Regression Model (adjusted by multiple factors) SERDB5	78
Table 24: Multiple Regression Model (adjusted by multiple factors) SERDB6	79
Table 25: Multiple Regression Model (adjusted by multiple factors) SERDB9	79

List of Figures

Figure 1: The Continuum of Negative Interpersonal Behaviour (Namie & Namie, 2011)	12
Figure 2: Ecological Model of Workplace Bullying (Johnson, 2011).....	19
Figure 3: Estimated Sample Size for Various Possible Effect Sizes	47
Figure 4: Study Timeline	54

Chapter One: Introduction

Workplace bullying among nurses is a prevalent and serious problem in health care settings with detrimental physical, psychological, and organizational consequences (Chippis & McRury, 2012). In this study, workplace bullying is defined as “a form of abuse perpetrated by an individual with perceived power over another, resulting in potential physical and psychological harm to the person victimized while negatively impacting their work performance and undermining patient safety” (Bowllan, 2015, p. 195). The purpose of this thesis was to assess the effectiveness of an online educational tool in enhancing knowledge about workplace bullying and in improving self-efficacy and intent to intervene related to workplace bullying among undergraduate nursing students. This chapter includes a clear statement of the research problem, the significance of the proposed study, the research goal and research questions, guiding frameworks, and definitions of terms. For clarity, the term bullying will be used as a shorthand that represent the concept of workplace bullying through the thesis.

Statement of the Research Problem

Functioning as one of the largest and most relied upon bodies of healthcare professionals, nurses are a critical component to the provision of quality healthcare. Because of the amount and degree of their direct contact time with patients, nurses have a significant influence on the well-being of patients and the quality of healthcare received (Stam, Laschinger, Regan & Wong, 2015). Nurses work in a dynamic, complex, and highly demanding environments and they are crucial to providing high-quality patient care in these settings (Brewer & Verran, 2013). Consequently, by its nature, nursing is a stressful profession. Moreover, nurses must cope with increasing job complexity resulting from advanced medical science and technology, shortened hospitalizations of acutely ill patients, health policies that promote fast patient turnover, and an aging population that impose further demands on nurses (Choi, Pang, Cheung, & Wong, 2011).

Alongside all the aforementioned stressors, nurses face the stress of destructive behaviours in the form of bullying (Houck & Colbert, 2017). Bullying is one of the biggest challenges that the nursing profession faces today (Brewer, Oh, Kitsantas, & Zhao, 2020; Vessey, Demarco, & Difazio, 2010). As described in chapter two, the definition of bullying varies across studies and various terms are used to describe bullying, such as incivility, lateral violence, and aggression. Some scholars define bullying as negative and aggressive behaviours

that are repeated systematically at the victim contributing to humiliation and distress and ultimately, leading to unhealthy work environments (Einarsen, Hoel, Zapf, & Copper, 2011). Bullying includes either overt or covert rude behaviours (Bartholomew, 2006). Examples of overt behaviours include name-calling, intimidation, yelling, interrupting a speaker, raising eyebrows, and spreading rumors (Bartholomew, 2006; De Villers & Cohn, 2017). Covert behaviours incorporate ignoring, assuming credit for work done by someone else, refusing to work with someone, unfair assignments, and refusing to help (Bartholomew, 2006; De Villers & Cohn, 2017). Bullying behaviours directed at nurses in the workplace come from a variety of sources including patients and their families, physicians and other hospital staff, and nursing colleagues (Havaei & MacPhee, 2020; Johnson, 2009; Leong & Crossman, 2016; Spector, Zhou, & Che, 2014). This study focused on bullying from other nurses and healthcare professionals.

The topic of bullying is not new in healthcare, and it is a widespread problem that impacts nurses in Canada and around the world (Farrell, Bobrowski, & Bobrowski, 2006; Johnson, 2009; Quine, 2001; Yildirim, 2009). Unfortunately, every nurse can describe an experience of being bullied or witnessing bullying at their workplace. Nurses at all levels could be targets of bullying as many nursing students, new graduates, and senior nurses experience bullying (Read & Laschinger, 2013; Smith, Gillespie, Brown, & Grubb, 2016; Vessey, DeMarco, Gaffney, & Budin, 2009). Worldwide, bullying prevalence ranged from 30% to 70% (Spector et al., 2014; Vessey et al., 2009; Wilson, 2016).

In Canada, in a survey that was conducted by Statistics Canada in partnership with Health Canada and the Canadian Institute for Health Information, 44% of female nurses and 50% of male nurses revealed that they were exposed to aggression from their co-workers (Statistics Canada, Canadian Institute for Health Information, & Health Canada, 2005). According to the Canadian Federation of Nurses Unions (CFNU), bullying in Canadian healthcare institutions is on the rise and it remains under the radar, with few workplaces acknowledging the extent of the problem (CFNU, 2017). Nurses' unions have also identified bullying as a crucial health human resources concern, particularly with respect to the retention of younger nurses entering the workforce (CFNU, 2017).

In Manitoba, the Manitoba Centre for Nursing & Health Research (MCNHR) report revealed that approximately 22% of new graduate registered nurses were bullied at their

workplace with less than a half of these nurses reporting the incident of bullying to their employer (MCNHR, 2018). The sources of bullying included patients, patients' family members/visitors, nurses, nurse managers, and other healthcare professionals. The report also indicated that bullying was significantly correlated with the anxiety score as increasing exposure to bullying acts were associated with higher levels of anxiety (MCNHR, 2018).

Bullying in the workplace entails significant adverse consequences on individuals, units/teams, and healthcare organizations. At the individual level, these consequences include reduced job satisfaction, helplessness, sleep problems, concentration difficulties, psychological distress, negative emotions, and burnout (Addison & Luparell, 2014; Giorgi et al., 2016; Yildirim, 2009). At the unit/team level, the negative consequences of bullying impact both the target of bullying and the witness. Healthcare team members who witness acts of bullying begin to wonder if they will be next target, and consequently, their self-esteem decreases which may elicit feelings of despair and anger (Losa Iglesias & Vallejo, 2012). At the organizational level, bullying is associated with decreased productivity, decreased organizational commitment, and increased absenteeism (Demir & Rodwell, 2012; Hoel, Sheehan, Cooper, & Einarsen, 2011). In a Canadian study, incidents of bullying significantly predicted nurses' intent to leave (Blackstock, Harlos, Macleod, & Hardy, 2015).

New graduates entering the workforce are particularly vulnerable and at high risk to effectively identify and manage bullying, which negatively impacts their job satisfaction and mental and physical health outcomes (Read & Laschinger, 2013). These consequences eventually impact the quality of nursing care and patient safety. In their literature review to determine the association between bullying directed toward the nurse and patient safety, Houck and Colbert (2017) concluded that bullying reveals significant risks to patient safety and its presence in the workplace creates a disruptive work environment and undermines the management credibility. Additionally, victims of bullying may have serious mental health problems such as Post-Traumatic Stress Disorder (PTSD) (Hogh, Mikkelsen, & Hansen, 2011). Laschinger and Nosko (2015) stated that more exposure to bullying is significantly related to higher levels of PTSD symptoms among newly graduated and experienced nurses.

Bullying is an extensive problem in nursing education and can negatively impact students' learning experiences (Aul, 2017; Minton & Birks, 2019). Nursing students face

bullying in the clinical settings where they undertake a significant amount and important aspect of their nursing education. Nursing students confront numerous challenges and stressors during their journey in the undergraduate program such as managing personal and work demands, financial pressures, time management, perceived lack of faculty and peer support, and potential mental health problems or personal issues (Clark & Springer, 2010). Bullying can contribute significantly to increasing this stress and reinforcing negative feelings. After experiencing or witnessing bullying during clinical placement, nursing students reported feeling powerless and questioned their future in the profession of nursing that is supposedly grounded in caring (Birks et al., 2017).

Nursing students enter the profession to care for individuals, families, and communities, and one of their important roles is to advocate for patient rights. Yet, a significant number of nursing students are facing bullying that may negatively impact their ability to advocate for their own well-being and learning as well as their patients' quality of care. While there has been evidence that this type of behaviour exists across all health care professional groups, the literature supports that workplace bullying is greatest within the nursing profession, both in its prevalence and in the level of negative consequences (Armstrong, 2018; Rainford, Wood, McMullen, & Philipsen, 2015). Because of the destructive nature of bullying, it is important to examine and intervene to assist those who are preparing to become future nurses. Negative consequences due to bullying could be mitigated if new nurses are able to anticipate bullying behaviours and are prepared to identify and respond to them effectively.

In a study aimed to investigate the state of bullying in clinical nursing education among Canadian undergraduate nursing students, 88.72% (N = 674) of nursing students reported experiencing at least one act of bullying and the sources of bullying were from clinical instructors, staff nurses, patients and their families, and classmates (Clarke, Kane, Rajacich, & Lafreniere, 2012). While numerous nursing students encountered bullying in their clinical placements, they reported that they were not prepared to address bullying and they did not know how and where to report it (Clarke et al., 2012; Smith et al., 2016; Tee et al., 2016). Even when new graduates are motivated to intervene in the event of bullying, evidence suggests that nursing curricula does not prepare them adequately for this action (Sidhu & Park, 2018; Thompson & George, 2016). Consequently, developing evidence-based educational initiatives that help

nursing students identify and intervene appropriately in the event of bullying was of utmost necessity.

Significance of the Study

Including education on bullying in nursing curricula is highly recommended (Eka & Chambers, 2019; Sanner-Stiehr, 2017; Vessey et al., 2009). Formally addressing the issue of bullying at the academic level can promote professional behaviour in the future generation of nurses (Lim & Bernstein, 2014). The Canadian Nurses Association (CNA) and the Canadian Federation of Nurses Unions (CFNU) strongly support violence-free workplaces (CNA & CFNU, 2014). In addition, the Canadian Nursing Students Association (CNSA) issued a position statement about bullying that recommended that “implementation of undergraduate course material that brings awareness to nurse-on-nurse bullying and empowers students to develop their own strategies to deal with it effectively is another way to break the cycle of horizontal violence in nursing” (CNSA, 2014, p. 3). Therefore, all nursing students should graduate with the necessary tools to recognize and act when they witness or experience bullying.

Most of the previous research on bullying has focused on prevalence, antecedents, and consequences of bullying (Samnani & Singh, 2012). Scarcity of interventional studies addressing bullying in the literature further suggested the need for effective techniques to deter bullying (Bloom, 2019; Griffin, 2004). Moreover, the focus of these interventional studies was on educating nurses about bullying after they start their career (Armstrong, 2018; Griffin, 2004). However, addressing bullying should start in nursing schools and then at every phase in a nurse's career (Edmonson & Zelonka, 2019). Senior nursing students represent the potential for the future of nursing. Therefore, senior nursing students who are getting ready to join the nursing workforce are an ideal target population to educate, prepare, and empower to begin to address and mitigate this widespread issue. Providing nursing students with education to address bullying may help them view their experiences more objectively and reduce the likelihood that bullying may continue to negatively impact the new generation of nurses (Mellor, Gregoric, & Gillham, 2017).

Moreover, much of the published research has described interventions to teach nursing students about bullying in countries outside of Canada, such as the United States (Brann & Hartley, 2017) and Australia (Hogan, Orr, Fox, Cummins, & Foureur, 2018). Few studies were

located that focused on the bullying experiences of the student nurses within Canada (Clarke et al., 2012; Seibel & Fehr, 2018). A recent Canadian group of scholars contended the importance of proactive and evidence-informed actions in nursing and healthcare education and practice to address bullying experienced by nurses and nursing students (O'Flynn-Magee, Rodney Pearson, Burnaya, & Daly, 2020).

Online learning is a self-learning activity, which has been employed in higher education institutions. With the rapid development of information communication technologies, Internet technologies and web-based applications, extraordinary opportunities have been created for facilitating learning, and this phenomenon has led to the exponential growth of online learning in recent years (Dariel, Wharrad & Windle, 2013). The benefits of online learning have been reported in terms of increased accessibility to education, improved self-efficacy, knowledge generation, cost effectiveness, learner flexibility and interactivity (Khalil & Schliephake, 2017). In nursing, online learning has been incorporated to educate nurses at undergraduate and graduate levels (Gazza, 2017). However, little is known about best practices in developing online interventions preparing nursing students to identify and manage bullying in the workplace. Online educational tools were deemed as an appropriate approach to inform nursing students about the definition of bullying, how to recognize bullying, and how to intervene when witnessing or experiencing bullying. Further details about the online educational tool are presented in Chapter Two.

Studies that tested the effectiveness of interventions aimed at educating nursing students about bullying, mainly assessed the perception of participants about the intervention (Authement, 2016; Tecza et al., 2018); measured the knowledge and awareness (Brann & Hartley, 2017); or used qualitative methods (Aebersold & Schoville, 2020; Hogan et al 2018). There is a lack of studies showing interventions' effect on self efficacy; few studies measured self-efficacy (Palumbo, 2018; Sanner- Stiehr, 2018; Sanner- Stiehr, 2020; Sanner- Stiehr & Smith, 2015; Thompson & George, 2016). None of the reviewed studies measured participants' intent to intervene.

Bullying is an unacceptable yet common feature of nursing practice, so it behooves nursing schools and healthcare institutions to apply evidence-based measures that prevent and respond to bullying behaviours. Consequently, I was motivated to embark on a new area of

research that warranted me to create, implement, and evaluate an online educational tool that could ultimately reduce bullying in the health care environment. Therefore, this study will add a substantive contribution to current nursing knowledge by developing and evaluating an evidence-based educational tool to educate nursing students about the identification and management of bullying. The online educational tool could, in the future, be included in undergraduate nursing curricula locally, nationally, and globally.

Purpose of the Study

The design of this study was a quasi-experimental, one group, pre-test post-test using within-subjects comparison. The purpose of this quasi-experimental study was to evaluate the effectiveness of an online educational tool in enhancing knowledge about bullying and in improving self-efficacy and intent to intervene related to bullying among undergraduate nursing students in two Canadian schools of nursing. Specifically, the research questions were: (1) Did the online educational tool increase knowledge of bullying among undergraduate nursing students? (2) Did the online educational tool increase perceived self-efficacy related to bullying among undergraduate nursing students? (3) Did the online educational tool increase intent to intervene in future situations of bullying among undergraduate nursing students?

This study was guided by the Ecological Model of Workplace Bullying (Johnson, 2011) and self-efficacy theory (Bandura, 1977) along with current evidence about bullying. They will be discussed in further detail in the next chapter. Participants completed an online survey that consisted of a sociodemographic questionnaire, bullying knowledge assessment tool (developed by the researcher), Self-Efficacy to Respond to Disruptive Behaviours (SERDB) scale, and a global rating score to measure participants' intent to intervene in the future events of bullying. A description of these questionnaires can be found in Chapter 3.

Definitions of Terms

According to Sutherland (2017), consistent terminology allows for knowledge and ideas to be clearly communicated. Polit and Beck (2017) also encourage researchers to provide clear definitions of the terms and/ or constructs of the study. The key terms are defined in the following section.

Workplace Bullying

As discussed in chapter two, to avoid some of the pitfalls of terminology, the term bullying is used in this study to refer to “a form of abuse perpetrated by an individual with perceived power over another, resulting in potential physical and psychological harm to the person victimized while negatively impacting their work performance and undermining patient safety” (Bowllan, 2015, p. 195). Bullying can be committed by a nurse or other healthcare workers. Bullying and aggression from patients and their families are not within the scope of this study. Acts of bullying include but may not be limited to gossiping and spreading rumors about others, verbal abuse (yelling, persistent criticism), bickering, non-verbal innuendo (sighing, rolling eyes), sabotage/undermining (refusal to help when needed, withholding information needed to do one’s job, unfair or unmanageable work assignments), forming cliques/excluding others, scapegoating (misplaced blame), and breaking confidences/failure to respect privacy.

Self-efficacy

Perceived efficacy reflects the beliefs of group members about their capabilities as a social system to produce effects (Bandura, 1997). In this study, perceived self-efficacy was defined as the nursing students’ beliefs about their capability to perform and exercise influence over situations which are related to bullying that impact their clinical practice. This research operationalized and measured self-efficacy specific to bullying behaviours using The Self-efficacy to Respond to Disruptive Behaviours (SERDB) (Sanner-Stiehr, 2018a).

Senior Nursing Students

Senior nursing students are defined, for the purposes of this study population, as students enrolled in the last two years of their baccalaureate nursing program.

Chapter Summary

In summary, bullying is a widespread and monumental problem in nursing in Canada and around the world. This destructive behaviour contributes to significant negative individual, unit, and organizational outcomes. It is imperative to prepare nursing students to identify and manage bullying by applying innovative teaching strategies that enhance nursing students’ knowledge and self-efficacy about bullying. The results of this study will provide significant information to nurse educators, educational administrators, as well as nursing unions and associations that can

be used on many levels to promote nursing students' and nurses' ability to effectively identify and manage bullying situations.

This chapter introduced the research topic and presented a clear statement of the research problem. Following this, the research purpose and research questions were articulated. The significance of the research was described. The guiding frameworks and the methodology were briefly introduced. The following chapter will present a review of the literature in relation to the study topic and a detailed description of the guiding frameworks.

Chapter Two: Literature Review

In this chapter, an overview of the significant literature published on the topics under consideration for this study will be provided. Reviewing the existing literature related to a research topic is a critical step in the research process (Gray, 2017). These databases were searched for relevant literature: Cumulative Index to Nursing & Allied Health Literature (CINAHL), EMBASE, Scopus and PubMed. Key search terms were “workplace bullying”, incivility, “workplace violence”, "lateral violence", "horizontal violence", "relational aggression" "disruptive behaviour", AND nurs*, "nurs* student" and "nurs* education". Upon locating relevant studies, the reference lists were then searched to expand the quest for information. Key words were searched individually and in combination with the other search terms, as appropriate, such as nurs* AND "workplace bullying". A Google scholar search using the key words was then used to search the grey literature and reports.

The first section of this literature review discusses current evidence about the concept and context of workplace bullying. Then, the guiding philosophical and theoretical assumptions are presented. An online educational tool was the focal and novel intervention of this study. Accordingly, an overview of the educational intervention that was based upon the literature review will be provided.

Workplace Bullying

Bullying has been commonly discussed as childhood behaviour associated with school yard settings. However, bullying in the workplace is a growing concern (Park, Lee, & Park, 2017). Specifically, bullying among healthcare workers has become a persistent phenomenon within organizations (Evans, 2017). More specifically, bullying in the nursing profession continues to exist and remains a significant issue (Eblin, 2020; Pfeifer & Vessey, 2017; Yun & Kang, 2018). Bullying is a phenomenon that still infuses the nursing profession decades after it was mentioned with the phrase “nurses eat their young” (Aebersold & Schoville, 2020). The phrase is in reference to the bullying and destructive behaviours that are targeting nursing students and new nurses, and most generally perpetrated by older and more experienced nurses (Frederick, 2014). Although nursing is a profession that is dedicated to caring and compassion, all nurses still experience bullying in every unit of the healthcare institutions (Armstrong, 2018).

Multiple Definitions of Workplace Bullying

The current literature lacks consensus on a universally accepted definition of bullying. Acts of bullying have been referred to as horizontal/lateral violence (King-Jones, 2011), aggression (Farrell et al., 2006), incivility (Laschinger, Wong, Cummings, & Grau, 2014), mobbing (Antigoni, Pediaditak, & Dimitrios, 2011), harassment (Hibino, Hitomi, Kambayashi, & Nakamura, 2009), or hostility (Hickson, 2013). The construct, bullying, is used primarily in Canada, Australia, and New Zealand, while horizontal, lateral, or vertical violence is mainly used in the United States (Goldberg, Beitz, Wieland, & Levine, 2013). In Europe, the term mobbing represents bullying (Leymann, 1996). In Canada, bullying, lateral violence, and incivility are often used interchangeably (Lim & Bernstein, 2014). These constructs represent the workplace mistreatment and destructive behaviours from the target's perspective (Hershcovis, 2011).

The psychologist, Heinz Leymann, identified bullying in the 1980s. He described it as a conflict that lasts for a long period, occurs regularly, and where the victims are not able to defend themselves because of the unequal distribution of power between the victims and the perpetrators (Leymann, 1996). Einarsen (2000) defined bullying as occasions where the target is exposed to negative acts repeatedly and over a period of time. Negative interpersonal behaviours that occur in the workplace were then described on a continuum (Namie & Namie, 2011). The continuum (Figure 1) includes eight categories of disruptive behaviours. Behaviours on the left side of the continuum are perceived as less severe while the ones on the right side are incrementally more severe and pose a greater risk of escalating into violence. Mild bullying starts to occur after harsh forms of disrespect, and it includes subtle and infrequent mistreatment behaviours. Moderate to severe bullying includes the behaviours of mild bullying with increased frequency and personalization of mistreatment (Namie & Namie, 2011).

Bullying is a type of aggression where social, academic, and learning relationships can become coercive and unhealthy, and therefore it has received a great deal of research attention (Hunt & Marini, 2012). For some researchers, bullying is an umbrella term that encompasses horizontal bullying, harassment, verbal abuse, mobbing, workplace bullying, and aggressiveness (Karatas, Ozturk, & Bektas, 2017; Vessey et al., 2009). The term, bullying, has its own power as it is illustrated by people's reaction because they take the label as an insult; however, it is the bullies' behaviour that undermines their coworkers (Namie & Namie, 2011). The abundance of

constructs that describe the bullying phenomenon suggested that these terms should be re-examined particularly given the overlap between many of them (Hershcovis, 2011).

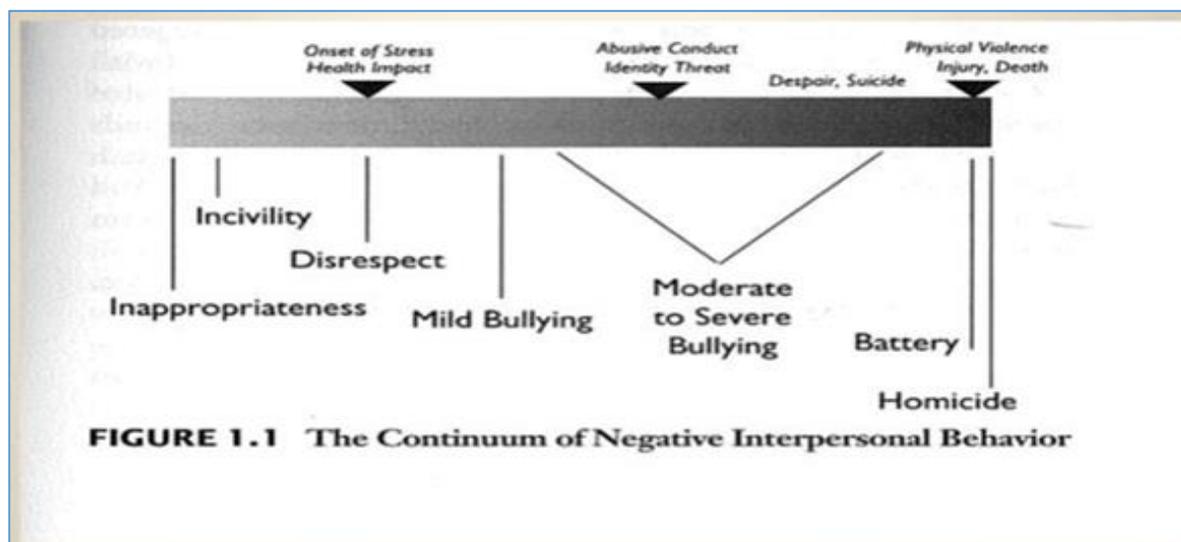


Figure 1: The Continuum of Negative Interpersonal Behaviour (Namie & Namie, 2011)

The definition of bullying varies across different studies. These definitions have included concepts of time (duration and frequency), intent, intensity, power imbalances, and harm to the target. The common theme among these definitions is the notion that one-time occurrences do not fit the definition of bullying. However, Porath and Erez (2009) confirmed that even the witnessing of one-time incident of rude behaviour has been noted to negatively affect skill performance and decrease helping behaviours. Furthermore, even bullying behaviours that are classified as subtle caused feelings of powerlessness and diminished self-esteem for nurses (Randle, 2003). It is also important to consider the intensity of the mistreatment acts and the intent from the target's standpoint as the target response will depend on their perceived intent and intensity (Hershcovis, 2011). In addition, it has been argued that the subjective experience of bullying is what displays negative outcomes among targets (Einarsen, Hoel, & Notelaers, 2009).

It is confirmed that small acts of rudeness, disrespect, and social isolation within institutions can accumulate to have a profound negative impact on individual well-being (Caza & Cortina, 2008). Actions of incivility can be viewed as a precursor to bullying which offer potential opportunities to intervene at an earlier stage (Hunt & Marini, 2012). Accordingly, it could be argued that nurses should not wait for weeks or months to articulate a label for these destructive behaviours and then start to take action. Nursing students and new nurses should

identify and manage these behaviours as early as they encounter them to stop the bullies from continuing their behaviour. Thus, regardless of the frequency, duration and severity of disruptive behaviours experienced, even a single negative act is intolerable and addresses a need to intervene.

Workplace Bullying in the Context of This Study

The most common distinguishing feature of the bullying construct is the power imbalance between the perpetrator and the target. However, power can be “defined broadly to include anything from formal or social position, to age, job tenure, or gender” (Hershcovis, 2011, p. 503). This means that bullying may arise from legitimate or formal sources of organizational power but may also emerge from perceptions of powerlessness generated from informal sources of organizational power that are social, physical, or psychological (De Cieri, Sheehan, Donohue, Shea, & Cooper, 2019). Formal power structures can explain downward bullying which may include a nurse in a supervising role acting rudely to a nurse in a more junior position. In other cases, horizontal bullying may result from power inequity among co-workers of similar age and status where the bullies have access to informal sources of power where they exploit a situation in which the target feels dependent on the workgroup (De Cieri et al., 2019).

Bullying is a complex social phenomenon that is characterised by multi-causality, involving a range of factors found at many levels, depending on whether one focuses on the behaviour of the actor or on the perceptions, reactions, and responses of the target (Einarsen, 2000, Einarsen et al., 2011). Ambiguity in terminology and challenges with naming destructive behaviours as bullying causes a reduction in individual capacity to report bullying (O'Flynn-Magee et al., 2020), and this makes it difficult to determine the true extent of the problem. It is also contended that casting "a wider net" helps to avoid some of the pitfalls of terminology (Daly, O'Flynn-Magee, & Rodney, 2020) and helps nursing educators and leaders in developing comprehensive anti-bullying policies and interventions. I agree with several scholars who insist that bullying behaviours should not be accepted as part of becoming a nurse (Chipps & McRury, 2012; De Villers & Cohn, 2017; Seibel, 2014; Smith et al., 2016). Therefore, the focus should be on ways to stop the vicious cycle of bullying (Johnson & Rea, 2009).

Based on the previous discussion, the conclusion is that bullying is a destructive behaviour that is exerted by the bully toward the target who, as a result, faces a wide range of

negative consequences. Moreover, perceptions of bullying differ among individuals. Existing research definitions for bullying do not fully encompass the breadth of various experiences of targets. I propose an expanded definition of bullying; therefore, the broad definition by Bowllan (2015) will be used for the purposes of this study. Bullying is “a form of abuse perpetrated by an individual with perceived power over another, resulting in potential physical and psychological harm to the person victimized while negatively impacting their work performance and undermining patient safety. Bullying can be committed by someone in authority or a peer” (Bowllan, 2015, p. 195).

Acts of Bullying

The sources of bullying in nursing can be other health professionals, nurses, managers, or patients and their families (Farrell et al., 2006; Hutchinson & Jackson, 2013; Vessy et al., 2009). However, the focus of this study is on the sources of bullying that are not related to patients and their families. Perpetrators of bullying could range from clinical staff nurses to administrators (Johnson, 2009). Acts of bullying were classified into work-related, person-related, and physically intimidating behaviours (Einarsen et al., 2009). Work-related behaviours include withholding information needed to perform one’s job, being assigned work below one’s competence level, having one’s opinions ignored, being given unreasonable deadlines for work, excessive monitoring of one’s work, being assigned an unmanageable workload, being given consistently negative feedback, and being pressured not to claim something which, by right, is yours such as sick leave, holiday pay, and travel expenses (Einarsen et al., 2009, p. 32). Person-related behaviours include being humiliated or ridiculed in connection with one’s work, having responsibility removed and replaced with unpleasant or trivial tasks, spreading rumors and gossiping, being ignored or excluded, insults, offensive remarks, name calling, eye rolling, pressure to quit one’s job, repeated reminders of one’s mistakes, being ignored or hostility when approaching someone, practical jokes by someone who is not a friend, allegations, and excessive teasing/sarcasm (Einarsen et al., 2009, p. 32). Physically intimidating behaviours are the most overt including being shouted at or the target of spontaneous anger, finger pointing, blocking one’s way, invasion of one’s space, and shoving, and threats of violence or actual violence (Einarsen et al., 2009, p 32).

Prevalence of Workplace Bullying

Despite the fact that some healthcare organizations have implemented protocols for managing reports of bullying and implemented zero-tolerance policies, the literature indicates that bullying continues to occur and has been recognised as a serious issue affecting nurses worldwide (Aristidou, Mpouzika & Karankola, 2020; Bambi et al., 2018; Layne et al., 2019). In a quantitative review to estimate nurses' exposure to workplace violence by type of violence, setting, source, and world region, Spector et al. (2014) reported that 39.7% of nurses were exposed to bullying. Both physical violence and sexual harassment were most prevalent in the Anglo region, which included the United States (US), Canada and England (Spector et al., 2014). Studies in the US detected bullying rates around 25% (Johnston et al, 2009; Vessey et al, 2009). In Canada, Duncan et al. (2001) found that 19% of nursing staff had been subject to workplace aggression within the last year. Nine years later, Laschinger, Grau, Finegan & Wilk (2010) reported that in a sample of 415 new nurses working in Ontario hospitals, 33% of the sample was classified as bullied. After eleven years, with a sample consisted of 4462 responses, a study intended to present descriptive findings on the prevalence of types and sources of workplace violence among nurses across different nursing roles, healthcare sectors and geographical areas within the province of British Columbia, Canada (Havaei, MacPhee, & Ma, 2020). They found that 85% of acute care nurses and 84% of direct care nurses reported exposure to emotional abuse (e.g., insults, gestures, humiliation, and coercion) in the last year. Unfortunately, these findings reflect an upward trend.

Nursing students and novice nurses are more likely to encounter incidents of bullying in their clinical settings (Condon, 2015). Birks et al. (2017) conducted a secondary analysis on two primary cross-sectional studies of bullying experiences of Australian and United Kingdom (UK) nursing students. The sample consisted of 833 Australian and 561 UK students. Both groups of nursing students experienced a high rate of bullying (Australia 50.1% and UK students 35.5%). Moreover, students identified other nurses as the main perpetrators (Australia 53%, UK 68%). Studies from other countries showed high prevalence of bullying among nursing students, such as Canada with 89% (Clarke et al., 2012), and in Italy, 79 % of students faced various form of bullying (Cerit, Keskin, & Ekici, 2018).

During their clinical experience, nursing students learn how to practice nursing in various health care settings. Their inexperience, recurrent changes in clinical settings, recurrent patient contact, and need to work with new patients and in new environments make them more vulnerable to encounter episodes of bullying (Magnavita & Heponiemi, 2011). Additionally, students have lower levels of social support and higher psychological demand because they are in the learning role and having only temporary bonds with specific units and staff (Seibel & Fehr, 2018). As targets for bullying, new graduates and nursing students often remain silent because they are confused about what is happening to them. In addition, they are fearful and too embarrassed to report the behaviour and they are tolerating bullying as they hope that this will end when they move to the next stage in their career (Birks, Budden, Biedermann, Park, & Chapman, 2018; Thomas, 2010). Underreporting of bullying is associated with students' fears of increased bullying, negative evaluations, being unaware of school policies or how to report bullying (Boucauta & Knobben, 2020; Tee et al., 2016). New nurses identify that they are more susceptible to being bullied because they had lower levels of established organizational support and there was a lack of appropriate leadership and management to help mitigate their situations (Anusiewicz, Shirey, & Patrician, 2020). Accordingly, nursing students and novice nurses, as the least powerful group of nurses, are at particular risk for experiencing bullying from a variety of perpetrators (Lynette et al., 2016).

Theoretical Perspectives

After identifying the research objectives, Crotty (1998) indicated that the next step should be a thorough understanding of the philosophical assumptions that are the foundation of the methodology that will be used to conduct the study. The philosophical viewpoint includes paradigms and theories, which reflect the researcher's values, and exert significant influence over nursing practice. The understanding of the philosophical underpinnings will help to conduct a credible study and help people who use the findings to apply the results within the appropriate context (Crotty, 1998).

Research Paradigm

Paradigm is a pattern of beliefs and assumptions that explains how individuals view the nature of the world and their places in it (Weaver & Olson, 2006). Paradigms are important because they have substantial implications for every decision made in the research process,

including choice of methodology and methods (Monti & Tingen, 1999). There are many paradigms identified in nursing research. In this study, Crotty's (1998) framework was used to describe the research paradigm. Crotty (1998) classified a paradigm according to its ontology, its epistemology, its theoretical perspective, its methodology and its method.

The main objective of this study was to test the effectiveness of an intervention designed to educate nursing students about bullying. Thus, I selected a post-positivism paradigm as the basis to conduct this study. Post-positivism is a modern philosophy of science that emerged from various critiques of positivism that base itself on observable empirical facts and reject the existence of subjective knowledge (Weaver & Olson, 2006). The ontological assumption of post-positivism asserts that reality can never be completely known (Welford, Murphy, & Casey, 2011). Post-positivism paradigm recognizes that absolute truth cannot be determined, reality may be perceived differently by various individuals, and contextual factors are important in understanding relationships between variables (Monti & Tingen, 1999). Therefore, instead of looking for absolute truth, post-positivists search for reasonable assertions (Houghton, Hunter, & Meskell, 2012).

The epistemology is concerned with the nature of knowledge embedded in the theoretical perspective and it can include objectivism, subjectivism, and others (Welford et al., 2011). The epistemology of post-positivism is objective, and knowledge is sought through replication (Weaver & Olson 2006). Similar to positivism, the emphasis of post-positivist research is on well-defined concepts and variables, controlled conditions, and empirical testing (Creswell 2009; Welford, Murphy, & Casey, 2011). However, within post-positivism approach, theory is established deductively where research create claims and then refine or abandon some of them using quantitative and/or qualitative methods for more strongly acceptable claims (Weaver & Olson, 2006; Welford et al., 2011). The post-positivist paradigm is deemed appropriate for the study of nursing questions requiring knowledge about specific interventions (Guba & Lincoln, 2000; Weaver & Olson, 2006). It facilitates the development and testing of hypotheses, comparison of interventions, and the establishment of relationships between variables (Monti & Tingen, 1999).

The methodology is the strategy or plan of action followed in conducting a research project that determine the choice of methods (Welford et al., 2011). Methods are the procedures

used to conduct the research and might include questionnaires, interviews and focus groups (Welford et al., 2011). The methodological choice of this study was to conduct a quasi-experimental study using self-reported questionnaires.

Guiding Frameworks

Research studies should be guided by a theory/framework so the research findings can be used to help build the science of nursing by adding to the body of literature (Polit & Beck, 2017). A theoretical framework contains a specific theory. Theories are interrelated sets of constructs or variables that lead to propositions or hypotheses that indicate the relationship among variables to explain or predict a phenomenon (Creswell, 2009). The theory helps the researcher to frame the research question and directs the search of the literature.

Bullying is a complex and multifactorial phenomenon. To understand the antecedents and consequences of bullying, the Ecological Model of Workplace Bullying provides a comprehensive framework to explain the complex, dynamic, interactive, and multifactorial nature of this issue (Johnson, 2011). In this study, it was used as a theoretical framework to guide intervention planning and evaluation. The antecedents and outcomes presented in the model were considered when developing the intervention.

To eliminate bullying from healthcare institutions, all nursing students' and nurses' behaviours in encountering bullying needs to be changed. Before any type of behaviour, or even attitudes, can be changed, individuals need to be made aware of a problem and learn how to respond to it (Brann & Hartley, 2017). Increased awareness of bullying behaviours is a valuable step in addressing the bullying problem (Rutherford, Gillespie, & Smith, 2018). Once awareness and knowledge levels are raised then efforts can be made to influence intentions and ideally behaviours (Brann & Hartley, 2017). Self-efficacy is the most important predictor of change in behaviour (Lenz & Shorridge-Baggett, 2002). Therefore, it was decided that knowledge, self-efficacy, and intent to intervene were appropriate outcomes to measure the effectiveness of the intervention. Due to the cross-sectional design of this thesis, a direct measure of behaviour change was not feasible. However, the strength of the relationship between behavioural intention and actual behaviour justified the use of intent to intervene as an appropriate outcome variable (Webb & Sheeran, 2006). Accordingly, this study was guided by the underlying principles of the

Ecological Model of Workplace Bullying (Johnson, 2011) and Bandura's self-efficacy theory (Bandura 1997) along with the current evidence about bullying in health care.

Ecological Model of Workplace Bullying. The Ecological Model of Workplace Bullying presents a theoretical framework of bullying antecedents and outcomes at various levels (Johnson, 2011). The model (Figure 2) utilized an ecological perspective which indicates that bullying is a product of societal, organizational, departmental, and individual factors. The model was developed based on Bronfenbrenner's (1979) ecology of human development theory which explains that human development is influenced by factors in a nested layer of hierarchical systems, and this theory was adapted to explain various complex issues in social sciences (Espelage, Berry, Merrin, Swearer, 2014; Johnson, 2011). The Ecological Model of Workplace Bullying entails four interrelated systems that involves the series of events that create bullying. The four systems include the macrosystem (society), the exosystem (the organization), the mesosystem (the immediate workgroup, including the manager), and the microsystem (the bully and target) (Johnson, 2011).

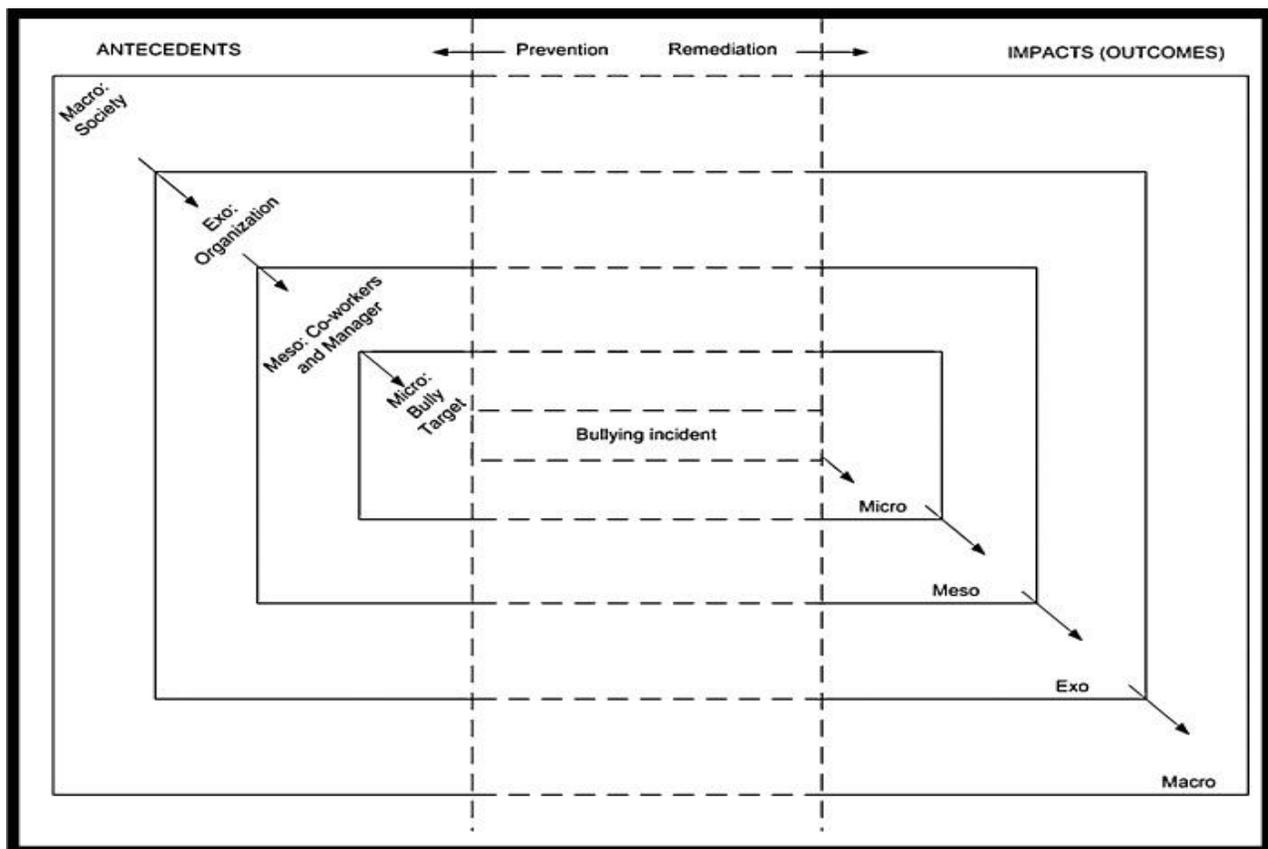


Figure 2: Ecological Model of Workplace Bullying (Johnson, 2011)

The dotted lines divide the model into three stages, namely antecedents, the bullying event itself and outcomes/consequences (Johnson, 2011). Arrows show the direction of antecedent factors that flow from the macrosystem through the other inner systems to create conditions that facilitate bullying occurrences (Johnson, 2011). Subsequently, consequences of bullying arise from the bullying incident through the other systems. Interventions are in the centre, which means that they can be designed to focus on antecedents, outcomes, or ideally, both (Johnson, 2011). As explained by the model, bullying is more than a dyadic conflict between the perpetrator and the target because the environment at various levels makes a significant contribution in nurturing or eliminating bullying. Therefore, the dotted lines separating these stages (antecedents, bullying, consequences) suggest the flexible nature of the relationships between outcomes and antecedents as unresolved outcomes can create a cycle wherein targets become bullies (Johnson, 2011; Randle, 2003).

At the macrosystem level, societal and cultural norms of behaviour along with laws governing workplace bullying are the antecedents of bullying (Johnson, 2011). Societal and cultural views of nursing explained by the theory of oppression has been used in studying bullying in nursing at this level (Johnson, 2011). Freire (1971) developed the model of oppression, and Roberts (1983) was the first scholar to apply it to nursing. In the oppressed group model, the oppressed group internalizes the values and norms of the dominant group, which are deemed as having socially appropriate characteristics, behaviours, and roles. Thus, the inherent characteristics of the oppressed group are negatively valued and suppressed. In an environment of overt and hidden rewards and punishments, the oppressed group is shaped into desiring the power of the dominant group and thereby molded into following the dominant group's norms, rules, and laws. Collectively, as the oppressed group attempts to assimilate into the dominant group, low self-esteem and hostility develop into central group tendencies.

Then, the oppressed group develops deeply rooted hatred toward the dominant group yet is unable to act against the dominant group. Being passive in the face of the dominant group, members of the oppressed group turn hatred inward toward members of the oppressed group (Rainford et al., 2015). Sometimes, perpetrators use acts of bullying to demonstrate power and domination or to control others and enhance self-image (Anthony & Brett, 2020).

In applying the oppressed group theory, researchers often point to the domination of medicine (predominantly male) over the predominantly female gender of the nursing profession (Briles, 1994; Thomas & Burk, 2009). Moreover, the nursing profession has been historically characterized as subservient to physicians and the discipline of medicine (Johnson, 2011). Nurses often feel powerless within the hierarchy and perceive that they are unsupported by management (Laschinger et al., 2014). Additionally, nursing students and new nurses are usually on the lower end of hierarchical structures in healthcare and education, which makes them more vulnerable to bullying (Seibel, 2012). Oppression theory helps to explain that the behaviours of bullying are a response to the situation in which the nurses find themselves. It appears that nursing students and new nurses begin to incorporate such strategies into their nursing practice because they come to adopt the norms, values and rules that characterize their collective working group (Randle, 2003).

Although the impact of bullying on society have not been well established, some researchers connected the increased costs to taxpayers to cover the costs accumulated by organizations because of bullying (Hoel, Cooper, & Faragher, 2001). Growing medical cost can also be contributed to premature retirement and increased need for social services and welfare (Hoel et al., 2001). Moreover, the physical and psychological consequences of bullying on nurses could result in increased cost for insurance companies and public healthcare systems (Johnson, 2011). Additionally, the cost of replacing nurses who leave their positions, or the profession add constraints on the health care systems (Johnson & Rea, 2009).

The exosystem involves the organization along with unions that represent workers within the organization (Johnson, 2011). Organizational antecedents of bullying incorporate factors related to organizational change, restructuring, downsizing and employees not feeling empowered (Wilson, 2016). Blackstock, Salami, and Cummings (2018) conducted an integrative review to explore the organizational antecedents related to horizontal violence among nurses and the extent to which policy initiatives reduce its incidence. The results showed that the most relevant concepts used to explore organizational antecedent factors were categorized as influential working conditions, relational aspects of teams and leadership, organizational culture, and leadership role and decision-making authority (Blackstock et al., 2018). In public healthcare systems, like the Canadian healthcare system, there is a pressure from the organizations on managers and staff to control the cost of healthcare services by decreasing length of stay and

reducing per case expenses (Hutchinson, Vickers, Jackson, & Wilkes, 2006). As a result, nursing activities are constantly under surveillance and increasingly monitored, measured, and reported (Hutchinson et al., 2006) with nurses, who challenge or fail to conform to these rules, may become targets of bullying.

Bullying within organizations could also result from misuse of power in which bullying arise because of the informal organizational alliances where group acts of bullying are reconciled, and bullying is normalized and accepted by nurses as part of the job (Johnson, 2011). Additionally, Hutchinson, Vickers, Jackson, & Wilkes (2010) argued that when the pressure to participate in or tolerate questionable behaviour is strong, actors (bully, target, witness) may rationalize their own involvement or tolerance of bullying as unavoidable, routine, or acceptable. This process can describe bullying as a cycle of enculturation where it continues because the unacceptable behaviours are tolerated or passively witnessed (Randle, 2003). Many nurses work within environments that feature bullying and situations of disagreement and conflict (Hutchinson et al., 2010). During these situations, if nurses are bullied, they may be more likely to bully others (Vessey et al., 2009).

At the exosystem level, the impact of bullying expands to negatively impact healthcare organizations and the quality of patient care (Johnson, 2011). Nurses exposed to bullying are more likely to be absent from work and contemplate leaving their jobs (Gates, Gillespie, & Succop, 2011) and have lower organizational commitment (Demir & Rodwell, 2012). The replacement of nurses who require long absences increases the overall cost of providing effective patient care (Riley, 2016).

Bullying has been also linked to patient safety and the quality of patient care (Anusiewicz et al., 2020; Hutchinson & Jackson, 2013; Laschinger, 2014). Patients can be negatively affected in that bullying contributes to an unsafe environment for patient care. Sauer and McCoy (2017) conclude that bullied nurses experience lower physical and mental health, which can decrease their quality of life and inhibit their ability to deliver safe and effective patient care. In Anusiewicz et al.'s (2020) study, nurses expressed that bullying influences patient care through its negative effects on nurses' mental and emotional well-being or through creating distractions while at work and decreasing the nurses' willingness to ask questions or request help regarding patient care. Wright and Khatri (2015) examined the relationships between bullying and medical

errors in a sample of 1,078 nurses working in a hospital system and found a significant and positive relationship between being a target of bullying and the perception of the bullied nurses' risk of committing medical errors.

Hutchison and Jackson (2013) completed a mixed-methods systematic review of literature related to the effect of hostile nursing work environments on patient care. They noted that five studies found that nurses reporting exposures to bullying frequently felt overwhelmed and at increased risk for errors in patient care. These nurses reported that workplace hostility prevented requests for assistance from coworkers when dealing with complex clinical situations or where patient safety was at risk. In a Canadian study, Laschinger (2014) explored 336 nurses' exposures to workplace incivility and bullying, and the perceived effects of these mistreatment behaviours on patient safety and the quality of care they provided. A significant correlation was discovered between bullying and incivility experiences and the nurses' perceptions about decreased quality of care provided, increased adverse events, and higher patient safety risks (Laschinger, 2014).

The mesosystem level includes coworkers of the bully and target, including the manager (Johnson, 2011). Bullying includes three groups, the perpetrators (bullies), the targets and bystanders (witnesses). Witnesses may arguably support and maintain the occurrence of bullying by doing nothing to alter the circumstances that led to the bullying (Kim, 2019). Witnesses may deliberately or un-intentionally support the bully by laughing, approving on the behaviour or just standing to watch. Sometimes witnesses choose to abandon the scene to distance themselves from the situation (Johnson, 2011). However, by abandoning the scene, they send a message that they are afraid or intimidated by the bully. Other mesosystem antecedents encompass stressors in the workplace environment (Johnson, 2011). The literature sustains that a range of environmental factors may contribute to the incidence of bullying, such as a lack of resources, job insecurity, high job demands, poor leadership and the management style (Johnson, 2011; Wilson, 2016; Wright & Khatri, 2015). Yildirim (2009) found that work overload contributed to bullying behaviours, as well. Moreover, tolerance of bullying may foster such behaviour at the unit/team level. Socially constructed rules within work teams serve to tolerate and maintain bullying through the constitution of normalized legitimacy (Hutchinson et al., 2010).

Outcomes at the mesosystem level contain negative impacts on targets, witnesses, and the units' productivity (Johnson, 2011). The work of bullied employees will suffer as disturbances caused by bullying frequently leave bullied workers incapable of performing their activities and diminish their productivity at work (Cahu et al., 2012). Olsen et al. (2017) studied the influence of job resources and job demands on bullying and nurses' job performance, job satisfaction, and work ability. They concluded that bullying negatively influenced the work ability of nurses, which correlated significantly with job performance suggesting that bullying negatively affects job performance through its negative influence on work ability.

The negative consequences of bullying impact not only the target of the bullying, but also the witness. Witnesses often may be trapped into silence because they are unsure of how to intervene to stop the cycle of bullying. Witnesses can intervene by confronting the perpetrator or by supporting the target (Hershcovis et al., 2017). There is evidence that witnesses can have a positive impact on victims of bullying in nursing contexts, both by offering support to victims and disapproving bullies (Gaffney, DeMarco, Hofmeyer, Vessey, & Budin, 2012). Moreover, Kim (2019) found that being a facilitating witness was a threat to patient safety, while being a defending witness enhanced patient safety. Báez-León, Moreno-Jiménez, Aguirre-Camacho, and Olmos (2016) conducted a study to investigate the differential impact that several factors may have on witnesses' intentions to help and helping behaviour in response to bullying in nursing settings. The findings showed that fear of possible retaliation of intervening in favour of victims constitutes an essential factor explaining witnesses' hesitation to help victims. Furthermore, intention to help was guided by feelings of tension, group identity, support to peers' initiative and absence of fear of retaliation (Báez-León et al., 2016).

The microsystem consists of the bully and the target (Johnson, 2011). Certain individual personality types are more or less likely to facilitate bullying (Hershcovis, Reich, & Niven, 2015). These individual factors could be related to perpetrator or target characteristics (Hershcovis, et al., 2015). Perpetrators of bullying can include coworkers, supervisors, and subordinates, either from the same or a different department (Johnson & Rea, 2009). Perpetrators exhibit common negative personality traits such as anger issues, anxiety, and low self-esteem (Hershcovis, et al., 2015). Targets of bullying also have been shown to have low self-esteem and to be anxious in social settings, hold unrealistic views of their own abilities and options, and tend to have higher levels of trait anger and anxiety (Einarsen, 2000; Hershcovis, et al., 2015).

Power imbalance between the involved individuals is a key element of the bullying definition. At this level, perceived power imbalances can be created by situational and contextual characteristics (Salin, 2003). For instance, power differences associated with traditional gender roles, seniority level and minority status may affect bullying behaviour by assuming that women, newly hired staff, and visible minorities are perceived to have less power and status (Salin, 2003). The bullies may seek to improve their own ranking by sabotaging the work performance of a colleague (Salin, 2003).

The outcomes at the microsystem level include negative psychological and physical consequences for targets (Johnson, 2011). The commonly reported negative psychological effects consist of anxiety, depression, low self-esteem, and higher psychological distress (Demir & Rodwell, 2012; Laschinger et al., 2012). Additionally, bullying has damaging psychosocial consequences on nurses, such as increased stress, somatic symptoms, frustration, absenteeism, and lack of concentration (Johnson & Benham-Hutchins, 2020). Further, targets could experience symptoms of post-traumatic stress disorder (PTSD). Laschinger and Nosko (2015) investigated the relationship between nurses' exposure to bullying and Post-Traumatic Stress Disorder symptomology and the protecting role of psychological capital (PsyCap). The participants were 1205 newly graduated and experienced nurses working in Ontario hospitals. The results indicated that bullying was significantly related to PTSD symptomology regardless of the PsyCap level. Bullying among newly graduated nurses influences their practice by preventing them from fully demonstrating their knowledge, as they would rather try to blend in with other nurses and not stand out, which in turn restrict their opportunities of advancement (Charette, Goudreau, & Bourbonnais, 2019). Targets of bullying can also develop physical symptoms such as headaches, eating disorders, increased blood pressure, sleep disturbances, recurrent nightmares, and the onset of chronic physical conditions (Hogh et al., 2011; Murray, 2009).

To eliminate bullying, interventions should be implemented at each level. As explained by Johnson (2011), the levels are interrelated; so, interventions can be designed to be implemented at a specific level or multiple levels. The intervention in this study was located on the left side of the model (prevention). The arrows in the model move from the macro to the micro level, then, the bullying acts occur. To push back, the strategies presented in the intervention aim to increase the participants' ability to address the situations to prevent it from

happening in the future. The intervention was also designed to focus on the targets of bullying at the microsystem level as it concentrated on target-focused, perpetrator-focused strategies. However, the intervention equipped participants with knowledge about bullying and strategies they can, and they have the power to, use to deal with antecedents and consequences of bullying at different levels. At the mesosystem level, the intervention included information on how to handle the situations when students are being bullied by their managers or when they witness a bullying situation. At the exosystem level, it explained how to report bullying using organizational policies. At the macro level, students' enhanced knowledge and self-efficacy may help them to overcome feelings of oppression.

Bandura's Self-efficacy Theory. Within a post-positivist paradigm, social cognitive theory provides a useful framework for understanding how determinants of behaviour operate together to explain actions (Bandura 1997). According to Bandura (1977), an individual's behaviour is determined by several factors that are categorized into cognitive, environmental, and behavioural factors. Cognitive or personal factors consist of an individual's knowledge, attitude, and expectations. Behavioural factors are the skills, experience, and self-efficacy that one possesses. Many environmental factors are determined by social norms, community resources and residential surroundings. Cognitive, environmental, and behavioural factors intersect and influence each other in a reciprocal relationship where behaviour is shaped through learning by environmental conditions, and in turn, individuals shape the environment (Holloway & Watson, 2002). These factors and their relationship to each other guided the development, implementation, and evaluation of the online educational modules about bullying for undergraduate nursing students.

Social cognitive theory also introduces the concept of self-efficacy as one's confidence in one's abilities. Bandura (1995) defines self-efficacy as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" (p. 2). Bandura's (1977, 1986, 1995) self-efficacy theory is based upon the belief in one's capacity to perform behaviours necessary to produce desired results. Expectations of self-efficacy determine one's ability to initiate an action and the efficacy of that action (George, Locasto, Pyo, & Cline 2017). Bandura (1994) explains that people with high self-efficacy approach difficult situations as challenges to be mastered rather than as threats to be avoided. On the other hand, people who

doubt their capabilities avoid difficult situations which they view as personal threats (Bandura, 1994).

There are four sources of self-efficacy (Bandura, 1977, 1986, 1997). Combining different sources of self-efficacy is best for development of self-efficacy and combining all four sources is most effective (Bandura, 1986, 1997). The first and most influential source of self-efficacy is performance accomplishment (also called enactive mastery experiences). If learners have performed the task successfully in the past, they are more likely to believe in their ability to do it again (Van Der Bijl & Shortridge-Baggett, 2002). Performance accomplishments are the most reliable source of self-efficacy because they are based on the individual's own personal experiences of mastery or failure for the given task (Holloway & Watson, 2002). Therefore, a nurses' previous experience with successfully mitigating a bullying situation has a powerful influence on their beliefs that they can face it again. In the third module, participants were provided with various situations of bullying and feedback on the best way to approach these situations based on the strategies that they learned in the second module. So, when they find that they approached this situation appropriately, this will provide them with some sense of mastery experience. However, this part of self efficacy will not be complete until they face a situation of workplace bullying in the real world and they act upon it, and they had the feeling that the situation resolved, then they will have complete sense of mastery experience.

The second source of self-efficacy is vicarious experience (Bandura, 1977). If learners are exposed to others' successful achievement of a particular task, then they are more likely to think that they can do it as well. Modeling success is an effective means of promoting self-efficacy because people judge their abilities by comparing themselves to individuals that they believe are like themselves (Holloway & Watson, 2002). The module presented case studies for bullying situations and provided successful solutions to deal with these situations. Therefore, to use the success of other individuals to convince the study participants of the possibility of being able to do the same, the targets of bullying in these cases were nursing students or new nurses.

The third source of self-efficacy is verbal persuasion which involves encouragement received from others related to the learners' ability to perform the task (Bandura, 1977). Through verbal reinforcement, an attempt is made to increase learners' sense of ability and skill for a provided task, thereby increasing self-efficacy perceptions (Holloway & Watson, 2002). In the

modules, there were messages of positive reinforcement and encouragement about the importance of facing bullying to eliminate it from the workplace because bullying should not be accepted as part of the nursing profession. The source of persuasion should be perceived to have an extensive knowledge and experience in the specific task to be trusted more. Thus, videos for Ms. Stewart (Manitoba Nurses Union Relations Officer), who has an extensive experience in educating nurses in healthcare settings about bullying, discussed that nursing students and new nurses can break the cycle of bullying and change the culture of accepting it in the nursing profession and in healthcare organizations.

Visceral arousal is the fourth source of self-efficacy. Visceral arousal is the physiological response that may occur while anticipating or experiencing a stressful situation (Bandura 1977). A psychological threat provokes the physiological stress response that triggers fear and anxiety. As a defense mechanism, individuals might avoid behaviour that arouses this response. Bandura (1977) explained that individuals should re-interpret this arousal as informative or energizing rather than threatening. This reflects the importance of situational self-efficacy where learners learn how to respond effectively in stressful and normal situations. Interventions can change efficacy through emotional arousal by using symbolic exposure (Bandura 1977). The intervention in this study provided the participants with the opportunity to learn about bullying and experience the visceral arousal before they start their nursing career. To achieve that, the modules presented a video of a bullying situation where the senior nurse bullied the target in front of a patient. Additionally, the stories and photos that were included were upsetting and disturbing at various degrees. These video, stories and photos were intended to provoke a visceral arousal. Then, it will depend on how participants interpret these physiological symptoms when they face a bullying situation in the clinical practice.

Bandura argued that by increasing a learner's self-efficacy, the learner will be more motivated, engaged, and successful (1977). Hence, having a strong sense of self-efficacy allows individuals to maintain efforts towards success. He also stated that self-efficacy is the most important precondition for behavioural change since it determines the initiation of coping behaviour (1986). Efficacy beliefs contribute to one's thought patterns, stress and coping, and level of achievement (Bandura, 1997). Individuals' beliefs in their personal efficacy influence the actions they choose to follow, the effort they make, and their determination in the face of obstacles or adversity (Bandura, 1997). Accordingly, self-efficacy is considered a valuable

learning outcome to determine the effectiveness of educational interventions. It can be also argued that students with higher self-efficacy will be able to manage situations of bullying more effectively and in turn, will be able to identify a higher intent to intervene.

Self-efficacy theory has been used to study the effects of educational experiences on students' self-confidence in performing activities related to professional roles in the health professions (Kirkpatrick et al., 2018; Weiler et al., 2018). Ferla et al. (2009) explain that higher self-efficacy influences student's ability to face challenging tasks. In nursing education, students with high self-efficacy have been linked to various abilities, such as setting appropriate goals, trying different strategies, persevering to complete a task, and making an easier transition from student to nursing professional (George et al., 2017). Additionally, "occupational self-efficacy significantly interacted with bullying in predicting depersonalization, suggesting that when facing stressful situations, individuals who perceive themselves as capable and efficient are at lower risk for burnout compared to those who are less confident about their ability to successfully perform job tasks" (Livne et al., 2018, p. 96). Nonetheless, self-efficacy mediates the relationship between knowledge and action, and it is situation specific (Bandura, 1986).

Accurate measures of self-efficacy can be used to predict the performance of nursing students and have an important impact on the education of future nurses (Cheraghi, Hassani, Yaghmaei & Alavi-Majed, 2009). Some researchers assess self-efficacy using general self-efficacy scales (Plemmons, Clark, & Feng, 2018; Watt et al., 2016). When researchers measure self-efficacy, "items content of self-efficacy scales must represent beliefs about personal abilities to produce specified levels of performance and not include other characteristics" (Bandura 1997, p. 45). Therefore, having specific tool to measure self-efficacy related to bullying is imperative. Sanner-Stiehr (2018a) developed the Self-efficacy to Respond to Disruptive Behaviours (SERDB) scale. The scale development was guided by the theoretical underpinnings of social cognitive theory (Sanner-Stiehr, 2018b). This scale is a domain-specific and theoretically grounded instrument that measures self-efficacy related to responding to disruptive behaviours in the clinical settings. This tool is appropriate to use in this study and will be described in detail in Chapter 3.

Online Educational Intervention

As discussed earlier, the literature supports the notion that bullying is a pervasive problem for nurses. This problem comes with endless ramifications on healthcare organizations at all levels as the evidence indicates that bullying has significant implications for nurses, patients, and health care organizations. Despite the lack of consensus on a definition for bullying, there is an agreement on the devastating impact of bullying on nurses, patients, and healthcare institutions. The previous research focused on determining the frequency of bullying among nurses and to find the factors influencing different forms of bullying. Therefore, the research in this area should now focus on empirical studies that aim to find solutions that assist nurses in identifying and confronting bullying, given that it should not be part of nurses' work lives and should no longer be tolerated.

Various studies have tested interventions to determine their effectiveness to mitigate the problem of bullying within the nursing profession. Most interventional research on bullying in nursing has been conducted in health care settings with practicing nurses (Olsen et al., 2020). The results of these studies confirmed that education about bullying has consistently produced positive outcomes in improving understanding of bullying and increasing nurses' confidence in responding to bullying effectively (Chipps & McRury, 2012; Kile, Eaton, deValpine, & Gilbert, 2018; Nikstaitis & Simko, 2014; Stagg, Sheridan, Jones, & Speroni, 2013).

In nursing education, most of the studies investigated the effects of bullying on students and faculty, in both classroom and clinical settings (Birks et al., 2017; Goldberg et al., 2013; Karatas et al., 2017; Marchiondo et al., 2010; Thomas, 2010). However, few studies have examined the inclusion of bullying-related educational interventions, with specific learning objectives and related evaluation of student learning in a nursing curriculum (Clark, Ahten, & Macy, 2013). In order to inform the development of the online educational intervention of this study, the literature was searched for studies that included bullying intervention intended for nursing students and evaluated the outcome(s) using qualitative or quantitative methods within the last ten years. A total of 18 studies were reviewed. A summary of the studies that described and evaluated educational interventions relating to bullying in an undergraduate nursing program is provided in Appendix I.

Evaluation of educational impact on students' behaviour and practice provides valuable feedback that assists with development and improvement of learning and teaching strategies (Johnston & Fox, 2020). Sidhu and Park (2018) conducted an integrative review to examine the concepts informing educational interventions, skills, and strategies, which addressed the bullying of nursing students. They reported that various interventions were implemented to help nursing students address bullying, such as cognitive rehearsal, role playing, journal clubs, and problem-based incivility scenario. However, few of the interventions incorporated online learning modules. Thus, there is a continuing need for more research on the relative effectiveness of online educational modules as compared with traditional classroom instruction.

Online Learning

Because of advances and accessibility in technology and the Internet, various teaching strategies and learning approaches have evolved over time to facilitate the learning process and its outcomes. Online learning is also called e-learning, computer-assisted instruction, or Internet-based learning. Online learning is broadly defined as integrating information technology into the learning/teaching process, using material delivered via the Internet (Glen, 2005). Online learning has been described as a dynamic, innovative, and rich way to provide learning opportunities as users can access the materials on the website anytime (Khalil & Schliephake, 2017). It has several benefits over traditional face-to-face learning including flexibility, accessibility, satisfaction, and cost-effectiveness (Sinclair, Kable, Levett-Jones, & Booth, 2016). Online learning can be synchronous, such as Webinar, or it can be asynchronous which includes previously presented and recorded learning content for later broadcast (Oliver & Oliver, 2011). For this study, online learning is defined as any educational intervention that is mediated electronically via the Internet asynchronously, which is a learner-centred approach that affords the opportunity to engage in learning at a time and location that is convenient and enables the learner to balance professional development with personal and work commitments (Sinclair et al., 2016).

Besides providing an alternative way to learn in the digital age, online courses offer students and working professionals the opportunity to learn new skills or enhance existing ones. In nursing education, the evidence suggests that online learning for teaching clinical skills in nursing is no less effective than traditional means (McCutcheon, Lohan, Traynor & Martin,

2015). Moreover, with the advantage of flexibility related to time, space, and pace, an online learning system can increase nursing student opportunities to study and learn from educational materials on their own schedule (McCutcheon et al., 2015). In a sample of 164 new nurses, Mallette, Duff, McPhee, Pollex, and Wood (2011) assessed the effectiveness of an educational strategy that used virtual world experiential learning and compared it with other educational methods including workbook and self-directed online learning module designed to prepare nurses to face horizontal violence in the workplace. Participants identified all strategies used in the study to be helpful; however, they concluded that learning through self-directed online learning modules followed by practice in a virtual world was an effective method to attain knowledge, skills and abilities to better address horizontal violence and had the highest participants' satisfaction. Thompson and George (2016) examined the use of an online educational module to teach nursing students about bullying in a sample of 40 students. They reported that students found value in completing the modules and preferred the online format (Thompson & George, 2016).

The current generation of nursing students are often very technologically savvy; they are ready and willing to use new technologies in their education, and the vast majority of them already own smartphones or tablets (Oliver & Oliver, 2011). Additionally, nursing students respond very favorably to content that is presented to them in multimedia formats (Everett & Wright, 2012). Every level of the education system can be enhanced through online courses, as students can study at their own pace and work with course materials that are adapted to their needs and learning abilities (Dariel, Wharrad, & Windle, 2013). Online educational modules offer advantages for students as it provides a greater degree of flexibility, and it can be less stressful to manage alongside other commitments. Furthermore, there is less pressure to engage the students, as they have the help of devices, apps, and multimedia tools to make learning a more interactive and enjoyable prospect (Dariel et al., 2013). Besides, online modules are comprised of cost-effective interventions that can easily be implemented (Nilson & Goodson, 2018). Given the nature of the content-laden curricula in the undergraduate nursing program and the tight course/class/laboratory/clinical schedules, it was discerned that adding the option of an online tutorial would be the most appropriate way to facilitate learning among this student population.

In this study, an online educational tool was designed to educate undergraduate nursing students about bullying. The goal of the online educational tool was to increase awareness and self-efficacy as well as educate participants about bullying identification, reporting, and management techniques. Specifically, the online educational tool informed nursing students about the definition of bullying, its antecedents, and consequences; how to identify the different types of bullying; and how to control/deescalate bullying situations and how to report the behaviour.

Online Modules Development and Content

The online educational tool, or in other words, the intervention was compiled of three modules developed using the Rise 360© application. This application helps in creating interactive online courses. The modules created by this application can be automatically adapted for every electronic device (i.e., computer, smart phones, tablets, etc.). The content of the modules was developed from the review of the literature and guided by Bandura's self-efficacy theory and the Ecological Model of Workplace Bullying.

Designing effective online modules requires some additional considerations (Cobb, Watson, & Ellis, 2018). Nilson and Goodson (2018) summarized 25 principles of learning derived from cognitive psychological research that apply directly to online learning. Some of these principles guided the online modules design and organization of the content. The other principles were not applicable for the development of the modules because they are related to assessment methods, exams, or graded assignments. However, these principles should be followed in the future update of the modules to modify them to be incorporated into nursing courses in the undergraduate curriculum. This section represents these principles and how they guided the modules development.

1. The sequence of procedural and processual steps: When designing a teaching course, the sequence of the steps of a procedure or a process should be in the same order that the student will perform them (Nilson & Goodson, 2018). Sequenced information or directions helps students to successfully perform activities in efficient and appropriate ways as they can process complex tasks by breaking a large task into its component parts and dealing with only one piece at a time. This limits the complexity of the task faced, which reduces the cognitive loads (Feldon, 2010). For example, the modules started by providing information about bullying, and then

presented strategies that could be used to manage it because it is important for students to recognize situations of bullying before they take steps to confront them. Likewise, strategies to address bullying were organized to start with less complicated to more complex situations of bullying.

2. Cognitive load minimized: Students learn new material easily when the instruction is designed to minimize cognitive load (Nilson & Goodson, 2018). This can be applied by following several guidelines. The material in the modules was presented in chunks by collapsing them into categories to reduce the number and volume of new information. The material should be presented in short segments instead of a long continuous lesson (Feldon, 2010). Therefore, the content about bullying was organized into three modules and in each module, there were sub-headings and I avoided presenting too much text at one time. Moreover, labelling, descriptive, and explanatory text were physically close to its associated graphic element. Additionally, to decrease cognitive load, students were able to review the modules as many times as they wanted if they felt that they needed that review. Under this principle, it is also recommended to benefit from presenting visible speakers who utilize informal and conversational style (Nilson & Goodson, 2018). Accordingly, Ms. Deb Stewart (a Registered Nurse and Labour Relations Officer from Manitoba Nurses' Union) was recorded answering important questions about bullying.

3. Active learning: Students learning can be enhanced by including active learning techniques (Nilson & Goodson, 2018). Student engagement promotes increased self-efficacy beliefs and motivation (Green, 2003). Therefore, the modules included quizzes, interactive learning objects, and case studies to keep students actively engaged with the modules' content.

4. Targeted feedback: Students must receive targeted feedback that they can use to improve their performance (Nilson & Goodson, 2018). The development of efficacy beliefs requires that individuals get clear information about their acquisition of knowledge or skills being studied (Bates & Khasawneh, 2007). Students were provided with preloaded feedback for correct and incorrect answers for the quizzes. For the case studies in the third module, students were given the chance to respond, and then they were able to read the appropriate strategy that could be used in that case.

5. Attention attractors and holders: Some qualities attract students' attention and focus to help them learn better (Nilson & Goodson, 2018). The content of the modules was made as compelling as possible. This was accomplished by including an opening video with nursing students, which illustrated a bullying situation that most of the students can relate to in order to get their attention. Furthermore, the modules included relevant and interesting images and videos. The text in the modules was not text dense as this would not attract students; instead, the content was portrayed in short and precise sentences. Attention was given to the colors used as well. For example, intense colors and tasteful color contrast were used. Additionally, to hold students' attention, using the Rise 360© application, various types of media were employed such as videos, graphics, animations, and text.

6. Structured knowledge: Students learn better when they receive information in a coherent, logical, and organized structure that provide them with the big picture of the concept (Nilson & Goodson, 2018). The content of the modules was portrayed in a clear structure as each module had its learning outcomes which were presented at the beginning of the module. This gave student an idea on how each module was structured and what was expected from them to learn in each module.

7. Stories, cases, and varied examples: Students learn when they receive knowledge in connection with stories and example cases that vary by content, condition, and context (Nilson & Goodson, 2018). In addition, perceived self-efficacy can be changed by the appropriate modelling influences, especially in the case of absence of direct knowledge of individual's capabilities (Holloway & Watson, 2002). Case studies provide students with real life problem-solving skills required in the workplace (for each strategy in the modules, a case study was presented). In the third module, five case studies were offered as well. These case studies were developed from real life scenarios and stories from nurses and nursing students. The case studies included in the modules presented various context of bullying, such as being a witness or a target and being bullied during a stressful or typical clinical situation.

8. Print text for reading: Some students learn better when they read the material from printed text. During the learning experience, the mind can shift gears when the material is presented in different mediums (Nilson & Goodson, 2018). However, research shows that students cannot learn material as quickly from an e-textbook as they can from a print version

(Daniel & Woody, 2013). Therefore, transcripts of the videos, the code of ethics, and prompting cards document were made available to download and print for future reference.

The modules contained embedded videos from Ms. Deb Stewart, a Registered Nurse and Labour Relations Officer from Manitoba Nurses' Union. Ms. Stewart has extensive experience about bullying as she regularly delivers workshops for nurses in different healthcare settings in Manitoba to empower them to take action against bullying. In these videos, Ms. Stewart answered questions about various topics related to bullying management, such as "What should you do if the bullying acts continue?", "What should you do when the bully is your manager?", and "What should you do when you witness bullying?" Throughout the modules there were knowledge check questions that aimed to acquire students' attention and help them stay engaged.

Module 1: What is Workplace Bullying? Addressing bullying in nursing begins with acknowledging the problem and raising awareness about the problem and its devastating consequences (Bartholomew, 2006; Edmonson & Zelonka, 2019). With increased levels of awareness and knowledge about bullying, nurses requested additional assistance in dealing with inappropriate behaviours (Embree, Bruner & White, 2013). Friere also identified the first step in altering a nurse's silence about bullying as understanding the cycle of the behaviour and awareness alone could be a liberating intervention (1971). Further, it is suggested that the addition of an educational component may still have potential to increase nursing students' ability to respond to bullying (Sanner-Stiehr, 2017). Thus, nurses must recognize bullying and the resulting negative consequences in order to change inappropriate behaviours.

Consequently, the first module incorporated information on bullying, including a clear definition and evidence-based descriptions of acts of bullying as well as its antecedents, manifestations, and consequences on personal health, the health care organization, and patient safety. The primary goal of this module was to raise nursing students' awareness of bullying by identifying bullying behaviours, understanding the root causes of bullying behaviours, and understanding the multiple consequences of bullying behaviours.

Module 2: How to Manage Workplace Bullying? The second module described strategies to address and manage bullying acts in the workplace. The goal of the module was to inform nursing students about how to intervene when witnessing or experiencing bullying. Teaching nursing students about real techniques for handling bullying and helping them to

understand their ethical and professional responsibility to do so could help turn around the negative aspects of the nursing culture (Bartholomew, 2006). A variety of strategies have been discussed in the literature as effective methods of identifying and addressing bullying (Bartholomew, 2006; Griffin, 2004; Mallette et al., 2011). In this study, strategies reviewed were the ones aimed to provide awareness-raising and education that will encourage participants to reconsider their behaviour and how they interact with colleagues and their work environment (Gillen, Sinclair, Kernohan, Begley, & Luyben, 2017). The evidence-based strategies that were introduced in this module were derived from the effective strategies discussed in the literature. These strategies correspond into three broad categories: target-focused, perpetrator-focused and organizational-focused approaches. Target-focused approaches include interventions that focus on improving social relationships at work and providing social support for targets and witnesses of bullying (Leiter, Laschinger, Day, & Oore, 2011). To break the cycle of bullying, nurses should not accept it as part of their jobs (Armstrong, 2018). Therefore, the module started with a message that workplace bullying should not be accepted as part of being a nurse. Then, it followed by a video recorded with Ms. Stewart to convey to nursing students that they are important and deserve to be respected and she encouraged them to ask for help when they need it. Next, a section from the Canadian Nurses Association (CNA) Code of Ethics about ethical responsibilities was posted. This section of the code confirmed that nurses should abstain from any form of workplace bullying.

It is recognized that bullying in healthcare settings is underreported (Phillips, 2016). Moreover, incident reporting, post-incident response and support were not well covered in programs directed toward teaching nursing students about bullying (Johnston & Fox, 2020). To reject the tendency of normalization and justification of bullying, education to prioritize the reporting of bullying incidents must be emphasized (Hogarth, Beattie & Morphet, 2016). Therefore, in this module, participants learned about respectful workplace policies and incident reporting. Additionally, information about nursing students and nurses' legal rights and responsibilities in relation to bullying were introduced. It focused on the importance of identifying legal rights and responsibilities for nursing students when they start their clinical rotations and for new nurses when they start a new job.

Then, participants were presented with examples of strategies to improve their social relationships in the workplace such as engaging in reflective practice, participating in continuing

educational events, and refusing to participate in bullying acts such as gossiping (Bartholomew, 2006; Jenkins, Kerber, & Woith, 2013; Thomas, 2010). Egues and Leinung (2014) provided nursing students with workshops as a teaching methodology and students were given a reflection and journaling time for self-analysis as to perpetrator, victim, or bystander roles that they may have played in bullying. Post-tests reflected increased self-reported recognition of personal involvement in bullying at both school and clinical sites. Besides, students' reflections shared personal experiences with bullying, raised awareness of the bullying phenomenon, and improved dedication to ending bullying (Egues & Leinung, 2014).

Perpetrator-focused strategies consist of interventions that empower targets of bullying to confront perpetrators (Clark et al., 2013; Edwards & O'Connell, 2007). Targets were encouraged to deal with issues when they occur using assertive communication skills. When the target decides to directly speak to the perpetrator, they must do this in private and choose the right time (e.g., check whether there are competing priorities at that time). Moreover, they need to check their emotional status as they need to calm down first (Bartholomew, 2006; Kerber, Jenkins, Woith, & Kim 2012; Mallette et al., 2011; Thomas, 2010).

Ceravolo, Schwartz, Foltz-Ramos, and Castner (2012) implemented workshop series that aimed to enhance assertive communication skills and raise awareness about the impact of lateral violence behaviour. They found that these workshops resulted in a better working environment, reduction in staff turnover and vacancy rates, and reduced incidences of lateral violence. Assertive communication skills that nursing students and novice nurses can use incorporate techniques such as using "BEE" statements which consist of three parts, namely behaviour, effect, and expectation (Bartholomew, 2006; Briles, 2008). In the first part of the confrontation statement, targets need to name the behaviour, what the person is doing or not doing that is disruptive, inappropriate, or unacceptable. Then, they state the effect which reflects why/how the behaviour is disruptive, inappropriate, or unacceptable and how it affects the target. Lastly, they identify their expectations of the situation. For example, when a nurse manager yells at a nurse in the middle of the nurses' station to hurry up, using the BEE strategy, the nurse can say "Sara, when you yell at me in the middle of the nurses' station to hurry up, it feels demeaning and disrespectful. I need you to give me the same respect you want from me. Can we structure something like this?"

Moreover, according to the available evidence, one of the most effective methods to assist nurses in effectively responding to bullying is the use of cognitive rehearsal (Kile et al., 2018; Koh, 2016; Sanner- Stiehr & Smith, 2015; Stagg et al., 2013). Cognitive rehearsal consists of mentally rehearsed responses to scenarios involving behaviours commonly associated with bullying in a manner that is not interpreted as retaliatory (Griffin, 2004). These responses can be provided to participants as prompting cards that provide specific responses to common acts of bullying to aid the target or witness in confronting the perpetrator (Griffin, 2004; Sanner- Stiehr, 2018b). These listed responses were designed to prevent targets or witnesses from acting impulsively (Griffin, 2004). For example, in response to a nonverbal innuendo, such as a colleague raising her eyebrows, participants might say, “I see from your facial expression that there may be something you want to say to me. It’s okay to speak directly to me.” Griffin (2004) reported that nurses who participated in cognitive rehearsal training were able to mitigate negative workplace behaviour exhibited by perpetrators. Sanner- Stiehr (2018b) further suggested that a cognitive rehearsal training can increase self-efficacy to respond to disruptive behaviours with sustained effects up to three months later. In this module, participants were offered a printable copy of these prompting cards for future reference.

Organizational-focused approaches that targets and witnesses can use involve strategies such as raising the bullying issue at staff meetings in order to keep the management and the occupational health nurse aware of the presence of this problem, which in turn allow occupational health nurses to design and apply bullying management interventions in their organizations (Stagg et al., 2013). If the bullying acts continue, new nurses and nursing students are encouraged to document their experiences of bullying and then report it to stop the cycle of bullying (Hogan et al., 2018; Thomas, 2010). To do that, participants were asked to keep a file of detailed descriptions about what happened, when did it happen and all the details that will help in an investigation. When the manager is the bully, participants who tried the previous strategies and they did not work, Ms. Stewart explained that they can file an official complaint according to the respectful workplace policies in each healthcare institution.

Finally, a demonstration case study with examples of ineffective and effective management was provided as an example. This case study incorporated a problem-based practice scenario. Problem-based practice scenarios can be implemented by creating scenarios that are based on real life experiences where students consider and analyze challenges and dilemmas they

may experience in the workplace (Nielsen, 2011). The interactive nature of case studies encourages students to consider a range of possible solutions to relevant scenarios and keeps them interested and motivated in their learning (Clark et al., 2013).

Module 3: Application of Knowledge. The third module involved five practice real life scenarios to further facilitate nursing students' abilities to practice using the strategies they learned in the previous modules to identify and manage bullying acts. The use of authentic, real life scenarios positively engages students, as they are relevant to their learning needs (Ackland-Tilbrook & Warland, 2015).

Students completed the first and second modules' content on bullying prior to the introduction of problem-based practice scenarios. Each scenario encompassed a nursing student or a nurse in a bullying situation. Study participants were encouraged to reflect on these situations and think about possible solutions that they believed were the most appropriate. Then, a feedback on how they might address the situation was provided. In this module, the end goal was to increase efficacy beliefs among all participants about their ability to identify and manage bullying in the workplace.

The first case study was about a new nurse that had been assigned a new admission and she was looking for the old chart to coordinate the data about the patient. This nurse wanted this patient assignment for her own development. A senior nurse interrupted and decided that she will take the patient and she will not need the old chart as she knows everything that this patient requires. Then, the senior nurse said, "this will be faster, new staff just take too damn long." As a response to this situation, it was suggested that the new nurse or target should address the situation in a private area and choose the right time and check her emotional status because if she is very angry, she needs to calm down first. Then, she can use the BEE strategy by stating that "when you decided to take the patient that was assigned to me, it made me feel frustrated. I respect your experience and I know that you can do it much quicker. However, I appreciate the opportunity to do this myself."

The second case study involved a nurse who was in the break room when she overheard a second nurse criticizing a health care aide about how they cleaned the patient room by saying, "You are such a lazy person, even her peri-care was missed. That is it, I am reporting you to the manager. Enough is enough!" The first nurse know that she was responsible for doing the

morning care of this patient. In this case, the nurse was not the target, she was a witness. It was suggested that she can respond by talking to the other nurse and say, “Hold on, you cannot talk to the worker that way, I am the one responsible for doing the patient’s care this morning, could you and I discuss that in private?”

The third case was about a new staff nurse who was surprised to learn that most of her off-duty co-workers had gone out to lunch together on the weekend. This was not the first time she learned of a social activity where she had not been invited. There was a baby shower held for the unit clerk. In fact, she did not even know that there was a gift collection for her. This scenario looks like a social isolation. Therefore, the target was encouraged to clarify the intent by having a respectful conversation because sometimes individuals are unaware that their behaviour negatively impacts others. So, respectful conversations can help build better working relationships. The target can say “I am disappointed for being excluded; I would like to be included.”

In the fourth case, a nurse was having lunch in the break room when another co-worker said “What do you think of Dr. Peterson and our manager? I think they are having an affair.” In the second modules, participants were encouraged to refuse to participate in gossip, and refuse to respond to comments about the absent person. In this case, she could say “It bothers me to talk about those individuals behind their back.”

The last case discussed a situation of a new Registered Nurse (RN) who was working in a small community hospital, and she was the only RN on the shift. There were two other Licenced Practical nurses (LPNs) who have been employed for more than 10 years. The RN was asked to insert a subcutaneous port for pain management for an elderly patient. The RN gathered the necessary equipment and reviewed the policy as it was a while since she had last performed this task. she started to perform the procedure and one of the LPNs stepped in and said, “We don’t do it that way around here, you are doing it wrong”, this was being said in front of the patient. To deal with this situation, the target could respond by saying “I am doing the procedure according to the unit policy. If you want to discuss this matter, we can talk about it later.” Then, she could meet with the LPN in private and discuss how this behaviour embarrassed her and what is expected from the LPN.

Chapter Summary

There is a lack of consensus on the definition of bullying. Acts of bullying consists of a long list of negative behaviours. These types of negative behaviours earned the profession the unpleasant allegation that "nurses eat their young". The Ecological Model of Workplace Bullying and self-efficacy theory with the current evidence about bullying guided the development, implementation, and evaluation of the online educational tool.

Available evidence related to interventions aimed at educating nursing students to be better prepared to respond to bullying suggests that innovative approaches such an online learning should be investigated and included in nursing curriculum. Furthermore, knowledge and self-efficacy are important factors in influencing behaviour change. Therefore, online educational modules were used with an aim to enhance nursing students' knowledge, self-efficacy, and intent to intervene. This chapter offered a review of the literature in relation to the bullying in nursing, a detailed description of the guiding frameworks, and the intervention used in this study. The following chapter will present the study methods.

Chapter Three: Design and Methods

In this chapter, the study's methodology will be presented. To begin, an explanation of the design, setting and sample, measurement instruments and data collection and analysis will be outlined. This section will be followed by the ethical implications of the study.

Methodology

Purpose of the Study and Research Questions

The purpose of this research was to test the effectiveness of an intervention incorporating three online educational modules about bullying on undergraduate nursing students' knowledge, self-efficacy, and intent to intervene. Accordingly, the specific research questions were:

1. Did the online educational tool increase knowledge of bullying among undergraduate nursing students?
2. Did the online educational tool increase perceived self-efficacy related to bullying among undergraduate nursing students?
3. Did the online educational tool increase intent to intervene in future situations of bullying among undergraduate nursing students?

In this study, the dependent variables consisted of knowledge, self-efficacy, and intent to intervene, which were used to evaluate the effect of the online educational tool (the independent variable) in increasing participants' knowledge, self-efficacy, and intent to intervene. The hypotheses were:

1. The post-intervention knowledge test about workplace bullying scores will be higher than the pre-intervention knowledge scores.
2. The post-intervention Self-Efficacy to Respond to Disruptive Behaviours (SERDB) scores will be higher than the pre-intervention scores.
3. The post-intervention intent to intervene score will be higher than the pre-intervention score.

Study Design

The study design was a quasi-experimental, one group, pre-test post-test using within-subjects comparison in response to the intervention. This design was chosen because the subjects

served as their own control (Munro, 2001). Using subjects as their own control is valuable when variables differ considerably within subjects as a result of an intervention (Sutherland, 2017).

Pre-test	Intervention	Post-test
O1	X	O2

Using subjects as their own control provided a way of reducing the amount of error arising from natural variance between individuals (Greenwald, 1976). Another advantage that the within subject design had is that it required fewer participants, making the research process more efficient using less resources (Dimitrov & Rumrill, 2003). The quasi-experimental design was chosen over the experimental design in nursing research for many considerations (Sutherland, 2017). In this study, these considerations included the availability of potential participants that would lengthen the period of data collection and the high possibility of contamination between experimental and control group because of the research context and the educational nature of the intervention. Contamination occurs when interaction between individuals randomly assigned to different treatment conditions causes some individuals to receive features of a treatment to which they were not assigned (Rhoads, 2011).

Threats to validity. According to Cook and Campbell (1979), the one group, pre-test post-test design is associated with threats to internal validity including history and maturation. Cook and Campbell (1979) suggested that history and maturation can be addressed by having a short time span between the pre- and post-test. In this study, the time between the pre and post-test did not exceed six weeks, which was the data collection period for each academic term. This time frame limited threats to internal validity related to history and maturation. Moreover, participants were asked about their previous educational opportunities regarding bullying.

Testing effects due to the use of the same questions on both the pre- and post-tests may have impacted how individuals performed on the repeated test, and it may have been possible that improvements resulted from the test itself (Marsden & Torgerson, 2012). The main factor that affects the testing effect is feedback, mostly in the form of presenting the correct answer (Rowland, 2014). To minimize the testing effects in this study, the participants were not provided with feedback on their answers in the pre-test and post-test.

In relation to validity threats concerning sampling, attrition effects may be seen if participants are lost to follow-up or drop out of the study between measurements (Marsden & Torgerson, 2012). In an attempt to minimize attrition effects, the pre-test, intervention and post-test measurements were conducted based on each participant's own pace; however, the time frame to complete the pre-test, intervention, and post-test was limited to six weeks (during the academic term that participating nursing students were enrolled).

Setting and Sampling

The study was conducted at two nursing schools in western Canada. The two schools offer baccalaureate nursing programs. These two sites were selected based on program attributes and accessibility in order to maximize sample size and homogeneity among participants.

In this study, convenience sampling was utilized which means that the researcher used the most readily available or most convenient group of people for the sample (Polit & Beck, 2017). Senior students attending classes at both educational institutions during the fall and winter terms had an equal opportunity to participate. Convenience sampling can introduce bias into studies, since those who choose to participate may do so based on a particular set of personal attributes (Polit & Beck, 2017). However, convenience sampling is economical and an effective method of maximizing participation. Thus, it was considered to be appropriate for this quasi-experimental study.

Both nursing programs offer full time clinical courses that provide students with intensive clinical experiences. Therefore, students may have drawn on these clinical experiences to relate to the phenomenon of bullying. One program is a four-year program, so students in their third and fourth year were defined as senior nursing students. The other nursing program is a three-year program so students in their second and third year were defined as senior students. To be included in this study, students were required to be enrolled in the third or fourth year of undergraduate nursing program at the first site or second or third year at the second site, able to read and write in English, and have access to a computer or Smartphone.

Sample Size Estimation

The target population was identified as senior undergraduate nursing students at their third or fourth year at the first site or second or third year at the second site. The total number of

senior nursing students in the two programs in three terms was estimated to be 340 students. All senior students were invited to participate.

Power analysis allows for estimation of the occurrence and reduction of Type II errors (failing to observe a difference when in truth there is one) (Polit & Beck, 2017). Conventional power analysis depends on values of alpha (the probability of committing a Type I error), power (one minus the probability of making a Type II error) and effect size (how strong the effect of the independent variable is on the dependent variable) (Polit & Beck, 2017). Significance level, power, and effect size for the statistical method were used to predict the sample size for this study. The significance level for the study was set at $p = 0.05$, which represents the risk of a Type I error (observing a difference when in truth there is no statistically significant difference). The power level was set at 0.80, which represents a 20% risk for committing a Type II error, which is considered acceptable in behavioural science research (Polit & Beck, 2017).

In order to perform this form of power calculation, the researcher often uses estimations of these variables derived from other studies with similar populations and objectives. Means and standard deviations from these similar studies were used to generate sample estimates, often with the conventionally established criterion of $\alpha = .05$, a small to medium effect size and power set at 80% (Polit & Beck, 2017). A biostatistician from the Manitoba Center for Nursing and Health Research (MCNHR) was consulted to determine appropriate sample size to answer the research questions and test the research hypotheses. To calculate the minimum effect size, the biostatistician used range of mean change and variability information from previous studies (Sanner-Stiehr, 2018b; Thomson & George, 2016). These studies were chosen to estimate sample size because they used similar intervention (Thompson & George, 2016) or measured similar outcome variables (Sanner-Stiehr, 2018b). The minimum effect size of 0.35 was deemed suitable for this study, providing 0.80 power, alpha (type one error rate=0.05), one tailed test (hypotheses the post-intervention mean will be greater than the pre-intervention means for all outcomes), pre-post correlation = 0.5 (Dr. Rabbani, personal communication, April 12, 2018). Since all outcomes were measured as a continuous variable, paired sample mean difference formula was used to calculate the required sample size. Sample size estimation based on a range of possible effect sizes using G Power (version 3.1.9.2) software was conducted (Figure 2). For this example, as t-test was used with 0.35 effect size, approximately 50 was the required sample size.

Due to the COVID-19 pandemic, I ceased recruitment of study participants in the spring of 2020. At that time, a total of 41 participants were included in the analysis. Consultation was undertaken with the College of Nursing biostatistician to determine if this represented an adequate sample size to proceed with the analysis. It was determined that this was an adequate number (Dr. Rabbani, personal communication, September 10, 2020).

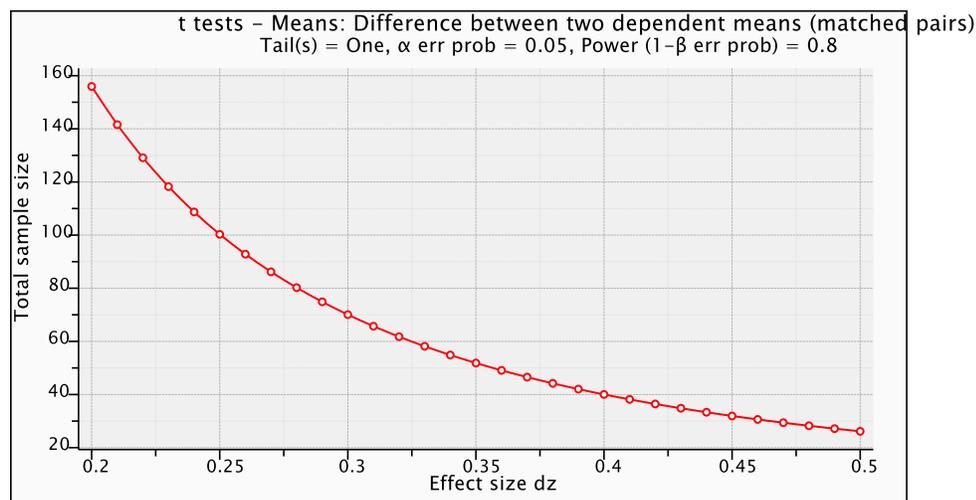


Figure 3: Estimated Sample Size for Various Possible Effect Sizes Measurements

The data was gathered at pre-intervention and post-intervention. The instruments were a sociodemographic questionnaire, bullying knowledge assessment tool (developed by the researcher), Self-Efficacy to Respond to Disruptive Behaviours (SERDB) scale, and a global rating score to measure participants' intent to intervene in the future events of bullying.

Sociodemographic Characteristics

All study subjects completed a short, sociodemographic questionnaire (see Appendix A). Sociodemographic data were used to describe the sample characteristics using descriptive statistics. This data also identified characteristics that may be associated with the educational intervention's impact on students' knowledge, self-efficacy, and intent to intervene. This data included: gender, age, self-reported GPA, the institution students were attending, their school year, English as an additional language, previous exposure to bullying in clinical settings (being a target or a witness), and previous educational opportunities about bullying (see Appendix A).

Workplace Bullying Knowledge Assessment Tool

There were no known developed tools assessing nursing students' knowledge of bullying. Therefore, the knowledge assessment tool of this study was developed to reflect the content provided in the online educational modules in consultation with subject matter experts and committee members. Some questions of the knowledge assessment tool were written by Ms. Rae Harwood, who has a bachelor's degree in Nursing and a graduate degree in Education in Counselling Psychology and worked as a full-time educator for many years. She has an extensive knowledge and experience in developing multiple choice exams. Moreover, she has experience in item-writing for nursing licensure exams. After reading resources and references about bullying and the script of the online modules, Ms. Harwood originally developed 25 questions to reflect the content of the modules. These 25 questions covered three levels of learning: Knowledge, comprehension, and application.

To determine to what extent a given instrument possesses content validity, experts in the discipline in which the instrument is to be employed examine the instrument very carefully and make a value judgment regarding how well the instrument operationalizes the construct it is supposed to measure (Soeken, 2010). Accordingly, a panel of content experts with expertise in education and bullying were asked for their opinions regarding the relevance of each of the questions. The panel included the committee members. A subtype of content validity is face validity which simply indicates whether, on the face of it, the instrument appears to be assessing the desired qualities (Soeken, 2010). It evaluates the appearance of the tool in terms of feasibility, readability, consistency of style and formatting, and the clarity of the language used (DeVon, et al., 2007). To determine the face validity of the knowledge test, the panel of content experts (committee members) reviewed the questions, and they were asked to give their feedback for each item in terms of the clarity of the wording, the likelihood the target respondents would be able to answer the questions, and the layout and style. They examined the questions very carefully and made their judgment regarding how well the questions measures nursing students' knowledge about bullying based on the content of the online educational modules. The importance of having face validity for an instrument is that respondents will be more motivated to respond, thus contributing to increasing response rate (Soeken, 2010).

Additionally, face and content validity can be determined through pilot testing the knowledge assessment tool with nursing students similar to the study population. Subsequently, the questions were piloted among nursing students (N = 10) at the first site, who did not participate in the study. These nursing students were asked to answer the questions and to provide their feedback for each question in terms of the wording of the questions, structuring of the answers, and suggestions for better wording. Then, the answers and feedbacks were reviewed by the researcher and her advisor (Dr. Donna Martin). The researcher and Dr. Martin rated the question separately, then they came together to review the questions and 20 questions were chosen to be included in the final knowledge assessment tool. The wording for some questions was revised to enhance the clarity.

Based on the committee members' feedback and the pilot testing results, 20 questions were selected to comprise the knowledge assessment tool. The identical pre and post-tests consisted of 20 multiple choice questions to assess participants' knowledge of bullying and strategies to respond when they encounter bullying situations. For the list of the questions in the tool, see Appendix B. The items included questions with a five-option multiple choice answer format. The common fifth alternative to all questions is "I don't know"; this option was offered so that participants were not forced to guess at an answer if they did not know the correct response. Each correct answer was equivalent to one point. Correct answers to the 20 knowledge questions were summed, and therefore, scores on the knowledge portion of the survey could range from 0 (no knowledge) to 20 (very knowledgeable) for each participant. As the level of knowledge increases, the tool scores also increase. Then, the mean scores of the pre-test and post-test were calculated. Further information about the knowledge assessment tool's reliability and validity are reported in Chapter Four.

Self-Efficacy to Respond to Disruptive Behaviours (SERDB)

The Self-efficacy to Respond to Disruptive Behaviours (SERDB) was developed by Sanner-Stiehr (2018a) to measure self-efficacy to respond to disruptive behaviours in the nursing work environment utilizing sociological and organizational theoretical frameworks. The development of the SERDB was closely guided by the theoretical foundation of Social Cognitive Theory (Sanner-Stiehr, 2018a). Self-efficacy is reflected in an interaction of four constructs: cognition, past behaviour, affect, and motivation (Bandura, 1997). Aligning with the literature,

items developed for the SERDB addressed the aforementioned four constructs in addition to measuring overall self-efficacy (Sanner-Stiehr, 2018b). The SERDB includes a combination of cognitive and affective variables influencing self-efficacy, which are: knowledge about that behaviour, and how to successfully perform it; past engagement in that behaviour, including successful and unsuccessful attempts; affect toward or value judgment made about that behaviour and its importance; motivation toward engaging in it (Sanner-Stiehr, 2018a, b). Scale items that reflect the theory-based dimensions of self-efficacy are presented in Table 1 (Sanner-Stiehr, 2018b).

Table 1: Scale Items and Theory-based Dimensions of Self-efficacy

Item number	Item	Dimension of self-efficacy
SERDB 1	I am confident in my ability to respond effectively to disruptive behaviours among health care workers	Overall self-efficacy
SERDB 2	In the past, I have been able to respond effectively to disruptive behaviours from a nurse or someone at work	Previous behaviour
SERDB 3	I think that the ability to respond effectively to disruptive health care workers behaviours is important	Affect
SERDB 4	I know how to respond to disruptive health care workers behaviours effectively	Cognition (knowledge)
SERDB 5	I believe that my ability to respond effectively to disruptive health care workers can make a difference in restoring respectful communication and ensuring patients receive safe care	Motivation
SERDB 6	In stressful situations, I would be able to respond effectively to disruptive health care workers behaviours	Situational self-efficacy
SERDB 7	In normal situations, I would be able to respond effectively to disruptive health care workers behaviours	Situational self-efficacy
SERDB 8	I believe in my ability to respond appropriately and effectively to disruptive health care workers behaviors directed at me	Overall self-efficacy
SERDB 9	I think that the ability to respond to disruptive health care workers behaviours effectively is a valuable skill	Affect

SERDB 10	Generally speaking, I care about being able to respond to disruptive health care workers behaviors effectively	Motivation
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Content validity was established by an expert panel during development, and it was piloted among senior nursing students (N = 450) and exploratory factor analysis confirmed theoretical scale domains (Sanner-Stiehr, 2018a). The psychometric testing of the scale revealed a Cronbach's α of .889 for the overall scale (Sanner-Stiehr, 2018a). In two studies aimed to determine the impact of a cognitive rehearsal intervention on nursing students' self-efficacy to respond effectively to disruptive behaviours, the SERDB demonstrated high internal consistency with a Cronbach's $\alpha > 0.89$ (Sanner-Stiehr, 2018b, 2020). This instrument contains a social desirability item from the highly validated, gold standard list used in social sciences research (Sanner-Stiehr, 2018a, b). The social desirability item contains content that blends with the scale content. The social desirability item is to be examined for significant correlation with any instrument items. If the item was not significantly related to any items, this provides support for checking participants' tendency to provide answers that may be perceived as socially desirable (Haghighat, 2007).

The SERDB consisted of 10 items utilizing 0-10 Likert-type scaling with 0 = Strongly Disagree to 10 = Strongly Agree. The SERDB asks participants to rate their self-efficacy in responding to disruptive behaviours by a nurse intended to undermine, belittle, or otherwise humiliate or hurt another (the) nurse. Examples of these behaviours include but not limited to gossiping and spreading rumors about others, verbal abuse (yelling, persistent criticism), bickering, non-verbal innuendo (sighing, rolling eyes), sabotage/undermining (refusal to help when needed, withholding information needed to do one's job, unfair or unmanageable work assignments), forming cliques/excluding others, scapegoating (misplaced blame), and breaking confidences/failure to respect privacy. The SERDB is presented in Appendix B. Permission to use the scale is included in Appendix C. The original SERDB used the term "Disruptive Nurse Behaviours". In this study, it was replaced with "Disruptive healthcare workplace Behaviours" to include the bullying acts from all healthcare workers in the workplace - not only from nurses because as indicated in the literature, sources of bullying also include any healthcare worker not only nurses. Permission to change the wording was granted from the author (Appendix D).

Intent to Intervene

To provide insight into the intervention's impact on participants' perceptions of their intent to intervene in bullying situations as a target or a witness, a global rating score was collected in response to the question - "In the future, how likely is it that you would intervene in the event of being a target or witness of workplace bullying?" The measurement tool was a scale from 0 to 10, where 0 is Not Likely and 10 is Extremely Likely. Single-item indicators, although not widely used, allow the participant to take personally relevant features of the situation into account when providing a response (Youngblut & Casper, 1993). There are a wide range of strategies that the participants would consider and choose from as the appropriate intervention on a given bullying situation. Therefore, a single-item indicator was used in this study to measure participants' intent to intervene. Additionally, single-item measurements have the advantage of being less burdensome to collect, score, and interpret (DeSalvo et al., 2006). Furthermore, this approach has been followed in the literature on bullying (Báez-León et al., 2016).

Covariates

Participants' knowledge, self-efficacy in their response to bullying and intent to intervene could be impacted through a combination of personal and environmental factors (Blackwood, Bentley, Catley, & Edwards, 2017; Livne et al., 2018; Sanner-Stiehr & Ward-Smith, 2015). Previous experiences precede self-efficacy and determine whether someone has high or low levels of self-efficacy (Zulkosky, 2009). For example, exposure to bullying either as a target or witness and prior education about responding to bullying are environmental factors, which should be considered possible influences on knowledge, perceived self-efficacy and intent to intervene. Personal factors are age and gender, since increased number of years in age may increase one's knowledge of bullying and a possibility of exposure to bullying and members of each gender may respond differently, based on social norms for each gender (Li et al., 2020; Salin, 2018; Vingers, 2018). Additionally, participants' self-reported GPA and school year were considered as factors that may influence their ability to gain and retain knowledge as students with higher GPA could have higher academic performance and advanced school year may contribute to students having more experience that could impact their confidence in dealing with bullying (Romeo, 2013). The other factors, which reflect being a minority in the workplace, are whether participants are born in Canada and whether English is their first language. For students

who are born in Canada and English is their first language, they may be less likely to be targets of bullying (Fox & Stallworth, 2005; Lewis & Gunn, 2007). Thus, covariate analysis was performed in various combinations, to determine the influence of each demographic factor on participants' responses to the study's outcome measures.

Recruitment and Data Collection Procedure

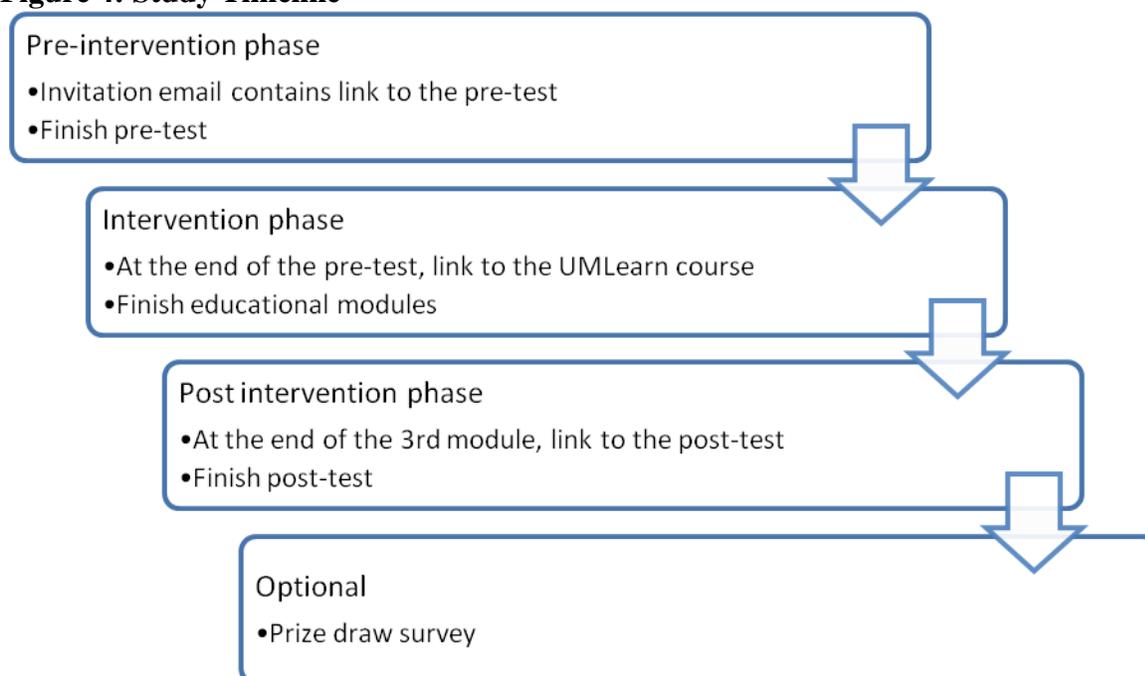
Upon approval from two nursing schools' ethics boards and access permission committees, recruitment started through invitation emails. A research coordinator at the Manitoba Centre for Nursing and Health Research (MCNHR) sent blind carbon copy emails on the researcher's behalf to the students. The emails provided potential study subjects with an explanation of the study including the purpose, time requirement, inclusion criteria, data to be collected, and a link to the pre-intervention online survey (Appendix E). Data collection occurred during the following terms: Winter 2019, fall 2019, and winter 2020. As a measure to increase the response rate, social media was used to raise awareness of the study and recruit participants. In this study, an advertisement poster (Appendix F) was posted on the nursing schools webpage. Hard copies of posters were also placed on bulletins boards in the two nursing schools. The poster provided information on the study, explained the study purpose, and encouraged prospective participants to check their e-mail inbox for the e-mail from the MCNHR that contains the link to participate in the study. Moreover, the principal investigator attended various classes at the two schools to explain the study and encourage students to participate. The online educational modules were uploaded as an online course on the learning management system at the University of Manitoba (UMLearn). The Information Services and Technology service desk at the UM created sponsored accounts for the UMLearn to accommodate nursing students from the two schools to participate in the study. Through these accounts, each participant received unique login ID (RP001, RP002, etc) and password. The online course contained three online educational modules about bullying. More details about the online modules were presented in chapter 2.

The measurement tools were uploaded onto the Qualtrics webserver. The Qualtrics link (that was sent to the participants) started with the informed consent. Then, each participant developed a unique study-specific code. This code allowed pre- and post-test data to be correlated, eliminated collection of any identifying data, and maintained confidentiality to the

responses. Next, participants completed the demographic questionnaire, the pre-intervention knowledge assessment tool, the intent to intervene scale and the SERDB scale. Once all pre-test data were collected, the intervention was provided, using online teaching/learning management system as participants were directed to an UMLearn course. The estimated completion time of the modules and the pre-post assessment tools was two hours.

Participants were given six weeks to complete the modules and the post-test and a weekly reminder emails were sent to encourage participants to complete the online modules. The link to the post-test was provided at the end of the modules. This link led participants to the post-test, and it started off by asking them to enter the unique code that they created. Then, participants completed the post-test, which was identical to the pre-test. The study timeline is illustrated in figure 3.

Figure 4: Study Timeline



To thank students for their participation, students who completed the pre-test, modules, and post-test were invited to enter their names into a draw for a chance to win a prize. Study participants were entered to win one of 15 \$100 Amazon.ca gift cards. The draw was conducted by the MCNHR coordinator to ensure that participants were anonymous to the researcher. Once participants completed the post-test online survey, there was a link which directed them to

another survey within the password protected Qualtrics account. This link was common to all survey participants, so any subsequent identifying information they provided was not linked to the survey responses they have given in the study survey. Here, they were given the option to enter their name, email address, and phone number for the draw.

Data Analysis Plan

Data analysis determined if the online educational modules were effective in enhancing knowledge about workplace bullying, improving self-efficacy related to bullying, and increasing intent to intervene to handle bullying situations among undergraduate nursing students. The data analysis plan was developed in consultation with Dr. R. Rabbani, a biostatistician with the MCNHR. A significance level of $p < .05$ was used for all testing. The Statistical Package for Social Sciences (SPSS) version 26 (IBM, 2019) was used to conduct the statistical testing. Quantitative data from the survey were automatically downloaded into SPSS data file for analysis.

Prior to the main analysis, the frequencies of all variables were examined to assess for accuracy of data entry and missing values. To reduce the biases in the survey estimates, missing data were intended to be addressed using intention-to-treat principles by averaging the other responses in the respective scale or measure (Brick & Kalton, 1996). However, no study survey item displayed missing data. Then, descriptive statistics were used to describe the study sample, as well as all measured variables of interest at pre-intervention and post-intervention. Using Cronbach's alpha, reliability testing of the individual scale items (workplace bullying knowledge assessment tool and SERDB) was undertaken to inform the interpretation of results.

The next step was to check the distribution of the outcome variables. The Kolmogorov-Smirnov and Shapiro-Wilk statistical tests and histogram charts were used to assess the data for normal distribution (Polit & Beck, 2017). If at least one of the statistical tests was not significant to the 0.05 level and/or the histogram indicated normal distribution, the scores were considered normally distributed. If none of these conditions were met and the histogram skewed, an attempt was made to transform the data using Log10 transformation technique. After the data transformation, if the histogram continued to be skewed, the variable was considered not normally distributed and non-parametric tests were used for data analysis.

To test hypothesis #1 “the post-intervention knowledge test about bullying scores will be higher than the pre-intervention scores”; hypothesis # 2 “the post-intervention Self-Efficacy to Respond to Disruptive Behaviours (SERDB) scores will be higher than the pre-intervention scores”; and hypothesis # 3 “the post-intervention intent to intervene score will be higher than the pre-intervention score”, a paired sample t-test was used for normally distributed data and the Wilcoxon-Signed Rank test was utilized for data with non-normal distribution.

Univariate or unadjusted hypothesis testing, such as two-sample t-tests, can be conducted to identify covariates associated with the study outcome (Arbogast & VanderWeele, 2013). To inform the regression analysis, independent samples testing was conducted to determine the presence of any relationship between the independent variables (gender, age, GPA, school year, English as an additional language, previous exposure to bullying in clinical settings as a target or a witness, and previous educational opportunities about bullying) and outcome variables (knowledge, self-efficacy, and intent to intervene). Parametric tests for normally distributed data (i.e., Pearson correlations for continuous variables, t-test for 2-category variables and ANOVA for greater than 2-category variables) and non-parametric tests for non-normal distributions (i.e., Spearman correlation for continuous variables, Mann-Whitney test for 2-category variables and Kruskal-Wallis test for greater than 2-category variables) were used for the independent samples testing (Appendix J). The independent variables found to be significant at $p < .05$ in the independent samples testing were entered into the univariate repeated measures of regression analysis.

This study used a within-subject comparison by which each participant served as his/her own control. To explore within-subject effects on the outcome variables of interest, univariate repeated measures of regression analysis was conducted using a repeated measures general linear regression model (GLM) procedure (Dobson & Barnett, 2008). The GLM is a flexible statistical framework for hypothesis testing that allows for the accommodation of non-normal distributions of data and inclusion of both systematic and random variations in the model (Casals, Girabent-Farres, & Carrasco, 2014). The GLM is also important as it enables the researcher to efficiently test the research hypothesis by avoiding biases and accounting for all the sources of variability present in data (Casals et al., 2014).

Researchers should be aware of and make efforts to control the effect of covariates (Salkind, 2010). Statistical analysis can be used to analyze the effect of the covariates on the dependent variable by explicitly incorporating them into the analytical model (Salkind, 2010). The rule in selecting covariates is to select the measure(s) that correlate most highly with the outcome (Salkind, 2010). Covariates from the independent samples testing in the previous step that had a significant relationship ($p < .05$) with any of the outcome variables were included in the regression models. Seven independent variables (covariates) were included in the models to examine potential effects on the outcome variables that showed significant unadjusted differences pre- and post-intervention in the paired samples testing. Separate regression models were created for each outcome variable.

Ethical Considerations

Ethics approval was obtained via the Education/Nursing Research Ethics Board at the first institution (Protocol # #E2018:091-HS22023) and the second institution's Research Ethics Board (Protocol #2018/19-06). These ethics boards operate under the requirements of the Tri-council Policy for Research with Human Subjects (2014) and the policies of both educational institutions. Site access approval was obtained from both research sites to recruit and access students who were enrolled in the senior years of nursing program.

The blind carbon copy e-mail that invited nursing students to participate included a letter that informed the participants about the study purpose and any risks or benefits that may result from participation in the study. The informed consent form was built into the start of the survey in the Qualtrics account. After reviewing the consent form, the completion of the online survey and the educational modules were interpreted as voluntary informed consent to participate. Participants were informed that participation was entirely voluntary, their participation will be anonymous, and their participation could be terminated at any time with no consequences. The online survey was completed anonymously, and participants' names were not attached to survey responses. At the end of the survey, participants were directed to a separate questionnaire where they entered their name for the gift card draw. Only the MCNHR coordinator had access to the participants' names, which maintained the participants' anonymity. Once the winners of the random draw had been selected and the prize(s) awarded, the coordinator permanently deleted the names that were entered into the draw. The MCNHR coordinator signed a Confidentiality

Pledge that outlined responsibility to maintain full confidentiality regarding all research data related to the study.

The data collected in this study were in electronic format. The questionnaires' results, which had no identifying material, were downloaded into a password protected file and stored on a primary encrypted memory stick. This file was only accessible to the researcher. The researcher was listed as the instructor of the online course. However, I did not have access to the participants' identities as they logged in using their unique login ID provided to them by the MCNHR research coordinator. The login IDs were identified on a master list linking the login ID and students' names and stored separately from the data collected. All records relating to this study were and will be handled and safeguarded according to standard policies at the University of Manitoba. Seven years after the completion of the study, all remaining study data will be deleted by the researcher.

Chapter Summary

This chapter provided a description for the study design, sample, measurement, data analysis, and ethical approval. This study is a quasi-experimental, one group, pre-test post-test using within-subjects comparison that aimed to evaluate the effectiveness of an online educational tool in enhancing knowledge about bullying and in improving self-efficacy related to bullying among undergraduate nursing students and their intent to intervene if the future events of bullying. Inclusion criteria for participation included enrollment in the senior years of two undergraduate nursing programs, ability to read and write in English, and access to a computer or Smartphone. The recruitment process was explained, and the data analysis plan was described followed by information on the ethical considerations for the study and dissemination plan.

Chapter Four: Study Results

This chapter provides an overall description of the sample characteristics. Then, results of the reliability testing of the knowledge assessment tool and the Self-Efficacy to Respond to Disruptive Behaviours (SERDB) Scale are presented. It also describes the undergraduate nursing students' knowledge findings (for research question #1); undergraduate nursing students' self-efficacy findings (for research question #2); and undergraduate nursing students' intent to intervene findings (for research question #3). Lastly, results of the regression analysis that examined potential effects of within-subject factors on the study outcomes are also described. Data were analysed using the Statistical Package for the Social Sciences (SPSS, version 26; Chicago, IL, USA). Responses from the participants were downloaded from the Qualtrics account into SPSS files and double-checked for accuracy.

Sample Characteristics

The convenience sample was derived from two Canadian schools of nursing. The participants were third- and fourth-year nursing students from the first research site and second- and third-year nursing students from the second research site. A total of 340 students were enrolled in their second, third or fourth year in the participating schools during the data collection period and 74 expressed interest in participating in the study with only 49 students completing the online educational modules. The final survey sample included 41 students representing a 12.1% response rate. Overall, 49 students started their participation and viewed the online modules; however, 41 completed the three parts of the study (pre-test, the online modules, and the post-test). Eight participants were excluded from data analysis because they did not complete the entire study. For the 41 participants, no study survey item displayed missing data. For demographic items, there were two participants who did not answer the question about their GPA.

Descriptive statistical techniques were used to describe the sample. See Table 2 for details about the sample demographics for this study. The sample included 33 (80.5%) female and 8 (19.5%) male participants. The 41 participants ranged in age from 20 to 50 years with a mean of 26.15 and a standard deviation of 7.34. Twenty-four participants (58.5%) were from the first research site and 17 (41.5%) from the second research site. Participants were almost evenly distributed through their nursing program with 13 (31.7%) in their second year, 15 (36.6%) in

their third year, and 13 (31.7%) in their fourth year. The self-reported GPA of participants ranged from 2.96 to 4.23 with a mean of 3.67.

Table 2: Participant Demographic Characteristics

	Mean (SD)	Median (Range)
Age (years)	26.15 (7.34)	23.0 (20.0-50.0)
GPA*	3.67 (0.32)	3.67 (2.96-4.23)
		n (%)
Gender		
Female		33 (80.5)
Male		8 (19.5)
Nursing School		
Research Site #1		24 (58.5)
Research Site #2		17 (41.5)
Year in the Nursing Program		
2nd		13 (31.7)
3rd		15 (36.6)
4 th		13 (31.7)
Born in Canada		
Yes		28 (68.3)
No		13 (31.7)
English as a Second Language		
Yes		9 (22)
No		32 (78)
Previous WB Education		
Yes		3 (7.3)
No		38 (92.7)
Has been a Target of WB		
Yes		16 (39)
Acted		6 (37.5**)
No		25 (61)
Has been a Witness of WB		
Yes		20 (48.8)
Acted		7 (35.0***)
No		21 (51.2)

N= 41; *N=39; **N=16; ***N=20; SD: Standard Deviation; WB: Workplace Bullying

Most participants were born in Canada 28 (68.3%) and only 9 (22%) students identified as having English as a second language. During previous clinical rotations, 16 (39.0%) students reported that they were a target of bullying with only 6 (37.5%) of them indicating that they acted to address the bullying situation. Almost half of the participants (n= 20, 48.8%) witnessed a situation of bullying and only 7 (35%) reported acting on these situations. Most of the

participants had not previously participated in any educational opportunity about bullying (n = 38, 92.7%).

Reliability Test of Outcome Measures

Cronbach's alpha was computed to examine the internal consistency of the bullying knowledge assessment tool that was developed for this study (please see Appendix B). The tool had low pre-and post-intervention internal consistency based on the reliability testing (pre-test $\alpha = .62$; post-test $\alpha = .57$).

Item discrimination analysis was performed to examine how each question in the knowledge assessment tool was related to overall test performance (Considine, Botti, & Thomas, 2005). In this analysis, item to total correlations were used by calculating the correlation between each question and the total test score (Considine et al., 2005). Based on the results, items with low or negative correlations were eliminated. The following nine items were eliminated from the tool: 1, 2, 5, 6, 7, 11, 13, 15, and 18. After item deletion, the Cronbach's alpha was slightly enhanced for pre- and post-test, .70 and .60, respectively. Then, sensitivity analysis was done by performing Wilcoxon Signed Rank test (the new variables were not normally distributed) with the tool after item deletion and no differences in the results were found since significant difference from pre-test to post-test was still noted. Therefore, after the consultation with the biostatistician, the decision was made to complete the analysis with the original items of the knowledge assessment tool.

Reliability of the Self-Efficacy to Respond to Disruptive Behaviours (SERDB) was examined by determining the effect of the social desirability item of the instrument on overall reliability, using both pre-test and post-test responses (Sanner-Stiehr & Ward-Smith, 2015). Including the social desirability item, the Cronbach's $\alpha = .920$ and without the social desirability item, the Cronbach's $\alpha = .927$. Moreover, the social desirability item was examined for significant correlation with any instrument items, and it was not significantly related to any item, providing support that responses were not influenced by social desirability (Haghighat, 2007; Sanner-Stiehr, 2018b). Thus, it was concluded that the participants had not responded in a socially desirable manner, eliminating concern of this bias. Next, reliability of the pre-test and post-test were examined separately. The SERDB demonstrated high internal consistency as

indicated by Cronbach's alpha values of .91 for pre-test and .92 for post-test (Table 3), excluding social desirability items.

Table 3: Outcome Measures Reliability (Internal Consistency) Testing

Measurement Tool	Pre-Intervention Cronbach's alpha	Post-Intervention Cronbach's alpha
WB Knowledge Assessment Tool	.62	.57
SERDB Scale	.91	.92

WB: Workplace Bullying; SERDB: Self-Efficacy to Respond to Disruptive Behaviours

Online Educational Modules Effectiveness

This section describes the score results for the dependent variables in this study with a brief review of the instruments used to measure each variable. Then, the unadjusted results of the pre- and post-intervention comparative analysis (paired samples testing) of outcome measures (i.e., knowledge assessment, self-efficacy, and intent to intervene) are presented (Tables 5 and 8). A significance level of $p < .05$ was used in all statistical tests. Statistical significance testing determines the probability of obtaining the sampling outcome by chance, while it is effect size that addresses practical significance or meaningfulness (Fan, 2001). Therefore, reporting effect size in addition to reporting statistical significance is important because a significant p-value tells us that an intervention works, whereas an effect size tells us how much it works.

To calculate the effect sizes for the outcome measures that were analyzed using the paired sample t-test, the following formula was used (Lakens, 2013):

$$\text{Cohen's } d_{rm} = \frac{M_{\text{diff}}}{\sqrt{SD_1^2 + SD_2^2 - 2 \times r \times SD_1 \times SD_2}} \times \sqrt{2(1 - r)}$$

Where r is the correlation between measures, M_{diff} = means difference between the two measurements, SD_1 = standard deviation of pre-test, and SD_2 = standard deviation of post-test. The Cohen's d_{rm} subscript indicates Cohen's d for repeated measures and it controls for the correlation between the two sets of measurements (Lakens, 2013). Interpretation of differences between groups can also be provided by the Common Language effect size (CL) presented by McGraw and Wong (1992), which is a more understandable statistic than Cohen's d . It can be calculated directly from Cohen's d , converts the effect size into a percentage, and expresses the

probability that a randomly sampled person from one group will have a higher observed measurement than a randomly sampled person from the other group (for between-subjects designs) and for within-subjects designs, it is the probability that the after score would exceed the before score (Lakens, 2013). A supplementary spreadsheet created by Lakens (2013) was used to calculate the effect sizes (Cohen's d_{rm}) and their CL estimates. The effect size of the outcome measures that were analyzed using the Wilcoxon Signed Rank test was calculated by the following formula: $r = z/\sqrt{N}$, using the z value from the Wilcoxon Signed Rank Test table and N is the number of observations over the two time points (Fritz, Morris, & Richler, 2012; Pallant, 2010).

It should be noted that, two different estimates of effect sizes were used, one for the parametric tests and one for the non-parametric tests. Using different statistics to report the effect size, makes it difficult to compare the effect sizes (Fritz et al., 2012). Thus, many of the effect size estimates can be converted to other estimates to facilitate the comparison (Fritz et al., 2012). Lenhard and Lenhard (2016) have provided formulas for translation between d , r , effect size CL and other effect size estimates. The calculated effect sizes of the parametric tests (Cohen's d_{rm}) were converted to r . Cohen (1988) suggested that for $r = .1$ to $.3$ the effect size is small; $.3$ to $.5$ is medium effect; and $.5$ and higher is large.

Workplace Bullying Knowledge

Participants' knowledge of bullying was measured using the bullying knowledge assessment tool developed for this study. The tool consisted of 20 multiple choice questions. The questions had a five-option multiple choice answer format. Scores on the tool could range from 0 (no knowledge) to 20 (very knowledgeable) for each participant. Summed scores of the correct answers for individual responses on the Workplace Bullying Knowledge Assessment tool were calculated (Table 4). Higher summed scores reflected more knowledge about workplace bullying. Pre and post knowledge assessment scores out of 20 were used to investigate the first research question regarding the online educational modules effectiveness in enhancing nursing students' knowledge about bullying. For pre-test, the minimum score was 5 and the maximum score was 16 (range =11). For post test, the range was 13, with minimum score of 7 and maximum score of 20.

Table 4: Descriptive Statistics of Knowledge Assessment Tool

	Pre-test knowledge assessment score out of 20	Post-test knowledge assessment score out of 20
N	41	41
Mean	10.27	14.66
Median	10.00	14.00
Mode	9 ^a	13 ^a
SD	3.07	2.47
Variance	9.40	6.08
Range	11	13
Minimum	5	7
Maximum	16	20

^a Multiple mode, the smallest value is shown; SD: Standard Deviation.

Then, the mean score of the pre-test and post-test were calculated. The mean knowledge assessment score for pre-test 10.27 (SD = 3.06) and post-test 14.66 (SD = 2.46). Paired sample t-test was used to test the difference between the means (Table 5). There was a significant increase in the knowledge scores ($t(40) = 8.346$; $p < .0001$) with a large effect size where $r = .61$ which indicates that after controlling for individual differences, the likelihood that a person scores higher for Mean 2 (post-test) than for Mean 1 (pre-test) is 93% (Lakens, 2013).

Table 5: Pre/post-test Mean Scores and Paired t-test Results at CI=95%

Outcome measure pairs	Paired Differences							
	Mean Difference (post-test - Pre-test)	SD	SE Mean	95% Confidence Interval		t	df	Sig. (2- tailed)
				Lower	Upper			
KA Score	4.39	3.37	0.53	3.33	5.45	8.346	40	<.0001*
Intent to Intervene	2.85	2.32	0.36	2.12	3.59	7.88	40	<.0001*
SERDB-Total	20.76	15.41	2.41	15.89	25.62	8.62	40	<.0001*
SERDB2	0.34	1.48	0.23	-0.13	0.81	1.481	40	.147
SERDB4	3.29	2.68	0.42	2.45	4.14	7.878	40	<.0001*
SERDB6	3.07	2.53	0.40	2.27	3.87	7.767	40	<.0001*

* Significant results with $p < .0001$; SD: Standard Deviation; SE: Standard Error; df: Degree of freedom; CI: Confidence Interval; KA: Knowledge Assessment; SERDB: Self-efficacy to Respond to Disruptive Behaviours

Self-efficacy

The total score and individual items were analyzed on pre and post-test responses. All measures of central tendency for the pre-test and post-test are reported in Table 6 (Pre-test) and

Table 7 (Post-test). For the total SERDB score, the mean was 57.78. For individual items, mean responses on the pre-test were between 3.93 and 8.41. Variation in responses included six items ranging eight points, one item ranging seven points and three items ranging nine points. Standard deviations ranged from 2.20 and 2.42 points.

Table 6: SERDB Scale Pre-test Measures of Central Tendency

ITEM	Mean	Median	Mode	SD	Variance	Minimum	Maximum
SERDB1	4.34	4.0	3	2.30	5.28	0	9
SERDB 2	3.93	4.0	6	2.42	5.87	0	8
SERDB3	8.29	10.0	10	2.41	5.81	1	10
SERDB4	4.37	4.0	5	2.35	5.54	0	8
SERDB5	7.12	8.0	8	2.41	5.81	2	10
SERDB6	3.88	3.0	3	2.24	5.01	0	8
SERDB7	5.07	5.0	3	2.24	5.02	1	9
SERDB8	4.27	4.0	3	2.27	5.15	0	9
SERDB9	8.41	10.0	10	2.33	5.45	2	10
SERDB10	8.10	9.0	10	2.20	4.84	3	10
SERDB- Total	57.78	62.0	39 ^a	17.20	295.78	22	88

SD: Standard Deviation; SERDB: Self-efficacy to Respond to Disruptive Behaviours; ^a Multiple mode, the smallest value is shown.

Post-test total SERDB score was 78.54, which is higher than the pre-test. For individual items, post-test response means were higher than pre-test means as well, ranging between 4.27 and 9.44 with standard deviations between 1.23 and 2.30 points. Ranges of responses on the post-test showed more variation than the pre-test with one item ranging five points, two items ranging six points, three items ranging seven points, two items ranging eight points, and two items ranging nine points.

Table 7: SERDB Scale Post-Test Measures of Central Tendency

ITEM	Mean	Median	Mode	SD	Variance	Minimum	Maximum
SERDB1	7.56	8.0	8	2.01	4.05	1	10
SERDB 2	4.27	5.0	5 ^a	2.30	5.30	0	9
SERDB3	9.32	10.0	10	1.51	2.27	3	10
SERDB4	7.66	8.0	8	1.68	2.83	4	10
SERDB5	8.51	9.0	10	1.82	3.31	3	10
SERDB6	6.95	7.0	8	2.05	4.19	2	10
SERDB7	7.95	8.0	8	1.83	3.35	3	10
SERDB8	6.73	8.0	8	1.91	3.64	2	10
SERDB9	9.44	10.0	10	1.23	1.50	4	10
SERDB10	9.24	10.0	10	1.24	1.54	5	10
SERDB- Total	78.54	83.0	85	13.49	181.86	38	96

SD: Standard Deviation; SERDB: Self-efficacy to Respond to Disruptive Behaviours; ^a Multiple mode, the smallest value is shown.

Based on the data distribution, a paired t-test (Table 5) was performed to compare the pre-test and post-test means for the items from the SERDB scale that are normally distributed (total score, past responses (SERDB2), knowledge/cognition (SERDB4), and situational self-efficacy (SERDB6)). The other items were not normally distributed, so, Wilcoxon Signed Rank test was used to analyze the data (Table 8).

Paired t-test. Table 5 displays the results of paired t-test. There was a significant increase in the self-efficacy total score after participating in the online modules ($M = 78.54$, $SD = 13.49$) compared to the pre-test score ($M = 57.78$, $SD = 17.20$), $t(40) = 8.62$, $p < .0001$ with a large effect size ($r = .55$). The CL effect size indicates that after controlling for individual differences, the likelihood that a person scores higher for Mean 2 (post-test) than for Mean 1 (pre-test) is 91% (Lakens, 2013). The analysis also indicated that participants reported a significant increase on measures of knowledge/cognition (SERDB4: $M = 3.293$, $SD = 2.676$, $t(40) = 7.878$; $p < .0001$) with a large effect size ($r = .62$). The CL effect size indicates that after controlling for individual differences, the likelihood that a person scores higher for Mean 2 (post-test) than for Mean 1 (pre-test) is 89% (Lakens, 2013). The situational self efficacy also showed a significant increase (SERDB6: $M = 3.073$, $SD = 2.534$, $t(40) = 7.767$; $p < .0001$) with a large effect size ($r = .58$). The CL effect size indicates that after controlling for individual differences, the likelihood that a person scores higher for Mean 2 (post-test) than for Mean 1 (pre-test) is 89% (Lakens, 2013). Scores on past behaviour item of the SERDB scale increased between pre and post-test. However, this increase was not significant (SERDB2: $M = 0.341$, $SD = 1.477$, $t(40) = 1.481$; $p = .147$).

Table 8: Wilcoxon Signed Rank Test

Outcome measure	Z	p-value	Effect Size (r)
SERDB1: Confidence in ability to respond effectively	-5.246	<.0001*	.58
SERDB3: Responding effectively is important	-3.552	<.0001*	.39
SERDB5: Responding effectively will end the behaviours	-3.786	<.0001*	.47
SERDB7: Overall self-efficacy in normal situational context	-4.911	<.0001*	.54
SERDB8: I believe in my ability to respond effectively	-5.326	<.0001*	.59
SERDB9: Responding effectively is a valuable skill	-3.562	<.0001*	.42
SERDB10: I care about being able to respond effectively	-4.211	<.0001*	.42

* Significant results with $p < .0001$; SERDB: Self-efficacy to Respond to Disruptive Behaviours.

Wilcoxon Signed Rank test. The test revealed a statistically significant increase in participants' overall self-efficacy measures (SERDB1: $z = -5.246$, $p < .0001$; SERDB8: $z = -.326$, $p < .0001$) with large effect sizes ($r = .58$, $r = .59$, respectively). In terms of the affect measures, a significant increase was also noted (SERDB3: $z = -3.552$, $p < .0001$; SERDB9: $z = -3.786$, $p < .0001$) with medium effect sizes ($r = .39$, $r = .42$, respectively). On the measures related to participants' motivation, there was a significant improvement in the post-test compared to the pre-test (SERDB5: $z = -4.211$, $p < .0001$; SERDB10: $z = -3.786$, $p < .0001$) with medium effect sizes ($r = .47$, $r = .42$, respectively). The second measure of situational self efficacy (SERDB7) showed a significant increase as well ($z = -4.911$, $p < .0001$) with a large effect size ($r = .54$).

Intent to Intervene

In the pre-test and post-test, participants were asked about perceptions of their intent to intervene in the event of being a target or witness of workplace bullying. Participants answered the question on a scale of 0 to 10, where 0 is “Not Likely” and 10 is “Extremely Likely”. The mean response for pre-test was 5.17 with 2.68 points standard deviation. While in the post-test, the mean score increased to be 8.02 with smaller standard deviation of 1.74 points. In the pre-test, the responses ranged from 0 to 10, while in the post-test the range was 7 with 3 for the minimum score and 10 for the maximum score. More details are presented in Table 9.

Table 9: Intent to Intervene Pre- and Post-Test Measures of Central Tendency

	Pre-test Intent to Intervene score	Post-test Intent to Intervene score
N	41	41
Mean	5.17	8.02
Median	6.00	8.00
Mode	2	8 ^a
SD	2.68	1.74
Variance	7.20	3.02
Range	10	7
Minimum	0	3
Maximum	10	10

^a Multiple mode, the smallest value is shown; SD: Standard Deviation.

Then, a paired-samples t-test was conducted to compare the mean score of participants' intents to intervene in the future events of bullying after their participation in the online educational modules. As shown in Table 5, there was a significant difference in the scores for pre-test ($M = 5.17$, $SD = 2.68$) and post-test ($M = 8.02$, $SD = 1.74$); $t(40) = 7.88$, $p < .001$ with a

large effect size where $r = .52$ which indicates that after controlling for individual differences, the likelihood that a person scores higher for Mean 2 than for Mean 1 is 89% (Lakens, 2013).

In summary, all outcome measures (knowledge assessment, self efficacy, and intent to intervene) had significant pre-/post-intervention differences as per the unadjusted paired samples testing except for one measure of self-efficacy, which was previous engagement in effective responses (previous behaviour, SERDB#2). This analysis suggests that the online educational modules were effective in enhancing participants' knowledge, self-efficacy, and intent to intervene. Given the small sample size, these results should be considered with caution.

Repeated Measures Generalized Linear Regression Model

As mentioned in chapter three, evidence suggests that personal and environmental factors may impact the effectiveness of interventions aimed at identifying and managing bullying in the healthcare workplace. Therefore, this section presents the results of the univariate repeated measures of generalized linear regression analysis to explore covariate influences on the outcome measures. The outcome measures included in this section are the measures that had significant pre-/post-intervention differences as per the unadjusted paired samples testing (Tables 5 and 8). This analysis explored if a significant within-subject change in the pre-/post-intervention outcome measures remained after controlling for a single covariate (factor) (i.e., comparison of adjusted means by a covariate) and time of test (pre-test, post-test) served as the within-subjects factor. Given the small sample size, these results should also be considered with caution.

Moreover, this analysis also considered any covariate interaction effects with time which examines whether a change in outcome measure/score over time had a directional relationship (i.e., positive or negative) with specific individual factors (covariates). As mentioned in the data analysis plan, independent samples testing was conducted to determine the presence of any relationship between the independent variables (9 participants' covariates) and outcome variables (Appendix J). Parametric tests for normally distributed data (i.e., Pearson correlations for continuous variables, t-test for 2-category variables and ANOVA for greater than 2-category variables) and non-parametric tests for non-normal distributions (i.e., Spearman correlation for continuous variables, Mann-Whitney test for 2-category variables and Kruskal-Wallis test for greater than 2-category variables) were used for the independent samples testing. The covariates that were chosen for the univariate linear regression model are the independent variables found

to be significantly correlated with the outcome measures at $p < .05$ in the independent samples testing (Appendix J). Separate regression models were created for each outcome variable with each covariate. Please note that these results should be considered with caution.

All outcome measures had significant pre-/post-intervention differences as per the unadjusted paired samples testing except for the second item of the SERDB scale (SERDB#2). Therefore, SERDB#2 was excluded from the regression analysis. The findings for each outcome variable are described in detail below. A significance level of $p < 0.05$ was used in the regression analysis and residual distributions were checked for normality (Dr. Rabbani, personal communication, October 1, 2020). Profile plots are included in appendix (H) to explain which group was exhibiting more change over time.

Table 10: Univariate Regression Model (adjusted by a single factor) of Knowledge Assessment Score

WB Knowledge assessment score (out of 20)						
Within-subject effects	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
a. Adjusted by GPA						
Time	44.257	1	44.26	8.26	.007*	.182
Time*GPA	24.55	1	24.55	4.58	.039*	.110
Error (time)	198.32	37	5.36			
b. Adjusted by Target						
Time	425.31	1	425.31	84.86	<.0001*	.685
Time*Target	31.41	1	31.41	6.27	.017*	.138
Error (time)	195.47	39	5.01			

* Significant results; significance level of .05 used.

WB: Workplace Bullying; SE: Standard Error; KA: Knowledge Assessment; df: Degree of freedom.

Bullying knowledge assessment. Two covariates were included as single factors in the regression model for this dependent variable: GPA and being a target of bullying (Table 10).

GPA. Results showed a statistically significant time effect, $F(1, 37) = 8.26$, $p = .007$. This means that after adjusting for the GPA, knowledge assessment score remained significantly increased in the post-test. There was a significant interaction effect of time by GPA, $F(1, 37) = 4.58$, $p = .039$. The analysis suggests that an increase in knowledge assessment scores over time may be impacted by students' GPA.

Target of bullying. After adjusting for being a target of bullying, a significant increase in the knowledge assessment score remained, $F(1, 39) = 84.86$, $p < .0001$. There was a significant

interaction effect of time by being a target of bullying, $F(1, 39) = 6.27, p = .017$, with "yes" group increased more knowledge score than the "no" group (Appendix H). The analysis suggests that an increase in knowledge assessment scores over time may be impacted by the experience of being a target of bullying.

Table 11: Univariate Regression Model (adjusted by a single factor) of Intent to Intervene Score

Intent to intervene Score						
Within-subject effects	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
a. Adjusted by Gender**						
Time	62.27	1	62.27	26.19	<.0001*	.402
Time*Gender	14.85	1	14.85	6.25	.017*	.138
Error (time)	92.71	39	2.38			
b. Adjusted by previous education about WB						
Time	33.67	1	33.67	12.34	.001*	.240
Time*Education	1.18	1	1.18	0.43	.515*	.011
Error (time)	106.38	39	2.73			
c. Adjusted by English is a second language**						
Time	94.01	1	94.01	35.12	<.0001*	.474
Time*English	3.18	1	3.18	1.19	.282	.030
Error (time)	104.38	39	2.68			

* Significant results; significance level of .05 used.

** The assumption of homogeneity test is not fulfilled as the p value for Levene's test is < .05. WB: Workplace Bullying; SE: Standard Error; ITI: Intent to Intervene; df: Degree of freedom.

Intent to intervene. Three covariates were tested as a single factor for the dependent variable "intent to intervene." They were gender, previous education about bullying, and English as a second language (Table 11).

Gender. There continued to be a significant increase in pre-/post-intervention intent to intervene score after gender was controlled, $F(1, 39) = 26.19, p < .0001$. There was also a significant interaction effect of time by Gender, $F(1, 39) = 6.25, p = .017$, with females experiencing more change in scores over time (Appendix H). The analysis suggests that an increase in intent to intervene score overall and with time may be impacted by student's gender.

Previous education about bullying. A significant increase in pre-/post-intervention intent to intervene score remained when previous education about bullying was controlled, $F(1, 39) = 12.34, p = .001$. Previous education about bullying did not have a significant interaction with

time, $F(1, 39) = 0.43$, $p = .515$. This analysis suggests that previous education about bullying did not influence the intent to intervene score.

English as a second language. After controlling for participants' first language, a significant increase in pre-/post-intervention intent to intervene score was still noted, $F(1, 39) = 35.12$, $p < .0001$. The interaction with time was not significant, $F(1, 39) = 1.19$, $p = .282$. These findings suggest that participants' first language did not have an influence on the intent to intervene over time.

Table 12: Univariate Regression Model (adjusted by a single factor) of SERDB Total Score

SERDB Total						
Within-subject effects	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
a. Adjusted by being Target of WB						
Time	9264.47	1	9264.47	83.68	<.0001*	.682
Time*Target	432.86	1	432.86	3.91	.055	.091
Error (time)	4317.92	39	110.72			
b. Adjusted by Gender						
Time	4719.68	1	4719.68	39.49	<.0001*	.503
Time*Gender	90.02	1	90.02	0.75	.391	.019
Error (time)	4660.76	39	119.51			

* Significant results; significance level of .05 used.

SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; df: Degree of freedom.

Self-efficacy to respond to disruptive behaviours total score. Two covariates were tested as a single factor for this dependent variable. They were gender and being a target of bullying (Table 12).

Target of bullying. When the covariate being a target of bullying was controlled, there was a significant increase in mean self-efficacy total score from pre- to post-intervention, $F(1, 39) = 83.68$, $p < .0001$. There was no significant interaction effect of time by being a target of bullying, $F(1, 39) = 3.91$, $p = .055$. This proposes that an over time increase in total self-efficacy score is not influenced by experiencing bullying as a target.

Gender. There continued to be a significant increase in the total self-efficacy score after adjusting for participants' gender, $F(1, 39) = 39.49$, $p < .0001$. However, there was no interaction effect of time by gender, $F(1, 39) = 0.75$, $p = .391$. These findings suggest that participants' gender did not have an impact on the self-efficacy total score over time.

Table 13: Univariate Regression Model (adjusted by a single factor) of SERDB1

Confidence in ability to respond effectively (Overall self-efficacy, SERDB1)						
Within-subject effects	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
Adjusted by Gender						
Time	130.53	1	130.53	47.82	<.0001*	.551
Time*Gender	0.04	1	0.04	0.02	.899	.000
Error (time)	106.47	39	2.73			

* Significant results; significance level of .05 used.

SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; df: Degree of freedom.

Confidence in ability to respond effectively (Overall self-efficacy, SERDB1). One covariate was included in the regression model as a single factor for this self-efficacy outcome measure, this factor was gender (Table 13).

Gender. After adjusting for participants' gender, there continued to be a significant increase in the overall self-efficacy (SERDB1) post-intervention score, $F(1, 39) = 47.82$, $p < .0001$. However, there was no interaction effect of time by gender, $F(1, 39) = 0.05$, $p = .899$. These findings suggest that participants' gender did not have an impact on the participants' overall self-efficacy over time.

Table 14: Univariate Regression Model (adjusted by a single factor) of SERDB4

I know how to respond effectively (Cognition, SERDB4)						
Within-subject effects	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
Adjusted by Gender						
Time	84.81	1	84.81	26.47	<.0001*	.404
Time*Gender	18.28	1	18.28	5.70	.022*	.128
Error (time)	124.97	39	3.20			

* Significant results; significance level of .05 used.

SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; df: Degree of freedom.

I know how to respond effectively (Cognition, SERDB4). Gender is the covariate that was included in the regression model as a single factor for this self-efficacy outcome measure (Table14).

Gender. A significant increase in pre-/post-intervention cognition component of self-efficacy (SERDB4) remained when gender was controlled, $F(1, 39) = 26.47$, $p < .0001$. There was also a significant interaction effect of time by gender, $F(1, 39) = 5.70$, $p = .022$, with females

experiencing more change in scores over time (Appendix H). The analysis suggests that an increase in cognition score (SERDB4) with time may be impacted by student's gender.

Table 15: Univariate Regression Model (adjusted by a single factor) of SERDB5

Responding effectively will end the behaviours (Motivation, SERDB5)						
Within-subject effects	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
a. Adjusted by English is a second language						
Time	15.50	1	15.50	7.58	.009*	.163
Time*English	5.16	1	5.16	2.52	.120	.061
Error (time)	79.72	39	2.04			
b. Adjusted Witness of WB						
Time	40.50	1	40.50	20.6	<.0001*	.347
Time*Witness	8.50	1	8.50	8.00	.044*	.100
Error (time)	76.38	39	1.96	4.34		

* Significant results; significance level of .05 used.

SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; WB: Workplace Bullying; df: Degree of freedom.

Responding effectively will end the behaviours (Motivation, SERDB5). Two covariates were included in the regression model as single factors for this self-efficacy outcome measure: English as a second language and being a witness of bullying (Table 15).

English as a second language. When the covariate English as a second language was controlled, the significant increase in pre-/post-intervention SERDB5 scores still exist, $F(1, 39) = 7.58$, $p = .009$. There was no significant interaction effect between time and participants' language, $F(1, 39) = 2.52$, $p = .120$. This proposes that participant's first language did not have an influence on SERDB5 (motivation) score.

Witness of bullying. Results showed a statistically significant time effect, $F(1, 37) = 20.6$, $p < .0001$. This means that after adjusting for the being a witness of bullying, motivation score (SERDB5) remained significantly increased in the post-test. There was also a significant interaction between time and being a witness of bullying, $F(1, 39) = 8.00$, $p = .044$, with the "yes" group demonstrating more of a change pre- to post-intervention (Appendix H). This suggests that witnessing a situation of bullying may influence the motivation (SERDB5) over time.

Responding in stressful situations (Situational self-efficacy, SERDB6). Three factors were analyzed as to potential influences on the pre- to post-intervention situational self-efficacy (SERDB6): Being born in Canada, previous education about bullying, and gender (Table 16).

Table 16: Univariate Regression Model (adjusted by a single factor) of SERDB6

Responding in stressful situations (Situational self-efficacy, SERDB6)						
Within-subject effects	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
a. Adjusted by being born in Canada						
Time	146.07	1	146.07	46.3	<.0001*	.543
Time*Born in Canada	5.58	1	5.58	1.77	.191	.043
Error (time)	122.81	39	3.15			
b. Adjusted Previous education about WB						
Time	28.70	1	28.70	9.07	.005*	.189
Time*Education	4.90	1	4.90	1.55	.221	.038
Error (time)	123.49	39	3.17			
c. Adjusted by Gender						
Time	98.20	1	98.20	30.6	<.0001*	.440
Time*Gender	3.37	1	3.37	1.05	.312	.026
Error (time)	125.02	39	3.21			

* Significant results; significance level of .05 used.

SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; WB: Workplace Bullying.

Born in Canada. After adjusting for place of birth, a significant increase in the situational self-efficacy (SERDB6) pre- to post-intervention continued to be observed, $F(1, 39) = 46.3$, $p < .0001$. There was no significant interaction effect of time by place of birth, $F(1, 39) = 1.77$, $p = .191$. This analysis suggests that place of birth does not have an overall impact on the situational self-efficacy (SERDB6) score.

Previous education about bullying. A significant increase in pre-/post-intervention situational self-efficacy (SERDB6) score remained when previous education about bullying was controlled, $F(1, 39) = 9.07$, $p = .005$. Previous education about bullying did not have a significant interaction with time, $F(1, 39) = 1.55$, $p = .221$. This analysis suggests that previous education about bullying did not have an effect on the situational self-efficacy (SERDB6) score.

Gender. After adjusting for participants' gender, there continued to be a significant increase in the situational self-efficacy (SERDB6) score, $F(1, 39) = 30.6$, $p < .0001$. Gender interaction with time was not significant, $F(1, 39) = 1.05$, $p = .312$. These findings suggest that

participants' gender did not have an influence on the situational self-efficacy (SERDB6) score over time.

Table 17: Univariate Regression Model (adjusted by a single factor) of SERDB7

Responding in normal situations (Situational self-efficacy, SERDB7)						
Within-subject effects	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
Adjusted by being Target of WB						
Time	182.41	1	182.41	58.24	<.0001*	.599
Time*Target	13.04	1	13.04	4.16	.048*	.096
Error (time)	122.16	39	3.13			

* Significant results; significance level of .05 used.

SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; WB: Workplace Bullying.

Responding in normal situations (Situational self-efficacy, SERDB7). Being a target of bullying is the covariate that was tested as a single factor for the situational self-efficacy (SERDB7) outcome measure (Table 17).

Target of bullying. When the covariate being a target of bullying was controlled, there was a significant increase in mean pre- and post-intervention situational self-efficacy (SERDB7) scores, $F(1, 39) = 58.24, p < .0001$. There was a significant interaction effect of time by being a target of bullying, $F(1, 39) = 4.16, p = .048$, with the "yes" group demonstrating more change in pre- to post-intervention scores (Appendix H). This proposes that an over time increase in situational self-efficacy (SERDB7) score may be influenced by experiencing bullying as a target.

Table 18: Univariate Regression Model (adjusted by a single factor) of SERDB8

Self-belief to respond effectively (Overall self-efficacy, SERDB8)						
Within-subject effects	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
Adjusted by Gender **						
Time	126.37	1	126.37	47.91	<.0001*	.551
Time*Gender	1.89	1	1.89	0.72	.403	.018
Error (time)	102.87	39	2.64			

* Significant results; significance level of .05 used; ** The assumption of homogeneity test is not fulfilled as the p value for Levene's is test $< .05$. SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; WB: Workplace Bullying.

Self-belief to respond effectively (Overall self-efficacy, SERDB8). Only one significant factor, participants' gender, was included in the regression analysis for this dependent variable (Table 18).

Gender. After adjusting for participants' gender, there continued to be a significant increase in overall self-efficacy (SERDB8) pre- to post-intervention, $F(1, 39) = 47.91, p < .0001$. There was no significant interaction between time and overall self-efficacy (SERDB8) score, $F(1, 39) = 0.72, p = .403$. This implies that gender does not have an overall impact on the overall self-efficacy (SERDB8) score.

Table 19: Univariate Regression Model (adjusted by a single factor) of SERDB9

Responding effectively is valuable (Affect, SERDB9)						
Within-subject effects	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
a. Adjusted by being Target of WB						
Time	25.03	1	25.03	15.55	<.0001*	.285
Time*Target	4.73	1	4.73	2.94	.094	.070
Error (time)	62.76	39	1.61			
b. Adjusted Witness of WB **						
Time	22.18	1	22.18	14.77	<.0001*	.275
Time*Witness	8.91	1	8.91	5.93	.020*	.132
Error (time)	58.57	39	1.50			

* Significant results; significance level of .05 used; ** The assumption of homogeneity test is not fulfilled as the p value for Levene's is test < .05. SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; WB: Workplace Bullying.

Responding effectively is valuable (Affect, SERDB9). Two covariates were tested as to their potential influence on affect (SERDB9) measure: being a target of bullying and being a witness of bullying (Table 19).

Target of bullying. After adjusting for being a target of bullying, a significant increase in the affect (SERDB9) measure pre- to post-intervention continued to be noticed, $F(1, 39) = 15.55, p < .0001$. There was no significant interaction with time and being a target of bullying, $F(1, 39) = 2.94, p = .094$. This suggests that experiencing bullying as a target did not have an impact on the affect (SERDB9) measure.

Witness of bullying. After adjusting for witnessing bullying, there remained a significant increase the affect (SERDB9) measure, $F(1, 39) = 14.77, p < .0001$. There was a significant interaction effect of time by witnessing bullying, $F(1, 39) = 5.93, p = .020$, with "yes" group exhibiting more change in the affect (SERDB9) measure from pre- to post-intervention (Appendix H). The analysis suggests that an increase in the affect (SERDB9) measure over time may be impacted by experiencing bullying as a witness.

Multiple Repeated Measures Generalized Linear Regression Model

Then, a multiple repeated measure of regression analysis was performed to explore covariates influences on the outcome measures. The outcome measures included in this section are the ones that had more than one significant covariate in the univariate repeated measure of regression analysis (KA score, intent to intervene score, SERDB total score, SERDB5, SERDB6, and SERDB9). This analysis explored if a significant within-subject change in the pre-/post-intervention outcome measures remained after controlling for multiple covariates (factors) (i.e., comparison of adjusted means by covariates). This process allows us to learn the role of each independent variable without worrying about the other variables in the model (Arbogast & VanderWeele, 2013). Given the small sample size, results should be considered with caution.

Table 20: Multiple Regression Model (adjusted by multiple factors) of Knowledge Assessment Score

WB Knowledge assessment score (out of 20)						
Source	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
Within-subject effects						
Time	63.77	1	63.77	6.56	.015*	.154
Time*GPA	29.78	1	29.78	3.06	.089	.078
Time*Target	46.73	1	46.73	4.81	.035*	.118
Error (time)	349.92	36	9.72			

* Significant results; significance level of .05 used.

WB: Workplace Bullying; SE: Standard Error; KA: Knowledge Assessment.

Bullying knowledge assessment. As shown in Table 20, after adjusting for the GPA and being a target of bullying, knowledge assessment score remained significantly increased $F(1, 36) = 6.56, p = .015$. There was also continued to have a significant interaction effect of time by being a target of bullying, $F(1, 36) = 4.81, p = .035$, with "yes" group increased more knowledge score than the "no" group. This analysis suggests being a target of bullying may have impact on knowledge scores.

Table 21: Multiple Regression Model (adjusted by multiple factors) Intent to Intervene Score

Intent to Intervene Score						
Source	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
Within-subject effects						
Time	14.66	1	14.66	6.05	.019*	.141
Time*Gender	13.82	1	13.82	5.70	.022*	.134

Time*English	2.55	1	2.55	1.05	.312	.028
Time*Education	0.35	1	0.35	.144	.706	.004
Error (time)	89.66	37	2.42			

* Significant results; significance level of .05 used. WB: Workplace Bullying; SE: Standard Error; ITI: Intent to Intervene; df: Degree of Freedom.

Intent to intervene. As presented in Table 21, there was a significant increase in pre-/post-intervention intent to intervene scores when the covariates gender, previous education about bullying, and first language were controlled, $F(1, 37) = 6.05$, $p = .019$. There was a time interaction effect by gender, $F(1, 37) = 5.70$, $p = .022$. However, there were no significant interaction effects of time by participants' first language and receiving previous education about bullying. These findings propose that participants' first language and previous education about bullying did not have an influence over time on the intent to intervene.

Table 22: Multiple Regression Model (adjusted by multiple factors) SERDB Total Score

SERDB Total Score						
Source	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
Within-subject effects						
Time	5088.36	1	5088.36	45.67	<.0001*	.546
Time*Gender	84.07	1	84.07	0.76	.390	.019
Time*Target	426.91	1	426.91	3.83	.058	.092
Error (time)	4233.85	38	111.42			

* Significant results; significance level of .05 used.

SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; WB: Workplace Bullying; df: Degree of Freedom.

Self-efficacy total score. There was a significant increase in pre-/post-intervention total self-efficacy score when the covariates gender and being a target of bullying were controlled, $F(1, 38) = 45.67$, $p < .0001$ (Table 22). There were no interaction effects between time and the two covariates. These findings propose that participants' gender and being a target of bullying did not have an influence on the total self-efficacy score over time.

Table 23: Multiple Regression Model (adjusted by multiple factors) SERDB5

Responding effectively will end the behaviours (Motivation, SERDB5)						
Source	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
Within-subject effects						
Time	39.62	1	39.62	20.32	<.0001*	.348
Time*Witness	2.28	1	2.28	1.17	.286	.030
Time*English	5.62	1	5.62	2.89	.098	.071

Error (time)	74.10	38	1.95
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* Significant results; significance level of .05 used.

SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; WB: Workplace Bullying; df: Degree of Freedom.

Responding effectively will end the behaviours (Motivation, SERDB5). After adjusting for English as a second language and being a witness of bullying, a significant increase in pre-/post-intervention motivation score (SERDB5) still noted, $F(1, 38) = 20.32, p < .0001$ (Table 23). However, there was no significant interaction with time. This analysis suggests that the participants' first language and witnessing bullying did not influence the motivation dimension of self-efficacy scores.

Table 24: Multiple Regression Model (adjusted by multiple factors) SERDB6

Responding in stressful situations (Situational self-efficacy, SERDB6)						
Source	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
Within-subject effects						
Time	17.41	1	17.41	5.56	.024*	.131
Time*Gender	2.21	1	2.21	0.71	.406	.019
Time*Education	5.04	1	5.04	1.61	.212	.042
Time*Born in Canada	4.14	1	4.14	1.32	.257	.035
Error (time)	115.81	37	3.13			

* Significant results; significance level of .05 used.

SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; WB: Workplace Bullying; df: Degree of Freedom.

Responding in stressful situations (Situational self-efficacy, SERDB6). After adjusting for place of birth, gender and previous education about bullying, a significant increase in pre-/post-intervention situational self-efficacy score (SERDB6) continued to be observed, $F(1, 37) = 5.56, p = .024$ (Table 24). There were no interaction effects between time and the three covariates. These results suggest that participants' place of birth, gender and previous education about bullying did not have an influence on the situational self-efficacy (SERDB6) score over time.

Table 25: Multiple Regression Model (adjusted by multiple factors) SERDB9

Responding effectively is valuable (Affect, SERDB9)						
Source	Sum of squares	df	Mean square	F	P-value	Partial Eta Squared
Within-subject effects						
Time	21.51	1	21.51	15.11	<.0001*	.285
Time*Witness	4.48	1	4.48	3.15	.084	.077

Time*Target	8.66	1	8.66	6.09	.018*	.138
Error (time)	54.09	38	1.42			

* Significant results; significance level of .05 used.

SE: Standard Error; SERDB: Self-efficacy to Respond to Disruptive Behaviours; WB: Workplace Bullying; df: Degree of Freedom.

Responding effectively is valuable (Affect, SERDB9). After adjusting for witnessing bullying and being a target of bullying, there remained a significant increase in the affect (SERDB9) measure, $F(1, 38) = 15.11, p < .0001$ (Table 25). There was no significant time interaction effect by being a witness of bullying. However, there was a significant interaction effect of time by being a target of bullying, with time. This result suggests that the witnessing bullying and being a target of bullying [$F(1, 38) = 6.09, p = .018$] may have an impact on the affect dimension of self-efficacy scores.

Chapter Summary

This chapter described the convenience sample of nursing students for this study. The tools used to measure the outcome variables were analyzed for internal consistency using Cronbach's alpha coefficient. Then, it has outlined results related to the study's specific research questions. Results relative to the effectiveness of the intervention to enhance participants' knowledge, self-efficacy, and intent to intervene were presented from the paired samples testing of pre- and post-intervention differences and the regression analysis to test for interaction effects of independent participants' variables. Although these results should be interpreted with caution, the results demonstrated that the intervention was effective in enhancing nursing students' knowledge about bullying, self-efficacy and intent to intervene in facing bullying.

Chapter Five: Discussion, Implications and Conclusions

The destructive effects of bullying among individual nurses and organizations have been substantially studied (Anusiewicz et al., 2020; Demir & Rodwell, 2012; Evans, 2017; Wilson, 2016). While most studies have focused on measuring the effects of bullying and a few have provided suggestions aimed at prevention, this study tested the effectiveness of an online modules in enhancing nursing students' knowledge, self-efficacy, and intent to intervene, prior to their entry into the nursing workforce. According to the Ecological Model of Workplace Bullying that was used to guide this study, targets of bullying are at the micro level of an overlapping system of antecedents and consequences. Interventions designed to eliminate bullying from the work environment needs to be evidence-based. Despite some advancement in this area, the efficacy of many interventions has not been well established and requires further research, with experimental and quasi-experimental research designs (Anusiewicz et al., 2020). There is a paucity of research testing interventions intended to identify and manage bullying and one of the strengths about this project was the development of an innovative online tool to educate nursing students about effective strategies to disrupt bullying. The Ecological Model of Workplace Bullying offered a systemic and context-rich view that allowed for a consideration of the many different causes of bullying and types of strategies that could mitigate bullying at many levels (Johnson, 2011).

The results of this study suggest that the online educational modules have the potential to positively influence undergraduate nursing students' knowledge, self-efficacy about bullying and their intent to intervene. In this chapter, I will discuss the results and place them in the context of the relevant empirical literature and theoretical perspectives. Based on the study's results, I will provide recommendations pertaining to curriculum and pedagogy for healthcare professionals and new graduates. I provide suggestions for future research, such as further psychometric testing of the bullying knowledge assessment tool. Based on the study's results, I promote the adoption and use of the online educational modules in the undergraduate nursing education and newly graduated nurses' orientation. The strengths and limitations of the study will be described, followed by a discussion of the overall implications for clinical practice, education, future research, and policy development. This discussion of the results is organized around the three outcome measures, namely knowledge, perceived self-efficacy, and intent to intervene.

The Sample Characteristics

For this study, most participants were female and the age range within participants was 20-25 years. The sample of 41 students was representative of the overall senior nursing student demographics in the two schools. At the first research site, undergraduate program enrolment across the years in 2018-19 included 84% female and 16% male (College of Nursing, 2019). At the second research site, 10% of the student population are male (Dr. Mitchell, personal communication, January 4, 2021). These demographics were also similar to other studies conducted with undergraduate nursing students (Aul 2017; Birks et al., 2017). Additionally, 39% of participants reported having experienced bullying personally, while almost half (49%) reported witnessing bullying. These results were congruent with the studies that reported the prevalence of bullying among nurses and nursing students (Laschinger et al. 2012; Spector et al., 2014; Tee et al., 2016). However, only one-third of students who faced bullying as a target or witness identified that they tried to act when they encountered bullying situations. These results are consistent with the literature which indicated that nursing students and new nurses avoid confronting the bullying behaviours because they fear the consequences of the confrontation or they are unaware of the policies and procedures of reporting bullying (Birks, et al., 2018; Boucauta & Knobben, 2020; Thomas, 2010).

The majority of participants reported no previous education to respond to any type of bullying, suggesting that these educational opportunities are urgently needed. Again, these results highlight the importance of including education about bullying in nursing curricula. Educating nurses about bullying raises awareness of this issue and can improve the ability to reduce the frequency and overall impact of bullying (Edmonson & Zelonka, 2019; Embree et al., 2013). It is well established in the literature that bullying needs to be addressed in nursing schools and at every point on a nurse's career (Clark & Gorton 2019; Johnston & Fox 2020; Sidhu & Park, 2018; Stagg et al., 2013). Nurses must recognize bullying in their practice and the resulting negative consequences in order to change inappropriate behaviour, so the online modules provided participants with information about bullying acts, reasons underlying bullying, and its consequences on nurses' and nursing students' health, patient safety and healthcare organizations.

Knowledge of Workplace Bullying

In spite of the emphasis in the literature on the importance of raising awareness and knowledge of nurses and nursing students about bullying (Chipps & McRury, 2012; Thomas, 2010), there were no well-established measurement tools to assess students' knowledge regarding bullying. The content and face validity of the knowledge assessment tool developed for this study were tested and pilot testing of the tool was also conducted; however, in the study the tool demonstrated low reliability. Questions in this tool were designed to measure students' understanding of the material provided in the modules. In the context of writing multiple choice questions, higher reliability means that if the same student wrote two tests designed to measure their understanding of the same material, their scores would be more comparable (DiBattista, 2008). As a result, testing the tool in different settings and with larger sample size is recommended to examine the reliability and revise items based on the results. I recommend that the Workplace Bullying Knowledge Assessment tool requires further testing and reworking. I propose that the next step would be re-evaluating the questions and their alternatives and a robust tool psychometric testing to ensure that the items are coherent and reflect the knowledge of bullying. Furthermore, it is important to note that various interventions directed toward teaching nursing students about bullying provide different content and teaching/learning strategies. I suggest that future research could develop, implement, and test the Ecological Model of Workplace Bullying (Johnson, 2011) that reflects the main dimensions of values, attitudes, knowledge, and behaviours provided in the educational interventions and reflected in the measurement tools.

Because the Knowledge Assessment Tool reliability test received a low Cronbach's alpha score, the interpretation of the results should proceed with some caution. However, the cognitive domain of the SERDB scale showed a significant increase in participants' scores from pre- to post-test. This item asked participants to report their knowledge as the item stated "I know how to respond effectively"; so, it measured participants' perceived knowledge.

Although the Knowledge Assessment Tool results needs to be interpreted with some caution, the SERDB results provided additional support for the first hypothesis that "the post-intervention knowledge test about bullying scores will be higher than the pre-intervention knowledge scores". Participants increased their knowledge score by 43% after completing the

modules. The paired sample t-test showed a significant mean difference of 4.39 with 95% CI [3.33, 5.45]. For the knowledge outcome measure, the effect size of .62 was found. The effect size measures the magnitude of the difference between group means and allow the researchers to judge the practical significance of the results derived (Fan, 2001). According to Cohen's (1988) benchmark, this effect size is considered large.

Increases in knowledge between pre and post-test were expected because the intervention included content and exercises that specifically targeted the cognitive domain. For example, the first module provided information about definition, acts, antecedents, consequences of bullying, while the second module provided information on evidence-based strategies to address and manage bullying. Moreover, the flexible and interactive nature of the online modules made it highly effective in educating nursing students as they could study at their own pace (Khalil & Schliephake, 2017; McCutcheon et al., 2015). Also, participants were motivated to learn as they voluntarily decided to participate.

The content of the modules was organized according to the systems of the Ecological Model. This approach facilitated participants' uptake of the knowledge. For instance, the first module explained antecedents of bullying (represented on the left side of the model). Then the outcomes (represented on the right side of the model) were explained at various levels such as the impact on nurses themselves, the outcomes on patient safety, and the outcomes on the organization. The second module was organized to include interventions that aimed to provide awareness-raising and education that will encourage participants to reconsider their behaviour and how they interact with colleagues and their work environment. These strategies correspond into three broad categories: target-focused, perpetrator-focused, and organizational-focused approaches. Increasing participants' knowledge means that they became more knowledgeable about bullying and they can recognize acts of bullying, consequences, and effective strategies to manage bullying.

The results of this study were consistent with findings of previous research regarding knowledge improvement. For example, in Brann and Hartley's (2017) study, they evaluated the impact of an online course created by the National Institute for Occupational Safety and Health (NIOSH) on participants' awareness and knowledge. The results demonstrated a significant increase in the mean scores of awareness and knowledge immediately after the course and four weeks after the course. In another study aimed at testing a journal club intervention designed to

foster student civility, they suggested that the journal club was effective in raising awareness, promoting civility and helpfulness, and broadening coping skills of nursing students (Kerber et al., 2012).

Self-efficacy

Results of this study supported the second hypothesis that "the post-intervention Self-Efficacy to Respond to Disruptive Behaviours (SERDB) scores will be higher than the pre-intervention scores". Thus, they confirmed the effectiveness of the online educational modules intervention in increasing self-efficacy to respond to bullying. When comparing any two assessment results, researchers can consider the effect size to see how substantially different they are (Fan, 2001). In this study, I examined the effect size of the difference between the pre- and post-test to learn how substantially the students' self-efficacy changed after participating in the online modules. All measures of self efficacy revealed medium to large effect sizes (Cohen, 1988). It can be argued that this is practically important because even a small change in participants' self-efficacy means that they believed in their ability to address bullying situations effectively.

Participants' total score of the SERDB scale (the mean score of the 10 items of the SERDB scale) demonstrated a significant increase with a large effect size which indicated an improvement in self-efficacy to manage bullying behaviours. Laschinger and Nosko (2015) described that the impact of bullying on post-traumatic stress disorder was greater for nurses with lower levels of self-efficacy. Students with higher self-efficacy may be able to improve quickly from setbacks, and in the end, may be more likely to achieve their goals. Whereas students with less self-efficacy believe they cannot be successful and thus may be less likely to create efforts in handling challenging tasks (Bandura, 1994). This means that increased self-efficacy is important for nurses to be able to confront the negative consequences of bullying. Currently, bullying exists in healthcare settings, and it can be postulated that one of the reasons is that nurses, specifically new nurses, lack the confidence in their ability to identify, manage, and prevent it from occurring in the workplace. Increasing self efficacy among nursing students who participated in this study may suggest that they will be able to identify and manage bullying and experience fewer negative consequences.

Measures of overall self-efficacy (SERDB 1 “I am confident in my ability to respond effectively to disruptive behaviours among health care workers” and SERDB 8 “I believe in my ability to respond appropriately and effectively to disruptive health care workers behaviours directed at me”) showed a significant increase from pre- to post-intervention. This increase was anticipated because participants were provided with knowledge about bullying and various effective strategies to address it. Moreover, they were afforded the opportunity to apply what they learned in the third module where they had five real life case scenarios of bullying. Bandura asserted that people could be persuaded to believe that they have the skills and capabilities to succeed (1977). The modules conveyed messages about the importance of facing bullying and to convince participants that nursing students and new nurses are able to do that in order to break the cycle of bullying and change the culture of accepting it in the nursing profession and in healthcare organizations.

The cognition aspect of self-efficacy was presented in the fourth item of the SERDB scale "I know how to respond to disruptive health care workers behaviours effectively". The item illustrated a significant increase with a large effect size. The modules provided participants with information about bullying and evidence-based effective strategies to mitigate it. Moreover, the modules included exercises that specifically targeted the cognitive domain. Knowledge is one factor that plays a role in the formation of self-efficacy (Kirkpatrick et al., 2018). The knowledge provided in the modules aligns with Bandura’s social cognitive theory and the importance of acquiring knowledge and skills to directly influence self-efficacy (Bandura, 1977, 1986). In this study, the modules were designed to improve knowledge and self-efficacy of students about bullying. The significant increase in this item reflected that participants exhibited an increase in their perceived knowledge about bullying as well. The large effect size of this measure implies that the magnitude of the perceived knowledge improvement is practically important and suggestive that participants are more knowledgeable about bullying and the effective strategies to handle it.

The situational self-efficacy domain (SERDB 6 “In stressful situations, I would be able to respond effectively to disruptive health care workers behaviours” and SERDB 7 “In normal situations, I would be able to respond effectively to disruptive health care workers behaviours”) demonstrated a significant increase from pre- to post-intervention as well. The two items refer to

participants' ability to respond effectively in stressful and typical situations, respectively. According to Bandura, situational self-efficacy refers to the ability to implement situation specific behaviours in order to attain established goals or selected outcomes (1977). The significant increase is expected as the modules presented variation in the case studies that reflected different situations of bullying that nursing students and nurses could be exposed to in natural workplace settings. For instance, one of the cases was related to bullying of the new nurse while she is trying to manage the workload and another case was about witnessing bullying happening to a co-worker. Bullying is more likely to occur in settings with high levels of stress and heavy workloads, which describe the nursing profession and health care in general (Edmonson & Zelonka, 2019). Therefore, it is imperative for nurses to be able to identify and manage bullying in normal and stressful situations.

Motivation dimension of self-efficacy was reflected in two measures, these measures are: SERDB5 "responding effectively will end the behaviours" and SERDB10 "I care about being able to respond effectively". Motivation is based on the individual's desire to achieve (Bandura, 1977). The modules content focused on the idea that bullying should not be an acceptable part of the nursing culture, and everyone can do their part in doing that by stepping up and managing the bullying situations. Consequently, motivation increased after the intervention since participants were more certain that effective responses would produce the desired result of making the bullying cease. Moreover, the knowledge they gained about the devastating consequences of bullying could be a factor in increasing their motivation to alleviate bullying from the workplace (Embree et al., 2013; Sanner-Stiehr, 2017).

The second item of the SERDB scale "In the past, I have been able to respond effectively to disruptive behaviours from a nurse or someone at work", which reflects the previous behaviour domain of self-efficacy, did not show a significant increase. This result may be attributed to the fact that past behaviour could not be positively influenced during the time between pre and post-test, which lasted only six weeks. The item stated that "In the past, I have been able to respond effectively to disruptive behaviours from a nurse or someone at work". The mean difference of the pre- to post-test score was small (0.34), so it is expected not to achieve statistical significance. The low pre-test score (3.93) is logical and can be explained because students perceived that their previous response to bullying situation was not effective. The post-

test score was low as well (4.27) because if they completed the post-test immediately after participating in the modules, it is anticipated that their response would not change. Besides, the score could have even decreased after participating in the modules as they reflected on their previous actions to realize that they were not effective. After completing the modules and if participants were exposed to a bullying situation before completing the post-test, this may have been associated with an increase in their response.

The affect dimension of self-efficacy was measured by two items. These items are SERDB3 "I think that the ability to respond effectively to disruptive health care workers behaviours is important" and SERDB9 "I think that the ability to respond to disruptive health care workers behaviours effectively is a valuable skill". The intervention is designed to target the cognitive and affective domains through interactive online education. The modules emphasized the importance of responding effectively to disruptive behaviours as an integral part of the nursing profession as mentioned in the Canadian Nurses Association (CNA) Code of Ethics (2017). Ethics play a central role in professional nursing values and bullying behaviours are unethical. The modules highlighted the idea that nursing is a profession that emphasize caring and ethical treatment of others including colleagues and students.

Intent to Intervene

Another objective of the intervention was to enhance nursing students' intent to intervene in future events of bullying. The results displayed a significant increase in post-intervention scores compared to the pre-intervention. An important characteristic of effective interventions is its ability to cause changes in both intention and subsequent behaviour (Webb & Sheeran, 2006). However, due to the cross-sectional nature of the study, it was not feasible to measure actual behavioural change, so measuring the intention was considered an appropriate indicator in the context of this dissertation. In a meta-analysis aimed to provide systematic integration of experimental studies that tested the impact of changing participants' intentions on subsequent behaviour change, Webb and Sheeran (2006) concluded that a medium-to-large sized change in intention prompts small-to-medium change in behaviour. They also noted that actual behaviours could be impacted by surrounding factors such as the participants' ability to control the behaviour. The results of this study that revealed a statistically significant increase in participants' intent to intervene with a large effect size is indicative that the intervention has the

potential to influence actual behavioural change and participants could have more control on their behaviour because of their enhanced self-efficacy.

As explained by the Ecological Model of Workplace Bullying (Johnson, 2011), feelings of oppression are one of the factors that triggers the bullying phenomenon. In this study, nursing students were assisted to conquer feelings of oppression by affording them methods to identify and manage bullying. Nursing students need access to tools and guidance in developing comfort, confidence, and competence in addressing bullying in both educational and practice settings with no negative repercussions (Zhu, Xing, Lizarondo, Guo, & Hu, 2019). Nursing students were empowered to mitigate the negative outcomes of bullying by enhancing their knowledge about bullying and improving their self-efficacy (Laschinger et al., 2012).

According to Bandura (1977), self-efficacy refers to individuals' confidence that they possess the skills necessary to execute a task or accomplish a goal. Self-efficacy is hypothesized to influence an individual's choice of activities, effort, and persistence across a wide range of human functioning (Bandura, 1977). Consequently, improving students' beliefs about their ability to successfully confront the bullies may improve their intent to intervene to solve the bullying situation. Therefore, it can be concluded that participants' intent to intervene could be increased because they were empowered by enhanced knowledge and self-efficacy, which was achieved through the online educational modules.

Covariate Influences

The design of this study was a one group pre-test post-test using a within-subject analysis. Therefore, including the analysis of possible influence of the covariates on the outcome measures was important to support the conclusions about the effectiveness of the intervention. As discussed in chapter 3, participants' demographics (age, gender, GPA, school year, first language, and place of birth); previous exposure to bullying as a target or a witness; and previous education about bullying were thought to have possible impact on participants' responses on the outcomes (knowledge, self-efficacy, and intent to intervene).

As indicated in chapter 2, I located only one study by Sanner-Stiehr and Smith (2015) that tested the possible influence of covariates on the effectiveness of bullying interventions. They found that age, gender, previous exposure to bullying, and previous education on bullying

were not covariates. It is worth noting that the cut off significance value was set at $p = .001$ and all participants in their study were female (Sanner-Stiehr & Smith, 2015).

In this study, the covariate analysis indicated a significant increase in the outcome measures after controlling for the covariates. This finding suggests that this intervention has the potential to increase knowledge, self-efficacy and intent to intervene among participants with varying characteristics. This study also offered cautionary insights into the potential influence of the covariates on the outcomes. Therefore, the covariates impact on the change in the pre- to post-intervention scores should be considered in the interpretation of the study results. Knowledge assessment scores were impacted by being a target of bullying. The group of students who reported that they were targets of bullying in clinical settings increased their knowledge assessment score more than the group who were not targets of bullying before. It can be speculated that experiencing bullying intensified their motivation to learn about bullying and effective strategies that could help them face it in the future.

Gender had an influence on self-efficacy (situational and cognition) and intent to intervene measures. This might be explained by the notion that men and women may react to bullying in different ways in which men were more likely to confront perpetrators, while women tended to use social support and avoidance more than men (Salin, 2018). However, female participants' intent to intervene showed higher increase overtime. This can be interpreted that the intervention empowered female participants, which in turn amplified their intent to intervene.

Witnessing a situation of bullying could influence motivation and affect dimensions of self-efficacy of participants. The modules focused on the important role of the witness in breaking the cycle of bullying as the modules conveyed the important message that when nurses witness an act of bullying, they need to step up and confront the bullies. Being a target of bullying could influence situational self-efficacy. According to Bandura (1977), experience is one of the factors that impact self-efficacy. For those who experienced bullying, their situational self-efficacy showed more change in pre- to post-intervention scores. This result may be interpreted such that their experience with these disruptive behaviours led them to believe in their ability to handle bullying in different situations.

In summary, the results of this study indicated that all participants regardless of their demographic characteristics have benefited from the intervention; however, some traits may have impact on the individual outcomes. Future studies and educational interventions should consider these factors – gender, exposure to bullying, and previous education on bullying.

Study Strengths

Bullying in the workplace is a continuing problem especially for nursing students and new nurses. Nursing educators should use opportunities in the classroom, skills and simulation laboratories and clinical environment to facilitate students' understandings of bullying and develop and practice strategies to address it (Aebersold & Schoville, 2020). This study added to the literature by using an innovative approach that included evidence-based online modules to educate nursing students about bullying. The main strength of this study was the development of the innovative online educational modules. To the best of my knowledge, this was the first online resource for nursing students in Canada about bullying. Using the online format provided students with unlimited access to the content of the online modules. This enabled them to access the information at times convenient to them and at their own pace. Students' learning is enhanced when they can revise content at their own speed and at a suitable time, providing them with flexibility that is supportive of their individual learning needs (Hogan et al., 2018). Besides, the development of online modules was especially timely and important now with the need for online instruction as more universities are delivering their courses online due to the current pandemic situation resulted from the spread of COVID-19. Moreover, two undergraduate nursing students participated in the modules' development. They helped in the creation of the modules using the Rise 360© application. They also provided their feedback in terms of the clarity and flow of the content and the use of the best interactive tools available in the Rise 360© application. Other students also participated in the modules by performing in the video created to portray a bullying situation at the beginning of the first module.

Many nurses work within environments that promote bullying because tolerating the disruptive behaviours or passively witnessing them contribute to unhealthy work environments. Therefore, according to the Ecological Model of Workplace Bullying (Johnson, 2011), there needs to be an integrated approach that includes the bullies, the victims of bullying, as well as the witnesses (Johnson, 2011; Kim, 2020). Nurses should be motivated to disrupt bullying even

when they are witnesses -not targets. Accordingly, content of the modules focused not only on teaching students how to respond to bullying when they are the target, but also when they are witnessing bullying. Furthermore, strategies like reflective practice were also included. These types of strategies encouraged all nurses and nursing students to engage in self-reflection regarding their practices as they may participate in bullying behaviour without initially recognizing that.

Given the damaging consequences of bullying, it is essential that interventions being offered by educational institutions and healthcare organizations are evidence-based. In this study, I not only designed the intervention, but I also assessed its effectiveness. Additionally, the covariate analysis supported that the results remained significant even after controlling for the possible covariates.

One more strength was the development and pilot testing of the Bullying Knowledge Assessment tool. There is a need to measure nursing students' knowledge about bullying; the development of the Bullying Knowledge Assessment tool was an important accomplishment and first step to develop and test reliable measurement tools that assess nursing students' and nurses' knowledge about bullying. However, further testing and improvement of the tool is essential to enhance its reliability.

Limitations

Causality of the effects of the online educational modules cannot be established within the used study design and sampling approach. This study was conducted at two nursing schools within one province in Canada; therefore, the generalizability to other nursing schools in other parts of the country or the world may be limited. Although this study provided valuable insight into the effectiveness of the modules, future studies using a larger multi-site sample are needed to provide conclusive and definitive evidence of the interventions that influence nursing students' and nurses' response to bullying. Moreover, a longitudinal design would be beneficial to measure the lasting effects of the intervention on the participants' outcomes. Another limitation was the lack of qualitative components which could provide more insights on participants' experiences with the online format, bullying and responding to it in the clinical settings.

Initially, 74 participants indicated their interest in participating in the study; however, only 41 of them finished the study. Limited information was collected from those students who did not participate in the three parts of the study. It would be useful to better understand their characteristics and rationale to inform strategies to enhance participation in future bullying educational intervention studies. The low response rate is another limitation as well. This could be attributed to many reasons. For example, students in one setting were not enrolled in classes during the summer term and the pandemic halted the recruitment as it was planned to recruit participants from a third site. Moreover, the length of time to complete the study, including the educational materials and the surveys could be a potential limiting factor as it approximately required 2 hours to complete the three parts of the study. Providing students with in-class time to participate and complete the tests and modules may provide a more robust sample size in future studies.

As a result of the small sample size and large number of covariates and tests included in the regression analysis, the chance of realizing significant results due to chance is increased. The covariate analysis was an important aspect of the investigation, as this has not been addressed sufficiently in previous studies. It is recommended that the identified covariates from this study should be further examined within a larger sample to better understand their potential impact on nursing students' and nurses' outcomes. Although the use of a significance level of $p < 0.05$ for the quantitative analysis indicated significant pre-/post-intervention changes in the outcome measures, statistical limitations are also noted because of the small sample size. The reliability of results of the knowledge outcome measure was limited because the knowledge assessment tool demonstrated low internal consistency of items; so, replication with a revised tool and larger sample size is warranted. For future research, a study could be conducted to develop and validate an effective, reliable, and valid knowledge test.

Response bias shows up in self-report measures (Polit & Beck, 2017). Variables such as self-efficacy or intent to intervene are particularly subject to this form of bias. Nonetheless, measurements of self-efficacy and intent to intervene reflect self-perceptions, making it impossible for an external, completely objective measurement. However, the SERDB scale illustrated high reliability for pre- and post-test. The use of mono-item scales to measure the intent to intervene also constituted a limitation. Moreover, this study measured only behavioural

intentions; so, future research may examine objective reporting behaviour, or multi-source ratings of actual behaviour.

Future Implications

Several implications for nursing arose from this study in the areas of practice, education, research, and policy development. Opportunities for advancement of knowledge and application in these areas are presented below.

Practice Implications

Unhealthy work environments that include bullying behaviours have a negative effect on patient safety as well as nurses' physical and psychological health (Demir & Rodwell, 2012; Hogh et al., 2011; Kim, 2020; Laschinger, 2014). Research suggests that healthcare organisations and nursing leaders are required to place increasing focus on interventions that reduce bullying behaviours (Arnetz et al., 2019; Hartin, Birks, & Lindsay, 2020; Vessey et al., 2009). Preparing nurses to identify and manage bullying will help improve the practice setting for nurses and patients. Therefore, many health care institutions are looking for resources to improve work environment for all staff and support new nurses' transition into practice, and these modules would serve this purpose. The results suggest that an online format can be useful for disseminating information to a broad audience of nursing students and nurses because of its convenience and accessibility. Although this intervention was designed to educate nursing students about bullying, the content could be updated and tailored to be applied into new nurses' orientation and areas of development and training of practice nurses as well as allied health professionals. Regulatory bodies may be interested in offering these modules to their members.

Education Implications

Educational institutions have a responsibility for implementing policies and procedures that address bullying. Nursing schools must ensure that nursing students are equipped with the knowledge and skills to effectively identify and manage bullying in the clinical setting (Eka & Chambers, 2019; Sanner-Stiehr, 2017). The potential for the online education to enhance knowledge and self-efficacy of nursing students is a significant consideration in respect to students' knowledge development and behaviour change. Online courses provide education institutions new opportunities to deliver content in ways that the students of today can relate to

(Cobb et al., 2018). Due to the current state of pandemic, many postsecondary institutions have changed their traditional ways of delivering education to rely on online delivery (Morin, 2020). As the demand for online learning keeps growing and more universities began adding online courses into their programs, the modules developed in this study have the potential to be easily incorporated into courses in nursing curricula.

The ability to identify and manage destructive behaviours in the workplace is a lifelong self-care skill for all nurses and health care professionals that need to be introduced early and reinforced throughout the nursing curriculum and entry into practice (Clark & Gorton, 2019). Accordingly, I recommended including the modules as early as in the first clinical course in the nursing curriculum, so students will have the knowledge and confidence in their abilities to deal with disruptive behaviours in the workplace when they start their clinical rotations. Another suggestion is to include the modules in the nursing ethics and law courses. One more potential for the education implication is to integrate the modules in the simulation courses, where students can study the modules, then simulation instructors can add scenarios of bullying and ask students to apply what they learned from the modules.

Research Implications

There are several ideas for future research that emanate from this study. Future research implications include conducting additional testing of the online educational modules within a larger study using a larger sample size from multiple sites with a comparative group. Furthermore, a repeated measures longitudinal design with measurements taken at baseline, immediately after the intervention, and six months post-intervention would offer an additional perspective on effectiveness and relevance of the modules and link the intervention to behavioural change. Additional research, especially qualitative studies, is also needed to acquire deeper insights into participants' experiences of the online modules as well as their experiences of bullying after participating in the intervention. As a measure to increase sample size, instructors could offer class time for students to complete the online modules. It would be beneficial to have class time and more support from faculty and administration to introduce this intervention for nursing students and test its effectiveness.

Improving the reliability and validity of the Bullying Knowledge Assessment tool used in this study is another valuable future project. The findings suggest that in order to measure students' knowledge about bullying effectively, necessary improvements need to be done where questions should be reviewed to create a psychometrically valid instrument. Although the SERDB scale used in this study is relatively a new scale, the analysis exhibited satisfactory reliability. Further research is required regarding the use of the scale with a larger sample size to perform additional psychometric testing to validate the scale.

The literature lacks a unified definition of bullying, which creates a challenge in measuring the phenomenon and designing interventions to address it. Future research is required to establish what student nurses conceptualize as bullying behaviours and therefore constitutes bullying in the eye of the student. It is also recommended to expand the definition of bullying to include single acts, which is identified in the literature to have negative consequences on the targets and witnesses of bullying (Caza & Cortina, 2008).

There may be cultural differences in both the prevalence and the nature of bullying across countries. Hence, future research in different countries is needed to modify the content of the modules to reflect these differences. Also including questions about race (e.g BIPOC (Black, Indigenous, and People of Color)) among students and nurses would add further depth into the analysis of the intervention effectiveness. These modules could serve as a model and template for future researchers to help design effective education that aims at preventing bullying for future generations of nurses.

Policy Implications

Given the importance of understanding and preventing bullying in the workplace, organizational leaders must pay attention to policy development and to developing an organizational context that prevents bullying behaviour (Hurlic & Young, 2014). Despite the efforts of healthcare organizations to set standards and position statements for implementing processes to monitor and evaluate respectful workplace programs aimed at eliminating bullying, it is still prevalent within the nursing work environment (Armstrong, 2018). The results highlight the importance of the online educational modules in improving participants' knowledge, self-efficacy, and intent to intervene that in turn helps in creating healthy and respectful work

environments. Subsequently, these results may be used to support nursing managers and leaders in the healthcare settings to mandate such interventions in new nurses' orientation and current staff professional development and revisit institutional policies about respectful workplaces.

Conclusion

In this study, three online educational modules were developed to enhance undergraduate nursing students' knowledge and self-efficacy regarding bullying and their intent to intervene in the events of bullying. One group pre-test post-test design was used to test the effectiveness of the modules. Although the results need to be interpreted with caution, they indicated that completion of the online educational modules had a significant influence in enhancing nursing students' knowledge, self-efficacy, and intent to intervene. Results also highlighted the importance of including evidence-based educational modules in nursing curricula to educate nursing students about bullying.

This study was guided by the principles of the Ecological Model of Workplace bullying (Johnson, 2011) and the Bandura's self-efficacy theory (1977). It was hypothesized that the online modules would provide the participants with information and tools to identify and manage bullying in the healthcare workplace and to overcome feelings of oppression. Bullying can be mitigated through empowerment of nursing students by educating them about bullying and how to intervene, which in turn enhanced their knowledge about bullying, improved their self-efficacy in dealing with it and increased their intent to intervene when they face it in the future.

Nursing students and new nurses should be prepared for the practice world. While bullying is a pervasive and systemic problem that will not be solved easily or quickly, it should have no place in a caring profession like nursing and these destructive behaviours should never be accepted. The online educational intervention facilitated the identification of bullying and encouraged nursing students to appropriately intervene when witnessing or experiencing bullying. With the increased interest in online teaching, the development of these modules is timely and introduces a meaningful education method as nursing students can be provided with these evidence-based, accessible, and user-friendly educational approaches.

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Appendix A

Demographic Questionnaire

1. What is your age in years? -----
2. What do you identify as your gender?
 - Female
 - Male
 - Transgender
 - Do not wish to answer.
3. Were you born in Canada?
 - Yes
 - No
4. Is English your second/additional language?
 - Yes
 - No
5. Where are you enrolled in your nursing program?
 - University of Manitoba
 - Red River College
6. What year are you in the program?
 - 2nd year
 - 3rd year
 - 4th year
7. What is your cumulative GPA in your nursing program? (e.g. 3.75) -----
8. During your clinical rotations, have you been a target of workplace bullying?
 - Yes
 - No

If yes, have you taken any action in that situation?

 - Yes
 - No
9. During your clinical rotations, have you been a witness of workplace bullying?
 - Yes
 - No

If yes, have you taken any action in that situation?

- Yes
- No

10. Have you previously participated in any educational opportunity about workplace bullying?

- Yes
- No

Appendix B

Knowledge Assessment Tool

1. Targets of workplace bullying may experience which of the following emotional consequences? 1. Anger 2. Low self-esteem 3. Self-doubt 4. Lack of motivation 5. Hypervigilance in work habits 6. Anxiety

- 2, 3, and 6
- 1, 2, 3, and 6
- 1, 2, 3, 4, and 6**
- All of the above
- I don't know

2. A staff nurse working in a Winnipeg hospital believes s/he is being bullied in the workplace. Which of the following would provide the best guidance for how the nurse should proceed?

- Staff Educator
- Winnipeg Regional Health Authority Respectful Workplace Policy**
- Legal Aid
- Manitoba Nurses' Union representative for that unit
- I don't know

3. Targets of workplace bullying may experience which of the following physical consequences? 1. Headaches 2. Eating disorders 3. Decreased blood pressure 4. Recurrent nightmares 5. Sleep disturbances 6. Cardiac arrhythmias

- 1 and 3
- 1, 3, and 5
- 1, 2, 4, 5, and 6**
- All of the above
- I don't know

4. A staff nurse, Mary, overhears a colleague saying derogatory remarks about a student nurse to another staff nurse. "That student is so incompetent! She should have stayed in her home country!" What strategy would be most effective in this situation?

- Mary should report the colleague to the unit manager.
- Mary should offer to have coffee with the colleague to try to help her be more understanding of the student nurse.

- Mary should tell the student nurse to “be careful” around the colleague.
- **Mary should address the situation privately with the colleague.**
- I don’t know

5. A staff nurse working in a Winnipeg hospital believes s/he is being bullied in the workplace. What information should the nurse include when documenting these occurrences? 1. Dates and times of the occurrences 2. Names of any witnesses to the occurrence 3. Comments made during the occurrences 4. Impressions about the individual who is doing the bullying 5. Any facts which would validate bullying behaviour

- 1 and 2
- 1, 2, and 3
- **1, 2, 3, and 5**
- All of the above
- I don’t know

6. New hires to a nursing unit often lack an understanding of the pace of the new floor, so other staff members made them to feel that they are “in the way”. Which of the following is a common outcome of this occurrence?

- Increased patient dissatisfaction
- **Feelings of rejection and a lack of bonding**
- Increased fatigue and somatic illness
- An increase in the number of complaints to the unit manager
- I don’t know

7. A strategy to appropriately manage bullying in the workplace is called “Name the behaviour”. Which of the following would be the best example of this strategy?

- **“You are yelling and screaming at me in the middle of the ward where patients and families can hear you.”**
- “Please stop treating me so badly.”
- “I think that you are being very inconsiderate to me.”
- “When you treat me this way, I feel very upset.”
- I don’t know

8. Research has shown that the majority of nurses who witness workplace bullying do not intervene. Which of the following are commonly identified reasons for not intervening? 1.

The witness does not want to get involved. 2. The witness is afraid that the bully might retaliate against him/her. 3. The witness fears that s/he may lose their job. 4. The witness is not sure that what s/he saw as bullying behaviour. 5. The witness will choose to file a confidential complaint to the manager.

- 1 and 2
- 1, 2, and 3
- All but 3**
- All of the above
- I don't know

9. Randy, a new graduate, has been working on a unit for 2 months. A senior staff nurse frequently points out that “everything goes wrong when Randy is working a shift”. This would be an example of what type of bullying behaviour?

- Backstabbing
- Scapegoating**
- Undermining
- This is not bullying
- I don't know

10. Two important distinctive features about bullying behaviour include which of the following?

1. It is a repeated pattern of behaviour 2. The intent of bullying is to do harm to another 3. It involves inclusion in a group 4. It always involves a significant power differential 5. It usually is a short-term occurrence

- 1 and 2**
- 2 and 3
- 1 and 4
- 4 and 5
- I don't know

11. A supervisor calls a nurse into his office for a chat. This has happened on 2 other occasions. The supervisor stated, “I don't want to have to tell you this, but some of your colleagues have complained about you today. They say that you are not a team-player and that you never help them when they are busy. If this continues, I am going to put a written warning in your file.” The nurse is shaken by this, as her colleagues have not discussed this with her, and she knows

that she is willingly helps them when she is able to do so. Which of the following would be the best initial response by the nurse in this situation?

- **Recognize that the supervisor's behaviour is a form of bullying.**
- Privately speak with colleagues that she is working with that day, to verify whether they have spoken with the supervisor.
- File a written complaint about the supervisor with Human Resources.
- Accept that the supervisor is responding in a positive way and try to change.
- I don't know

12. Workplace bullying has a significant effect on healthcare organizations, including which of the following? 1. There is often an increase in absenteeism by nurses who are being bullied. 2. Nurses who are being bullied become less committed to the healthcare organization. 3. There is often an increase in work productivity on the unit as staff cover for others. 4. The cost of replacing nurses who leave because of workplace bullying raises the overall cost of health care.

- 1 and 2
- 1, 2, and 3
- 2, 3, and 4
- **1, 2, and 4**
- I don't know

13. According to the WRHA Respectful Workplace Procedure Manual, which of the following groups is responsible for promoting awareness of the Respectful Workplace Policy within an institution?

- Occupational & Environmental Safety & Health (OESH)
- **Human Resources**
- Manitoba Nurses' Union
- Hospital administration
- I don't know

14. A student nurse witnesses workplace bullying on the unit during her medical unit rotation. She notes that one nurse, Mira, frequently talks about what a terrible nurse Susan is. Mira has told the student to ask for a change in her patient assignment if Susan is her buddy nurse because "Susan doesn't know anything" and "You won't learn from her". Which of the following would be the student's best response?

- Tell Susan that Mira is gossiping about her.
- Talk to her Clinical Instructor and ask to be changed to a different unit.
- Ignore the situation because it is better to leave these situations alone.
- **Refuse to participate in the gossip by saying that Mira should speak directly with Susan**
- I don't know

15. Worldwide, how common is workplace bullying within healthcare?

- Less than 20% of staff nurses report being bullied at work
- 20% to less than 50% of staff nurses report being bullied at work
- **30% to less than 80% of staff nurses report being bullied at work**
- 80% to 100% of staff nurses report being bullied at work
- I don't know

16. A new graduate nurse has been working on a medical unit for 6 weeks. During that time, he has experienced some negative behaviours from some of his colleagues. Which of the following would be considered to be examples of bullying behaviour? 1. Eye-rolling by some colleagues when he asks questions of other nurses 2. Withholding information about policies on the unit 3. Refusal by some colleagues to work with him 4. Forming cliques which exclude him 5. Hearing that others are gossiping about him 6. Being told by his manager that he needs to review the Policy & Procedure manual more thoroughly

- 1, 3, and 5
- 2, 4, and 6
- **All but 6**
- All of the Above
- I don't know

17. Which of the following would be considered consequences of bullying within the health care setting? 1. Erosion of staff morale and job satisfaction 2. Increased work absence 3. Increased nurse attrition 4. Increased risk to patient safety 5. Decreased medication errors

- 1 and 2
- 1, 2, and 3
- **1, 2, 3, and 4**
- All of the Above

- I don't know

18. Gossip and bickering are examples of overt workplace bullying?

- True
- **False**
- I don't know

19. Workplace bullying can have an effect on the quality of patient care. What is a primary reason for this outcome?

- Nurses who are bullied have a lower skill level than other nurses on the unit.
- Nurses who are bullying other nurses may be too busy “causing trouble”, which can inhibit their ability to provide quality patient care.
- Nurses who are bullying other nurses are usually in a position of authority and have less frequent patient interactions.
- **Nurses who are bullied experience lower physical and mental health, which can inhibit their ability to deliver safe and competent patient care.**
- I don't know

20. Which of the following statements is true?

- Bullying behaviours are part of becoming a nurse so they should be ignored
- Nurses should wait until they experience the negative consequences of bullying to have the right to take action
- Nurses should not take action against bullies in the workplace as this may cause them to be the next target of bullying
- **Regardless of the frequency, duration and severity of disruptive behaviours experienced, nurses should intervene to face these behaviours**
- I don't know

Appendix C

Self-efficacy to Respond to Disruptive Behaviours (SERDB) Scale

Please consider the following definitions carefully:

Disruptive healthcare workplace Behaviours: Behaviours by a nurse or other healthcare workers intended to undermine, belittle, or otherwise humiliate or hurt another (the) nurse. These include but may not be limited to:

Gossiping and spreading rumors about others, verbal abuse (yelling, persistent criticism), bickering, non-verbal innuendo (sighing, rolling eyes), sabotage/undermining (refusal to help when needed, withholding information needed to do one's job, unfair or unmanageable work assignments), forming cliques/excluding others, scapegoating (misplaced blame), and breaking confidences/failure to respect privacy.

Responding to Disruptive healthcare workplace Behaviours *effectively*: Responses to disruptive behaviours that result in (1) restoring respectful communication *and* (2) ensure safe patient care delivery.

Please choose the number that best reflects your agreement or disagreement with the following statements, where 0 is Strongly Disagree and 10 is Strongly Agree

SERDB item #	Items
1	I am confident in my ability to respond effectively to disruptive behaviours among health care workers
2	In the past, I have been able to respond effectively to disruptive behaviours from a nurse or someone at work.
3	I think that the ability to respond effectively to disruptive health care workers behaviours is important.
4	I know how to respond to disruptive health care workers behaviours effectively
5	I believe that my ability to respond effectively to disruptive health care workers can make a difference in restoring respectful communication and ensuring patients receive safe care.
6	In stressful situations, I would be able to respond effectively to disruptive health care workers behaviours.

7	In normal situations, I would be able to respond effectively to disruptive health care workers behaviours.
8	I believe in my ability to respond appropriately and effectively to disruptive health care workers behaviours directed at me.
9	I think that the ability to respond to disruptive health care workers behaviours effectively is a valuable skill.
10	Generally speaking, I care about being able to respond to disruptive health care workers behaviours effectively.
11	I have never purposely engaged in any of these disruptive behaviours.

Appendix D

Permission to Use the SERDB

From: Sanner-Stiehr, Ericka J. <sannerstiehr@umsl.edu>

Sent: Monday, July 9, 2018 9:08:48 AM

To: Abeer Alraja

Subject: RE: Permission to use SERDB questionnaire

Good morning, Abeer,

Thank you for your inquiry and interest in using the SERDB. Of course, I would be delighted for you to use the questionnaire. I am attaching it here for your review, along with current psychometrics, based on most recent data collection and analysis. The results of the psychometrics are in development for publication currently. Please note that the 11th item is a social desirability item and is not calculated into the scale.

Please let me know your decision and I will be happy to provide formal permission for you.

Psychometrics for SERDB 9 July 2018

- N = 558
 - Pilot and experimental data
 - Final testing phase
- 10 items
- KMO = 0.859; Bartlett's Sphericity = 0.000
- Cronbach's α = 0.848 overall scale

Ericka

Ericka Sanner-Stiehr, PhD, RN
Assistant Professor
University of Missouri- St. Louis
College of Nursing
Seton 220
(314) 516-7086

Appendix E

Permission to Change SERDB Wording

From: Sanner-Stiehr, Ericka J. <sannerstiehr@umsl.edu>
Sent: Wednesday, August 15, 2018 2:19:43 PM
To: Abeer Alraja
Cc: Donna Martin
Subject: Re: Permission to use SERDB questionnaire

Ah okay!

I think that would be fine. You would just be replacing the stems with a very related term which should not affect the validity of the scale for you. I think you will just want to state (and describe) that you are using an adaptation of my scale.

Does this help?

*Ericka Sanner-Stiehr, PhD, RN
Assistant Professor
University of Missouri- St. Louis
College of Nursing
Seton 220*

From: Abeer Alraja <umalraja@myumanitoba.ca>
Sent: Wednesday, August 15, 2018 1:51:38 PM
To: Sanner-Stiehr, Ericka J.
Cc: Donna Martin
Subject: Re: Permission to use SERDB questionnaire

Hello Dr. Sanner-Stiehr

I apologize if I was not clear in my previous email. What I need your permission for is to replace the term "nurse" in the questionnaire items and use "Healthcare worker" instead.

Have a great day

*Abeer Alraja, RN, MSN, PhD (c)
College of Nursing
Rady Faculty of Health Sciences
University of Manitoba*

Appendix F

Invitation Email

Email Subject: Workplace Bullying Study

Date:

Dear Nursing students,

This email is being sent by the MCNHR coordinator on behalf of Abeer Alraja, a PhD candidate at the college of Nursing, University of Manitoba.

You are invited to participate in a study entitled: **Enhancing Undergraduate Nursing Students' Knowledge and Self-Efficacy about Workplace Bullying: A Quasi-experimental Study**. The purpose of the study is to evaluate the effectiveness of an online educational intervention in enhancing knowledge about workplace bullying and in improving self-efficacy and intent to intervene related to workplace bullying among undergraduate nursing students.

If you complete the study, you will be invited to enter your name into a draw for a chance to win a prize. You will be able to enter your name to win 1 of 15 \$100 Amazon.ca gift cards.

By participating in this study, you can help in testing the effectiveness of the online educational modules about workplace bullying. To protect your confidentiality, the answers that you provide will be analyzed in aggregate form and the results from the thesis will be provided to nursing educators that will help them to incorporate the course within the undergraduate nursing programs. Furthermore, the online course will provide you with knowledge and skills in preventing, identifying and responding to bullying in the workplace.

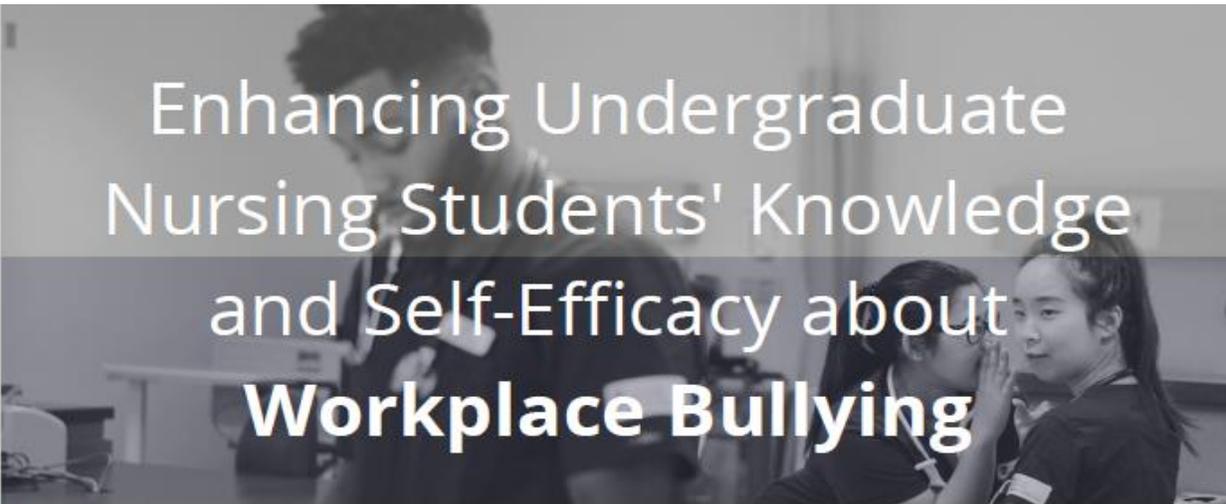
Your participation is voluntary and involves completing a pre-test survey, 3 online educational modules, and post-test survey. You can finish the 3 parts on your own pace during the data collection period which lasts 6 weeks starting from the time of receiving the invitation email.

Your participation would be greatly valued and appreciated.

This study has been approved by the [REDACTED] Research Ethics Board (ENREB) and [REDACTED] Research Ethics Board. If you have any concerns or complaints about this project, please contact the [REDACTED] Human Ethics Secretariat at 204-474-7122 or email humanethics@umanitoba.ca or [REDACTED]

To learn more about the study, or indicate your interest to participate, please contact Mr. James Plohman from the Manitoba Centre for Nursing and Health Research (MCNHR) at james.plohman@umanitoba.ca

Appendix G
Study Poster



Enhancing Undergraduate
Nursing Students' Knowledge
and Self-Efficacy about
Workplace Bullying

**Who is
eligible:**

3rd & 4th Year Nursing Students at the
University of Manitoba, and 2nd & 3rd
Year Nursing Students at Red River College.

**What
you will
do:**

You will be asked to complete an online pre and post-
test, and review an educational online course. The total
time commitment is 2 hours. This can be done in more
than one sitting, at your own pace.

**Participants will be entered into a draw to win
1-of-15 \$100 Amazon.ca gift cards!**

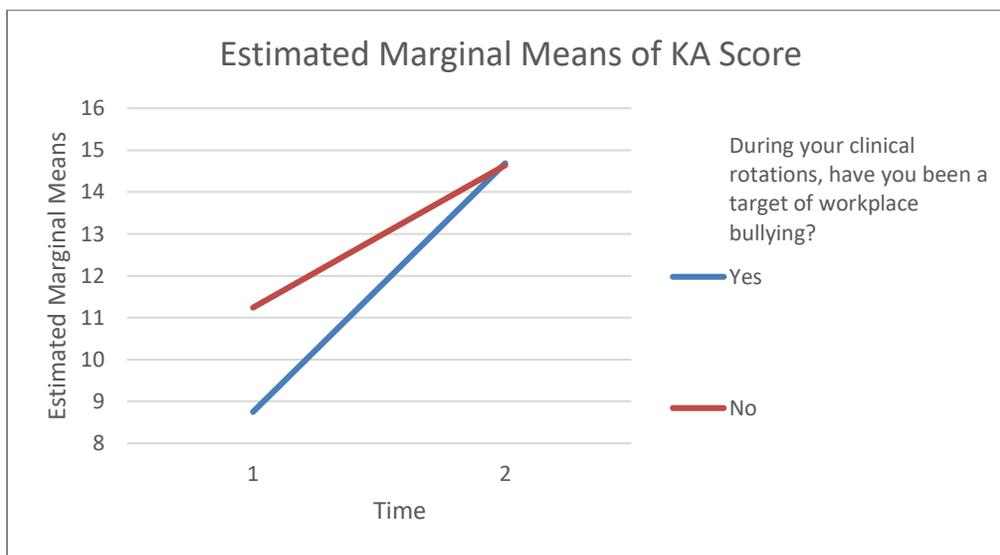
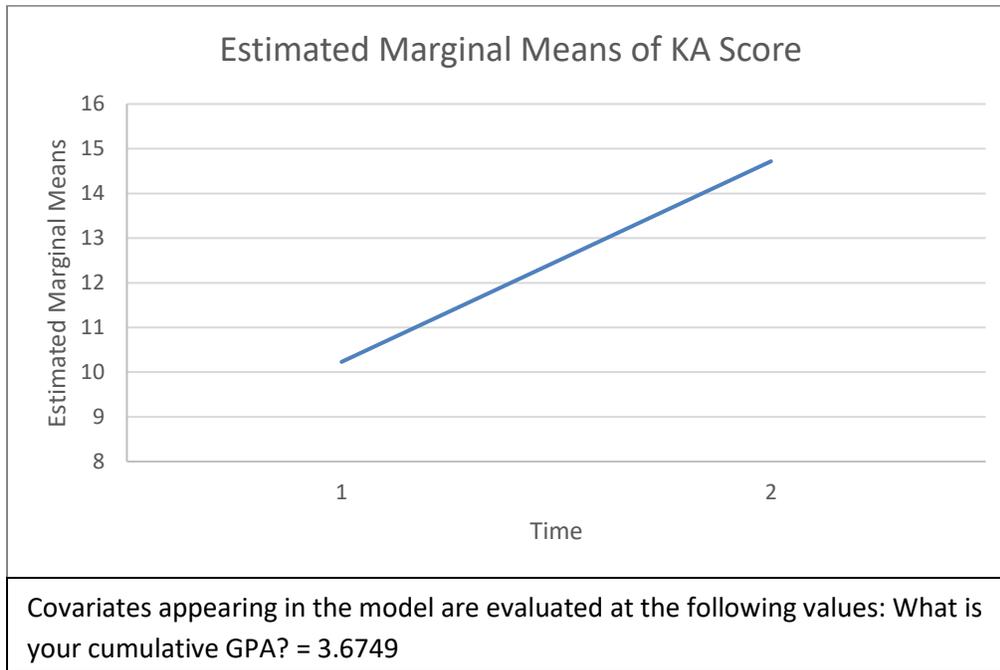
**If you are interested in participating or would
like more information, please contact:**

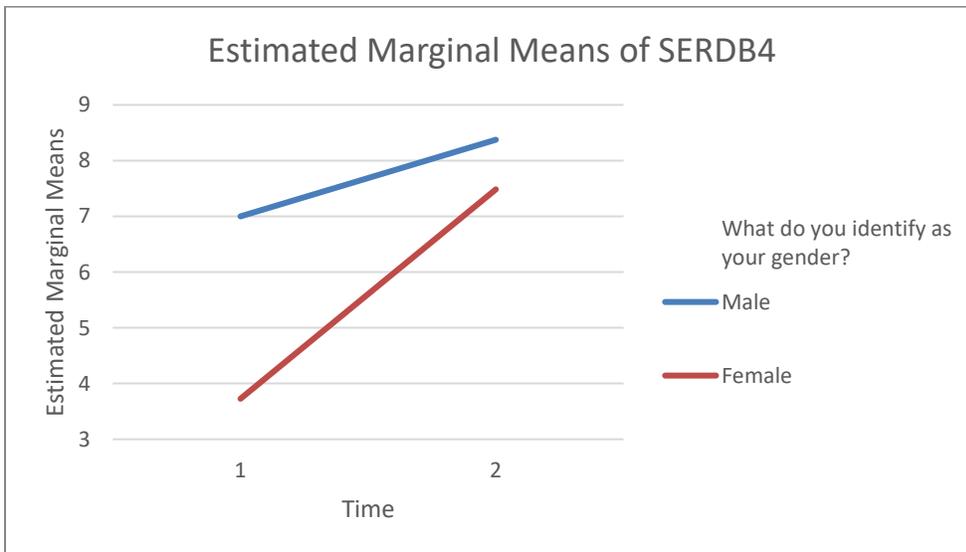
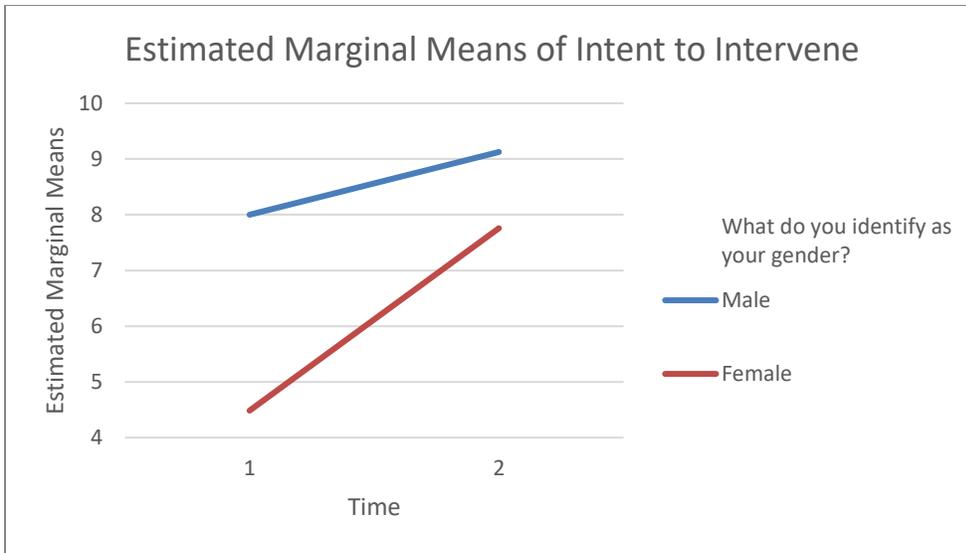
James Plohman: james.plohman@umanitoba.ca

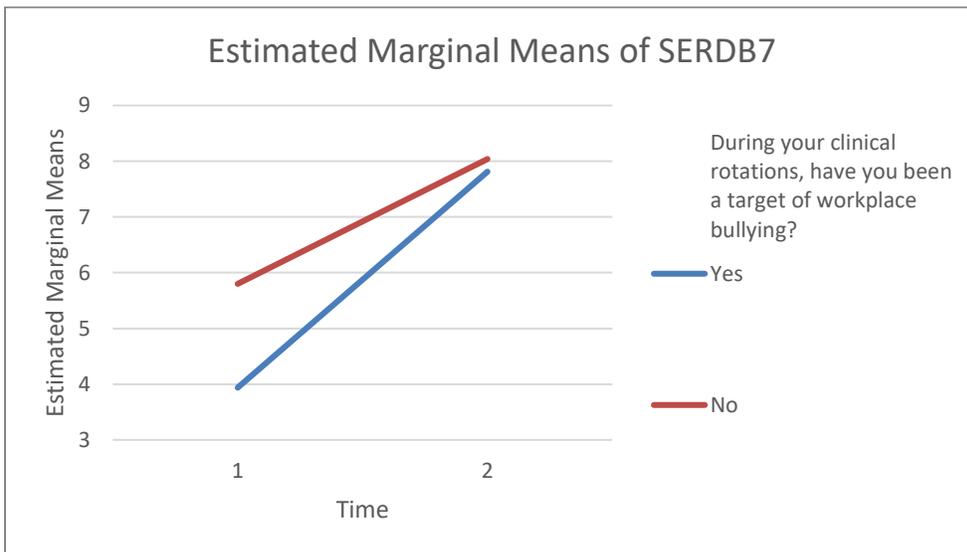
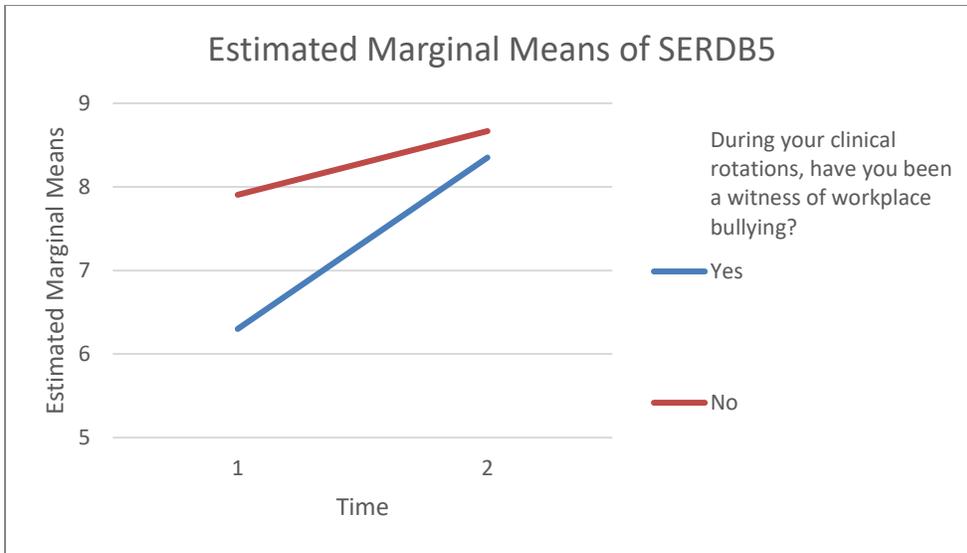
This study has been approved by the Education Nursing Research Ethics Board (ENREB) and Red River College Research Ethics Board. If you have any concerns about this study, please contact the U of M Human Ethics Secretariat at (204) 474-7122 or email humanethics@umanitoba.ca or RRC Research Ethics Board at sallarie@rrc.ca.

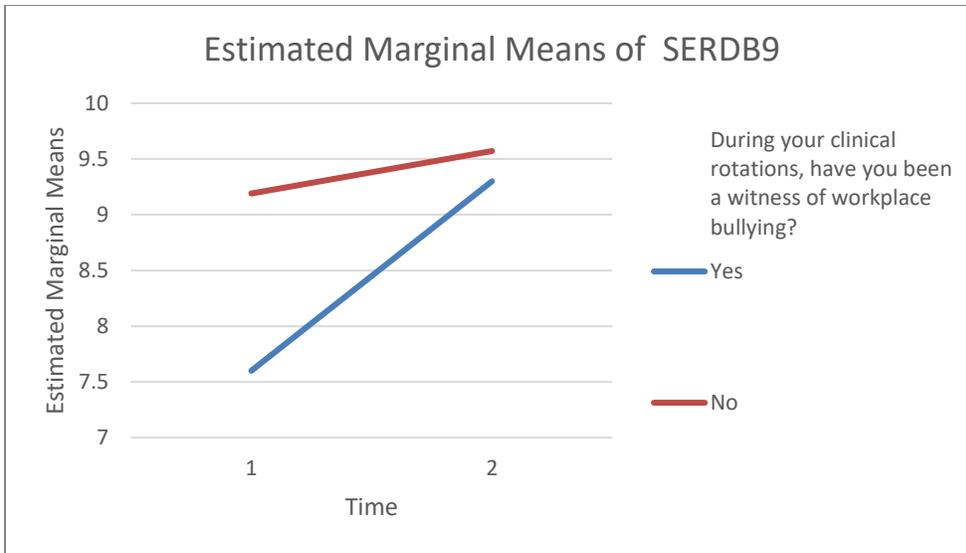
Appendix H

Profile Plots









Appendix I

Summary of Studies Tested the Effectiveness of Interventions for Nursing Students

Author/year /Country	Sample/ Design	Intervention	Data Collection	Findings
Aebersold & Schoville 2020 USA	<p>- A convenience sample of 169 senior BSN nursing students in a required Leadership and Management course at a Midwestern academic school of nursing</p> <p>-An exploratory qualitative descriptive design.</p>	<p>2-hour bullying simulation.</p> <p>Students prepared for the simulation by reading 7 journal articles.</p> <p>Students completed a workplace bullying knowledge quiz before the simulation session to ensure students completed the pre-readings.</p>	<p>Participants completed a reflection survey. Grounded theory method used to analyze the data.</p>	<p>Major themes include: The chaotic environment, great learning experience, emotional response, behaviours, barriers to learning, and impact on the nurse. The simulation had an impact on the students personally and professionally, and they learned from the experience.</p>
Brann & Hartley 2017 USA	<p>- 48 nursing students enrolled in a Bachelor of Science in Nursing or Master of Science in Nursing program at a mid-Atlantic university.</p> <p>- Mixed-methods – pretest– post-test (tested immediately post course and 4 weeks post course) and focus groups.</p>	<p>3-hour online National Institute for Occupational Safety and Health education program consisting of interactive video real-life cases and reading information.</p>	<p>Survey based on Theory of Planned Behaviour measuring awareness (three questions) and knowledge (10 questions).</p> <p>Changes in awareness and knowledge at the three time points were assessed using one-way repeated measures ANOVAs.</p>	<p>Mean awareness scores different significantly between pre-course, immediately post-course, and 4 weeks post-course ($p < .001$).</p> <p>Mean knowledge scores increased between pre-course and both post-course time points ($p < .001$).</p>
Clark, Ahten, & Macy 2013 USA	<p>-Nursing students (n = 65) from one nursing course in their final semester at a 4-year university.</p> <p>-Qualitative design.</p>	<p>Faculty facilitated a one-hour problem-based learning activity in a leadership and management course.</p> <p>Incivility and bullying were portrayed by live</p>	<p>Data collected by self-administered questionnaire following the intervention. Themes were identified through textual content analysis and rank-</p>	<p>After the initial training, 62.8% of the participants felt that they learned how to recognize and respond to workplace incivility.</p> <p>Themes for how the activity increased</p>

		<p>actors in a scenario involving nurses in a work setting. Following the performance, students analyzed the scenario and identified strategies for addressing similar situations in practice.</p>	<p>ordered for frequency.</p>	<p>knowledge on dealing with incivility in practice included: performance management is important and needs to be addressed; helped me think about how to handle incivility in practice; and realistic scenario, brought learning alive.</p> <p>Themes for how knowledge gained will affect future nursing practice included learned how to recognize and address incivility in nursing practice; gained awareness to the need to be cognizant of their own behaviour and how to treat others; and be supportive, positive, respectful; to be open minded and communicative; and nurse manager (supervisor) is available as a resource.</p>
<p>Clark & Gorton 2019 USA</p>	<p>-188 incoming, upper division, prelicensure nursing students - Mixed methodology. Evaluative data were collected immediately following and 6 months after the intervention.</p>	<p>Combined cognitive rehearsal, Heart Math, and simulation using Team STEPPS™ Concerned, Uncomfortable, and Safety model to address acts of incivility that threaten patient safety.</p>	<p>A survey consisted of seven items based on Kirkpatrick's Model of Evaluation (Kirkpatrick & Kirkpatrick, 2005, 2006) to assess learning and application to practice.</p>	<p>Student evaluations immediately following the intervention and 6 months post intervention rendered positive results. Eight themes emerged describing uncivil experiences occurring in the patient care environment.</p>

			<p>Completed a similar survey after 6 months.</p> <p>Textual content analysis was used to analyze the qualitative narrative responses.</p> <p>Descriptive statistical analysis was used to evaluate students' quantitative responses related to the impact of the learning activity in both assessments.</p>	<p>In response to the question related to whether students had applied the tools stemming from the learning experience into their nursing practice, nearly 70% (69%) reported that they had done so.</p>
<p>Gillespie et al. 2015 USA</p>	<p>-Convenience sample of senior nursing students (N=8) from two campuses affiliated with the same university in the Midwest US.</p> <p>-Qualitative descriptive design.</p>	<p>Four roles were included in the role play simulation for all senior nursing students (n = 65): a novice recipient of bullying, a nurse and a patient witnessing the bullying, and a senior nurse who was the bully.</p> <p>Roles were randomly drawn by students and included detailed instructions for the role and role play scenario which proceeded for 5 minutes in the university classroom.</p> <p>Reflection and debriefing followed the role play.</p>	<p>Focus groups to evaluate the experiences of the learners related to the intervention were used to evaluate the experiences of the learners related to the intervention.</p> <p>Colaizzi's procedure was used to guide data analysis conducted by four researchers along with data management using NVivo 10.</p>	<p>Four major themes were identified: The experience of being Implementation of the program, Desired outcome of the program, Context of bullying in the nursing profession.</p>
<p>Hogan et al 2018 Australia</p>	<p>Convenience sample of undergraduate and midwifery students (N=210) at an urban Australian university.</p>	<p>A BLR that used online, interactive modules were embedded in two</p>	<p>The survey comprised three open-ended questions. Students were asked to provide</p>	<p>Three themes were identified: Engaging with the BLR (subthemes: visual learning, level of</p>

	<p>- Qualitative descriptive analysis of survey responses from students who completed the intervention.</p>	<p>clinical practice subjects. Content focused on responding effectively to bullying and responding effectively to aggression. Components included film clips of simulated bullying scenarios, links to literature, reflective activities, in-class role play practicing of responses, and reflective debriefing.</p>	<p>written comments on the effectiveness of the BLR, their views on how it could be improved, and the ways it assisted their development of effective coping skills for bullying and aggression in clinical settings. Thematic analysis was used to code the data in an organised manner to help identify and develop themes.</p>	<p>realism and relevance, and comprehensive learning package); Responding to bullying (subthemes: recognizing bullying, coping strategies, and seeking support); Responding to aggression (subthemes: skills development and remaining calm).</p>
Authement 2016 USA	<p>-Convenience sample of third semester nursing students (n=94) and faculty (n=6) from one ADN program in Texas. -Action research design with faculty members assisting with development of the code of conduct.</p>	<p>Code of conduct was informed by the ANA Code of Ethics and Texas State Board of Nursing good character rule. Five sections covered ground rules, misconduct, removal from class, removal from clinical, and consequences. The code was presented orally and in writing at the start of the fall semester.</p>	<p>Perceptions of incivility were measured quantitatively with the INE pre- and post-implementation (start and end of semester). Data were analyzed by t-test.</p>	<p>INE survey scores decreased significantly following implementation of the code of conduct (p<.001).</p>
Tecza et al 2018 USA	<p>A convenience sample of 314 nursing students. A single-site, quasi-experimental, non-equivalent pre-post design conducted in a</p>	<p>Each unit was asked to create one interactive and one educational intervention. For example, 1 unit chose to create a Student Welcome Card (a student</p>	<p>Data were collected using the NSPCUB in the Clinical Learning Environment Inventory to measure nursing students' perceptions of uncivil and civil behaviours displayed by nurses</p>	<p>There was a statistically significant mean increase for 7 of the 12 survey items, hospital-wide, and the findings reinforced NSPCUB</p>

	Magnet designated pediatric hospital	interactive intervention). Educational materials were disseminated via an informational paper strategically located in the rest room (“potty paper”) and on the unit’s video slide board in the break room entitled “Nurses Help Us Welcome Our Student Nurses” (a staff educational intervention).	in the hospital clinical environment.	as a highly reliable tool.
Jenkins, Kerber, & Woith 2013 USA	Twenty-five student nurses completed the Ways of Coping Questionnaire and participated in interviews; 10 participated in the intervention, a journal club focused on civility in nursing. - Exploratory, mixed-methods study	Journal club participation to build social capital and civility among nursing students.	The Ways of Coping Questionnaire (WCQ) to explore the relationship between stressful events and coping. Qualitative data were obtained by interviewing and journaling. The researchers developed the Social Capital Interview (SCI), which contains 15 open-ended questions asking students to describe their peers with regard to civility, camaraderie, ability to work in groups, and academic integrity.	Participation in the intervention changed students’ attitudes and behaviour regarding civility. Specifically, students refused to participate in uncivil behaviour, helped peers, were supportive, and tried to prevent or avoid incivility.
Kerber, Jenkins, Woith, & Kim 2012 USA	Convenience sample of senior students (N=79) from the Nursing Leadership Management class at a	Six bi-weekly journal club sessions were conducted during regular class sessions, each lasting 50 minutes.	Two surveys were administered to the participants: the Nurses’ Intervention for Civility Education Questionnaire	Results for the NICE-Q revealed a significant difference in the helpfulness subscale. On average,

	<p>midwestern university.</p> <p>- Exploratory, mixed methods design.</p> <p>To test if journal clubs interventions change nursing students' attitudes and behaviours regarding civility by expanding the sample used by Jenkins et al. (2013).</p>	<p>Civility-related articles were discussed in the first 25 minutes. Faculty researchers and guest speakers led students in activities designed to encourage civility during the last 25 minutes of each session.</p>	<p>(NICE-Q) and the Ways of Coping Questionnaire (WCQ).</p> <p>Subscale scores for the NICE-Q and WCQ were calculated by summing the item scores for each subscale.</p> <p>Preintervention and postintervention scores were compared using dependent samples t-tests to examine differences.</p>	<p>participants reported they were more likely to be helpful to others after participating in the intervention.</p> <p>Results for the WCQ showed a significant difference in the planful problem solving subscale, meaning participants were more likely to take a rational, problem-focused approach to managing situations following the intervention.</p>
<p>Egues & Leinung 2014 USA</p>	<p>Surveys from nursing student who participated in the workshops (N=230).</p> <p>Pre- and post-educational workshop survey design with collection of quantitative and qualitative measures</p>	<p>Multiple 2-hour workshops were provided as a teaching methodology. Goal was to reinforce that a pervasive bullying culture supports barriers to effective, safe, and quality health care.</p> <p>Workshops were initially in the last clinical course but were then opened to all undergrad nursing students.</p> <p>Case studies on bullying, spontaneous and humorous role-playing activities, discussion of ethical lessons learned, and shared faculty and student feedback led to communication</p>	<p>Pre-post surveys captured student experiences of hearing about, experiencing, or perpetrating bullying with 8 Likert scale questions. Two additional questions asked for narrative responses on how they felt and how they dealt with the experience of horizontal/lateral violence.</p> <p>No discussion of how narrative responses were analyzed.</p> <p>Quantitative</p>	<p>Quantitative data findings showed a 10-33% increase in self-reported recognition of the many facets of the bullying phenomenon. The largest increase was in recognizing horizontal violence in school and clinical settings.</p> <p>Students also identified that they have engaged in horizontal violence more at school than in the clinical setting. Post-tests reflected increased self-reported recognition of personal involvement in bullying at both school and clinical sites.</p>

		strategies on how to address a bully. Students were provided small bursts of reflection.		Students' reflections shared personal experiences with bullying, a raised awareness of the bullying phenomenon, and improved dedication to ending bullying.
Sanner-Stiehr and Smith 2015 USA	Total of N = 88, n = 41 from the intervention group and n = 47 from the control group Experimental, single-blinded, timeseries, randomized-cluster design.	Cognitive Behaviour Therapy (CBT) five essential steps: (1) education, (2) demonstration, (3) rehearsal, (4) feedback, and (5) debriefing/discussion	Adaptation of the Scale to Address Disruptive Physician Behaviour (SADBS) was used to collect data and measure the dependent variable (self-efficacy). Paired Samples t-tests were performed to detect change between pre-test and post-test responses	Among the intervention group, the paired samples t-test analysis indicated a statistically significant increase between pre-test and post-test responses on all 10 instrument items and between pre-test and follow-up scores. These results indicate that a cognitive behavioural rehearsal intervention can increase nursing students' self-efficacy to respond to lateral violence prior to entry to the nursing workplace.
Sanner-Stiehr 2018 USA	Convenience sample of senior prelicensure nursing students from three traditional programs the Midwestern US (N=129). - A longitudinal, quasi-experimental design. Quantitative data were collected pre-	Cognitive rehearsal interventions: Content included education about incivility and its consequences, role modeling of ineffective and effective responses by the facilitators, participant creation and practicing of responses using	The Self-Efficacy to Respond to Disruptive Behaviours (SERDB). Quantitative data were collected pre-intervention, immediately post-intervention, and three-months after the intervention.	Immediately after the training, measures of overall self-efficacy, as well as knowledge and motivation item scores, were significantly higher than before the intervention. Three months after the intervention, overall and situational self-

	intervention, immediately post-intervention, and three-months after the intervention.	cognitive rehearsal, and debriefing.	paired samples t-tests were used to address all study aims and test hypotheses.	efficacy to respond and knowledge about response strategies remained significantly higher than pre-intervention scores.
Sanner-Stiehr 2020 USA	In Phase 1, 129 participants were recruited from three pre-licensure nursing programs in the Midwestern United States. All participants received the intervention. In Phase 2, one year after graduating, 95 remained enrolled. - This study was the second phase in a quasi-experimental, longitudinal project.	Cognitive rehearsal	The Self-Efficacy to Respond to Disruptive Behaviours (SERDB) including intent to stay in their current job, number of jobs held since graduation to indicate turnover, frequency of occurrence of disruptive behaviour among health professionals, and perceptions of the impact of disruptive behaviours on patient care quality.	Multiple measures of self-efficacy to respond remained statistically significantly increased one year after graduating ($p < .05$). Experiencing ($r = .489$; $p < .000$) and witnessing ($r = .432$; $p < .000$) disruptive behaviours was significantly linked to patient care.
Ulrich et al. 2017 USA	Convenience sample of senior level nursing students (N=333) enrolled in a leadership or didactic course at one of the 5 campuses of 3 Midwest universities. Qualitative exploratory design using thematic analysis. Naturalistic coding was used to analyze the worksheet responses and debriefing remarks. Data were triangulated	A classroom simulation session with role play in which students were assigned roles of aggressor, target, nurse bystander, or patient and a scenario was provided.	Students completed a reflection worksheet immediately after the role play simulation, responding to specific questions. A large group debriefing session was also held after the simulation.	Four themes were identified: personal responses, nonverbal communications exhibited, actions taken by participants, and the perceived impact of bullying during the simulation.

	and researchers worked together to identify significant codes.			
Thompson & George 2016 USA	<p>Convenience sample of senior traditional BSN students (N=40) from a small private university in southwestern Pennsylvania.</p> <p>The study used a pre-post intervention evaluation method, without comparison control group.</p>	<p>The intervention consisted of four online modules. Each began with learning objectives and ended with an activity to validate participants' knowledge.</p> <p>Module 1 emphasized the importance of recognizing behaviours as bullying. Module 2 emphasized assertive communication. Module 3 featured completion of an activity to determine learning regarding how bullies choose targets and behaviours that could decrease chances of becoming a target. Module 4 provided specific actions participants could take to address bullying behaviour if targeted.</p>	<p>A 7-item post-intervention survey was used to collect quantitative and qualitative program evaluation data.</p> <p>Quantitative data were analyzed descriptively and with paired t-tests. Qualitative analysis methods were not stated.</p>	<p>Total self-efficacy scores were significantly higher following the intervention, increasing from a mean of 29.6 to 32.1 ($p < 0.001$).</p> <p>Open ended question responses indicated most students would not change anything with the training (78%). Several students suggested the addition of more examples, role-playing opportunities, and videos.</p> <p>Students found value in completing the modules and liked the online format.</p>
Palumbo 2018 USA	Convenience sample of junior and senior level nursing students in an associate degree program in Southeastern US (N=110).	E-learning Module: Incivility and ways to intervene were presented using voiceover	Data collection was embedded in the e-learning course. Self-efficacy was measured with five items rated on a Likert-scale. Module quiz responses were	Nursing students' self-efficacy for defining, detecting, and combating academic incivility increased significantly after participating in the e-

	Pre-test/post-test design with one group.	slides, video scenarios and embedded quizzes.	examined by item and pass/fail rates. Clark's Civility Index responses were also collected. Data were analyzed descriptively and with the McNemar statistical test.	learning module ($p < .05$). Most students passed each learning module quiz. Clark's Civility Index scores were examined but not statistically analyzed. Results indicated most participants perceive they are civil most of the time but still engage in some uncivil acts.
Roberts et al. 2018 USA	Participants included two groups of BSN students from one public university in Southeast US: seniors ($n=20$) and sophomores ($n=58$). Program evaluation project with mixed methods	Two instructional methods were provided to two groups of students and evaluated for effectiveness. Method one was delivered to senior students by a nursing incivility expert during a two-hour didactic session followed by a one-hour interactive session using cognitive rehearsal to practice responses to uncivil behaviours. Method two was delivered to sophomore students and involved a one-hour interactive peer training provided by the expert-trained senior nursing	Two surveys were administered based on Kirkpatrick's 4-level training evaluation model: one immediately after each group's training to evaluate level 1 (reaction) and level 2 (learning) and the other at the end of the semester to evaluate level 3 (behaviour) and level 4 (results). Quantitative data were analyzed with independent t-tests. Qualitative data were analyzed for themes.	Reaction/learning mean scores were significantly higher for the sophomores who received peer-led education ($M=27.53$) than the seniors who received incivility expert-led education ($M=25.70$) ($p=.006$). Behaviour/results mean scores at the end of the semester did not differ significantly between groups. Students comment themes included that they were able to recognize uncivil behaviours better and felt more prepared for them. Both instructional methods were perceived as beneficial. However, the peer method using cognitive

		students. The session included use of cognitive rehearsal with prompting cards focusing on communication.		rehearsal was only beneficial when the peers were well-prepared. Peers reported value in providing the training and were able to share real-life situations from their own clinical experiences
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Appendix J
Independent Samples Testing Summary

Independent Samples Testing Summary – Correlations (Continuous Variables)

Please note that due to the sample size, these results must be interpreted with caution.

Outcome Measure		Age	GPA**
SERDB total-Pre-test	Pearson correlation	.284	-.055
	p-value	.072	.738
SERDB total-Post-test	Pearson correlation	.222	-.158
	p-value	.163	.337
KA score-Pre-test	Pearson correlation	.148	.468
	p-value	.356	.003*
KA score-Post- test	Pearson correlation	.081	.127
	p-value	.613	.440
ITI Pre-test	Pearson correlation	.176	-.104
	p-value	.270	.530
ITI post-test	Pearson correlation	.156	-.179
	p-value	.329	.276
SERDB 1 Pre-test	Spearman correlation	.024	-.150
	p-value	.881	.362
SERDB 1 Post-test	Spearman correlation	.114	-.135
	p-value	.479	.412

SERDB 2 Pre-test	Pearson correlation	.123	-.176
	p-value	.444	.283
SERDB 2 Post-test	Pearson correlation	.203	-.153
	p-value	.203	.353
SERDB 3 Pre-test	Spearman correlation	.055	.081
	p-value	.733	.626
SERDB 3 Post-test	Spearman correlation	.132	-.015
	p-value	.412	.927
SERDB 4 Pre-test	Pearson correlation	.211	-.209
	p-value	.186	.203
SERDB 4 Post-test	Pearson correlation	.202	.084
	p-value	.205	.610
SERDB 5 Pre-test	Spearman correlation	.004	-.068
	p-value	.980	.680
SERDB 5 Post-test	Spearman correlation	.154	-.175
	p-value	.335	.288
SERDB 6 Pre-test	Pearson correlation	.193	-.104
	p-value	.227	.528
SERDB 6 Post-test	Pearson correlation	.064	-.210
	P-value	.693	.198

SERDB 7 Pre-test	Spearman correlation	.293	-.020
	p-value	.063	.906
SERDB 7 Post-test	Spearman correlation	.133	-.070
	p-value	.407	.673
SERDB 8 Pre-test	Spearman correlation	.261	-.134
	p-value	.100	.418
SERDB 8 Post-test	Spearman correlation	.224	-.134
	p-value	.160	.414
SERDB 9 Pre-test	Spearman correlation	.163	.054
	p-value	.310	.746
SERDB 9 Post-test	Spearman correlation	.261	.062
	p-value	.100	.708
SERDB 10 Pre-test	Spearman correlation	.206	-.012
	p-value	.196	.944
SERDB 10 Post-test	Spearman correlation	.165	.075
	p-value	.301	.648

N=41

** N=39

* Significant results; significance level of 0.05 used.

KA: Knowledge Assessment; SERDB: Self-efficacy to Respond to Disruptive Behaviours; ITI: Intent to Intervene.

Independent Samples Testing Summary – Independent t-Tests (2-Category Variables)

Outcome Measure	Test	Gender	Born in Canada	English	Target	Witness	Edu
SERDB total-Pre-test	t-value	2.283	-1.567	1.563	-2.04	-1.191	-.881
	p-value	.028*	.125	.126	.048*	.241	.384
SERDB total-Post-test	t-value	1.825	-0.296	.532	-.319	.861	-1.861
	p-value	.076	.769	.598	.752	.395	.070
KA score-Pre-test	t-value	.363	.927	-1.454	-2.734	.265	1.852
	p-value	.719	.359	.162	.009*	.792	.072
KA score-Post-test	t-value	-.200	1.905	-.905	.059	.355	-4.76
	p-value	.842	.064	.371	.953	.725	.637
ITI Pre-test	t-value	5.336	-1.632	2.795	-1.167	-.278	-.781
	p-value	.000*	.111	.009*	.250	.782	.439
ITI post test	t-value	3.51	-1.301	1.494	-.071	1.176	-2.192
	p-value	.001*	.201	.143	.944	.247	.034*
SERDB 1 Pre-test**	z-value	-2.108	-1.315	-1.415	-1.618	-.974	-1.364
	p-value	.035	.189	.157	.106	.330	.173
SERDB 1 Post-test**	z-value	-2.663	-1.019	-.952	-.753	-.842	-1.128
	p-value	.008*	.308	.341	.451	.400	.259
SERDB 2 Pre-test	t-value	2.136	-3.050	.410	-.501	.186	-4.562
	p-value	.039*	.004*	.684	.619	.853	.010*
SERDB 2 Post-test	t-value	2.317	-2.391	.257	-1.908	.354	-2.120
	p-value	.026*	.022*	.799	.064	.726	.040*
SERDB 3 Pre-test**	z-value	-.394	-.366	-1.732	-1.921	-1.605	-.545
	p-value	.694	.714	.083	.055	.109	.586
SERDB 3 Post-test**	z-value	-1.246	-.450	-1.052	-1.03	-1.139	-1.575
	p-value	.213	.653	.293	.303	.255	.115
SERDB 4 Pre-test	t-value	4.199	-1.954	.430	-1.499	.484	-1.045
	p-value	.000*	.058	.670	.142	.631	.302
SERDB 4 Post-test	t-value	1.357	.308	.685	-.101	.521	-1.062
	p-value	.183	.760	.498	.920	.606	.295
SERDB 5 Pre-test**	z-value	-.753	-.342	-2.067	-.680	-2.215	-.713
	p-value	.451	.732	.039*	.497	.027*	.476
SERDB 5 Post-test**	z-value	-.362	-.308	-1.239	-.603	-.697	-.866
	p-value	.717	.758	.216	.547	.486	.386

SERDB 6 Pre-test	t-value	3.349 .002*	-2.671 .011*	.856 .397	-1.457 .153	.061 .952	-.701 .487
	p-value						
SERDB 6 Post-test	t-value	2.080	-1.089	.080	.586	1.548	-2.437
	p-value	.044*	.283	.937	.561	.130	.019*
SERDB 7 Pre-test**	z-value	-1.775	-1.102	-.842	-2.601	-.592	-2.20
	p-value	.076	.270	.400	.009*	.554	.840
SERDB 7 Post-test**	z-value	-1.621	-.431	-.356	-.261	-1.70	-.771
	p-value	.105	.666	.722	.794	.089	.441
SERDB 8 Pre-test**	z-value	-2.591	-1.879	-1.488	-1.697	-.477	-1.221
	p-value	.010*	.060	.137	.090	.633	.222
SERDB 8 Post-test**	z-value	-2.737	-.597	-.213	.000	-1.519	-1.067
	p-value	.006*	.550	.831	1.00	.129	.286
SERDB 9 Pre-test**	z-value	-1.239	-.780	-1.049	-2.129	-2.249	-.328
	p-value	.215	.436	.294	.033*	.025*	.743
SERDB 9 Post-test**	z-value	-1.479	-1.278	-1.012	--1.133	-1.257	-.064
	p-value	.139	.201	.312	.257	.209	.949
SERDB 10 Pre-test**	z-value	-.322	-.765	-1.574	-1.90	-1.061	-.232
	p-value	.747	.444	.116	.057	.289	.816
SERDB 10 Post-test**	z-value	-1.523	-.649	-.516	-.754	-.560	.480
	p-value	.128	.517	.606	.451	.576	.631

KA: Knowledge Assessment; ITI: Intent to Intervene; SERDB: Self-efficacy to Respond to Disruptive Behaviours; Edu: Previous education about workplace bullying.

2-category independent variables were assessed for possible factor effects using Independent Samples t-tests. If F value was not significant, equal variances were assumed and the associated t-value and p-value reported. If F value was significant, equal variances were not assumed and t-value and p-value reported accordingly.

* Significant results; significance level of 0.05.

**Non-normal distribution; Independent Samples Mann-Whitney results reported (z value & p value).

Independent Samples Testing Summary– One-Way ANOVA School year (Greater than 2-Category Variable)

Outcome Measure	F/Kruskal-Wallis H	P-value
SERDB total-Pre-test	1.011	.373
SERDB total-Post-test	.008	.992
KA score-Pre-test	1.280	.290
KA score-Post- test	1.361	.269
ITI Pre-test	.590	.559
ITI post-test	.104	.902
SERDB 1 Pre-test**	3.278	.194
SERDB 1 Post-test**	.537	.764
SERDB 2 Pre-test	.181	.835
SERDB 2 Post-test	.630	.538

SERDB 3 Pre-test**	3.841	.147
SERDB 3 Post-test**	1.725	.422
SERDB 4 Pre-test	.235	.792
SERDB 4 Post-test	.174	.841
SERDB 5 Pre-test**	3.095	.213
SERDB 5 Post-test**	.253	.879
SERDB 6 Pre-test	1.568	.222
SERDB 6 Post-test	1.444	.249
SERDB 7 Pre-test**	1.417	.492
SERDB 7 Post-test**	2.687	.261
SERDB 8 Pre-test**	1.832	.400

SERDB 8 Post-test**	1.089	.580
SERDB 9 Pre-test**	4.615	.100
SERDB 9 Post-test**	4.153	.125
SERDB 10 Pre-test**	4.153	.125
SERDB 10 Post-test**	1.754	.416

KA: Knowledge Assessment; ITI: Intent to Intervene; SERDB: Self-efficacy to Respond to Disruptive Behaviours.

* Significant results; significance level of 0.05.

**Non-normal distribution; Kruskal-Wallis results reported; Levene's test P value was > .05 for all outcome variables so we have not violated the homogeneity of variance assumption.