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Addressing Workplace Bullying Among Undergraduate Nursing Students Using an Online Educational Tool

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Bullying in health care is a widespread problem that affects nurses around the world (Eka & Chambers, 2019; Lambert et al., 2025; Minton & Birks, 2019; Seibel & Fehr, 2018). Prevalence estimates vary considerably depending on how bullying is defined and measured, with reported rates ranging from 30% to 70% (MacDonald et al., 2022; Spector et al., 2014; Vessey et al., 2009; Wilson, 2016). A substantive body of research has established the negative consequences of bullying on patient care and outcomes (Johnson & Benham-Hutchins, 2020), as well as on nurses' own stress, satisfaction, and intent to stay in their current practice settings or the nursing profession altogether (Galanis et al., 2024). Bullying can also undermine healthy workplace relationships, ultimately compromising both the quality and the safety of nursing care (Martin & Zadinsky, 2022). Consequently, this problem could affect both recruitment and retention in a profession already experiencing a global shortage (Shepherd et al., 2024). Despite its clear negative consequences, bullying remains an ongoing phenomenon, even among new entrants to the profession. A recent meta-analysis of 28 studies conducted in 13 countries found a prevalence rate of bullying of more than 65% among nursing students in clinical practice (Zhou et al., 2024).

This paper focuses on an intervention designed to raise awareness and self-efficacy among nursing students, enabling them to better identify and respond effectively to instances of workplace bullying that they might encounter during their clinical training or later professional careers. It responds to recent calls in the literature to prepare nurses to respond effectively to bullying, even in situations in which the source of the bullying is a nursing professional, and in contexts in which they are bystanders or observers (rather than direct targets) of bullying (Havaei et al., 2020; Kim et al., 2024).

Background

Definition of Bullying

The literature lacks consensus on a universally accepted definition of bullying. Acts of bullying have been referred to as *horizontal* or *lateral violence* (King-Jones, 2011), *aggression* (Farrell et al., 2006), *incivility* (Laschinger et al., 2014), *mobbing* (Antigoni et al., 2011), and *harassment* (Hibino et al., 2009). Definitions of bullying vary, and these definitions include concepts of time (duration and frequency), intent, intensity, harm to the target, and power imbalances (Einarsen, 2000).

Duration and Frequency

While some definitions focus on chronic or repeated acts rather than one-time occurrences, witnessing even a one-time incident of rude behaviour was associated with decreased skill performance and helping behaviours (Porath & Erez, 2009).

Intent

We argue that bullying may occur even in instances in which the intention is unclear or ambiguous. Incivility, for instance, often includes behaviours that might seem or be defended as unintentional. However, selective incivility theory (Cortina et al., 2011) shows that these behaviours of ambiguous intention are deployed as a way of acting on negative intentions in a deniable manner to avoid organizational sanctions. For that reason—and, as we explain below, because bullying is best understood through the eyes of its target—we suggest that bullying must be defined to include even acts that might not be clearly deliberate.

Intensity and Harm

Similarly, bullying does not need to be overt. Bullying behaviours classified as "subtle" caused feelings of powerlessness and diminished self-esteem for nurses (Randle, 2003). Small acts of rudeness, disrespect, and social isolation within institutions can accumulate and have profound negative impacts on individual well-being (Caza & Cortina, 2007). Hershcovis (2011) advocated for considering the intensity of the acts of mistreatment and the intent from the target's standpoint, as the target's response may depend on these factors. The subjective experience of bullying drives negative outcomes among targets of bullying (Einarsen et al., 2009).

Power Imbalance

Bullying can and does occur across levels of occupational hierarchy, including bullying by those in positions of authority, such as faculty and physicians, as well as those without formal authority, such as patients or peers (Chachula et al., 2022). While bullying may occur across or between levels of authority and hierarchy, it is fundamentally characterized by power and power imbalances. Hutchinson and Jackson (2013) describe bullying as serving to claim, contest, or reinforce status and power relationships. While bullying can occur between peers and other (nominal) equals, it fundamentally involves asymmetries of power and contestation over power.

The literature suggests the need for an expansive view of bullying that includes episodic or less intense acts and even acts of ambiguous intention. Nursing students and nurses should not wait for weeks or months before articulating a label for these destructive behaviours and then acting. Rather, nursing students require the tools to identify and manage these behaviours as early as they encounter them, regardless of the frequency, duration, and severity of the disruptive behaviours. Even a single negative act is intolerable and necessitates intervention. Therefore, in this study, we adopted the following definition of bullying:

> 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)

Focus on Nursing Students

Our focus for intervention is on nursing students. This is in part because nursing students, particularly in clinical practice, frequently experience bullying where hierarchical dynamics and inexperience increase their risk. Moreover, as they constitute the future nursing workforce, addressing bullying at the student level is critical to breaking the vicious cycle of bullying in nursing by fostering respectful and supportive environments early in their careers. Research consistently demonstrates the high prevalence of bullying among nursing students across diverse contexts. For example, Birks et al. (2017) conducted a secondary analysis of two studies in Australia and the United Kingdom, where both groups of nursing students experienced a high rate of bullying (50.1% and 35.5%, respectively). Other nurses were identified as the main perpetrators (53% in Australia; 68% in the U.K.) (Birks et al., 2017). Studies from other countries showed a higher prevalence of bullying among nursing students, such as 89% in Canada (Clarke et al., 2012) and 79% in Italy (Cerit et al., 2018). Students' inexperience, recurrent changes in clinical settings, and recurrent patients made them more vulnerable to bullying (Magnavita & Heponiemi, 2011).

While numerous nursing students encountered bullying in their clinical placements, they reported that they were not prepared to address bullying and did not know how and where to report it (Clarke et al., 2012; Janatolmakan et al., 2025; Tee et al., 2016). When new graduates were motivated to intervene, evidence suggests that nursing curricula failed to prepare them to act (Galanis et al., 2024; Sidhu & Park, 2018; Thompson & George, 2016). Therefore, developing evidence-based educational initiatives that help nursing students identify and intervene in the event of bullying is necessary.

Theoretical Foundation

This study was guided by the underlying principles of the ecological model of workplace bullying (Johnson, 2011) and Bandura's (1997) self-efficacy theory.

Ecological Model

To understand the antecedents and consequences of bullying, the ecological model of workplace bullying provided a comprehensive framework to explain the complex, dynamic, interactive, and multifactorial nature of bullying (Johnson, 2011). This model guided the development of the online educational tool and its evaluation. The model employed an ecological perspective, indicating that bullying is a result 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 nested layers of hierarchical systems, and this theory was adapted to explain various complex issues in social sciences (Johnson, 2011). The ecological model of workplace bullying entails four interrelated systems that involve the series of events that create bullying. The four systems are the microsystem (the bully and target), the mesosystem (the immediate workgroup, including the manager), the exosystem (the organization), and the macrosystem (society) (Johnson, 2011).

According to the model, interventions should focus on antecedents and outcomes tailored to each ecological level. The dotted lines in the model represent the fluid nature of the relationships between the three stages as they unfold across ecological levels. The intervention described in this paper considers bullying through this lens, considering it to be behaviour that is enacted at the interpersonal level but situated in group, organizational, and social contexts.

Self-Efficacy

Bandura (1995) defined 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, 1995) self-efficacy theory was 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 and sustain an action (George et al., 2017). People with high self-efficacy approach difficult situations as challenges to be mastered rather than as threats to be avoided (Bandura, 1994). By increasing self-efficacy, the learner will be more motivated, engaged, and successful (Bandura, 1977). Having a strong sense of self-efficacy allows individuals to maintain efforts towards success. Self-efficacy is the most important precondition for behavioural change since it determines the initiation of coping behaviour (Bandura, 1986). Individuals' belief in their efficacy influences the actions they choose to follow, the effort they make, and their determination in the face of obstacles or adversity (Bandura, 1997). Self-efficacy is considered a valuable learning outcome to determine the effectiveness of educational interventions. Students with higher self-efficacy may potentially be able to manage situations of bullying more effectively and, in turn, exhibit a greater intent to intervene.

Developing an Online Educational Tool

Designing effective online modules requires specific considerations (Cobb et al., 2018). Nilson and Goodson (2018) summarized 25 principles of learning derived from cognitive psychological research that apply directly to online learning. These principles guided the online educational tool design and organization of content.

Three online modules were developed using the Rise 360 application. The modules were constructed using the interactive features of Rise 360 with written information, reflective questions, pop-up boxes, and embedded videos with a nurse leader who was knowledgeable about bullying. Two undergraduate nursing students co-developed the modules with this study's first author and participated in producing short videos to illustrate bullying behaviours and their negative impacts on nursing students. Based on the current evidence about workplace bullying in health care, the modules presented key components about the definition of bullying, various forms of bullying, implications of workplace bullying, and strategies to intervene (Bartholomew, 2006; Edmonson & Zelonka, 2019; Griffin, 2004; Leiter et al., 2011; Mallette et al., 2011). The cases present the following types of situations:

- Case 1: A senior nurse overrides a new nurse's patient assignment, citing familiarity with the patient and faster care delivery, dismissing the new nurse's need for experience.
- Case 2: A nurse is overheard unjustly berating a health care aide for incomplete patient care, though the responsibility belonged to another nurse who witnessed the exchange.
- Case 3: A new nurse on a pediatric unit experiences repeated social exclusion from off-duty gatherings and events organized by a colleague who appears to be intentionally isolating them.
- Case 4: During a break, a friendly co-worker attempts to engage a new nurse in gossip about a possible affair between two senior staff members.
- Case 5: In a small community hospital, a registered nurse follows policy while performing a procedure, but a licensed practical nurse publicly criticizes the method in front of the patient, creating a potentially undermining and uncomfortable situation.

Further details about the online education tool are presented in Table 1. In this paper, we describe and discuss the quasi-experimental study's results that evaluated the effectiveness of the online educational tool.

Table 1

The Online Educational Modules

Module	Goal	Description
Module 1: What Is Workplace Bullying?	Raise nursing students' awareness of bullying by identifying, understanding the root causes, and listing the consequences of bullying behaviours.	This module incorporated information on bullying, including a clear definition and descriptions of acts of bullying as well as its antecedents, manifestations, and consequences on personal health, the health care organization, and patient safety.
Module 2: How to Manage Workplace Bullying	Inform nursing students about ways to intervene when witnessing or experiencing bullying.	The strategies were organized according to three broad categories: target-focused, bully-focused, and organizational-focused approaches.
Module 3: Application of Knowledge	Increase efficacy beliefs about participants' abilities to identify and manage bullying in the workplace.	This module included five real-life scenarios to facilitate nursing students' abilities to apply their knowledge and practice using the strategies they learned in the previous modules to identify and manage bullying behaviours.

Methods

Study Purpose

The purpose of the study was to evaluate the effectiveness of the online educational tool in improving self-efficacy and intent to intervene related to bullying.

The hypotheses were the following:

1. Self-efficacy to respond to disruptive behaviours (SERDB) scores will increase from pre-intervention to post-intervention.
2. Intent to intervene will increase from pre-intervention to post-intervention.

Design, Setting, and Sample

The study design was quasi-experimental, one-group, pre-test/post-test using within-subjects comparison in response to the intervention (the online modules). Two baccalaureate nursing programs in Western Canada were the research sites. The study was approved by the research ethics boards at the two research sites (#E2018:091 and #2018/19-06). Using convenience sampling, senior undergraduate nursing students were invited to participate. To be eligible, students had to be enrolled in the third or fourth year of these nursing programs and have access to a computer or smartphone.

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) was conducted in consultation with a biostatistician. A *t*-test was used with 0.35 effect size; thus, the required sample size was approximately 50.

A total of 340 students were enrolled in the participating schools during the data collection period. Recruitment for the convenience sample involved an email invitation sent on the first author's behalf by an administrator to third- and fourth-year students with recruitment posters on the schools' webpages. A total of 74 students expressed interest in participating in the study. The online educational tool was formatted such that participants progressed through the three online modules before they were invited to complete the post-test. A total of 41 participants completed all components of the study, which consisted of the pre-test, the online educational tool, and the post-test.

Outcomes and Instruments

The dependent variables consisted of self-efficacy and intent to intervene, which were used to evaluate the effectiveness of the online modules.

Descriptive Variables

Participants completed a socio-demographic questionnaire. Demographic characteristics included gender, age, self-reported grade point average (GPA), educational institution, year in program, English as an additional language, previous exposure to bullying in clinical settings, and previous education about bullying.

Self-Efficacy

Self-efficacy was measured using the SERDB developed by Sanner-Stiehr (2018b) to measure self-efficacy to respond to disruptive behaviours in the nursing work environment. The SERDB includes a combination of cognitive and affective variables influencing self-efficacy: knowledge about that behaviour, and how to successfully perform it; past engagement in that behaviour; affect towards or value judgement made about that behaviour and its importance; and motivation towards engaging in it (Sanner-Stiehr, 2018b). The SERDB consisted of 10 items using a 0–10 Likert-type scale, where 0 = *strongly disagree* and 10 = *strongly agree*. The SERDB (see Table 2) asked participants to rate their self-efficacy in responding to disruptive behaviours by a health care worker intended to undermine, belittle, or otherwise humiliate or hurt others.

In the study introducing the SERDB measure (Sanner-Stiehr, 2018a), each of the individual scale items is analyzed separately rather than being aggregated into an index variable. We recognize that given the high correlation between these items, this approach might introduce a threat of false positives due to multiple comparisons between correlated measures. As a result, we report both the overall score for the aggregated scale and (consistent with the scale source) individual item-level differences. However, for the latter, we adjust the significance threshold using a simple Bonferroni correction, dividing the threshold value by the number of comparisons (10), yielding a critical *p*-value of 0.005.

Table 2

SERDB Scale Items and Theory-Based Dimensions of Self-Efficacy

Item number	Item description	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' behaviours directed at me.	Overall self-efficacy
SERDB 9	Responding effectively is valuable.	Affect
SERDB 10	Generally speaking, I care about being able to respond to disruptive health care workers' behaviours effectively.	Motivation

Note. SERDB = self-efficacy to respond to disruptive behaviours.

Intent to Intervene

To provide insight into the online educational tool's impact on participants' perceptions of their intent to intervene in bullying situations as a target or a witness, we collected a global rating score in response to the following 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 = *not likely* and 10 = *extremely likely*.

Data Collection

The educational tool was uploaded as an online course. The measurement tools were uploaded into Qualtrics, which started with informed consent. Then, participants completed the demographic survey (see Table 3) and pre-test. Participants were given 6 weeks to complete the three online modules and the post-test.

Data Analysis

Using Cronbach's alpha, we undertook reliability testing of the SERDB items. A paired sample *t*-test was used for normally distributed data, and the Wilcoxon signed-rank test was used for data with non-normal distribution. Confidence intervals were set at 95%. For the SERDB items, *p*-values smaller than 0.005 were considered significant (after a Bonferroni correction), while *p*-values of 0.05 were considered significant for other measures. Data processing and analysis were performed using SPSS version 26.

Results

As shown in Table 3, the sample included 33 (80.5%) female students and eight (19.5%) male students with a mean age of 26 years. A total of 16 (39.0%) students reported that they had been a target of bullying, with only six (37.5%) indicating that they had acted to address the bullying situation in their clinical courses. Almost half of the participants (*n* = 20; 48.8%) had witnessed bullying, with seven (35%) having acted on these situations.

Table 3

*Participants' Demographic Characteristics (*n = *41)*

	Mean (SD)	**Median (range)**
Age	26.15 (7.34)	23.0 (20.0–50.0)
Grade point average*	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)
Born in Canada		
Yes		28 (68.3)
No		13 (31.7)
English as an additional language		
Yes		9 (22)
No		32 (78)
Previous workplace bullying education		
Yes		3 (7.3)

No	38 (92.7)
Has been a target of workplace bullying	
Yes	16 (39)
Acted	6 (37.5**)
No	25 (61)
Has been a witness of workplace bullying	
Yes	20 (48.8)
Acted	7 (35.0 ***)
No	21 (51.2)

Note. SD = standard deviation.

*n = 39; **n = 16; ***n = 20.

Online Educational Tool Effectiveness

The SERDB scale demonstrated high internal consistency as indicated by Cronbach's alpha values of 0.91 (pre-test) and 0.92 (post-test). A paired *t*-test (see Table 4) was performed to compare the pre-test and post-test means for the items from the SERDB scale that are normally distributed: total score, previous behaviour (SERDB2), knowledge/cognition (SERDB4), and situational self-efficacy (SERDB6). The other items were not normally distributed, so the Wilcoxon signed-rank test was used (see Table 5).

Table 4

Pre- and Post-test Mean Scores and Paired t*-test Results at CI = 95% (*n *= 41)*

Outcome measure	Paired differences							
	Mean difference (post-test – pre-test)	SD	SE mean	95% confidence interval		*t*	df	Sig. (2-tailed)
				Lower	Upper			
Intent to intervene	2.85	2.32	0.36	2.12	3.59	7.88	40	< 0.0001*
Total self-efficacy (sum)	20.76	15.41	2.41	15.89	25.62	8.62	40	< 0.0001*
Previous behaviour (item 2: responded effectively in the past)	0.34	1.48	0.23	–0.13	0.81	1.481	40	0.147
Knowledge (item 4: know how to respond)	3.29	2.68	0.42	2.45	4.14	7.878	40	< 0.0001*
Situational self-efficacy (item 6: could	3.07	2.53	0.40	2.27	3.87	7.767	40	< 0.0001*

respond in stressful situations)			

Note. SD = standard deviation; SE = standard error; df = degree of freedom; CI = confidence interval.

*significant results with $p < 0.0001$.

Table 5

*Wilcoxon Signed-Rank Test (*n = *41)*

Outcome measure	*Z*	*p*-value	Effect size (*r*)
Overall self-efficacy (item 1: bullying among others)	–5.246	< 0.0001*	0.58
Affect (item 3: importance of responding)	–3.552	< 0.0001*	0.39
Motivation (item 5: patient care)	–3.786	< 0.0001*	0.47
Situational self-efficacy	–4.911	< 0.0001*	0.54
(item 7: could respond in normal situations)			
Overall self-efficacy	–5.326	< 0.0001*	0.59
(item 8: bullying towards self)			
Affect (item 9: value of responding)	–3.562	< 0.0001*	0.42
Motivation (item 10: care about responding effectively)	–4.211	< 0.0001*	0.42

*significant results with $p < 0.0001$.

There was a significant increase in the self-efficacy total score after participants engaged in the online modules ($t(40) = 8.62$; $p < 0.0001$), with a large effect size ($r = 0.55$). Participants reported a significant increase in measures of knowledge/cognition ($t(40) = 7.878$; $p < 0.0001$), with a large effect size ($r = 0.62$). The situational self-efficacy also showed a significant increase ($t(40) = 7.767$; $p < 0.0001$), with a large effect size ($r = 0.58$). As expected, the training did not affect participants' self-reported behaviour from prior to the training (SERDB2; $t(40) = 1.48$; $p = 0.15$). This null result could be interpreted as providing confidence that participants' self-reporting was attentive and did not suffer from demand effects (because the training could not have affected prior behaviour).

The Wilcoxon signed-rank test (see Table 5) revealed a statistically significant increase in participants' overall self-efficacy measures (SERDB1: $z = –5.246$; $p < 0.0001$; and SERDB8: $z = –0.326$; $p < 0.0001$) with large effect sizes ($r = 0.58$ and $r = 0.59$, respectively). A significant increase was also observed for the affect measures (SERDB3: $z = –3.552$; $p < 0.0001$; and SERDB9: $z = –3.786$; $p < 0.0001$). A paired sample *t*-test was conducted to compare the mean score of participants' intents to intervene. As shown in Table 4, there was a significant increase ($t(40) = 7.88$; $p < 0.001$) with a large effect size ($r = 0.52$).

Discussion

Key Findings

Educational Intervention Effects on Self-Efficacy

Our study results were consistent with both hypotheses. After completion of the online educational tool, participants reported an increase in their self-efficacy and their intent to intervene when witnessing bullying behaviours. This finding held both for the overall SERDB scale and for each item, including the situational, general, cognitive, motivational, and affective elements of self-efficacy. The only exception was a retrospective item about past behaviours, which was unchanged.

Literature in other contexts suggests that self-efficacy is foundational in shaping the willingness to intervene. In a systematic review of the literature in education, for instance, we found that teacher confidence was consistently linked with higher rates of interventions in response to bullying (Fischer et al., 2021). Nursing students with higher perceived self-efficacy (from assurance about their knowledge to confidence in their ability to intervene effectively), we argue, will similarly be more likely to initiate and sustain appropriate anti-bullying strategies.

The cognition aspect of self-efficacy was presented in the fourth item of the SERDB scale. The item illustrated a significant increase with a large effect size. 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 aligned with Bandura's social cognitive theory and the importance of acquiring knowledge and skills to directly influence self-efficacy (Bandura, 1977, 1986). The significant increase in this item may suggest 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 suggests that participants are more knowledgeable about bullying and the effective strategies to handle it.

The affect dimension of self-efficacy was measured by two items, SERDB3 and SERDB9. The modules emphasized the importance of responding effectively to disruptive behaviours as an integral part of the nursing profession, in alignment with the Canadian Nurses Association's (2025) Code of Ethics, which calls on nurses to maintain respectful, collaborative, and ethical relationships. Specifically, the modules highlighted the principle that nursing is a profession that emphasizes caring and ethical treatment of others, including colleagues and students.

Increasing Intent to Intervene

Only one-third of students who had faced bullying as a target or witness identified that they had intervened. These results were consistent with the literature, which indicated that nursing students and new nurses avoid confronting bullying behaviours because they fear consequences or are unaware of the policies and procedures about reporting bullying (Birks et al., 2017; Boucaut & Knobben, 2020; Yosep et al., 2024). Our modules directly address these common concerns.

Most participants reported no previous education on responding to any type of bullying, suggesting that these educational opportunities are urgently needed. These results highlight the importance of including education about bullying in nursing curricula. Educating nurses about bullying may raise awareness of the issue and can improve the ability to reduce the frequency and overall impact of bullying (Edmonson & Zelonka, 2019). The literature has well established that bullying needs to be addressed in nursing programs and at every point in a nurse's career (Sidhu & Park, 2018). Therefore, the

online educational tool provided participants with information about bullying acts, reasons underlying bullying, and its consequences on nurses' and nursing students' health, patient safety, and health care organizations.

Contributions to Professional Practice and Training

Scalable and Flexible Training

Our online educational tool is available as a Sharable Content Object Reference Model (SCORM) package that can be used with common learning management systems (LMSs) such as Brightspace by D2L and Moodle. The tool is freely available for educational use (nurse educators may request the modules by emailing the first author). While this study involved a relatively small cohort of students, the web-based interface and LMS integration would allow for it to be scaled up and used for training in larger programs, online and hybrid programs, or other contexts at low cost.

To the best of our knowledge, at the time of this study, this resource was the first online educational resource for nursing students in Canada about workplace bullying. The online format provided students with unlimited access to the content, enabling them to access the information at times convenient to them and at their own pace (Hogan et al., 2018; Luca et al., 2024). The development of online modules was especially timely and important given the need for online instruction as more universities are delivering their courses online (whether in response to public health crises or in response to student demands for flexible learning). The content of the modules focused on teaching students how to respond to bullying not only when they are the target but also when they witness bullying.

Real-World Case Application

Each of the modules of the online tool focused on building knowledge and fostering motivation and confidence. In the third module, for instance, participants applied what they had learned to five real-life case scenarios of bullying. Social learning theory emphasizes the importance of rehearsing behaviours learned through observation (Bandura & Jeffrey, 1973); which this case approach does. The online modules conveyed messages about the importance of facing bullying and convincing participants that nursing students and new nurses can break the cycle of bullying and change the culture of health care organizations.

Contextualized Education

One noteworthy effect is that the sense of self-efficacy was enhanced in the context of both normal and stressful work situations. Bullying tends to be more prevalent in environments characterized by high stress and demanding workloads (Edmonson & Zelonka, 2019). Therefore, it is essential for nurses to recognize and address bullying in both routine and high-pressure circumstances. To support this ability, the online module incorporated diverse case study scenarios that represent a range of bullying situations nurses may encounter in real-world clinical settings.

Returning to the ecological model of bullying, the online modules also helped situate bullying as a phenomenon that has individual, collective, and institutional causes and consequences. The modules focused on the principle that bullying should not be an acceptable part of nursing culture and that everyone has a part to play in stepping up to discourage and respond proactively to bullying.

An Adaptable Foundation

Research suggests that health care organizations and nursing leaders are required to focus on interventions that reduce bullying (Arnetz et al., 2019; Galanis et al., 2024). Many health care institutions seek resources to improve work environments and support new nurses' transition into practice, and these modules may serve this purpose. The results suggest that an online format can be useful for disseminating information to a broader audience of nurses. Although this intervention was designed to educate nursing students about bullying, the content could be updated and tailored to all nurses and other health care professionals by including scenarios relevant to interprofessional teams and diverse roles and experience levels across the health care system.

Methodological Limitations and Future Directions

Sample Size and Representativeness

In this study, most participants were young women. The sample was representative of the nursing student demographics in the two schools and similar to other studies with undergraduate nursing students (Aul, 2017; Birks et al., 2017). A total of 39% of participants reported having experienced bullying, while over half (49%) reported having witnessed bullying. These results were congruent with studies that reported the prevalence of bullying among nurses and nursing students (Spector et al., 2014; Tee et al., 2016). Because the training modules are available freely and can be deployed on common LMS platforms, future researchers may want to compare the effectiveness of training in different institutional or cultural contexts, or with larger or more diverse samples.

The sample size and attrition may be a more substantial weakness. Only 41 of 74 interested participants completed all components of the study. We attribute this attrition to the fact that the study occurred during the onset of the COVID-19 pandemic, with substantial disruptions to clinical and theoretical course delivery. However, our findings may be threatened if attrition were due not to the pandemic but to some other motivational factor. If, for instance, the 41 students were particularly committed to bullying as an issue, they might differ from a general population of nursing trainees, which could lead to an inflated estimate of the training's effects.

We also did not reach the *a priori* threshold of 50 participants to detect a medium effect with 80% power and a 0.05 significance level. While we found large (rather than the predicted medium) effect sizes, this finding should be interpreted conservatively, given the evidence that underpowered studies can produce inflated effect size estimates (Ioannidis, 2008). One solution to the issues of both power and attrition would be to test this educational intervention by embedding it into a curricular requirement and deploying it to a full cohort of learners. This approach would both increase power and help resolve the threat of bias from a sample of unrepresentatively eager or motivated students.

Attitudinal Versus Behavioural Outcomes

We found a significant increase in trainees' intention to intervene. However, an important characteristic of effective interventions is their ability to cause changes in both intention and subsequent behaviour (Webb & Sheeran, 2006). Due to the cross-sectional nature of the study, it was not feasible to measure actual behavioural change, so we considered measuring the intention to be an appropriate indicator. In a meta-analysis aimed at providing systematic integration of experimental studies that tested the impact of changing participants' intentions on subsequent behaviour change, the authors found that a medium-to-large-sized change in intention prompts a small-to-medium-sized change in behaviour (Webb & Sheeran, 2006). The results of the present study revealed that a statistically significant increase

in participants' intent to intervene with a large effect size indicates that the intervention has the potential to influence actual behavioural change and that participants may have more control over their behaviour because of their enhanced self-efficacy. However, future research could track outcomes over a longer period to observe how these intentions translate into practice in clinical settings.

Self-Reported Data

Self-efficacy and intentions are inherently intrapsychic—they are about our subjective perceptions and attitudes. Self-report measures are therefore a reasonable way of measuring these outcomes. However, self-report data come with a range of potential threats to validity, including the desire to give the socially "right" answer or to answer in a way that fits with one's self-presentation goals. We suggest that the non-significant pre-test/post-test difference in trainees' reports of their own previous (i.e., pre-training) behaviour is consistent with honest reporting. However, future research might add observer reports of intervention behaviour. Alternatively, recognizing that bystanders to bullying engage in collective, shared sensemaking of the situation (Ng et al., 2019), future research could measure the impact of training on collective self-efficacy as well as individual self-efficacy.

One-Group Design

The pre-test/post-test approach has inherent limitations in terms of causal inference. The observed change may have occurred due to some experience outside of the educational intervention due to the participants' own maturation as they gained additional clinical experience, or due to any number of unmeasured events that occurred at the same time (particularly during a pandemic). This problem is not uncommon in this field: Jang et al.'s (2022) systematic review of bullying interventions in nursing found 16 non-experimental or observational studies, and only eight experiments, of which only one was a high-quality randomized control trial. This field is characterized by studies of the kind reported in this paper.

We encourage future researchers to employ designs with greater control, rigour, and methodological pluralism. For example, modules embedded in curriculum could be randomly assigned using a wait-list control design, wherein students are assigned at random to complete them in the present term/year or in a future term/year, and the treated and awaiting-treatment students are compared in their attitudes and behaviours. In addition, a mixed-methods design integrating qualitative interviewing or observation could provide greater insight into how the experience of the training shapes self-efficacy and intentions.

Episodic Versus Sustained Education

This paper reports the effects of a multi-module intervention that is offered a single time. The ability to identify and manage destructive behaviours in the workplace is a lifelong self-care skill for all health care professionals that needs to be introduced early and reinforced throughout the curriculum and entry into practice (Clark & Gorton, 2019). Given that students and new nurses may avoid addressing workplace bullying due to fear of repercussions or uncertainty about how to report it, they must be equipped with both the knowledge and the confidence to navigate these situations safely and effectively. Accordingly, we recommended including the online educational tool early in the nursing curriculum so that students may develop the knowledge and confidence in their abilities to deal with bullying in the workplace when they start clinical rotations. Furthermore, we recommend that clinical instructors and professors be equipped with knowledge of the online educational tool and encouraged to facilitate discussions with students about how to apply the concepts to real-world clinical settings to mitigate

bullying behaviours. Another potential is to integrate the online educational tool into simulation, ensuring that faculty are equipped to guide students through these challenging scenarios.

Due to the COVID-19 pandemic, many post-secondary institutions were required to change the method of delivering education to online delivery (Morin, 2020). As the demand for online learning grows, the online educational tool has the potential to be easily incorporated into nursing curricula.

Conclusion

The research suggests that completion of the online modules had a significant influence on enhancing nursing students' self-efficacy and intent to intervene in bullying. 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 has no place in a caring profession like nursing. Despite the study's limitations, the online educational tool showed potential in facilitating the identification of bullying and encouraging nursing students to appropriately intervene when witnessing or experiencing bullying. With the increased interest in online teaching, the development of this educational tool was timely and introduced a meaningful teaching strategy, as nursing students need to be provided with these evidence-based, accessible, and user-friendly tools.

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