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Academic Paper

Breaking Grad: Building Resilience Among a Sample of Graduate Students Struggling with Stress and Anxiety via a Peer Coaching Model – An 8-Month Pilot Study

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Abstract

This mixed methods, 8-month pilot study investigated graduate students' (n = 11) experiences in *Breaking Grad*, a peer coaching program derived from mentorship, motivational interviewing, and Co-Active Life Coaching. Offered to address stress and anxiety, while enhancing resilience, participants' psychosocial experiences of the program were assessed via individual semi-structured interviews and validated questionnaires at pre-, mid-, and immediate post-intervention. Qualitatively, participants viewed the intervention as positively impacting their ability to cope with stress and anxiety and enhancing resilience. Quantitatively, one-way, repeated-measures ANOVAs indicated no statistical significance. The qualitative findings are encouraging. This intervention should be assessed with a larger sample.

Keywords

mental health, resilience, graduate students, peer coaching, mentorship,

Article history

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Introduction

Postgraduate/graduate students – those pursuing a Master's or Doctoral degree – are unlike undergraduate students in many ways (Arnold, 2014). In addition to completing course-work, postgraduate students are typically required to engage in research projects, and teaching and research assistantships (Arnold, 2014). One unfortunate similarity between postgraduate students and undergraduate students centres around mental health challenges. Specifically, mental health on university campuses is considered a crisis for both cohorts (Evans, Bira, Gastelum, Weiss, & Vanderford, 2018; Wyatt & Oswalt, 2013). However, postgraduate students encounter unique stressors pertaining to research funding, supervisors, pressure to publish, and finishing

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theses/dissertations within a reasonable time frame (Arnold, 2014; Canadian Federation of Students-Ontario [CFSO], 2018). A recent study (Evans et al., 2018) conveyed that postgraduate students are more than six times as likely to experience depression and anxiety versus the general population. Further, in an online survey (CFSO, 2018), wherein Ontario postgraduate students (n = 2,001) reported events related to mental health issues, bullying, and harassment, it was found that: (a) 51% did not feel supported by their academic institution; (b) 70% felt pressured to overwork; (c) 67% reported anxiety to finish their degree requirements on time and balance their workload; and (d) 63% described feeling anxious and fearful of failing and/or appearing weak. Despite rising psychological issues among postgraduate students (Clay, 2013), they are often neglected with respect to mental health services (Arnold, 2014). According to a recent meta-analysis (Yusfov, Nicoloro-SanataBarbara, Grey, Moyer, & Lobel, 2018), only a handful of postgraduate-focused interventions exist, and this was corroborated in a systematic review (Stillwell, Vermeesch, & Scott, 2017). These interventions include a successful study by Steinhardt and Dolbier (2008) who investigated the impact of Cognitive Behavioural Therapy (CBT), coping skills training, psychoeducation, and social support on the resilience and perceived stress of 57 American postgraduate students (n = 30 experimental; n = 27 wait-list control). At post-intervention, they found the experimental cohort exhibited significantly higher scores for resilience and protective factors, more effective coping strategies, and lower scores on symptomatology (i.e. perceived stress) versus the wait-list control cohort. Another approach by Cohen and Miller (2009) utilized interpersonal mindfulness training (IMT) on 21 American postgraduate students to assess its impact on perceived stress and mindfulness. The researchers found that IMT positively affects perceived stress and anxiety, as well as social connectedness, emotional intelligence, and mindfulness. Yusufov and colleagues (2018) concluded coping skills, CBT, and social support as most efficacious among the approaches used to date, in terms of decreasing perceived stress and psychoeducation, relaxation training, and mindfulness for reducing anxiety. Stillwell and colleagues (2017) deduced MBSR (e.g. mindfulness, breathing techniques) was effective in reducing perceived stress. Wider-spread investigations building upon the approaches used previously, and noted above, are recommended. And, because so few interventions have been implemented to date, it is also important to explore additional innovative strategies to help postgraduate students cope with stress and anxiety, while enhancing their resilience. In fact, in 2018, Evans and colleagues discussed the “critical need for additional studies investigating strategies addressing the mental health crisis in the graduate trainee population” (p. 283).

The current pilot study utilized an innovative approach to help enhance postgraduate students’ *stress*, *anxiety*, and *resilience*. The foundation of this pilot study was built on previous work in this field, such that the researchers sought to utilize and assess the impact of tools that have demonstrated considerable efficacy for mitigating and managing stress and anxiety, such as social support, as well as techniques that promote mindful behaviours. Given that a health promotion perspective formed the backbone of this current pilot study, the intervention endeavoured to provide participants with the necessary tools to increase their control over their own health and wellbeing (World Health Organization, 2016); with the further intention of providing participants with the necessary tools to build and increase resilience to stress- and anxiety-related issues in order to prevent the need for clinical interventions (when possible and applicable). For the purpose of this paper, stress is viewed as the reaction to an external demand (Selye, 1956) or an individual’s response to a change in surroundings due to a stressor (Cook, 2014). Chronic stress may be detrimental to overall health because it increases the risk of experiencing psychological and physical health ailments (Mariotti, 2015). Anxiety is considered more intense than stress, and it results in mental and physical effects (Rector, Bourdeau, Kitchen, & Joseph-Massiah, 2008). It tends to be characterized by worrying and fear, irrespective of the presence of a stressor (Arkin & Rucks, 2007). Constant anxiety can be deleterious to wellbeing and health (Arkin & Rucks, 2007). By contrast, resilience is considered essential for positive mental health, and is described as the ability to recover from, and cope with, difficult life situations (Tugade & Fredrickson, 2011). To address the stress, anxiety, and resilience of postgraduate students in the current study, a peer coaching approach was used. The approach was derived using peer mentorship, and motivational interviewing tenets (MI; [Miller & Rollnick, 2002]) that were applied via tools from Co-Active Life

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Coaching (CALC; [Kimsey-House, Kimsey-House, Sandahl, & Whitworth, 2018]; MI-via-CALC). A brief review of each component of the approach is described below:

Peer Mentorship

Occurring between people with shared experiences, mentorship can be described as a symbiotic relationship, providing social and emotional support – and it is vital for mental well-being (Mental Health Commission of Canada, 2016). Benefits include: (a) gaining support networks; (b) personal development and self-reflection; and (c) skill acquisition (Grima, Paillé, Mejia, & Prud'homme, 2014; Ragins & Scandura, 1999; Zey, 1984). Mentorship has been shown to enhance resilience (Zimmerman & Bingenheimer, 2002) and has demonstrated efficacy for building resilience in interventions assessing student populations (Fried, Karmali, Irwin, Gable, & Salmoni, 2018). For instance, Fried and colleagues (2018) addressed the use of a peer mentorship model among 30 full-time undergraduate students and its impact on increasing physical activity and resilience. Participants utilized a mentorship model based on Leadership Effectiveness Training (LET; [Gordon, 2001]) and a one-hour MI training session. The researchers found that through peer mentorship, participants increased their levels of physical activity and resilience. Participants specifically noted that the intervention helped to improve their mental health and provided support and important skills for mental health and in general (e.g. listening, time-management; [Fried et al., 2018]). Cyr, McKee, O'Hagan, and Priest (2016) further highlighted peer-mentorship's utility, such that through interviews, focus groups, and surveys, Canadians (n = 820) reported positive responses concerning the use of peer-based support for mental health. One participant stated, "Peer support is about providing all the tools besides medication – the tools for the other 80% of your life" (p. 50).

MI-via-CALC

To structure the mentorship relationship and provide the peer coaching model that was used for the intervention, an integrated model that has been studied (Newnham-Kanas, Irwin, & Morrow, 2010) and used extensively in the senior author's research program (e.g. Mantler, Irwin, Morrow, Hall, & Mandich, 2014; Mantler, Irwin, & Morrow, 2013), was adopted. Namely, MI-via-CALC, was used. This is a "theoretically-grounded, collaborative type of coaching wherein the coach and client are seen as equals who function as a team to resolve issues upon which the client chooses to focus" (Fried & Irwin, 2016, p. 18). The intention is to address the receiver's ambivalence toward behaviour changes, while creating solutions to elicit changes through powerful, open-ended questions. Although MI is efficacious for treatment adherence in anxiety disorders (Westra & Dozois, 2006), it lacks consistent training and standardized tools for implementation (Hettema, Steele, & Miller, 2005). Contrarily, CALC encompasses all of MI's tenets, while having concrete tools and rigorous training to put those tenets into action (Newnham-Kanas, Irwin, & Morrow, 2010). Further, several literature reviews regarding health coaching concluded that while an abundance of coaching interventions exist – as well as a plethora of coaching practices – very few studies define and provide specifics on the specific coaching and methods used (Ammentorp et al., 2013; Olsen, 2014; Olsen & Nesbitt, 2010). Comparatively, a recent scoping review (Liu, Irwin, & Morrow, 2015) highlighted MI-via-CALC's increasing evidence base as an efficacious approach for modifying health behaviours. Knowing the specific components that might have been used in an intervention (e.g. powerful questions, providing advice only with permission, acknowledging receiver's experience), is essential for researchers to be as transparent as possible about what transpired (i.e. validity; Maul, 2018).

An extensive body of literature exemplifies MI-via-CALC's efficacy for various health behaviours, which have all been associated with reductions in stress (e.g. Mantler et al., 2013; Pearson, Irwin, Morrow, Battram, & Melling, 2013). Further, MI-via-CALC has specifically been used as an intervention for university students' mental health (Fried & Irwin, 2016), wherein undergraduate students worked with certified coaches for an academic semester. Statistical significance was

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found in a favourable direction for all scales from pre-intervention to mid-intervention and from pre-intervention to post-intervention, but not from mid-intervention to post-intervention. These findings were corroborated through qualitative interviews, where participants described MI-via-CALC's positive impact on their stress and overall mental health. Although promising, MI-via-CALC has not previously been utilized with postgraduate students in any capacity known to the authors. As such, the purpose of this pilot study was to investigate postgraduate students' experiences in a peer coaching program – derived from mentorship, motivational interviewing, and Co-Active Life Coaching – intended to address stress and anxiety, while enhancing resilience.

Methodology

Recruitment and participants

This mixed methods, pilot research (MMR) study was conducted at a large Canadian university. Once approval was received from the host institution's Office of Research Ethics, postgraduate students in all departments/faculties were sent a recruitment email en masse. Participants were asked to contact the researchers if they were interested in participating in the program, called Breaking Grad, and wanted a Letter of Information/Consent form. Participants were contacted in order of their responses. The inclusion criteria consisted of: (a) full-time postgraduate students at the host institution; (b) English-speaking; (c) not receiving counselling/therapy; (d) not taking medications for stress or anxiety [1]; (e) experiencing stress and anxiety that interfered with daily living; and (f) ability to attend a full-day training, which was required to ensure all participants received consistent training. Participants met with a researcher (RRF) to confirm eligibility and complete pre-intervention assessments. It was estimated that 20 participants were sufficient to detect a moderate effect (r2 = .12) of a three-level within-subject independent variable more than 80% of the time, using an alpha of .05. Despite great interest (over 100 responses were received), only 16 people enrolled during the two-week recruitment period, due to others' inability to attend the mandatory training, which needed to take place by the end of September to maximize the intervention duration. That is, the current pilot study sought to assess the suitability of this intervention over an academic year (September – May). Given longer- versus shorter-term interventions have been correlated with better outcomes for postgraduate students (e.g. relaxation training; Yusufov et al., 2018) – and because some postgraduates engage in research/fieldwork off-campus during the Summer term – the researchers chose to move forward with those enrolled to avoid reducing the duration of the intervention. Two participants dropped out by not receiving training, two dropped out before mid-intervention citing time constraints, and one dropped out before mid-intervention due to a personal issue. The final sample was 11 (Table 1).

Procedure

This MMR, eight-month pilot study used a repeated-measures design, with participants acting as their own controls (as per Keiffer, 2002). Data was collected at pre-intervention (September 2017), mid-intervention (January 2018), and immediately post-intervention (April 2018). To provide concrete tools, participants attended an eight-hour MI-via-CALC training session presented by the researchers (JDI & RRF; both are Certified Professional Co-Active Coaches and JDI is an experienced MI-via-CALC trainer). The training was interactive and included groupwork and content- and tool-based handouts (e.g. definitions, suggestions for powerful/open-ended questions, practice coaching). Researchers also met with participants every two to five weeks (n = 8 sessions) for one-hour group check-in meetings to discuss coaching experiences and challenges, and to provide skill refinement. Additionally, a two-hour booster session was offered (January 2018) for refining skills.

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Table 1: Demographic Information

Participant Characteristic	*N*	%	Mean	SD
Sex				
Male	3	27.3	n/a	
Female	7	63.6		
Other: Genderqueer female	1	9.1		
Age				
22	1	9.1	24.45	2.54
25	1	9.1		
26	1	9.1		
27	2	18.18		
28	3	27.27		
30	2	18.18		
31	1	9.1		
Ethnicity				
Caucasian	4	36.4	n/a	
East Asian	2	18.2		
Hispanic	1	9.1		
Middle Eastern	3	27.3		
South Asian	1	9.1		
Student Type				
Domestic	5	45.5	n/a	
International	6	54.5		
Degree				
Master's	7	63.6	n/a	
Doctoral	4	36.4		
Year of Enrollment				
1st	6	54.5	1.64	0.92
2nd	4	36.4		
3rd	0	0		
4th	1	9.1		
Faculty				
Education	3	27.3	n/a	
Health Sciences	1	9.1		
Information and Media Studies	2	18.2		
Affiliate University College	1	9.1		
Medicine and Dentistry (MSc/PhD, Not MDs)	2	18.2		
Science	1	9.1		
Social Sciences	1	9.1		
Employment				
Full-time	0	0	n/a	
Part-time	5	45.5		
Not working	4	36.4		
Other: Teaching Assistant for one term	2	18.2		

Participants worked in assigned and arbitrarily-matched dyads, which changed seven times throughout the study. This was done to allow participants the opportunity to interact with a diverse group of their peers. Participants agreed to engage in four, 35-40-minute sessions per month – two as coach, and two as client/receiver. Each participant agreed to use only the tools learned during the training session, and each partnership decided on the mode of engagement they preferred (i.e. in-person, Skype/FaceTime, or telephone).

Qualitative measures.

Individual semi-structured interviews and note-taking

Semi-structured interview questions were created prior to implementation and deemed appropriate for the study by nine postgraduate students external to the study. At each time point, interviews: (a) were conducted to explore participants' intervention-related experiences; (b) occurred in a lab at the host institution, lasted 12-minutes to 1-hour (average: ~33-minutes); and (c) were audio-recorded and transcribed verbatim. To mitigate social desirability, *honesty demands* (Bates, 1992)

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were employed (i.e. participants were asked to be honest, as specific answers were not being sought). Research team members (RRF, DS, & KS) recorded detailed notes during check-in meetings, which were part of the data; however, no identifiable information was recorded in order to maintain confidentiality (Table 2).

Table 2: Semi-Structured Interview Questions

Pre-Intervention	Mid-Intervention & Post-Intervention*
How would you describe your current level of stress and/or anxiety?	What impact has the intervention had on you so far?
In what ways does school affect your mental health/well-being?	What have you noticed since being in the study with respect to your mental health, stress, anxiety, and resiliency?
Given the definition of resiliency, how would you describe your own resilience?	What changes have you noticed since being in the intervention?
What does a healthy school experience look like?	What is working out well for you?
In what ways are your stress- and/or anxiety-related needs supported or met – or NOT – at school?	What challenges are you having?
What supports do you feel you need to cope with your stress and/or anxiety?	What else have you noticed about how the intervention has impacted you (so far)?
If at the end of the study you were to say it was effective, what would be different?	In what ways do you intend to use the MI-via-CALC skills you obtained in this study in the future? **post-intervention*
What else should the researchers know?	What else should the researchers know?

Quantitative measures

The following were distributed via Qualtrics® at pre-, mid-, and immediate post-intervention.

Brief Resilience Scale (BRS)

Participants completed the Brief Resilience Scale (BRS; Smith et al., 2008), an instrument that assesses resilience in its most basic and original meaning: to bounce back or recover from stress. For example, one item indicates: “I have a hard time making it through stressful events” (Smith et al., 2008, p. 196). The 5-point Likert scale (strongly disagree to strongly agree) consists of 6 items, and is scored by reverse coding items 2, 4, and 6 and finding the mean of all six items. Items 1, 3, and 5 are positively worded, and items 2, 4, and 6 are negatively worded. Higher means signify higher levels of resilience. The scale is a reliable medium to quantify resilience (Cronbach’s α = .0.84-0.87; [Smith et al., 2008; Windle, Bennett, & Noyes, 2011]).

Mental Health Inventory (MHI)

Participants completed the Mental Health Inventory (MHI; Veit & Ware, 1983), which measures overall emotional functioning, and is utilized to enumerate mental health status and psychological well-being. The MHI consists of an 18-item questionnaire operating on a 6-point Likert scale ranging from 1 (*all of the time*) to 6 (*none of the time*), with items 1, 3, 5, 7, 8, 10, 13, and 15 allocated a reverse score. It is comprised of “four subscales (Anxiety, Depression, Behavioral Control, Positive Affect), and one total score” (National Multiple Sclerosis Society [NMSS], 1997, p. 29). The total score and subscales range from 0 to 100, where higher scores indicate better mental health. The MHI is valid and reliable (Cronbach’s α = .93; NMSS, 1997; Ware, Kosinski, & Gandek, 2003). Because it was created to assess general psychological distress and well-being in otherwise ‘healthy’ populations, it is appropriate for measuring mental health in general populations, such as students (Veit & Ware, 1983).

Short Form (36) Health Survey (SF-36)

Participants were also required to complete the Short Form (36) Health Survey (SF-36; Ware, Kosinski, & Gandek, 2003), which includes additional dominions (e.g. physical functioning) to that of the BRS and MHI. The SF-36 appraises an individual’s perception of physical, emotional, and mental health, consisting of 36 questions and 8 subscales. To score it, pre-coded numeric values

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are re-coded based on the scoring key, where higher scores assume a more positive state of health. Each item is scored between 0 (lowest) to 100 (highest). Based on the scoring guide, "scores are representative of the percentage of the total possible score achieved" (RAND, 2018, para. 3). The survey has been utilized with various sub-populations of university students (Ribeiro et al., 2017) and is a validated, feasible, reliable (Cronbach's α = .80; Jenkinson, Coulter, & Wright, 1993), and simple survey to complete among both general and patient populations (Brazier et al., 1992; Garratt, Ruta, Abdalla, & Russell, 1994).

Data Analysis

Qualitative

To obtain a comprehensive understanding of participants' experiences and to find emergent themes, inductive content analysis was utilized (Patton, 2002). Quality assurance steps were followed: (Guba & Lincoln, 1989): (a) *credibility* – member-checking/reflecting back responses between questions/at the end of interviews to confirm responses were accurately understood; (b) *confirmability* – inductive content analysis completed separately by multiple parties (RRF, KS, & ZR) who then met to resolve any discrepancies and collectively determine main themes; (c) *dependability* – research process was recorded in rich detail for an audit trail; findings were debriefed, summarized, and deliberated within the research team to ensure biases were not present; and (d)*transferability* – methods, procedures, and analyses were documented, enabling others to determine whether or not findings are transferable to other situations.

Quantitative

Descriptive statistics were run using IBM SPSS (version 21.0). One-way, repeated-measures ANOVAs were run using an alpha of 0.05 on all scales and sub-scales to determine statistical significance. The Greenhouse-Geisser correction was implemented when Mauchly's test of sphericity was violated. Adjusted p values were obtained using adjusted degrees of freedom ($p < .017$). To counteract Type I Errors, the Bonferroni correction was administered to all ANOVAs.

Findings

Qualitative

Pre-intervention

Participants discussed their current levels of stress and anxiety, the impact of stress on daily life, their views on resilience, and what they wanted from the intervention. The following themes surfaced: (a) presence of stress (school, feedback, comparison); (b) support (social, supervisors, school); (c) balance; (d) physical activity; (e) relatively resilient; and (f) increased coping skills. When describing their current levels of stress and anxiety, all participants discussed constant feelings of stress and anxiousness, primarily resulting from school's multiple demands, such as deadlines for grants/scholarships and individual aspects of research projects (e.g. ethics, proposals, data collection, conferences); teaching abilities and marking (e.g. teaching assistantships), and PhD candidacy exams. Participants also explained that unlike their undergraduate student experiences, which included regular feedback for progress from exams and assignments, feedback from supervisors is often the only progress-related information received, which is sometimes infrequent and insufficient to capture academic progression. Reflecting on achievements through comparisons to peers was reported as leading to feelings of inadequacy. All

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participants vocalized the importance of a strong support system, whether from family, friends, peers, supervisors, and/or school. With regard to supervisors, findings were divided: some participants reported a supportive relationship, while others the opposite. Findings were also split with respect to social interactions, with some participants describing a supportive cohort from school, or family and friends outside of school who they could utilize for support, while others felt isolated. Most participants felt school services were difficult to access due to long wait times and because they did not always match their needs (e.g. needing a counsellor, but being turned away because they were not deemed to be in crisis; being prescribed medication, when that was not wanted or perceived as needed). Every participant described a longing for better time-management and work-life balance. Participants voiced concerns about heavy workloads, often leading to prioritizing school above health. Almost all participants highlighted physical activity's positive impacts on mental health, but noted having to pay for classes at the host institution's gymnasium made it difficult to be active. All participants described feeling relatively resilient, as they had all been able to manage their stress and anxiety during difficult situations; however, they all desired to become more resilient. All participants expressed interest in learning new coping skills to manage stress and anxiety, so they could help others. Table 3 presents illustrative quotations.

Table 3: Pre-Intervention Themes

Presence of Stress
School "I don't know what a healthy school experience would look like…it's so far away from what we manage…"
Feedback *"…Getting feedback, knowing where I am. … now the tasks are too long and there's nothing that you are getting back. …there is no specific thing that you have to submit and get grades…"*
Comparisons "…I…get jealous [when] comparing myself [to my colleagues]…"
Support
Social "…Being away from my country, my community, my friends, I feel isolated. … which makes [life and school] more stressful." "…[My cohort] still do[es] everything together. … that has been awesome…to go through everything with them and feel comfortable…"
Supervisors "…I have [a] complicated relationship with my supervisor. I'm afraid to talk with [them]." "…I have a really great supervisor, who is always like, "What you're doing is enough," which is sometimes the best thing to hear… especially when I feel like [I'm not doing enough]…"
School "I couldn't count on [the university]…they were really unprepared, or they didn't care enough. … I didn't feel supported."
Balance "…I want a balance of everything and trying to get that…was a stressor…I'm studying too much, I'm not going out to have fun, I get stressed. If I'm having too much fun and I'm not studying, I get stressed…"
Physical Activity "…I love exercising…[it's] radically changed my ability to…shake off whatever has been bothering me all day." "I would love to go to the gym but [you have to] pay for each class…and I don't work. … if I want to do more than one class [I can't]…"
Relatively Resilient "…I'm pretty resilient, but then deep down I don't know how to let go of some things."
Increased Coping Skills "…If I participate [in this study], I will gain skills to communicate with people and also [have] the skills to cope with stress…"

Mid-intervention

Participants described what they noticed since being in the study, and their stress/anxiety, and resilience. The following arose: (a) improved mental health (better emotional health, increased self-awareness, reduced stress/better equipped); (b) increased resilience; (c) improved communication (listening skills, less advice-giving, acknowledgments); (d) social support and connection; (e) shifting perspectives; and (f) difficulty scheduling. When describing their mental health, most participants said it had improved overall, and they experienced better emotional health and increased self-awareness. Most participants spoke about reduced levels of stress; however, some participants noted their stress was the same, but they were better equipped to handle their stressors. The majority of participants highlighted their ability to bounce back during stressful situations. All participants emphasized MI-via-CALC's positive impacts and described they had

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become better listeners for their study peers, and everyone in their lives; and verbalized their new ease with listening versus advice-giving. All participants described feeling good when acknowledging others, because their receivers often reported feeling seen and heard; and, they enjoyed receiving acknowledgments for the same reason. A shared feeling of connection and support was common for all participants, and they described feeling comforted and grateful having support from their coaching partners and the rest of the group, explaining it was easier to speak to people who cared and had their best interests at heart, but did not judge or advise as friends or family might. Participants appreciated being surrounded by other postgraduates, because they could relate to each other in terms of workload and experiences. All participants explained being accountable to their partners and to the group helped with committing to changing behaviours. Lastly, all participants vocalized their newfound ability to view stress and anxiety from different perspectives, which helped with coping and stress management. Due to everyone being a busy postgraduate student with varying schedules, all participants voiced frustrations with scheduling coaching sessions. Table 4 provides explanatory quotations.

Table 4: Mid-Intervention Themes

Improved Mental Health
Better Emotional Health "My emotional health has improved 70% through this program…when I did the questionnaire…I compared my emotions…to when I first did it…I realized a big difference. I was so happy…I was too depressed…the first time…"
Increased Self-Awareness "…[Coaching's] been positive. I'm continuing to always have…questions for myself. … evolv[ing] in knowing yourself so you can continue to do the work that you want to do and…to have the relationships you want to have. … I've shelved…emotion or stress or anxiety about different things because it was too challenging to look in the face…"
Reduced Stress/Better Equipped "…[Coaching] has made me more easy going. …[The stress didn't] disappear completely…I'm getting better at dealing with [stress]…"
Increased Resilience
"I improved [my resiliency] a lot. … I never expected to be at this stage. … I'm really thankful!"
Improved Communication
Listening Skills "…When you're listening to someone you just zone out. Now…I know I can focus…be open-ended about it, non-judgmental…I'm more open to listening…in a way that I'm totally involved with what the other person is saying."
Less Advice-Giving "…I definitely try to give less advice now…"
Acknowledgments "…Being acknowledged helped me change my perspectives. In hard or difficult situations, I used to be stuck…[coaching helped me] see through a different lens. …to feel the strength that I have the resiliency…"
Social Support and Connection
"…[Coaching] helps me work through things. … we're all graduate students. … a lot of what people want to change…are things I completely relate with. … it's nice when somebody's vulnerable with you about something you also feel a little insecure about."
Accountability "…[Coaching's] given me an accountability, whether it's a discussed, blatant accountability or…that I'm going to be talking with somebody about it."
Shifting Perspectives
"…Through the support of the coaches…I changed the way I see myself and the experience."
Difficulty Scheduling
"…The challenge is we do not have regular meeting times [with our partners]. … it's hard to get ourselves and other people together."

Post-Intervention

Participants shared their experiences and what had changed since starting the study. Themes that emerged were: (a) sense of connection and support; (b) improved mental health, resilience, and (self-)awareness (and awareness pertaining to others); (c) increased confidence; (d) gained skills (listening, shifting perspectives, acknowledging); (e) program frustrations (scheduling, pairings, more practice); and (f) overall positive experiences. All participants described feeling a sense of community, connection, and genuine support from their study peers. Overall, participants all believed their mental health and resilience improved, as did their self-awareness around mental health and accessing supports. Participants described increased confidence with managing daily stressors and anxiety, and with using MI-via-CALC. All participants highlighted the important skills they gained. They specifically noted becoming better listeners and giving less advice, learning to

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view stress and anxiety from different perspectives, and learning to acknowledge their coaching partners and themselves when experiencing challenges. While a positive experience overall, there were frustrations. All participants felt organizing sessions was difficult due to varying schedules. While most participants preferred steady dyads versus shifting pairings, which occurred due to uneven participant numbers, three participants preferred shifting pairings. All participants expressed the desire for more coaching practice, whether with the study group, their coaching partners, friends or family, or the general public. Many participants also described being frustrated that sometimes their coach was not using the MI-via-CALC tools, or they were not used correctly, making sessions less beneficial. Additionally, a few participants noted their partners wanted to coach in public spaces, making it difficult to have meaningful and vulnerable sessions. Regarding the intervention overall, all participants expressed the desire for the program to be offered throughout their degree and to all students. Table 5 provides quotations that exemplify the above.

Table 5: Post-Intervention Themes

Sense of Connection and Support
"…[Grad school] can feel isolating. …any opportunity to make a meaningful connection with people you didn't previously know is welcomed…[the coaching] had a really good impact on me…"
Improved Mental Health, Resilience, and Awareness
Mental Health "I'm willing to take the time to try and focus on my mental health. … [the intervention] gave me permission…to be the best version of myself in a mental health way."
Resilience "…There's been some vicarious resilience I've been able to glean from listening…to people solving their problems…I can bring…those things into my life…"
(Self-)Awareness "…Being self-reflective and identifying what might be helpful for me in the change I want to make…[I'm] a more well-rounded person in terms of dealing with my own and other people's conflicts…"
Increased Confidence
"…My energy changed. …I have more self-confidence knowing that every person is naturally creative, resourceful, and whole…it's empowering…"
Gained Skills
"I learned new skills in supporting myself and overcoming difficulties."
Listening "[I] thought [listening to my receiver] would be difficult…it was refreshing to see that I could actually listen to a person."
Shifting Perspectives "I enjoyed the idea that experience is this weird, amorphous thing that is intangible; but impacts us in really physical ways. It's not of one particular kind. Nothing is inherently good or bad. It's the perspective you bring…"
Acknowledging "…I always end my interviews with an acknowledgement…that has been received positively…"
Program Frustrations
Scheduling "…Scheduling is very hard. Scheduling with grad students who are different…"
Pairings "…It wasn't very good that [the pairings] turned to [me] coach[ing] somebody and somebody else coaches me [versus having set pairings]." "…[Having different partners] really works better for me…I'm the receiver and this is the coach [for] two sessions and…[in] one month you will meet two different people."
More Practice "…I need more practice and for some reason the practice we got wasn't enough."
Skill Level "I felt that maybe some people [didn't] know what the tools are or how to use them."
Public Spaces "…Uncomfortable. … those sessions weren't as beneficial because they were in loud or crowded places."
Positive Experience
"Excited and full of energy. … the most positive thing that happened to me…"
Implement Program for All Students "I would love to see this utilized in a university setting. … I've been able to garner a lot of interest from people…"
Continued Interest *"…If you are planning to have something similar…at the university in the future…I would love to participate."*

Although all participants engaged in several forms of coaching (i.e. telephone, in-person, FaceTime/Skype) successfully, at the end of the study, all participants expressed their preference

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for in-person coaching, citing that in-person coaching afforded the opportunity to assess facial expressions and body language, which was needed as they were learning to implement MI-via-CALC skills. It was learned that participants favoured one-hour sessions, often exceeding 30- to 45-minutes, but sometimes had shorter sessions (15-minutes). Five participants did not work with all of their partners, eight participants did not have all of their sessions, and three participants worked with all of their partners and had all sessions. Thus, participants had between 24-28 sessions (~14 as coach, ~14 as receiver). Despite any discrepancies, all participants experienced approximately 30-coaching-related hours (a combined total from all program components).
Findings from the check-in meetings coincided with the semi-structured interviews.

Quantitative

Table 6: Repeated-Measures ANOVAs (Pre-, Mid, & Post-Intervention)

Scale	*F*-Statistic	Pre-Intervention	Mid-Intervention	Post-Intervention	Statistical Significance (Between Time-Periods; $p < .05$)$^{+}$
Brief Resilience Scale*	[$F(1.22, 12.18) = .22$, $p > .017$]	*Mean* = 3.14, *Standard Deviation* = .69	*M = 3.21*, *SD* = .62	*M = 3.26*, *SD* = .80	Over time$^{\#}$: No ($p = .70$)
Mental Health Inventory *Total*	[$F(2, 20) = 1.51$, $p > .05$]	*M* = 67.27, *SD* = 13.42	*M* = 75.00, *SD* = 11.68	*M* = 73.55, *SD* = 13.92	Over time: No ($p = .24$)
Anxiety	[$F(2, 20) = 2.01$, $p > .05$]	*M* = 46.18, *SD* = 21.49	*M* = 57.09, *SD* = 23.81	*M* = 53.45, *SD* = 23.21	Over time: No ($p = .16$)
Depression	[$F(2, 20) = 2.06$, $p > .05$]	*M* = 59.09, *SD* = 17.44	*M* = 70.91, *SD* = 13.57	*M* = 69.09, *SD* = 17.87	Over time: No ($p = .15$)
Behavioural Control	[$F(2, 20) = .18$, $p > .05$]	*M* = 66.82, *SD* = 19.40	*M* = 70.00, *SD* = 10.95	*M* = 70.91, *SD* = 18.28	Over time: No ($p = .84$)
Positive Affect	[$F(2, 20) = .74$, $p > .05$]	*M* = 50.45, *SD* = 15.88	*M* = 55.91, *SD* = 15.30	*M* = 57.27, *SD* = 18.62	Over time: No ($p = .49$)
SF-36 *Physical Functioning**	[$F(1.33, 13.30) = 1.96$, $p > .017$]	*M* = 96.82, *SD* = 5.14	*M* = 87.27, *SD* = 26.11	*M* = 85.45, *SD* = 19.42	Over time: No ($p = .19$)
Role Limitations Due to Physical Health	[$F(2, 20) = .14$, $p > .05$]	*M* = 72.73 *SD* = 42.51	*M* = 75.00 *SD* = 27.39	*M* = 68.18 *SD* = 41.97	Over time: No ($p = .87$)
Role Limitations Due to Emotional Health	[$F(2, 20) = .39$, $p > .05$]	*M* = 27.27 *SD* = 29.13	*M* = 39.39, *SD* = 29.13	*M* = 39.39, *SD* = 44.27	Over time: No ($p = .68$)
Pain	[$F(2, 20) = 1.39$, $p > .05$]	*M* = 80.00, *SD* = 23.21	*M* = 79.09 *SD* = 23.59	*M* = 65.68, *SD* = 27.46	Over time: No ($p = .27$)
Energy & Fatigue	[$F(2, 20) = 1.23$, $p > .05$]	*M* = 37.73, *SD* = 17.23	*M* = 41.36, *SD* = 20.38	*M* = 46.36, *SD* = 20.99	Over time: No ($p = .31$)
Emotional Well-Being	[$F(2, 20) = .81$, $p > .05$]	*M* = 57.09, *SD* = 20.17	*M* = 64.00, *SD* = 17.25	*M* = 64.36, *SD* = 17.75	Over time: No ($p = .46$)
Social Functioning	[$F(2, 20) = 1.23$, $p > .05$]	*M* = 54.55, *SD* = 21.85	*M* = 67.05, *SD* = 21.12	*M* = 62.50, *SD* = 29.05	Over time: No ($p = .31$)
General Health	[$F(2, 20) = .26$, $p > .05$]	*M* = 69.55, *SD* = 21.96	*M* = 71.82, *SD* = 21.13	*M* = 70.91, *SD* = 19.21	Over time: No ($p = .78$)

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Notes:
* Mauchly's test of sphericity was violated; Greenhouse-Geisser correction applied. Adjusted *p* values calculated using adjusted degrees of freedom; $p < .017$.
+ $p < .05$ unless marked by *.
# '*Over time*' refers to differences between related means *overall* (Laerd Statistics, 2013).

There were no statistically significant findings (Table 6).

Discussion

The majority of participants in the current pilot study were female, which may be explained, in part, by 55% of the postgraduates at the host institution being female (2,691; [Office of Institutional Planning & Budgeting, 2018]). Further, more women report their mental health issues versus men (Bushnik, 2016); and between the ages of 20 to 34, women (25.2%) are more likely to report high levels of perceived life stress compared to men (20.7%; [Bushnik, 2016]). Additionally, research has highlighted that female postgraduate students experience higher stress levels versus males (Jungbluth, MacFarlane, Veach, & LeRoy, 2011; Matheny, Ashby, & Cupp, 2005). The researchers have previously witnessed this phenomenon (i.e. more women being enrolled in MI-via-CALC studies for stress/anxiety [Fried & Irwin, 2016] and in peer-mentorship studies for mental health [Fried et al., 2018]). It has also been observed in other mental-health-related research (see Eaton et al., 2012), and in research addressing university students' mental health specifically (Hjeltnes, Binder, Moltu, & Dundas, 2015). Although no definitive interpretation can be offered to explain the high enrollment number of international students in the current study (n = 6/11), it should be noted that previous research has highlighted that international students experience higher levels of stress and anxiety compared to their domestic counterparts (Hyun, Quinn, Madon, & Lustig, 2007). It is possible, however, that the higher enrollment rate is due to the nature of the study, such that peer/social support has been shown to be an important factor for mitigating stress among international postgraduate students (Sullivan & Kashubeck-West, 2015). In fact, given Breaking Grad's peer coaching focus, the social support experienced by participants might have been a key contributor for the positive findings.

The researchers of the current study found promising, but mixed, results. Qualitatively, all participants reported perceived improvements in their mental health and resilience and attributed this to their engagement in the Breaking Grad program. Participants reported increased self-awareness, skill acquisition, the ability to shift perspectives, and a sense of community and support. The qualitative findings are consistent with a previous MI-via-CALC study (Fried & Irwin, 2016), wherein the impact of MI-via-CALC was evaluated on the stress management of 30 full-time undergraduate students and the researchers found themes similar to the current study (e.g. decreased/more manageable levels of stress/anxiety, shifting perspectives, increased self-awareness, skill acquisition). The findings from the Breaking Grad pilot study also coincide with what is known about some mentorship-based interventions (Cyr et al., 2016; Fried et al., 2018). Findings from Cyr and colleagues (2016) mirror those of the current study, such that participants positively viewed peer-based support for mental health. Additionally, the current findings are synchronous with those of Fried et al.'s (2018) peer mentorship study, wherein participants emphasized peer mentoring's positive impacts. Participants lauded the intervention for helping to improve their mental health, providing support and important skills for mental health and in general, and increasing physical activity and resilience.

Although the *Breaking Grad* intervention was positively viewed by all participants, everyone vocalized frustrations. Participants described busy schedules and shifting pairs as stressors that caused difficulties scheduling sessions, leading to missed sessions and opportunities to work with all assigned partners. It is not surprising that scheduling was challenging given that postgraduate students were asked to commit to 30-plus hours to fulfill program requirements – in addition to their

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already heavy workloads. There is a known correlation between academic workload and perceived stress among postgraduates students – those that spend significant amounts of time in classes, labs, and working on assignments report high levels of stress (Kausar, 2010; Wyatt & Oswalt). It is important to note that although participants' time demands increased from their study engagement, their perceived levels of stress did not.

Quantitatively, there was no statistical significance, which was not consistent with qualitative findings. This lack of significance is likely from the small sample size, versus being evidentiary of program failure. Particularly apt for the current and underpowered pilot study, "statistical significance should not be confused with the size or importance of an effect" and although "results are not 'statistically significant' it cannot be assumed that there was no impact…[as] statistically non-significant results might or might not be inconclusive" (Cochrane Community, 2013, pp. 1-2). Therefore, as advised by Field (2013), the means were also visually inspected. The visual inspection noted improvements: means for every scale increased from pre-intervention to mid-intervention, and from pre-intervention to post-intervention. Some means decreased slightly from mid-intervention to post-intervention. These findings are similar to Fried and Irwin's (2016) study exploring MI-via-CALC's impact on undergraduate students' stress and anxiety. Findings from the current study imply the biggest changes transpired between the onset of the intervention until the middle and were mostly maintained until the end – while noting slight decreases for some scales – again, a similar finding to Fried and Irwin (2016). The slight decreases in means in the current study may be attributed to the timing of the post-intervention assessments (i.e. end of term, which tends to be stressful due to assignments).

Limitations

There are a number of limitations in this pilot study worth noting. First, self-selection bias may have been at play, meaning there was no way to distinguish between individuals who voluntarily consented and participated versus those who did not. Additional limitations were: (a) many potential participants were unable to attend mandatory training; (b) small sample size which affected the ability to detect potential statistical significance and generalize findings; (c) arbitrarily-matched pairings, meaning not all pairings may have been a good fit; (d) some participants had challenges using the coaching tools, disallowing their partners to receive the full coaching experience; (e) some sessions were in public settings, which made receivers uncomfortable, such that they did not want to divulge personal information in an environment where they could be overheard by others not enrolled in the study; and (f) the lack of a control/comparison group, making it difficult to determine the effects of the current peer coaching model compared to other interventions or other types of coaching/mentorship models.

Conclusions

Despite the limitations, this pilot study of Breaking Grad demonstrated potential. Participants' positive experiences underscored MI-via-CALC's helpful attributes in a peer coaching and mentorship program for postgraduate students to improve mental health and build resilience. That is, all participants reported it helped them to better cope with stress and anxiety, while enhancing their resilience. Due to insufficient statistical power to draw conclusions from the quantitative findings, the qualitative findings are especially important when educing conclusions. Based on this pilot study, the authors recommend that an MI-via-CALC-peer-mentorship program: (a) be assessed in both larger-scale and longer-term interventions among postgraduates; (b) utilize a comparison group; (c) offer additional (mandatory) training sessions at the beginning of the study (to allow for more participants); and (d) use consistent dyads.

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Future Implications

The researchers would like to offer this program to a larger group of students, or to integrate MI-via-CALC into pre-existing programing and services targeting postgraduate students, if possible. Researchers at other institutions should consider implementing similar programs. Idyllically, results from additional studies will contribute to this small but growing body of knowledge and eventually inform policies, programing, and practices aimed at tackling postgraduate students' mental health.

Endnotes

[1] ↩
One participant began anxiety medication and Cognitive Behavioural Therapy after mid-intervention. They were not removed as the inclusion criteria was for the start of the study; and seeking additional help may have been be a result of the intervention.

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