pod NETWORK To Improve the ACADEMY
A Journal of Educational Development

Supporting student mental health while enhancing self-care: Evaluating the efficacy of a graduate teaching assistant training module

Kristin M. Brown and Kristen A. Archbell

Abstract

Given the unique proximity and approachability of graduate teaching assistants (GTAs) to students, training GTAs to support student mental health is critical. However, GTAs play dual roles as educators and students, who face their own stress and mental health challenges. This study examined the efficacy of an online module for GTAs focused on how to offer support to students while considering their own self-care. Using an online survey, GTAs' beliefs (feelings of preparedness, and sense of responsibility) and responses (supportive behaviors) to scenarios of students in distress were examined. Participants also completed a measure of self-care. Compared with a general sample of GTAs who had not participated in the module (n = 111), module participants (n = 42) had higher intentions, felt more responsibility, and felt more prepared to support students in distress. They also reported higher levels of self-care. This study shows training can not only be effective at enhancing GTAs' ability to support undergraduate student mental health but also positively impact their own self-care.

Keywords: student mental health, well-being, graduate teaching assistants, professional development

https://doi.org/10.3998/tia.5214

Post-secondary students (both undergraduate and graduate) experience high levels of stress and mental health challenges (Linden et al., 2021; Mackie & Bates, 2019; Moss et al., 2022). The COVID-19 pandemic has further exacerbated mental health challenges for both graduate (Ogilvie et al., 2020; Sverdlik et al., 2023) and undergraduate students (Canadian Alliance of Student Associations & Mental Health Commission of Canada, 2022; Hamza et al., 2021; Zhu et al., 2021). Therefore, it is important to consider strategies to support student mental health in higher education. Given mental health struggles are associated with academic challenges and lower grades (Holmes & Silvestri, 2016; Sukhawathanakul et al., 2022; Zorach & Lipka, 2023), a campus-wide approach to mental health has been called for (*Okanagan Charter: An International Charter for Health Promoting Universities and Colleges*, 2015). The role of post-secondary instructors in supporting student mental health has been explored and advocated for in the literature due to their close interactions with students (Baik et al., 2019; Di Placito-De Rango, 2018, 2022; McKendrick-Calder & Choate, 2024; Spear et al., 2021). Furthermore, the importance of mental health training for post-secondary educators has been emphasized (Gulliver et al., 2019; Margrove et al., 2014; Spear et al., 2021). Given the unique proximity and approachability of graduate teaching assistants (GTAs) to students (Dillard et al., 2024; Kendall & Schussler, 2012), training opportunities specific to GTAs should also be a focus.

The Role of Graduate Teaching Assistants in Supporting Student Mental Health

GTAs, graduate students who support course delivery and assessment, are often seen as approachable by undergraduate students (Dillard et al., 2024; Kendall & Schussler, 2012) and are also in a position to recognize students in distress. Students often develop meaningful relationships with GTAs (Archbell, 2020) and may opt to communicate with them more than course instructors (Cotten & Wilson, 2006). Given the

frequency and importance of interactions between students and GTAs (Halawah, 2006; Kuh & Hu, 2001; Muzaka, 2009; Pascarella & Terenzini, 2005), it is crucial to provide GTAs with knowledge about mental health and supportive strategies for mitigating student distress.

However, GTAs play dual roles as members of the instructional team and students themselves (Winstone & Moore, 2017), who face their own stress and mental health challenges. GTAs express concerns about the tasks and time required for their role (Cho et al., 2011), taking time away from their own studies (Muzaka, 2009)—potentially exacerbating stress. While GTAs should be equipped with strategies and resources to support student mental health (e.g., Hsu & Goldsmith, 2021), they should also be provided with resources and strategies to reduce their own stress and support their own well-being (Moss et al., 2022; Slack & Pownall, 2023). Self-care has been identified as a method to reduce stress associated with the pressures of graduate school (Barnett & Cooper, 2009; Colman et al., 2016). Generally speaking, self-care is defined as actively engaging in activities to increase feelings of well-being (Bressi & Vaden, 2017; Lee & Miller, 2013). Hence, providing guidance for GTAs on how to offer support to students while balancing their own mental health and understanding the importance of self-care is imperative.

Teaching development programs may be an effective venue to provide this guidance to GTAs. GTAs who partake in teaching development convey more commitment and responsibility to teaching (Cho et al., 2011) and improve their knowledge and teaching (Wheeler et al., 2017). Additionally, research indicates that students who perceive their GTA as more supportive believe they learn more content (Wheeler et al., 2017). Therefore, it is important to leverage professional development for GTAs to support students in distress while assessing the efficacy of such trainings. Despite calls for instructors and GTAs to support student well-being (Baik et al., 2019; Di Placito-De Rango, 2018) and for training on these topics (Council of Graduate Schools & The Jed Foundation, 2021; Gulliver et al., 2019; Margrove et al., 2014; Spear et al., 2021), there is a dearth of literature on the efficacy of these trainings. Thus, the following

sections provide an overview of the Supporting Student Mental Health GTA module and how its efficacy was evaluated.

Supporting Student Mental Health: An Online Module for GTAs

The Supporting Student Mental Health module was developed in response to recommendations from the President's Advisory Committee on Student Mental Health related to teaching and professional development for instructors (University of Waterloo, 2018), the university's commitment to a comprehensive approach to mental health and wellness (University of Waterloo, 2019), and the call for mental health training for educators (Gulliver et al., 2019; Margrove et al., 2014; Spear et al., 2021).

The asynchronous module was developed when graduate student teaching development programming was moved online during the COVID-19 pandemic. The module has been offered by the University of Waterloo's Centre for Teaching Excellence since June 2020 as part of a graduate teaching development program and an option for departments to offer as TA training (which some deemed mandatory). It is open to all graduate students on campus. The module has been reviewed by key stakeholders including graduate students, faculty, and staff from counseling and graduate student support services and revised based on their feedback.

The purpose of the (approximately 2-hour) self-paced asynchronous Supporting Student Mental Health module was to provide GTAs with an overview of student mental health; teaching strategies for supporting student well-being; and approaches for recognizing distress and responding appropriately, establishing boundaries, practicing self-care, and recognizing compassion fatigue (Figure 1). Each of these topics was broken into units, and module participants completed unit quizzes to test their content knowledge. The overarching goal of the module was to prepare GTAs to effectively support students experiencing

Figure 1. Overview of Supporting Student Mental Health Online Module Content

distress while considering their own mental health. Strategies from the literature (Baik et al., 2019; Council of Ontario Universities, n.d.; Dyjur et al., 2017; Simon Fraser University, 2020; University of British Columbia, 2016), university resources, and practices of instructors and educational developers were included.

The primary aim of the current study was to examine the efficacy of the module, given the lack of empirical literature supporting similar GTA training opportunities. To understand if the module was effective, GTAs' beliefs (feelings of preparedness and sense of responsibility) and responses (supportive behaviors) to scenarios of students in distress were examined. Additionally, participants completed a measure of self-care to further understand if the module impacted GTAs' self-care actions. To understand the impact of the module, comparisons were made between general GTAs (i.e., non-module participants) and GTAs who completed the module.

Materials and Method

Procedure

Prior to collecting data, an institutional ethics protocol was submitted and approved. A survey containing consent, a demographic

questionnaire, mental health questionnaires, and hypothetical vignettes was designed and administered through Qualtrics. The general GTA sample was recruited through emails and news bulletins deployed to graduate students at the institution, with a study summary and link to the survey. Individuals who chose to participate indicated if they took part in the Supporting Student Mental Health GTA module in the demographic questionnaire; if they had taken the module, they were excluded from the general GTA sample. The GTAs in the module sample were asked to complete the survey following their participation in the module. All survey respondents were given a $5 gift card for their participation in the study.

Participants

Survey respondents in the current study were graduate teaching assistants (N = 153), divided into two samples: (1) general GTA sample and (2) module GTA sample. The general GTA sample was recruited through the institution's graduate student listserv, with the presence of an eligibility criteria (i.e., participants must not have completed the module). In the general GTA sample (n = 111), 55% of participants self-identified as female, 39.6% as male, and 7.4% as other (M_{age} = 26.5, SD = 5.41). Of these participants, 45.9% indicated their race as White, followed by South Asian (21.6%), East Asian (11.7%), Middle Eastern (9%), and a minority indicating Black (1.8%), Indigenous (0.9%), Latin (0.9%), Southeast Asian (1.8%), and other (5.4%). The majority were domestic students (65.8%), and 34.2% were international students. A large proportion reported they were currently a GTA (78.4%), and some had instructor experience (13.5%).

Participants in the module GTA sample completed the module as part of their departmental GTA training or as part of a teaching development program offered through the university's Centre for Teaching Excellence. Participants were sent a survey one week after they completed the module. Participants in the module GTA sample (n = 42, M_{age} = 25.89, SD = 4.65) self-identified as female (73.8%), male (19.0%),

and other (5.2%). In terms of their reported race, a large proportion indicated White (50%), followed by South Asian (16.7%), East Asian (14.3%), Middle Eastern (2.4%), and other (16.6%). The majority were domestic students (76.2%), and 23.8% were international students. Many in this sample reported they were currently a GTA (76.2%), and only a few had instructor experience (7.1%).

Measures

Data were collected between June and November 2021 at the University of Waterloo (a university in Southern Ontario) via online survey as part of a larger study assessing GTAs' beliefs about student mental health. Only a subset of data is being examined in the present study to test the efficacy of the Supporting Student Mental Health module. The measures examined are presented below.

Demographics. The survey asked participants about their self-identified gender and race, status as either a domestic or international student, and if they were currently a GTA or Sessional Instructor.

Student behavior vignettes. A series of hypothetical vignettes were created for this study depicting students in distress in different educational contexts (i.e., face-to-face, online; see Appendix). Face-to-face student depictions were created in line with how students in distress may present, including expressions of uncontrollable worry and appearing upset. Online depictions of distress were created to represent how GTAs witness student distress when they do not often physically see their students. The hypothetical vignettes used in the present study, along with the follow-up questions, were modeled after children's behavioral vignettes used in other studies (e.g., Coplan et al., 2015; Li et al., 2018).

Participants were instructed to read the short scenarios depicting university students in distress and answer follow-up Likert-scale and open-ended questions while imagining they were the GTA. Follow-up questions asked about their feelings of *preparedness* (i.e., "I would feel prepared to effectively handle the situation"; 1 = *not at all* to 5 =

very strongly), sense of *responsibility* (i.e., "do you feel it is your place to help the student"; 1 = *not at all* to 5 = *very strongly*), and their intentions to support the student in distress (*supportive behaviors*), including "follow up with the student afterwards," "take steps to support the student during the session," and "using teaching strategies to support the student" (1 = *not at all likely* to 5 = *very likely*). Questions examining *preparedness* and *responsibility* were single-item responses, while *supportive behavior* was an aggregate of three items. Inter-item reliability for these items in the face-to-face ($\alpha = .665$) and online ($\alpha = .672$) contexts were acceptable.

The follow-up questions and formats were derived from previous studies examining attitudes and beliefs about behavioral depictions (e.g., Arbeau & Coplan, 2007; Coplan et al., 2015; Cunningham & Sugawara, 1989; Mills & Rubin, 1992). Participants were randomly assigned to receive a female or male depiction of distress, and the vignettes themselves were randomly presented. Note that our definition of *responsibility*, used both in the module and to inform the survey, aligned with Hsu and Goldsmith (2021):

> We emphasize that our advice here does not suggest that instructors take the role of mental health professionals; clear boundaries must be established when interacting with students regarding issues of mental health more generally. However, we hope that these evidence-based strategies can help instructors become informed and improve their ability to act proactively and respond to such challenges. (p. 2)

Self-care. Given the emphasis on self-care in the module, examining GTAs' self-care was of interest. Participants completed the Academic Self-Care Scale, which included seven dichotomous (yes or no) questions about self-care planning and participation (O'Neill et al., 2019). Sample items included "Have you completed a self-care plan for yourself while in school?" and "Do you practice your self-care plan on a weekly basis?" Higher aggregated scores represented lower self-care. Internal reliability in the present sample was acceptable (Cronbach's $\alpha = .83$).

Results

Preliminary Analyses

Prior to conducting the main analyses, data were examined and cleaned (e.g., outliers, missing data, and assumptions were examined). Descriptive statistics for follow-up vignette questions can be found in Table 1 and those for self-care in Table 2.

Main Analyses: Depictions of Student Distress

A series of repeated-measures ANOVAs were examined to investigate the differences in GTAs' (non-module vs. module sample) feelings of

Table 1. Descriptive Statistics for Vignette Measures

Face-to-face	**General GTA sample (*n* = 111)**			**Post mental health module sample (*n* = 42)**		
	M	***SD***	**Range**	***M***	***SD***	**Range**
GTA supportive behaviors (follow up, support student, use teaching strategies)	4.14	0.74	1–5	4.35	0.68	2–5
GTA sense of responsibility	4.29	0.99	1–6	4.48	0.83	3–6
GTA feelings of preparedness	3.39	0.93	1–5	3.79	0.81	2–5
Online	**General GTA sample (*n* = 111)**			**Post mental health module sample (*n* = 42)**		
	M	***SD***	**Range**	***M***	***SD***	**Range**
GTA supportive behaviors (follow up, support student, use teaching strategies)	3.52	0.89	1–5	3.89	0.86	2.33–5
GTA sense of responsibility	3.97	1.21	1–6	4.21	0.75	2–6
GTA feelings of preparedness	3.09	1.04	1–5	3.74	0.70	3–5

Table 2. Descriptive Statistics for Self-Care

	General GTA sample (*n* = 111)			**Post mental health module sample (*n* = 42)**		
	M	***SD***	**Range**	***M***	***SD***	**Range**
Self-care	1.48	0.42	1–2	1.26	0.36	1–2

Note. Higher aggregate scores represent less self-care.

preparedness, responsibility, and supportive behaviors towards students in distress. Distress served as within-subjects variables (face-to-face distress, online distress), with Vignette Gender (female depiction, male depiction) and GTA Group (module participants, non-module participants) as between-subjects variables (i.e., 2x2x2 design). Pairwise comparisons and one-way ANOVAs were examined for significant effects with more than 1 degree of freedom (Tabachnick & Fidell, 2007).

Given there could be a self-selection bias, in which GTAs who are already interested in supporting student mental health may opt to complete the module (despite some departments requiring the module), we took additional precautions when running analyses. Mental health awareness was originally included as a covariate in the model to control for GTAs' awareness of student mental health, given the potential impact of between-sample differences. However, there were no significant effects found with GTA mental health awareness within the original model. Furthermore, a one-way ANOVA directly examining GTA group differences on mental health awareness yielded no significant results (e.g., $F(1,150) = .174$, $p = .841$, $\eta^2 = .008$). Thus, mental health awareness was removed from analyses to streamline results presented below.

Preparedness

GTAs' feelings of preparedness to effectively handle student distress were examined. Results indicated a significant main effect of Distress, $F(1,150) = 5.919$, $p = .016$, $\eta^2 = .038$, a significant main effect of GTA Group, $F(1,150) = 12.92$, $p = .001$, $\eta^2 = .079$, but no significant main effect of Vignette Gender, $F(1,150) = .490$, $p = .485$, $\eta^2 = .003$. Main effects were superseded by a significant two-way interaction of GTA Group X Vignette Gender, $F(1,150) = 6.145$, $p = .014$, $\eta^2 = .039$, and a two-way interaction of Distress X GTA Group approached significance, $F(1,150) = 3.706$, $p = .056$, $\eta^2 = .024$. There was no significant two-way interaction of Distress X Vignette Gender, $F(1,150) = .295$, $p = .016$,

η^2 = .002, or significant three-way interaction of Distress X GTA Group X Vignette Gender, $F(1,150) = 1.128$, $p = .290$, $\eta^2 = .007$.

The significant main effect of Distress demonstrated that GTAs felt significantly more prepared to effectively handle face-to-face distress ($M = 3.51$, $SD = .908$) than online distress ($M = 3.27$, $SD = 1.00$). The main effect of GTA Group indicated that module participants ($M = 3.78$, $SD = .802$) felt significantly more prepared to handle student distress compared with non-module participants ($M = 3.25$, $SD = .902$).

The significant two-way interaction of GTA Group X Vignette Gender was examined by conducting a follow-up ANOVA for depictions of females in distress, $F(1,77) = 16.86$, $p = .001$, and males in distress, $F(1,77) = .686$, $p = .410$. While there was no significant effect found between GTA Group for males, for females, module participants reported significantly higher feelings of preparedness ($M = 4.03$, $SD = .595$) compared with those who did not participate in the module ($M = 3.11$, $SD = .921$). For the Distress X GTA Group interaction, there was no difference in feelings of preparedness to handle student distress in the face-to-face environment ($M = 3.78$, $SD = .802$) versus the

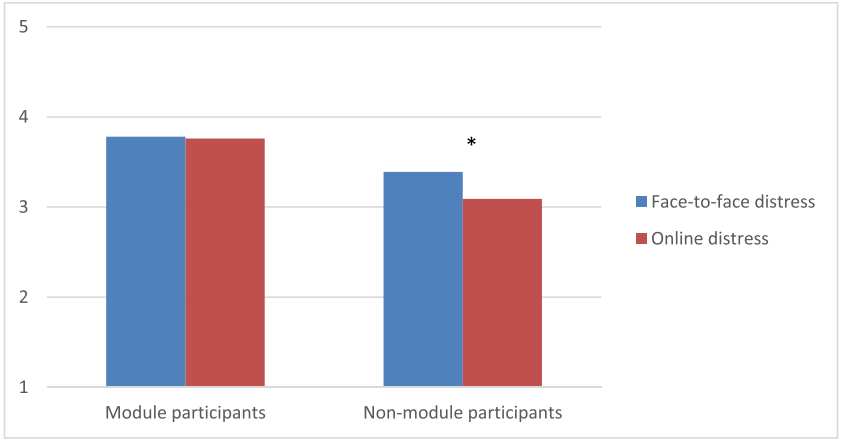

Figure 2. Mean Differences in GTAs' Feelings of Preparedness to Handle Students in Distress, by GTA Group

Note. 1 = not at all prepared to 5 = very prepared.
** Significant difference at p < .05.*

online environment (M = 3.76, SD = .703) among module participants. However, non-module participants felt significantly more prepared to handle student distress in the face-to-face environment (M = 3.39, SD = .926) than in the online environment (M = 3.09, SD = 1.04), as seen in Figure 2.

Supportive behavior

GTAs responded with their intentions to support (e.g., follow up, use pedagogical strategies to help) distressed students (i.e., supportive behaviors) depicted in the vignettes. Results indicated a significant main effect of Distress, $F(1,150) = 58.56$, $p = .001$, $\eta^2 = .281$, a significant main effect of GTA Group, $F(1,150) = 6.219$, $p = .001$, $\eta^2 = .040$, but no significant main effect of Vignette Gender, $F(1,150) = .556$, $p = .457$, $\eta^2 = .004$. Main effects were superseded by a significant two-way interaction of GTA Group X Vignette Gender, $F(1,150) = 7.76$, $p = .006$, $\eta^2 = .049$. The two-way Distress X Vignette Gender interaction only approached significance, $F(1,150) = 3.19$, $p = .052$, $\eta^2 = .027$, and there was no significant two-way interaction of Distress X GTA Group, $F(1,150) = .812$, $p = .369$, $\eta^2 = .005$. However, there was a significant three-way interaction of Distress X GTA Group X Vignette Gender, $F(1,150) = 4.52$, $p = .035$, $\eta^2 = .029$.

When considering the main effect of Distress, all GTAs indicated they were more supportive of students in distress in the face-to-face setting (M = 4.19, SD = .725) compared with the online setting (M = 3.59, SD = .887). For the main effect of GTA Group, module participants (M = 4.12, SD = .778) were significantly more supportive than non-module participants (M = 3.81, SD = .804).

In terms of the interaction effect of GTA Group X Vignette Gender, when considering women in particular, a significant one-way ANOVA indicated module participants (M = 4.33, SD = .676) reported significantly more supportive strategies compared with non-module participants (M = 3.69, SD = .715), $F(1,77) = 12.37$, $p = .001$. For the male

vignette, there was no significant difference in supportive behavior between module and non-module participants, $F(1,77) = .049$, $p = .825$.

When examining the three-way interaction of Distress X GTA Group X Vignette Gender, there was no significant difference in supportive behaviors towards females' depictions of distress in the face-to-face environment between module participants ($M = 4.36$, $SD = .680$) and non-module participants ($M = 4.13$, $SD = .736$), $F(1,150) = 3.248$, $p = .073$. However, there was a significant difference in supportive behaviors towards depictions of distress in females in the online environment between module participants ($M = 3.85$, $SD = .877$) and non-module participants ($M = 3.51$, $SD = .882$), $F(1,150) = 4.57$, $p = .034$. When examining males' depictions of distress, there was no significant difference in supportive behavior between module and non-module participants, in the face-to-face environment, $F(1,150) = 0.94$, $p = .760$, or the online environment, $F(1,150) = 337$, $p = .563$.

When continuing to examine Distress X GTA Group X Vignette Gender, there were no differences among non-module participants intended supportive behaviors in the face-to-face environment, $F(1,150) = 3.073$, $p = .082$, or in the online environment, $F(1,150) = 2.35$, $p = .128$, between males' depictions of distress and females' depictions of distress. Furthermore, there were no significant differences in module participants intended supportive behaviors towards males' versus females' depictions of distress in the face-to-face environment, $F(1,150) = .360$, $p = .552$. However, in the online environment, all GTAs were more likely to be supportive of females' depictions of distress ($M = 4.25$, $SD = .708$) versus that of males ($M = 3.52$, $SD = .880$), $F(1,150) = 8.88$, $p = .005$.

Responsibility

GTAs were asked about their sense of responsibility in response to the depiction of the student in distress. Results indicated a main effect of Distress, $F(1,150) = 8.24$, $p = .005$, $\eta^2 = .052$, but no main effect of

GTA Group, $F(1,150) = 3.49$, $p = .063$, $\eta^2 = .023$, or Vignette Gender, $F(1,150) = 1.15$, $p = .285$, $\eta^2 = .008$. Main effects were superseded by two-way interactions of GTA Group X Vignette Gender, $F(1,150) = 6.74$, $p = .010$, $\eta^2 = .043$, Distress X GTA Group, $F(1,150) = 8.79$, $p = .004$, $\eta^2 = .055$, and Distress X Vignette Gender, $F(1,150) = 4.63$, $p = .033$, $\eta^2 = .030$. There was no three-way interaction of Distress X Vignette Gender X GTA Group, $F(1,150) = 1.59$, $p = .209$, $\eta^2 = .010$.

For the main effect of Distress, all GTAs felt more responsibility towards depictions of distress in the face-to-face environment ($M = 4.07$, $SD = 1.21$) than in the online environment ($M = 3.57$, $SD = 1.40$). In terms of the two-way interaction of GTA Group X Vignette Gender, among module participants, there was a higher sense of responsibility reported towards females in distress ($M = 4.45$, $SD = .608$) than males ($M = 4.06$, $SD = 1.11$) in distress, $F(1,43) = 6.59$, $p = .014$. Among non-module participants, there was no difference in feelings of responsibility towards females in distress ($M = 3.57$, $SD = 1.21$) and those towards males ($M = 3.87$, $SD = 1.05$) in distress, $F(1,110) = 1.87$, $p = .174$. Additionally, module participants expressed significantly more sense of responsibility towards females ($M = 4.45$, $SD = .604$) compared with non-module participants ($M = 3.57$, $SD = 1.21$), $F(1,78) = 9.43$, $p = .003$. There was no significant difference when comparing module and non-module participants when examining sense of responsibility towards males, $F(1,74) = .280$, $p = .598$.

When considering the interaction of Distress X GTA Group, module participants did not report a significant difference in sense of responsibility towards depictions of distress in the face-to-face ($M = 4.04$, $SD = 1.31$) versus online environment ($M = 4.08$, $SD = .94$), $t = 5.358$, $p = .001$. However, non-module participants reported significantly more responsibility for students exhibiting distress in the face-to-face environment ($M = 4.08$, $SD = 1.16$) compared with the online environment ($M = 3.37$, $SD = 1.50$), $t = .215$, $p = .416$, as depicted in Figure 3. When examining the feelings of responsibility towards depictions of distress in the face-to-face environment, there was no significant

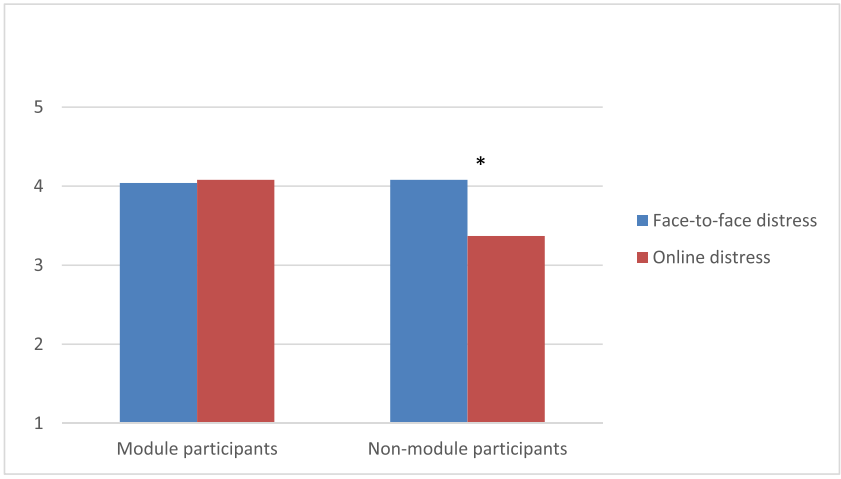

Figure 3. Mean Differences in GTAs' Sense of Responsibility Towards Depictions of Students in Distress, by GTA Group

** Significant difference at p < .05.*

difference between GTA groups, $F(1,150) = .024$, $p = .876$. However, when examining feelings of responsibility towards depictions of distress in the online environment, there was a significant difference between GTA groups, $F(1,150) = 8.354$, $p = .004$, with module participants ($M = 4.08$, $SD = .94$) feeling significantly more responsibility than non-module participants ($M = 3.37$, $SD = 1.50$).

When examining the effects of Distress X Vignette Gender, GTAs reported significantly more responsibility in the face-to-face ($M = 4.15$, $SD = 1.18$) than in the online environment ($M = 3.45$, $SD = 1.52$) towards females' depictions of distress. However, for males' depictions of distress, there was no significant difference in the face-to-face ($M = 3.97$, $SD = 1.22$) versus in the online environment ($M = 3.68$, $SD = 1.25$), $t = 1.90$, $p = .060$. Additionally, there was no significant difference between GTA feelings of responsibility towards females' depictions of distress versus that of males in the face-to-face environment, $F(1,150) = .839$, $p = .361$, or online, $F(1,150) = 1.17$, $p = .281$.

Self-care

A one-way ANOVA was conducted to examine GTA group (module participants, non-module participants) differences in self-reported self-care. Given the emphasis of self-care in the module, this analysis was of particular interest. Self-care was reported as binary yes/no answers (scored as 1 and 2) to a series of questions, resulting in higher scores indicating less self-care and lower scores indicating higher self-care. Results indicated a significant difference in self-care, $F(1,150) = 9.312$, $p = .003$, with module participants ($M = 1.26$, $SD = .360$) reporting higher levels of self-care than non-module participants ($M = 1.48$ $SD = .422$).

Discussion

Compared to a general sample of GTAs who had not participated in the module, module participants felt more responsibility, more prepared, and more likely to support students in distress. These results align with the goals of the module and provide support for the effectiveness of the GTA training.

Preparedness

Module participants reported higher levels of preparedness to handle student distress compared with non-module participants, providing support for the efficacy of the module. This aligns with recommendations that when instructors are more familiar with mental health challenges through training participation, they are more prepared to respond (Hsu & Goldsmith, 2021; Spear et al., 2021). Winstone and Moore (2017) found that when GTAs are more prepared, they are more confident in their role; therefore, increasing feelings of preparedness to support students in distress may also increase their

self-efficacy in their role as a GTA. Furthermore, findings indicated that all GTAs felt significantly more prepared to handle distress in the face-to-face environment than in the online environment. We suspect this is because signs of distress are more apparent in face-to-face settings (Barr, 2014), and conversations may be easier to navigate and more direct. While resources about how distress might manifest in the online environment are linked in the module, it appears this content should be more explicitly incorporated into the module. It is critical that GTAs have resources to strengthen feelings of preparedness in both the face-to-face and online learning environments; hence, more explicit consideration for the online environment will be included in the next iteration of the Supporting Student Mental Health module.

Supportive Behavior

One of the core goals of the module was to provide GTAs with tangible, ready-to-implement resources and strategies to increase support and mitigate mental health challenges in students. Module participants were significantly more supportive of students in distress than non-module participants, indicating the value of the training (Hsu & Goldsmith, 2021; Spear et al., 2021). All GTAs indicated they were more supportive of students in distress in the face-to-face setting than in the online setting. GTAs may be more equipped with resources and strategies to implement in the face-to-face setting. Connectedness (how connected a student is to their peers and the instructional staff) plays a key role in student success in the online learning environment (Di Malta et al., 2022); hence, it is important for GTAs to provide that connection to enhance student mental health. Although module participants reported greater intentions to support students overall, and the module includes concrete strategies for GTAs to implement virtually, more emphasis on applying these strategies through scenarios or quizzes may be valuable.

Responsibility

Educators indicate that responsibility is an important component of teaching, as it relates to effort, persistence, and commitment (Lauermann, 2014). Module participants reported higher feelings of responsibility to support students in distress compared with non-module participants. We suggest this is related to an increased understanding of the importance of mental health and supporting students in distress among GTAs who completed the module (Di Placito-De Rango, 2018, 2022).

Interestingly, module participants expressed more responsibility towards hypothetical vignettes of females in distress than to those of males in distress. This may be related to our sample, which was composed of significantly more females than males. Indeed, literature consistently highlights women as empathetic and prosocial, due to both nature and nurture (e.g., Abdullahi & Kumar, 2016; Christov-Moore et al., 2014), while suggesting that females are more likely to seek and receive help (e.g., Barbee et al., 1993; Galdas et al., 2005; Nadler et al., 1984). Therefore, participants in our sample may have greater exposure and comfort when engaging in supportive behaviors for females compared with males. Alternatively, this may be related to mental health gender bias, in which some believe it is more acceptable for females than males to experience distress—this may be highlighted in our module sample after increasing their mental health awareness (e.g., Kessler, 2003; Rudman & Fairchild, 2004; Wirth & Bodenhausen, 2009). Recent literature has also indicated that female post-secondary students report higher stress and mental illness diagnoses (Linden et al., 2021), so participants may have experienced female students in distress more frequently in their GTA role. Regardless of the cause, we believe it is critical to address this in the next iteration of the module by including content focused on gender and mental health to ensure all genders benefit equally.

Overall, all GTAs reported feeling more responsibility towards depictions of distress in the face-to-face environment versus in the

online environment. It is possible that the virtual environment creates a barrier and may dull interpersonal connection (Barr, 2014), thus reducing feelings of responsibility among GTAs. This finding coincides with greater feelings of preparedness in the face-to-face setting, providing further impetus for explicitly highlighting indicators of distress, strategies, and resources for the online environment in the module.

Self-Care

While GTA's increased feelings of responsibility towards student distress may bode well for students, research shows these feelings of responsibility may come at a cost (Lauermann, 2014). Accordingly, a unit focusing on GTA self-care was intentionally included in the module, in which participants received content on the importance of self-care and were instructed to create a self-care action plan (Figure 1). Results indicated a significant difference in self-care, with module participants reporting higher levels of self-care than non-module participants. This provides evidence that integrating content on self-care and prioritizing your own well-being as a graduate student, as recommended by the Council of Graduate Schools and the Jed Foundation (2021), into modules about supporting students has a positive impact on graduate student mental health. Given the high proportion of graduate students experiencing mental health challenges (Moss et al., 2022), enhancing GTAs' self-care is a positive outcome. This finding is also valuable because GTAs can model these self-care practices for their students (Brewer et al., 2022).

Limitations and Directions for Future Research

This study was based on a single 2-hour online training module offered at one university, and the small sample size (consisting of significantly more females than males) must be considered when transferring the findings to other contexts. Furthermore, since the post-module survey was sent to participants within one week of completing the module,

the survey measures participants' short-term inclinations rather than long-term changes to their practice. Correlation versus causation must also be considered. Although we found strong support for the effectiveness of the module while controlling for GTA mental health awareness (i.e., no difference in mental health awareness was found between groups), it is possible there may be other sample characteristics biasing the results. Results should always be interpreted with caution.

Directions for future research include examining the longer-term impacts of the module to see how GTAs integrated these practices into their teaching and interactions with students. Given the use of hypothetical vignettes, implementing additional methods such as post-teaching narratives along with classroom observations may increase internal validity and confidence in the results. Additionally, given that GTAs felt more prepared, responsible, and likely to provide support in cases of face-to-face distress than in cases of online distress, future research should investigate signs of student distress in online learning environments as well as strategies to best support these students. Last, this study did not include a vignette depicting a gender non-binary student, although depictions of students who use they/them pronouns were included in the module. Future studies could include vignettes representing non-binary students to more inclusively examine GTAs' perceptions of gender as they relate to student mental health.

We found the Supporting Student Mental Health module had positive impacts on participants' intentions, responsibility, and preparation to support students in distress and on participants' self-care. This is particularly valuable due to its asynchronous modality, which requires fewer resources than synchronous offerings. Asynchronous offerings can reach more participants and therefore may support more students experiencing mental health challenges. Given staffing and resource limitations in educational development, the logistical deployment of such trainings must be considered to maximize wellness benefits and outcomes.

This study addresses calls for training for instructors and GTAs on strategies to support student well-being (Gulliver et al., 2019;

Margrove et al., 2014; Spear et al., 2021) and shows these trainings can not only be effective at enhancing GTAs' ability to support undergraduate student mental health but also positively impact their own self-care. Additionally, we identified areas for growth in our module. The next iteration will enhance components surrounding gender inclusivity, and additional strategies to support students in the online environment will be emphasized. Given the ongoing mental health crisis of students in higher education (Linden et al., 2021; Mackie & Bates, 2019; Moss et al., 2022), this study provides evidence that teaching and learning centers can play a pivotal role in providing concrete strategies for supporting student mental health. We encourage those offering similar training to include content on self-care and to empirically evaluate these trainings to enhance wellness on campus.

Biographies

Dr. Kristin Brown is the Educational Developer, TA Training and Writing Support, at the University of Waterloo Centre for Teaching Excellence. She supports graduate students and postdoctoral fellows' pedagogical development and is an instructor for the Certificate in University Teaching program. Her graduate training focused on knowledge translation in public health and her research interests include inclusive educational practices and pedagogy that supports student wellbeing.

Dr. Kristen Archbell is the Associate Director of Assessment at the University of Waterloo (UW) School of Pharmacy. She completed graduate studies in psychology with a focus on social anxiety and academic experiences in higher education. Previously, Dr. Archbell worked at the UW Centre for Teaching Excellence in a research and programmatic assessment position, developing, facilitating, and evaluating programs and workshops on teaching enhancement and the Scholarship of Teaching and Learning.

Acknowledgments

This project was funded through a Learning Innovation and Teaching Enhancement (LITE) Seed Grant from the University of Waterloo. The authors would like to thank Linda Sosa-Hernandez, who cleaned the data and conducted primary analyses, and the study participants, who completed the survey during the COVID-19 pandemic, a time of heightened stress and anxiety among post-secondary students.

Conflict of Interest Statement

The authors have no conflict of interest.

References

Abdullahi, I. A., & Kumar, P. (2016). Gender differences in prosocial behaviour. *The International Journal of Indian Psychology*, *3*(4), 171–175. https://doi.org/10.25215/0304.017

Arbeau, K. A., & Coplan, R. J. (2007). Kindergarten teachers' beliefs and responses to hypothetical prosocial, asocial, and antisocial children. *Merrill-Palmer Quarterly*, *53*(2), 291–319. https://doi.org/10.1353/mpq.2007.0007

Archbell, K. (2020, July 15). *Too anxious to talk: Social anxiety, communication, and academic experiences in higher education* [Doctoral dissertation, Carleton University]. CURVE. https://curve.carleton.ca/bf0cd59b-ac80-4437-b8f5-ea0d3822523b

Baik, C., Larcombe, W., & Brooker, A. (2019). How universities can enhance student mental wellbeing: The student perspective. *Higher Education Research & Development*, *38*(4), 674–687. https://doi.org/10.1080/07294360.2019.1576596

Barbee, A. P., Cunningham, M. R., Winstead, B. A., Derlega, V. J., Gulley, M. R., Yankeelov, P. A., & Druen, P. B. (1993). Effects of gender role expectations on the social support process. *Journal of Social Issues*, *49*(3), 175–190. https://doi.org/10.1111/j.1540-4560.1993.tb01175.x

Barnett, J. E., & Cooper, N. (2009). Creating a culture of self-care. *Clinical Psychology: Science and Practice*, *16*(1), 16–20. https://doi.org/10.1111/j.1468-2850.2009.01138.x

Barr, B. (2014). Identifying and addressing the mental health needs of online students in higher education. *Online Journal of Distance Learning Administration*, *17*(2).

Bressi, S. K., & Vaden, E. R. (2017). Reconsidering self-care. *Clinical Social Work Journal*, *45*, 33–38. https://doi.org/10.1007/s10615-016-0575-4

Brewer, M., van Kessel, G., Sanderson, B., & Carter, A. (2022). Enhancing student resilience by targeting staff resilience, attitudes and practices. *Higher Education Research & Development*, *41*(4), 1013–1027. https://doi.org/10.1080/07294360.2021.1877622

Canadian Alliance of Student Associations & Mental Health Commission of Canada. (2022). *The new abnormal: Student mental health two years into COVID-19*. https://www.casa-acae.com/the_new_abnormal_report

Cho, Y., Kim, M., Svinicki, M. D., & Decker, M. L. (2011). Exploring teaching concerns and characteristics of graduate teaching assistants. *Teaching in Higher Education*, *16*(3), 267–279. https://doi.org/10.1080/13562517.2010.524920

Christov-Moore, L., Simpson, E. A., Coudé, G., Grigaityte, K., Iacoboni, M., & Ferrari, P. F. (2014). Empathy: Gender effects in brain and behavior. *Neuroscience & Biobehavioral Reviews*, *46*(4), 604–627. https://doi.org/10.1016/j.neubiorev.2014.09.001

Colman, D. E., Echon, R., Lemay, M. S., McDonald, J., Smith, K. R., Spencer, J., & Swift, J. K. (2016). The efficacy of self-care for graduate students in professional psychology: A meta-analysis. *Training and Education in Professional Psychology*, *10*(4), 188–197. https://doi.org/10.1037/tep0000130

Coplan, R. J., Bullock, A., Archbell, K. A., & Bosacki, S. (2015). Preschool teachers' attitudes, beliefs, and emotional reactions to young children's peer group behaviors. *Early Childhood Research Quarterly*, *30*, 117–127. https://doi.org/10.1016/j.ecresq.2014.09.005

Cotten, S. R., & Wilson, B. (2006). Student-faculty interactions: Dynamics and determinants. *Higher Education*, *51*, 487–519. https://doi.org/10.1007/s10734-004-1705-4

Council of Graduate Schools & The Jed Foundation. (2021). *Supporting graduate student mental health and well-being: Evidence-informed recommendations for the graduate community*. Council of Graduate Schools. https://cgsnet.org/graduate-student-mental-health-and-well-being/

Council of Ontario Universities. (n.d.). Teaching students with mental health disabilities. Retrieved May 13, 2024, from https://accessiblecampus.ca/tools-resources/educators-tool-kit/teaching-tips/teaching-students-with-mental-health-disabilities/

Cunningham, B., & Sugawara, A. (1989). Factors contributing to preservice teachers' management of children's problem behaviors. *Psychology*

in the Schools, *26*(4), 370–379. https://doi.org/10.1002/1520-6807(198910)26:4<370::AID-PITS2310260408>3.0.CO;2-B

Di Malta, G., Bond, J., Conroy, D., Smith, K., & Moller, N. (2022). Distance education students' mental health, connectedness and academic performance during COVID-19: A mixed-methods study. *Distance Education*, *43*(1), 97–118. https://doi.org/10.1080/01587919.2022.2029352

Di Placito-De Rango, M. L. (2018). Situating the post-secondary instructor in a supportive role for the mental health and well-being of students. *International Journal of Mental Health and Addiction*, *16*(2), 284–290. https://doi.org/10.1007/s11469-017-9740-4

Di Placito-De Rango, M. L. (2022). Mapping the role of instructors in Canadian post-secondary student mental health support systems. *International Journal of Mental Health and Addiction*, *20*(3), 1423–1437. https://doi.org/10.1007/s11469-020-00453-3

Dillard, J. B., Sadek, K., & Muenks, K. (2024). Undergraduate perceptions of graduate teaching assistants: Competence, relatedness, and autonomy in practice. *Higher Education Research & Development*, *43*(1), 32–47. https://doi.org/10.1080/07294360.2023.2215169

Dyjur, P., Lindstrom, G., Arguera, N., & Bair, H. (2017). Using mental health and wellness as a framework for course design. *Papers on Postsecondary Learning and Teaching: Proceedings of the University of Calgary Conference on Learning and Teaching*, *2*, 1–9. https://doi.org/10.11575/pplt.v2i.42227

Galdas, P. M., Cheater, F., & Marshall, P. (2005). Men and health help-seeking behaviour: Literature review. *Journal of Advanced Nursing*, *49*(6), 616–623. https://doi.org/10.1111/j.1365-2648.2004.03331.x

Gulliver, A., Farrer, L., Bennett, K., & Griffiths, K. M. (2019). University staff mental health literacy, stigma and their experience of students with mental health problems. *Journal of Further and Higher Education*, *43*(3), 434–442. https://doi.org/10.1080/0309877X.2017.1367370

Halawah, I. (2006). The impact of student-faculty informal interpersonal relationships on intellectual and personal development. *College Student Journal*, *40*(3), 670–678.

Hamza, C. A., Ewing, L., Heath, N. L., & Goldstein, A. L. (2021). When social isolation is nothing new: A longitudinal study on psychological distress during COVID-19 among university students with and without preexisting mental health concerns. *Canadian Psychology / Psychologie canadienne*, *62*(1), 20–30. https://doi.org/10.1037/cap0000255

Holmes, A., & Silvestri, R. (2016). Rates of mental illness and associated academic impacts in Ontario's college students. *Canadian Journal of School Psychology*, *31*(1), 27–46. https://doi.org/10.1177/0829573515601396

Hsu, J. L., & Goldsmith, G. R. (2021). Instructor strategies to alleviate stress and anxiety among college and university STEM students. *CBE—Life Sciences Education*, *20*(1), Essay 1. https://doi.org/10.1187/cbe.20-08-0189

Kendall, K. D., & Schussler, E. E. (2012). Does instructor type matter? Undergraduate student perception of graduate teaching assistants and professors. *CBE—Life Sciences Education*, *11*(2), 187–199. https://doi.org/10.1187/cbe.11-10-0091

Kessler, R. C. (2003). Epidemiology of women and depression. *Journal of Affective Disorders*, *74*(1), 5–13. https://doi.org/10.1016/s0165-0327(02)00426-3

Kuh, G. D., & Hu, S. (2001). The effects of student-faculty interaction in the 1990s. *The Review of Higher Education*, *24*(3), 309–332. https://doi.org/10.1353/rhe.2001.0005

Lauermann, F. (2014). Teacher responsibility from the teacher's perspective. *International Journal of Educational Research*, *65*, 75–89. https://doi.org/10.1016/j.ijer.2013.09.005

Lee, J. J., & Miller, S. E. (2013). A self-care framework for social workers: Building a strong foundation for practice. *Families in Society*, *94*(2), 96–103. https://doi.org/10.1606/1044-3894.4289

Li, Y., Archbell, K. A., Bullock, A., Wang, Y., & Coplan, R. J. (2018). Chinese pre-service teachers' beliefs about hypothetical children's social withdrawal and aggression: Comparisons across years of teacher education. *Teaching and Teacher Education*, *71*, 366–375. https://doi.org/10.1016/j.tate.2018.02.004

Linden, B., Boyes, R., & Stuart, H. (2021). Cross-sectional trend analysis of the NCHA II survey data on Canadian post-secondary student mental health and wellbeing from 2013 to 2019. *BMC Public Health*, *21*(1), Article 590. https://doi.org/10.1186/s12889-021-10622-1

Mackie, S. A., & Bates, G. W. (2019). Contribution of the doctoral education environment to PhD candidates' mental health problems: A scoping review. *Higher Education Research & Development*, *38*(3), 565–578. https://doi.org/10.1080/07294360.2018.1556620

Margrove, K. L., Gustowska, M., & Grove, L. S. (2014). Provision of support for psychological distress by university staff, and receptiveness to mental health training. *Journal of Further and Higher Education*, *38*(1), 90–106. https://doi.org/10.1080/0309877X.2012.699518

McKendrick-Calder, L., & Choate, J. (2024). Educators' lived experiences of encountering and supporting the mental wellness of university students. *Higher Education Research & Development*, *43*(1), 180–195. https://doi.org/10.1080/07294360.2023.2218810

Mills, R. S. L., & Rubin, K. H. (1992). A longitudinal study of maternal beliefs about children's social behaviors. *Merrill-Palmer Quarterly*, *38*(4), 494–512.

Moss, R. A., Gorczynski, P., Sims-Schouten, W., Heard-Laureote, K., & Creaton, J. (2022). Mental health and wellbeing of postgraduate researchers: Exploring the relationship between mental health literacy, help-seeking

behaviour, psychological distress, and wellbeing. *Higher Education Research & Development*, *41*(4), 1168–1183. https://doi.org/10.1080/07294360.2021.1906210

Muzaka, V. (2009). The niche of Graduate Teaching Assistants (GTAs): Perceptions and reflections. *Teaching in Higher Education*, *14*(1), 1–12. https://doi.org/10.1080/13562510802602400

Nadler, A., Maler, S., & Friedman, A. (1984). Effects of helper's sex, subjects' androgyny, and self-evaluation on males' and females' willingness to seek and receive help. *Sex Roles*, *10*, 327–339. https://doi.org/10.1007/BF00287550

O'Neill, M., Slater, G. Y., & Batt, D. (2019). Social work student self-care and academic stress. *Journal of Social Work Education*, *55*(1), 141–152. https://doi.org/10.1080/10437797.2018.1491359

Ogilvie, C., Brooks, T. R., Ellis, C., Gowen, G., Knight, K., Perez, R. J., Rodriguez, S. L., Schweppe, N., Smith, L. L., & Smith, R. A. (2020). *NSF Rapid: Graduate student experiences of support and stress during the COVID-19 pandemic*. https://www.montana.edu/covid19_rapid/new%20NSF_RAPID_GraduateStudentExperiences_Covid19_White_Paper.pdf

Okanagan Charter: An international charter for health promoting universities and colleges. (2015). https://bp-net.ca/wp-content/uploads/2019/03/Okanagan-Charter.pdf

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. Jossey-Bass.

Rudman, L. A., & Fairchild, K. (2004). Reactions to counterstereotypic behavior: The role of backlash in cultural stereotype maintenance. *Journal of Personality and Social Psychology*, *87*(2), 157–176. https://doi.org/10.1037/0022-3514.87.2.157

Simon Fraser University. (2020). *Creating conditions for well-being in learning environments*. https://www.sfu.ca/content/dam/sfu/healthycampuscommunity/PDF/WLE/CreatingConditionsfor20Well-beinginLearningEnvironments.pdf

Slack, H. R., & Pownall, M. (2023). "Treat GTAs as colleagues, rather than spare parts": The identity, agency, and wellbeing of graduate teaching assistants. *Journal of Further and Higher Education*, *47*(9), 1262–1275. https://doi.org/10.1080/0309877X.2023.2241392

Spear, S., Morey, Y., & van Steen, T. (2021). Academics' perceptions and experiences of working with students with mental health problems: Insights from across the UK higher education sector. *Higher Education Research & Development*, *40*(5), 1117–1130. https://doi.org/10.1080/07294360.2020.1798887

Sukhawathanakul, P., Hadwin, A., Rostampour, R., Bahena Olivares, M., & Shostak, K. (2022). Studying under stress: The effect of COVID-19 psychological distress on academic challenges and performance of post-secondary

students. *Journal of College Student Retention: Research, Theory & Practice*, *26*(2), 567–580. https://doi.org/10.1177/15210251221104245

Sverdlik, A., Hall, N. C., & Vallerand, R. J. (2023). Doctoral students and COVID-19: Exploring challenges, academic progress, and well-being. *Educational Psychology*, *43*(5), 545–560. https://doi.org/10.1080/01443410.2022.2091749

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Allyn & Bacon.

University of British Columbia. (2016). *Teaching practices that promote student wellbeing: A tool for educators*. https://blogs.ubc.ca/teachingandwellbeing/files/2016/12/TLEF_Handout_Round2_v2.pdf

University of Waterloo. (2018). President's Advisory Committee on Student Mental Health. https://uwaterloo.ca/mental-health-wellness/sites/ca.mental-health-wellness/files/uploads/files/pac_smh_exec_summary_final.pdf

University of Waterloo. (2019). *Connecting imagination with impact*. https://uwaterloo.ca/strategic-plan/

Wheeler, L. B., Maeng, J. L., Chiu, J. L., & Bell, R. L. (2017). Do teaching assistants matter? Investigating relationships between teaching assistants and student outcomes in undergraduate science laboratory classes. *Journal of Research in Science Teaching*, *54*(4), 463–492. https://doi.org/10.1002/tea.21373

Winstone, N., & Moore, D. (2017). Sometimes fish, sometimes fowl? Liminality, identity work and identity malleability in graduate teaching assistants. *Innovations in Education and Teaching International*, *54*(5), 494–502. https://doi.org/10.1080/14703297.2016.1194769

Wirth, J. H., & Bodenhausen, G. V. (2009). The role of gender in mental-illness stigma: A national experiment. *Psychological Science*, *20*(2), 169–173. https://doi.org/10.1111/j.1467-9280.2009.02282.x

Zhu, J., Racine, N., Xie, E. B., Park, J., Watt, J., Eirich, R., Dobson, K., & Madigan, S. (2021). Post-secondary student mental health during COVID-19: A meta-analysis. *Frontiers in Psychiatry*, *12*. https://doi.org/10.3389/fpsyt.2021.777251

Zorach, I. A., & Lipka, O. (2023). Adjustment to higher education among students with mental health disorders. *Higher Education Research & Development*, *42*(1), 1–17. https://doi.org/10.1080/07294360.2022.2052815

Appendix

Hypothetical vignettes

Face-to-Face Distress A student comes up to you at the beginning of tutorial and mentions that [she/he] spends a lot of time worrying about this course and sometimes [her/his] worrying seems uncontrollable. [She/He] is visibly upset and says [she/he] has come to you because you are the only person she/he feels comfortable speaking to.
Online Distress You are grading a student's reflection assignment for your online course, and when reading the assignment, you notice some statements that make you concerned for [her/his] mental well-being. The student attends your online office hours with other students a few hours after you marked [her/his] assignment.

*Note: The male version of the hypothetical vignette used he/his pronouns, and the female version of the hypothetical vignette used she/her pronouns.