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It's Time to Bring Mental Health Literacy Education into the Postsecondary Curriculum

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It's Time to Bring Mental Health Literacy Education into the Postsecondary Curriculum

Abstract

In the last twenty years, research on post-secondary students' mental health and well-being has grown substantially, with a dramatic increase in publications over the past decade. Likewise, concerns about declining mental health on our campuses have risen; the mental well-being of postsecondary students is now widely recognized as a major public health issue. Over the last two decades, Canadian higher education has largely addressed these concerns by promoting mental health *awareness* through extracurricular means. Critically, a new movement towards mental health *literacy* has emerged across the nation: not just supplementary outreach, but education embedded into the curriculum. To put recommendations into practice, in 2020, one of the authors [CZ] developed and taught an undergraduate course on mental health literacy with a class of 106 students. In the first offering, we conducted a pre-post study to examine if this new course would be associated with changes in mental health knowledge, stigma, and help-seeking. Of the forty students who participated in the study, ten completed measures at both the start (T1) and the end of the course (T2). Within-subjects analyses showed that students made significant gains from T1 to T2, with a large effect size, in terms of attitudes toward seeking mental health services. Feedback on the course was very positive, both in students' ratings and their comments. Looking ahead, student well-being will depend on how institutions approach and engage with mental health literacy. We recommend firmly integrating mental health literacy education into the post-secondary curriculum.

Au cours des vingt dernières années, la recherche en matière de santé mentale et de bien-être des étudiants et des étudiantes au niveau post-secondaire a considérablement augmenté et a connu une hausse spectaculaire des publications au cours de la décennie écoulée. De même, les préoccupations concernant le déclin de la santé mentale sur les campus ont augmenté et le bien-être mental des étudiants et des étudiantes universitaires est aujourd'hui largement reconnu comme une question majeure de santé publique. Au cours des deux dernières décennies, l'enseignement supérieur canadien a vastement répondu à ces préoccupations en favorisant la sensibilisation à la santé mentale par le biais de moyens extracurriculaires. De manière critique, un nouveau mouvement vers la littératie en matière de santé mentale a fait son apparition d'un bout à l'autre du pays : non seulement grâce à des actions supplémentaires mais également grâce à des programmes d'éducation intégrés dans les programmes de cours. Afin de mettre les recommandations en pratique, en 2020, une des auteurs [CZ] a développé et enseigné un cours de premier cycle sur la littératie en matière de santé mentale à une classe de 106 étudiants et étudiantes. Quand le cours a été enseigné pour la première fois, nous avons mené une étude avant et après le cours pour examiner si ce nouveau cours pourrait être associé aux changements intervenus en matière de connaissances sur la santé mentale, de la stigmatisation et de la demande d'aide. Sur les quarante étudiants et étudiantes ayant participé à l'étude, dix ont complété les mesures à la fois avant (T1) et après (T2) le cours. Les analyses intra-sujets ont montré que les étudiants et les étudiantes avaient réalisé des gains significatifs entre T1 et T2, avec une grande taille de l'effet, en termes d'attitude envers la demande d'aide en matière de services de santé mentale. Le feedback du cours a été très positif, à la fois dans les scores accordés par les étudiants et dans leurs commentaires. À l'avenir, on peut dire que le bien-être des étudiants et des étudiantes dépendra de la manière dont les établissements approcheront et traiteront la littératie en matière de santé mentale. Nous recommandons d'intégrer fermement la santé mentale en éducation dans les programmes d'enseignement post-secondaire.

Keywords

mental health, mental health literacy, well-being, postsecondary; santé mentale, littératie en matière de santé mentale, bien-être, post-secondaire

Interest in the mental health and well-being of postsecondary students has developed substantially over the last twenty years. The literature on postsecondary students' mental health and well-being has grown from a slow pace to a sharp increase in 2000, with an almost tenfold rise in publications since 2010 (Hernández-Torrano et al., 2020). The rising interest in student mental health has been paralleled by an increase in the prevalence of mental health disorders in postsecondary students over the last two decades (American College Health Association [ACHA], 2013; ACHA, 2019; Storrie et al., 2010). While Canadian postsecondary students are no more likely to experience a mental illness than young adults who are not in school (Auerbach et al., 2016; Blanco et al., 2008; Wiens et al., 2020), students report higher levels of persistent stress than their non-student peers (Evans et al., 2018; Linden & Stuart, 2020; MacKean, 2011; Wiens et al., 2020).

In addition, there has been an increase in the complexity and severity of mental health challenges among postsecondary students (Auerbach et al., 2016; Gallagher et al., 2001; Kitrow, 2003; Lipson et al., 2019). For instance, suicidal thoughts and attempts have increased in this population (Twenge et al., 2019). The number of students dying by suicide has increased as well (Mortier et al., 2018; Uchida & Uchida, 2017), though this is a difficult outcome to measure because many institutions have not systematically tracked these data (Goffin, 2017). What was once considered a growing concern is now recognized as a major public health issue (Auerbach et al., 2016; Bruffaerts et al., 2018; Evans et al., 2018; Kutcher, Wei, & Coniglio, 2016; Wiens et al., 2020) or even a mental health crisis on campus. How have our schools responded to this problem?

Mental Health Literacy in Key National and International Initiatives

Over the last two decades, several national and international organizations have developed guidelines to improve the mental health and well-being of Canadian students pursuing higher education (Canadian Association of College and University Student Services [CACUSS] & Canadian Mental Health Association [CMHA], 2013; MacKean, 2011; Mental Health Commission of Canada [MHCC], 2020; Okanagan Charter, 2015; Olding & Yip, 2014; Tsouros et al., 1998). One of the most interesting developments in the last decade has been the gradual introduction of mental health literacy (MHL) into these frameworks.

Since Jorm and colleagues (1997) first introduced the term, MHL has come to encompass several concepts, including: knowledge about mental illness; knowledge of prevention and promotion of mental health; knowledge about help-seeking; mental illness stigma; and help-seeking beliefs (Jorm, 2000, 2012; Kutcher, Wei, & Coniglio, 2016; Mansfield et al., 2020). Although MHL has been a long-established topic of scholarly interest, none of these early recommendations make any mention of MHL (CACUSS & CMHA, 2013; MacKean, 2011; Okanagan Charter, 2015; Olding & Yip, 2014; Tsouros et al., 1998). Instead, some broach the subject using terms like “mental health awareness” (CACUSS & CMHA, 2013, p. 14; MacKean, 2011, p. 25), and only address a few components of MHL (e.g., early symptom recognition, stigma reduction). Further, education and training on the topic is only recommended to faculty and staff, whereas student education is relegated to outreach campaigns (CACUSS & CMHA, 2013; MacKean, 2011; Tsouros et al., 1998).

In contrast, MHL is discussed prominently in recent guidelines to improve student mental health. For example, the recent National Standard of Canada for Mental Health and Well-Being for Postsecondary Students (MHCC, 2020) makes explicit recommendations to provide MHL training in order to enhance campus mental health. Notably, training is recommended for the entire

postsecondary community, including students. The inclusion of MHL into national standards seems to signal a turning point for mental health in higher education.

Mental Health Literacy in Higher Education

Current evidence suggests that these new directions to prioritize MHL on Canadian campuses are timely. Among postsecondary students, MHL is generally low (Armstrong & Young, 2015; Clough et al., 2019; Gorczyński et al., 2020; Reavley et al., 2012), particularly among men (Clough et al., 2019; Lauber et al., 2005; Rafal et al., 2018) and international students (Clough et al., 2019). This is worrisome because MHL has been found to be a significant predictor of mental health help-seeking (Gulliver et al., 2010; Rafal et al., 2018; Rüscher et al., 2011; Smith & Schochet, 2011). In short, low MHL could be a barrier to engaging with mental health initiatives and services. Unfortunately, few postsecondary institutions across Canada currently offer MHL training—11–14%, according to Chang et al. (2020)—and reports of MHL education or its effectiveness in postsecondary settings are scarce.

Some support for the effectiveness of MHL education has been found with short-term programming. For instance, a 10–12-hour teacher-delivered MHL education program for Canadian high school students (McLuckie et al., 2014) has shown positive outcomes on knowledge and attitudes (Milin et al., 2016). In the postsecondary setting, Kutcher and colleagues (2016) found similar effects with a mental health resource, *Transitions*. Improvements on knowledge and help-seeking have been reported from both reading the resource (Kutcher, Wei, & Morgan, 2016) as well as attending peer-led seminars on its content (Gilham et al., 2018). Similar benefits have been found from peer-led workshops in the UK (Patalay et al., 2017), where both high school and university students showed improved mental health knowledge and decreased stigma. However, brief interventions may have limited effectiveness: in one case, a two-hour presentation and interactive discussion showed positive effects on stigma, but not knowledge or help-seeking (Loreto, 2017).

Instead, research suggests that one of the most promising methods of delivering mental health education is in a course format (Conley et al., 2013). A few institutions have begun to adopt this model over the last decade. For example, the University of Guelph has offered a small, seminar-style undergraduate course on mental health and well-being for students with an identified mental health challenge who were registered with disability services. An evaluation of that course showed positive outcomes on self-stigma and well-being (Lumley et al., n.d.). More recently, the University of Calgary has implemented an embedded certificate in mental well-being and resilience which includes six courses related to mental well-being (Boyce & Lindsay, 2019). Further west, an initiative at the University of British Columbia delivered MHL content for engineering students during their classes (d'Entremont et al., 2019).

Postsecondary schools appear to be taking steps towards fulfilling national recommendations to offer MHL training to students (MHCC, 2020). However, differences in the scope, delivery mode, duration, target audience, and content make it difficult to draw meaningful conclusions about the effectiveness of MHL education for postsecondary students.

The Present Study

Considering the low level of MHL among postsecondary students, the burden associated with accessing resources over and above students' course load, and the optimistic findings of MHL

education in younger students, one of the authors [CZ] was inspired to propose a new undergraduate course on MHL. The undergraduate course was approved at all levels and CZ developed and taught this new course for the first time in the Winter 2020 term. In the first offering, we conducted a pre-post study to examine whether this new undergraduate course would be associated with changes in mental health knowledge, stigma, and help-seeking. The purpose of this paper is to describe the MHL course and report the results of our study, which is the first in our long-term research plan to build an evidence-base for this MHL course. To our knowledge, this is the first study on an undergraduate-level MHL course in Canada.

Method

Description of the Mental Health Literacy Course

In January 2020, AHS 105 Mental Health Literacy was offered for the first time as a 12-week, 0.5 credit course at a large research-focused university in Ontario, Canada. Offered in person through the Faculty of Health, the course was available to undergraduate students in all faculties, with a maximum enrolment of 100 students. The course encompassed all components of MHL, with an emphasis on strengthening well-being. As well, the course was designed according to universal design principles, featuring inclusive and empathetic instructional practices and a high degree of social presence of the instructor and two teaching assistants (TAs). Assessments included three unit tests, learning activities, and two major assignments.

Two main themes ran throughout the course: looking inward and looking outward. In an individual assignment based on the looking inward course theme, students applied course concepts to themselves in designing, implementing, and evaluating their Personal Mental Wellness Plan. To look outward, students worked in small groups to design and implement a project aimed at addressing one aspect of MHL in their campus community (e.g., awareness of signs and symptoms of mental illness, reducing stigma, etc.). A description of the course is provided elsewhere (Zaza & Yeung, 2020). Due to COVID-19 restrictions in March 2020, adjustments were made as the course moved fully online for the last three weeks of the term.

Study Procedure

To examine changes in mental health knowledge, stigma, and help-seeking, we conducted a pre-post study with students enrolled in the course. All procedures were approved by the Office of Research Ethics at University of Waterloo (Protocol #41696).

In Winter 2020 (January-April), all students enrolled in the MHL course were invited to participate in the study. Online surveys were sent via email on two occasions: at the beginning of the course (Time 1; T1), and after the course ended but before final grades were released (Time 2; T2).

In the first week of the term, the course instructor [CZ] announced the opportunity to participate in the study so that students would be aware that they would receive a study recruitment email. In her announcement, the instructor assured students that their decision to participate would not have any impact on their grades, that she would not know who participated, and that she would not see any data until after final grades were submitted. Only one announcement was made verbally in class and in writing in the course learning management system. The instructor did not attempt to encourage participation and no incentives were provided (e.g., no bonus marks for participation,

no gift cards). Recruitment emails were sent by one author [RY], who had no relationships with any student involved in the course.

Study Participants

Of the 106 students invited to participate, 31 students responded to the survey at T1. At T2, 19 students responded to the survey (see Table 1). In total, 40 unique students participated in the study (i.e., at least one of either T1 or T2). Of these 40 participants, 35 were women and 5 were men. These participants were mostly third-year ($n = 4$; 19%), fourth-year ($n = 8$; 38%), or above ($n = 3$; 14%; $M_{\text{year of study}} = 3.2$) and were mostly enrolled in the Health ($n = 22$; 56%) or Arts ($n = 12$; 31%) faculties. Mean age was 20.9. Of the 40 participants in total, 10 completed measures at both T1 and T2. Of these 10 participants, 9 were women and 1 was a man. These participants were all third-year ($n = 3$; 33%) or fourth-year ($n = 6$; 67%; $M_{\text{year of study}} = 3.7$) students and were mostly enrolled in Health ($n = 5$; 56%) or Arts ($n = 3$; 33%) faculties. Mean age was 21.4. Note that we report valid percentages (i.e., missing data removed from totals).

Table 1
Number of Students who Responded at Each Time Point

	<i>n</i>
Students invited to participate at both T1 and T2	106
Students who responded at T1	31
Students who responded at T2	19
Students who responded at both T1 and T2	10

Study Materials

I-PANAS-SF. The International Positive and Negative Affect Schedule (Short Form; I-PANAS-SF) is a 10-item measure of state affect. Participants indicated on a 5-point Likert scale (1 = *not at all*, 5 = *very much so*) the extent to which a series of adjectives described how they felt at the moment. Five items corresponded to positive affect (PA, e.g., “inspired”), and five items corresponded to negative affect (NA, e.g., “upset”). The I-PANAS-SF has been shown to have acceptable test-retest reliability, convergent validity, and cross-cultural validity (Thompson, 2007). Higher scores indicate more intense emotion. Internal consistency was good for both positive affect ($\alpha = .83$) and negative affect ($\alpha = .83$) in the current study.

MAKS. The Mental Health Knowledge Schedule (MAKS) is a 12-item measure of knowledge about mental health problems for use among the general public. Participants indicated on a 5-point Likert scale (1 = *disagree strongly*, 5 = *agree strongly*) the extent to which they agreed or disagreed with statements about mental health problems (e.g., “Most people with mental health problems want to have paid employment”), and whether certain conditions were mental illnesses (e.g., “depression”). The MAKS has been found to have moderate to substantial test-retest reliability (Evans-Lacko et al., 2010). Higher scores reflect more mental health knowledge. Internal consistency was low in the current study ($\alpha = .43$). Note that this α value was calculated with one item removed (#10); this item had to be removed from the reliability analysis due to

having zero variance (all participants agreed strongly that bipolar disorder was a type of mental illness).

RIBS. The Reported and Intended Behaviour Scale (RIBS) is an 8-item measure of behavioural discrimination against individuals with mental illnesses. Participants indicated whether they had interacted with people facing mental health challenges (yes/no), and their willingness to do so in the future (5-point Likert scale; 1 = *disagree strongly*, 5 = *agree strongly*). Only the last four items measuring intended behaviours were summed for this measure (Evans-Lacko et al., 2011). The RIBS has been found to have moderate to substantial test-retest reliability (Evans-Lacko et al., 2011). Higher scores reflect less behavioural discrimination. Internal consistency was good in the current study ($\alpha = .87$).

SSOSH. The Self-Stigma of Seeking Help Scale (SSOSH) is a 10-item measure of self-stigma (e.g., reduced self-worth) in response to seeking mental health services. Participants indicated on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*) the extent to which they would experience certain reactions (e.g., “Seeking psychological help would make me feel less intelligent”) if they sought help. The SSOSH has been found to have adequate test-retest reliability, construct validity, and criterion validity (Vogel et al., 2006). Lower scores reflect less self-stigma. Internal consistency was good in the current study ($\alpha = .85$).

PSOSH. The Perceptions of Stigmatization by Others for Seeking Help Scale (PSOSH) is a 5-item measure of perceived stigma from others related to mental health problems. Participants indicated on a 5-point Likert scale (1 = *not at all*, 5 = *a great deal*) the extent to which they believed others would hold stigmatizing attitudes (e.g., “react negatively to you”) if they sought mental health services. The PSOSH has been found to have adequate test-retest reliability and concurrent validity (Vogel et al., 2009). Lower scores reflect less perceived stigma from others. Internal consistency was good in the current study ($\alpha = .82$).

IASMHS. The Inventory of Attitudes Toward Seeking Mental Health Services (IASMHS) is a 24-item measure of help-seeking attitudes in the context of mental health. Participants indicated on a 5-point Likert scale (0 = *disagree*, 4 = *agree*) the extent to which they agreed or disagreed with statements about seeking help (e.g., “I would want to get professional help if I were worried or upset for a long period of time”). The IASMHS has been found to have moderate test-retest reliability, and adequate criterion and discriminant validity (Mackenzie et al., 2004). Higher scores reflect more positive attitudes toward help-seeking. Internal consistency was good in the current study ($\alpha = .80$).

BTCC. The Barriers-to-Care Checklist (BTCC) is an 18-item measure of perceived barriers to seeking help for mental health problems. Participants indicated on a 5-point Likert scale (1 = *not at all*, 5 = *very much*) the extent to which they thought certain reasons (e.g., “I wanted to solve problems on my own”) had contributed to their decisions to not seek mental health services in the past (Vanheusden et al., 2008). Lower scores reflect fewer perceived barriers to care. Internal consistency was good in the current study ($\alpha = .86$).

General Course Perceptions. Three questions were used to assess participants' general perceptions of the course. Specifically, participants indicated how worthwhile the course was (1 = *not at all*, 5 = *extremely*) and were invited to provide text responses for (1) what they would change about the course, and (2) if they had any general comments about the course.

Study Design

At T1, the online survey began with a written information letter. After providing informed consent, participants completed the I-PANAS-SF to measure current affect. Then, participants completed six measures related to MHL (MAKS, RIBS, SSOSH, PSOSH, IASMHS, BTCC) in a randomized order. Finally, participants provided basic demographic information (age, gender, year of education). At T2, the same design was administered, except that demographic items were replaced with items assessing general course perceptions (see Materials). All procedures remained identical.

Analysis

To assess change in MHL-related attitudes from T1 to T2, within-subjects analyses were conducted on the ten participants who responded at both T1 and T2. Responses to open-ended questions were examined for similar themes and were summarized under descriptive categories.

Results

The overall means for the MHL-related variables, from all participants, are shown in Table 2.

Table 2
Overall Means for MHL-related Variables

	<i>n</i> _{T1}	T1 Mean (SD)	<i>n</i> _{T2}	T2 Mean (SD)
Positive Affect (I-PANAS-SF)	28	13.8 (4.51)	17	13.8 (3.82)
Negative Affect (I-PANAS-SF)	28	12.0 (5.00)	17	11.0 (5.09)
Mental Health Knowledge Schedule (MAKS)	20	48.1 (4.02)	14	49.6 (4.13)
Reported & Intended Behaviour Scale (RIBS)	24	17.3 (2.87)	14	17.2 (3.24)
Self-Stigma of Seeking Help (SSOSH)	25	26.2 (6.47)	15	23.5 (6.31)
Perceptions of Stigmatization by Others for Seeking Help (PSOSH)	21	8.48 (3.54)	15	7.87 (2.53)
Inventory of Attitudes Toward Seeking Mental Health Services (IASMHS)	22	54.5 (14.6)	14	62.2 (13.1)
Barriers-to-Care Checklist (BTCC)	24	50.5 (14.0)	14	46.9 (12.6)

Note. Standard deviations in parentheses. Means reported include all participants, regardless of whether they had completed measures at both T1 and T2.

Pre- and Post-Comparison

Positive and Negative Affect. Paired-samples *t*-tests were run to compare positive affect (PA) and negative affect (NA) at T1 to T2. Mean PA scores were significantly different across time points, $t(8) = 2.77$, $SE = 0.64$, $p = .02$, $d = 0.93$. PA was significantly lower at T2 ($M = 13.9$) compared to T1 ($M = 15.7$), indicating that participants were in a less positive mood at the end of the course compared to the start. Mean NA scores were not significantly different across time points ($p = .053$). NA was nominally lower at T2 ($M = 10.9$) compared to T1 ($M = 14.3$).

To estimate if changes in mood were related to changes in attitudes or course ratings, correlations were run between difference scores (i.e., value at T2 minus value at T1) for PA and NA, and difference scores for MHL-related attitudes and T2 general course perceptions. No correlations were significant ($ps > .1$), suggesting that any changes in mood were unrelated to changes in any variables of interest.

MHL-Related Attitudes. Paired-samples *t*-tests were run to compare the MHL-related variables of interest at T1 to T2. Mean scores on the IASMHS were significantly different across time points, $t(7) = 2.39$, $SE = 3.03$, $p = .048$, $d = 0.85$. Scores were significantly higher at T2 ($M = 63.0$) than T1 ($M = 55.8$), indicating that attitudes towards seeking mental health services were more positive. No other differences were significant ($ps > .3$; see Table 3).

Multiple Imputation. To approximate the results with our full sample size, we multiply imputed datasets to estimate scale totals for all 40 unique participants. Rather than running within-subjects analyses with the 10 participants who completed measures at both T1 and T2, multiple imputation allowed for within-subjects comparisons with 40 individuals. Using the mice package in R (van Buuren & Groothuis-Oudshoorn, 2011), 35 imputations were run, following recommendations from White et al. (2011; 1 imputation per 1% missingness in the data). The above analyses were re-run with the pooled imputed dataset.

Differences in PA and NA were non-significant ($ps > .3$). Changes in MHL-related attitudes were replicated: mean IASMHS scores were significantly different across time points, $t(15.39) = 2.17$, $p = .046$, $d = 0.52$. Specifically, mean IASMHS scores were significantly higher at T2 ($M = 62.8$) than T1 ($M = 54.3$), indicating that attitudes towards seeking mental health services were more positive. No other differences were significant ($ps > .2$).

Table 3

Within-Subjects Means for MHL-Related Variables after Pairwise Deletion

	T1 Mean (SD)	T2 Mean (SD)
Positive Affect (I-PANAS-SF)*	15.7 (4.44)	13.9 (4.28)
Negative Affect (I-PANAS-SF)	14.3 (2.96)	10.9 (4.43)
Mental Health Knowledge Schedule (MAKS)	48.57 (3.05)	49.14 (3.58)
Reported & Intended Behaviour Scale (RIBS)	17.00 (3.69)	16.67 (3.78)
Self-Stigma of Seeking Help (SSOSH)	25.63 (7.37)	23.88 (7.24)
Perceptions of Stigmatization by Others for Seeking Help (PSOSH)	7.88 (2.75)	8.63 (2.97)
Inventory of Attitudes Toward Seeking Mental Health Services (IASMHS)*	55.75 (10.55)	63.00 (13.46)
Barriers-to-Care Checklist (BTCC)	48.13 (12.19)	49.25 (13.21)

Note. Standard deviations in parentheses. Asterisks indicate significant differences between T1 and T2.

Course Perceptions

Participants largely found the course extremely (64%) or very (22%) worthwhile (see Table 4).

Table 4
Frequencies for Ratings of How Worthwhile the Course Was

How worthwhile was AHS 105?					
	not at all	slightly	moderately	very	extremely
Frequency (%)	0 (0%)	1 (7%)	1 (7%)	3 (22%)	9 (64%)

Note. Percent of total in parentheses.

Six students provided comments for the two open-ended questions. Overall, these comments communicated the value of the course. Students used words like “extremely valuable,” “most beneficial,” “great,” “amazing” and “very important.” As one student stated:

This course was extremely valuable to be able to focus on mental health literacy for a whole term rather than one unit in a course. I appreciated having the chance to attend this course twice a week for the whole term and get to continually talk/learn about mental health. It has made me more aware of mental health literacy as a whole, and I feel more confident about my ability to discuss it with others. This course was excellent and I hope that it continues to be offered in the future.

Two students said that they thought the course should be taken by all students; for example, as one student stated:

I learned a lot from the course. I think the content is very important to know, and I feel like all students should take a course like this. I would have really benefited from taking it in first year as it would have better prepared me to take on the challenges of university.

In addition to these positive comments, students gave constructive feedback: more in-class discussion, more organized structure, more off-campus resources, and change the group project.

Discussion

Our Findings

This study examined the effects associated with a new undergraduate MHL for-credit course, including changes in mental health knowledge, stigmatizing attitudes, and attitudes toward help-seeking. To our knowledge, ours is the first published report of the effects of a Canadian MHL course open to all undergraduate students. Our study adds to the literature by providing evidence that an undergraduate course on MHL can yield positive effects on students’ help-seeking attitudes. This finding is encouraging because postsecondary students tend to have negative attitudes toward seeking help for mental health issues (Armstrong & Young, 2015), and most students experiencing mental health issues are not receiving treatment (Hernández-Torrano et al., 2020). In addition, a major strength of our evaluation is the use of psychometrically sound measures of MHL, which most studies to date have lacked (Kutcher, Wei, & Coniglio, 2016). Participants’ positive feedback on the course illustrated that they valued learning how to care for their own mental well-being as well as how they could help others.

Our inability to demonstrate significant changes in mental health knowledge could be explained by a ceiling effect, as T1 scores were near the upper end of the measure's range. It is likely that our sample had learned about mental health elsewhere, since our participants were upper-year students who were mostly enrolled in health-related programs. The current measure of knowledge (MAKS; Evans-Lacko et al., 2010) was brief, and only tapped into general mental health knowledge; a more comprehensive measure of knowledge might have yielded different results. Conversely, a floor effect could explain the lack of significant changes in stigmatizing attitudes (SSOSH, PSOSH), as scores at T1 were near floor for those scales. Similar patterns have been reported in prior evaluations. For example, Gilham and colleagues (2018) also found a ceiling effect in non-stigmatizing attitudes, in that students' attitudes were already positive before participating in a MHL seminar series. Taken together, these data might reflect the overall decrease in mental health stigma among college students over the last decade (Lipson et al., 2019).

Our study is limited by our small sample. It is possible that the disruption caused by COVID-19 in March 2020 affected students' ability and interest in participating at T2. However, we mitigated this concern by using multiple imputation to perform within-subjects analyses on our full sample of 40 unique participants. Because our key findings (i.e., significantly higher mean IASMHS scores) were replicated using both statistical approaches, we believe that we have minimized any issues related to sample size.

The generalizability of our findings is also limited by our sample's composition, as 56% were enrolled in health-related programs, 90% of participants were female, and all were in their third or fourth year of study. It is worth noting that our participant sample was generally representative of the class overall: 60% of students in the class were enrolled in the Faculty of Health, and 65% were in their third or fourth year of study. The overrepresentation of fourth-year students in a first-year level course might be because for fourth years, this was the first—and for many, the last—opportunity to take this course. Enrollment in the course has exceeded capacity each time the course has been offered, supporting the idea that students' interest in MHL education is high (Armstrong & Young, 2015; Kutcher, Wei, & Morgan, 2016; Patalay et al., 2017). Graduate students' interest in MHL may also be similarly high. When developing the proposal for this new undergraduate course, CZ consulted both undergraduate and graduate students. The strong interest among the graduate students consulted led CZ to propose a graduate-level MHL course, which she subsequently offered remotely in Spring 2020.

Future research should focus on replication. Though our current study found evidence for increases in help-seeking attitudes, the robustness of this pattern ought to be confirmed. Moving forward, researchers should also consider measuring the long-term impact of MHL courses for postsecondary students; a MHL course taken in first year should be associated with positive outcomes throughout students' postsecondary education and beyond.

Future Directions of Mental Health Literacy Education in Higher Education

The landscape of MHL in Canadian higher education is rapidly adapting to meet the needs and interests of today's students. Historically, national guidelines have shaped the way institutions treat mental health and well-being on our campuses (CACUSS & CMHA, 2013; MacKean, 2011; Okanagan Charter, 2015; Olding & Yip, 2014; Tsouros et al., 1998). Recent developments have explicitly prioritized MHL education for students for the first time (MHCC, 2020), signaling the start of a movement towards mental health literate postsecondary communities. This is exemplified by the current shift towards embedding MHL into the Canadian postsecondary curriculum (Boyce

& Lindsay, 2019; d'Entremont et al., 2019; Lumley et al., n.d.; Stewart & Eikenaar, 2020). Taking the next step to develop, implement, and evaluate MHL courses, as we have done here, will help achieve the goals set by national guidelines.

In the coming years, higher education should strive beyond just offering MHL education; as researchers argue, institutions ought to offer MHL education that is “contextually developed” and “developmentally appropriate” (Kutcher, Wei, & Coniglio, 2016, p. 156). Indeed, evidence from a randomized trial suggests that general, campus-wide MHL interventions (e.g., long-term outreach campaigns) may not be sufficient to improve student mental health (Reavley et al., 2014); instead, Reavley and colleagues (2014) suggest that MHL training should be personalized and intensive in order to optimally benefit students. To this end, MHL courses stand to fulfill these criteria because they can be readily tailored to fit any given classroom. Further, future MHL courses could be discipline-specific to address specific norms and challenges shared by students in their academic contexts. As we continue to build the evidence-base for the University of Waterloo’s MHL course, we are expanding the scope of our outcomes and conducting a follow-up study to measure changes in mental wellness behaviours after the course.

One point worth emphasizing here is the notion of *intensive* MHL interventions: converging evidence shows that more thorough education, especially programs offered in a class format (Conley et al., 2013), can be effective to improve student mental health (Reavley & Jorm, 2010). On the other hand, less comprehensive education, such as community awareness or informational campaigns, have had little empirical support (Reavley & Jorm, 2010; Reavley et al., 2014). These findings underscore the gravity of the new direction taken by our national guidelines. Although the shift from mental health *awareness* (CACUSS & CMHA, 2013; MacKean, 2011) to mental health *literacy* (MHCC, 2020) could seem like a trivial distinction upon first glance, we believe it to be a meaningful call to action. Present day marks an opportunity to divert from superficially informing students about MHL through extra-curricular means, and instead, towards MHL training as an integrated component of higher education.

As higher education continues to respond to the mental health needs of students, MHL courses will need to become an important part of the postsecondary curriculum.

References

- American College Health Association. (2013). *American College Health Association-national college health assessment II: Canadian consortium reference group executive summary spring 2013*. American College Health Association.
- American College Health Association. (2019). *American College Health Association-national college health assessment II: Canadian consortium executive summary spring 2019 reference group data report (abridged)*. American College Health Association.
- Armstrong, L.L. & Young, K. (2015). Mind the gap: Person-centred delivery of mental health information to post-secondary students. *Psychological Interventions*, 24(2), 83–87. <https://doi.org/10.1016/j.psi.2015.05.002>
- Auerbach, R. P., Alonso, J., Axinn, W. G., Cuijpers, P., Ebert, D. D., Green, J. G., Hwang, I., Kessler, R. C., Liu, H., Mortier, P., Nock, M. K., Pinder-Amaker, S., Sampson, N. A., Aguilar-Gaxiola, S., Al-Hamzawi, A., Andrade, L. H., Benjet, C., Caldas-de-Almeida, J. M., Demyttenaere, K., ... Bruffaerts, R. (2016). Mental disorders among college students in the World Health Organization World Mental Health Surveys. *Psychological Medicine*, 46(14), 2955–2970. <https://doi.org/10.1017/S0033291716001665>

- Blanco, C., Okuda, M., Wright, C., Hasin, D. S., Grant, B. F., Liu, S.-M., & Olfson, M. (2008). Mental health of college students and their non-college-attending peers: Results from the national epidemiologic study on alcohol and related conditions. *Archives of General Psychiatry*, 65(12), 1429–1437. <https://doi.org/10.1001/archpsyc.65.12.1429>
- Boyce, M. A. & Lindsay, B. (2019). *The embedded certificate in mental well-being and resilience: A university-level program to create mental health champions in the community* [Conference session]. Centre for Innovation in Campus Mental Health 2019 Conference, Toronto, ON, Canada.
- Bruffaerts, R., Mortier, P., Kiekens, G., Auerbach, R. P., Cuijpers, P., Demyttenaere, K., Green, J. G., Nock, M. K., & Kessler, R. C. (2018). Mental health problems in college freshmen: Prevalence and academic functioning. *Journal of Affective Disorders*, 225, 97–103. <https://doi.org/10.1016/j.jad.2017.07.044>
- Canadian Association of College and University Student Services & Canadian Mental Health Association. (2013). *Post-secondary student mental health: Guide to a systemic approach*. <https://healthycampuses.ca/wp-content/uploads/2014/09/The-National-Guide.pdf>
- Chang, W.-P., Chen, T., Stuart, H., & Chen, S.-P. (2021). Environmental scan of mental wellness resources available on Canadian post-secondary campuses. *Higher Education*, 1007-1021. <https://doi.org/10.1007/s10734-020-00594-3>
- Clough, B. A., Nazareth, S. M., Day, J. J., & Casey, L. M. (2019). A comparison of mental health literacy, attitudes, and help-seeking intentions among domestic and international tertiary students. *British Journal of Guidance and Counselling*, 47(1), 123–135. <https://doi.org/10.1080/03069885.2018.1459473>
- Conley, C. S., Durlak, J. A., & Dickson, D. A. (2013). An evaluative review of outcome research on universal mental health promotion and prevention programs for higher education students. *Journal of American College Health*, 61(5), 286–301. <https://doi.org/10.1080/07448481.2013.802237>
- d'Entremont, A., Micallef, J., Smith, G., Abelló, J., & Jung, D. (2019). *MECH 221 – Introduction of a mental health literacy curriculum*. <https://wellbeing.ubc.ca/sites/wellbeing.ubc.ca/files/u9/MECH%20FINAL.pdf>
- Evans, T. M., Bira, L., Gastelum, J. B., Weiss, L. T., & Vanderford, N. L. (2018). Evidence for a mental health crisis in graduate education. *Nature Biotechnology*, 36(3), 282–284. <https://doi.org/10.1038/nbt.4089>
- Evans-Lacko, S., Little, K., Meltzer, H., Rose, D., Rhydderch, D., Henderson, C., & Thornicroft, G. (2010). Development and psychometric properties of the Mental Health Knowledge Schedule. *The Canadian Journal of Psychiatry*, 55(7), 440–448. <https://doi.org/10.1177/070674371005500707>
- Evans-Lacko, S., Rose, D., Little, K., Flach, C., Rhydderch, D., Henderson, C., & Thornicroft, G. (2011). Development and psychometric properties of the Reported and Intended Behaviour Scale (RIBS): A stigma-related behaviour measure. *Epidemiology and Psychiatric Sciences*, 20(3), 263–271. <https://doi.org/10.1017/S2045796011000308>
- Gallagher, R., Sysko H., & Zhang, B. (2001). *National survey of counseling center directors*. International Association of Counseling Services. http://d-scholarship.pitt.edu/28161/1/counseling_center_survey_022.pdf

- Gilham, C., Austen, E. L., Wei, Y., & Kutcher, S. (2018). Improving mental health literacy in post-secondary students: Field testing the feasibility and potential outcomes of a peer-led approach. *Canadian Journal of Community Mental Health*, 37(1), 1–12. <https://doi.org/10.7870/cjcmh-2018-002>
- Goffin, P. (2017, August 12). How many Ontario post-secondary students die by suicide each year? No one knows for sure. *Toronto Star*. <https://www.thestar.com/news/gta/2017/08/12/how-many-ontario-post-secondary-students-die-by-suicide-each-year-no-one-knows-for-sure.html>
- Gorczyński, P., Sims-Schouten, W., & Wilson, C. (2020). Evaluating mental health literacy and help-seeking behaviours in UK university students: A country wide study. *Journal of Public Mental Health*, 19(4), 311-319. <https://doi.org/10.1108/JPMH-10-2019-0086>
- Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: A systematic review. *BMC Psychiatry*, 10(1), 1–9. <https://doi.org/10.1186/1471-244x-10-113>
- Hernández-Torrano, D., Ibrayeva, L., Sparks, J., Lim, N., Clementi, A., Almukhambetova, A., Nurtayev, Y., & Muratkyzy, A. (2020). Mental health and well-being of university students: A bibliometric mapping of the literature. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.01226>
- Jorm, A. F. (2000). Mental health literacy: Public knowledge and beliefs about mental disorders. *British Journal of Psychiatry*, 177, 396–401. <https://doi.org/10.1192/bjp.177.5.396>
- Jorm, A. F. (2012). Mental health literacy: Empowering the community to take action for better mental health. *American Psychologist*, 67(3), 231–243. <https://doi.org/10.1037/a0025957>
- Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., Rodgers, B., & Pollitt, P. (1997). “Mental health literacy”: A survey of the public’s ability to recognise mental disorders and their beliefs about the effectiveness of treatment. *Medical Journal of Australia*, 166(4), 182-186. <https://doi.org/10.5694/j.1326-5377.1997.tb140071.x>
- Kitzrow, M.A. (2003) The mental health needs of today’s college students: Challenges and recommendations. *NASPA Journal*, 41(1), 167–181. <https://doi.org/10.2202/1949-6605.1310>
- Kutcher, S., Wei, Y., & Coniglio, C. (2016). Mental health literacy: Past, present, and future. *The Canadian Journal of Psychiatry*, 61(3), 154–158. <https://doi.org/10.1177/0706743715616609>
- Kutcher, S., Wei, Y., & Morgan, C. (2016). Mental health literacy in post-secondary students. *Health Education Journal*, 75(6), 689–697. <https://doi.org/10.1177/0017896915610144>
- Lauber, C., Ajdacic-Gross, V., Fritschi, N., Stulz, N., & Rössler, W. (2005). Mental health literacy in an educational elite – An online survey among university students. *BMC Public Health*, 5(1), 1–9. <https://doi.org/10.1186/1471-2458-5-44>
- Linden, B. & Stuart, H. Post-secondary stress and mental well-being: A scoping review of the academic literature. *Canadian Journal of Community Mental Health*, 39(1), 1–32. <https://doi.org/10.7870/cjcmh-2020-002>
- Lipson, S. K., Lattie, E. G., & Eisenberg, D. (2019). Increased rates of mental health service utilization by U.S. college students: 10-year population-level trends (2007–2017). *Psychiatric Services*, 70(1), 60–63. <https://doi.org/10.1176/appi.ps.201800332>
- Loreto, N. (2017). *Reducing stigma and encouraging help seeking intentions through a mental health literacy program*. [Unpublished doctoral dissertation]. Walden University.

- Lumley, M., Boughton, K., Fanourgiakis, S., Tran, A., & Mancini, B. (n.d.) *The evaluation of the mental health and well-being for credit course for University of Guelph students with an identified mental health challenge*. University of Guelph.
<https://campusmentalhealth.ca/wp-content/uploads/2018/03/PSYC-1400-final-report.pdf>
- MacKean, G. (2011). *Mental health and well-being in postsecondary education settings: A literature and environmental scan to support planning and action in Canada*. Canadian Association of College and University Student Services.
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.737.6978&rep=rep1&type=pdf>
- Mackenzie, C. S., Knox, V. J., Gekoski, W. L., & Macaulay, H. L. (2004). An adaptation and extension of the attitudes toward seeking professional psychological help scale. *Journal of Applied Social Psychology, 34*(11), 2410–2433.
<https://doi.org/10.1111/j.1559-1816.2004.tb01984.x>
- Mansfield, R., Patalay, P., & Humphrey, N. (2020). A systematic literature review of existing conceptualisation and measurement of mental health literacy in adolescent research: Current challenges and inconsistencies. *BMC Public Health, 20*(1), 1–14.
<https://doi.org/10.1186/s12889-020-08734-1>
- McLuckie, A., Kutcher, S., Wei, Y., & Weaver, C. (2014). Sustained improvements in students' mental health literacy with use of a mental health curriculum in Canadian schools. *BMC Psychiatry, 14*(1), 1-6. <https://doi.org/10.1186/s12888-014-0379-4>
- Mental Health Commission of Canada. (2020). *National standard of Canada for mental health and well-being for post-secondary students*.
<https://www.mentalhealthcommission.ca/English/studentstandard>
- Milin, R., Kutcher, S., Lewis, S. P., Walker, S., Wei, Y., Ferrill, N., & Armstrong, M. A. (2016). Impact of a mental health curriculum on knowledge and stigma among high school students: A randomized controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 55*(5), 383–391. <https://doi.org/10.1016/j.jaac.2016.02.018>
- Mortier, P., Auerbach, R. P., Alonso, J., Bantjes, J., Benjet, C., Cuijpers, P., Ebert, D. D., Green, J. G., Hasking, P., Nock, M. K., O'Neill, S., Pinder-Amaker, S., Sampson, N. A., Vilagut, G., Zaslavsky, A. M., Bruffaerts, R., & Kessler, R.C. (2018). Suicidal thoughts and behaviors among first-year college students: Results from the WMH-ICS project. *Journal of the American Academy of Child & Adolescent Psychiatry, 57*(4), 263–273.
<https://doi.org/10.1016/j.jaac.2018.01.018>
- Okanagan Charter: An international charter for health promoting universities and colleges. (2015).
<https://doi.org/10.14288/1.0132754>
- Olding, M. & Yip, A. (2014). *Policy approaches to post-secondary student mental health*. OCAD University & Ryerson University Campus Mental Health Partnership Project.
https://campusmentalhealth.ca/wp-content/uploads/2018/04/Policy-Approaches-to-PS-student-MH.FINAL_April15-2014.pdf
- Patalay, P., Annis, J., Sharpe, H., Newman, R., Main, D., Ragnathan, T., Parkes, M., Clarke, K. (2017). A pre-post evaluation of OpenMinds: A sustainable, peer-led mental health literacy programme in universities and secondary schools. *Prevention Science, 18*(8), 995–1005.
<https://doi.org/10.1007/s11121-017-0840-y>
- Rafal, G., Gatto, A., & DeBate, R. (2018). Mental health literacy, stigma, and help-seeking behaviors among male college students. *Journal of American College Health, 66*(4), 284–291. <https://doi.org/10.1080/07448481.2018.1434780>

- Reavley, N., & Jorm, A. F. (2010). Prevention and early intervention to improve mental health in higher education students: A review. *Early Intervention in Psychiatry*, 4(2), 132–142. <https://doi.org/10.1111/j.1751-7893.2010.00167.x>
- Reavley, N. J., McCann, T. V., Cvetkovski, S., & Jorm, A. F. (2014). A multifaceted intervention to improve mental health literacy in students of a multicampus university: A cluster randomised trial. *Social Psychiatry and Psychiatric Epidemiology*, 49(10), 1655–1666. <https://doi.org/10.1007/s00127-014-0880-6>
- Reavley, N. J., McCann, T. V., & Jorm, A. F. (2012). Mental health literacy in higher education students. *Early Intervention in Psychiatry*, 6(1), 45–52. <https://doi.org/10.1111/j.1751-7893.2011.00314.x>
- Rüsch, N., Evans-Lacko, S. E., Henderson, C., Flach, C., & Thornicroft, G. (2011). Knowledge and attitudes as predictors of intentions to seek help for and disclose a mental illness. *Psychiatric Services*, 62(6), 675–678. https://doi.org/10.1176/ps.62.6.pss6206_0675
- Smith, C. L., & Shochet, I. M. (2011). The impact of mental health literacy on help-seeking intentions: Results of a pilot study with first year psychology students. *International Journal of Mental Health Promotion*, 13(2), 14–20. <https://doi.org/10.1080/14623730.2011.9715652>
- Stewart, S. & Eikenaar, J. H. (2020). *The TEACHERS Project: Training and engaging academics in their classrooms to positive impact health, education and resiliency in our students* [Symposium session]. International eSymposium: Remote Teaching for Student Wellness, University of British Columbia.
- Storrie, K., Ahern, K., & Tuckett, A. (2010). A systematic review: Students with mental health problems - A growing problem. *International Journal of Nursing Practice*, 16(1), 1–6. <https://doi.org/10.1111/j.1440-172x.2009.01813.x>
- Thompson, E. R. (2007). Development and validation of an internationally reliable short-form of the Positive and Negative Affect Schedule (PANAS). *Journal of Cross-Cultural Psychology*, 38(2), 227–242. <https://doi.org/10.1177/0022022106297301>
- Tsouros, A. D., Dowding, G., Thompson, J., & Dooris, M. (1998). *Health promoting universities: Concept, experience and framework for action*. World Health Organization Regional Office for Europe. http://www.euro.who.int/_data/assets/pdf_file/0012/101640/E60163.pdf
- Twenge, J. M., Cooper, A. B., Joiner, T. E., Duffy, M. E., & Binau, S. G. (2019). Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005-2017. *Journal of Abnormal Psychology*, 128(3), 185–199. <https://doi.org/10.1037/abn0000410>
- Uchida, C., & Uchida, M. (2017). Characteristics and risk factors for suicide and deaths among college students: A 23-year serial prevalence study of data from 8.2 million Japanese college students. *The Journal of Clinical Psychiatry*, 78(4), 404–412. <https://doi.org/10.4088/JCP.16m10807>
- van Buuren, S., & Groothuis-Oudshoorn, K. (2011). mice: multivariate imputation by chained equations in R. *Journal of Statistical Software*, 45(3), 1–67. <https://www.jstatsoft.org/v45/i03/>
- Vanheusden, K., Mulder, C. L., van der Ende, J., van Lenthe, F. J., Mackenbach, J. P., & Verhulst, F. C. (2008). Young adults face major barriers to seeking help from mental health services. *Patient Education and Counseling*, 73(1), 97–104. <https://doi.org/10.1016/j.pec.2008.05.006>

- Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of Counseling Psychology*, 53(3), 325.
<https://doi.org/10.1037/0022-0167.53.3.325>
- Vogel, D. L., Wade, N. G., & Ascheman, P. L. (2009). Measuring perceptions of stigmatization by others for seeking psychological help: Reliability and validity of a new stigma scale with college students. *Journal of Counseling Psychology*, 56(2), 301.
<https://doi.org/10.1037/a0014903>
- White, I. R., Royston, P., & Wood, A. M. (2011). Multiple imputation using chained equations: Issues and guidance for practice. *Statistics in Medicine*, 30(4), 377–399.
<https://doi.org/10.1002/sim.4067>
- Wiens, K., Bhattarai, A., Dores, A., Pedram, P., Willians, J. V. A., Bulloch, A. G. M., & Patten, S. B. (2020). Mental health among Canadian postsecondary students: A mental health crisis? *The Canadian Journal of Psychiatry*, 65(1), 30–35.
<https://doi.org/10.1177/0706743719874178>
- Zaza, C. & Yeung, R.C. (2020, November 3). University of Waterloo's Undergraduate Course on Mental Health Literacy. Centre for Innovation in Campus Mental Health, Virtual Conference.