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Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect, and Mood: The KISS of Kindness Study II

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Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect, and Mood: The KISS of Kindness Study II

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A thesis submitted in partial fulfillment of the requirements for the Master of Science degree in Health and Rehabilitation Sciences

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THE KISS OF KINDNESS STUDY II

Abstract

This research sought to assess the impact of deliberate acts of kindness (DAKs) plus access to a stress management booklet (intervention), compared to the booklet alone (control) on the stress-related outcomes of resilience, social interaction anxiety, affect, and mood of undergraduate and graduate students. Participants' study-related experiences were explored, as were the types of DAKs. This repeated-measures, randomized controlled trial included 112 students (80 undergraduate and 32 graduate) with 56 in each condition. Four scales were implemented at baseline, immediate post-intervention, and 3-months post-intervention. A linear mixed effects model was utilized with group and time entered as fixed effects. Content analysis of open-ended question responses and DAK logs was conducted. Statistically significant interaction effects in favour of the intervention group were found for all measures, and intervention participants described improvements in mental wellbeing. DAKs were plentiful (1,542 DAKs, 26 types), and show promise for university-based mental health interventions.

Keywords: kindness, resilience, social anxiety, affect, mood, university students

Summary for Lay Audience

The mental health of undergraduate and graduate students is concerning, specifically in relation to the rising rates of stress and anxiety in the university student population. University students experience stressors such as academic load, constant pressure to succeed, and competition with peers that can trigger or exacerbate feelings of social anxiety and negatively impact students' mood, further perpetuating negative affect. Students' abilities to cope with and respond positively to these stressors can be referred to as resilience, which can act as a buffer in times of adversity. One way to enhance students' resilience and promote positive mental health, might be performing deliberate acts of kindness (DAKs). DAKs have shown promise in improving individuals' wellbeing and increasing happiness; however, studies regarding DAKs as a mental health intervention are scarce. To that end, this thesis examined the impact that performing DAKs had on the resilience, social interaction anxiety, affect, and mood of undergraduate and graduate students at a Canadian post-secondary institution. To investigate this, one randomized controlled trial was conducted and consisted of 112 undergraduate and graduate students (80 and 32, respectively), randomized to either the intervention ($n = 56$) or the control ($n = 56$) group. Both groups were reminded that they had access to a relaxation and stress management booklet from the institution's Wellness Education Centre. In addition, the intervention group was asked to partake in and log three deliberate acts of kindness per day, and participate in a study-related website to connect with, support, and share experiences/ideas with each other around DAKs. Participants' levels of resilience, social interaction anxiety, affect, and mood were compared between groups and over time. The KISS of Kindness Study II demonstrated efficacy for intervention group participants through increased resilience, reduced social anxiety and negative affect, and described improvements in mood. Individuals in both

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groups expressed enjoyment participating in the study and described an overall improvement in their mental health and wellbeing, positioning DAKs as an effective strategy to improve the mental health of university students.

Co-Authorship Statement

While this thesis is comprised of my original work, I would not have been able to accomplish it without the help of my fellow colleagues and co-authors, for whom I am eternally grateful. First, a huge thank you to my supervisor, Dr. Jennifer Irwin, who was influential in the creation of our study, and played a crucial role from beginning to end (ongoing consultation, manuscript preparation). I would also like to thank my co-authors, Drs. Tara Mantler and Andrew Johnson, for their contributions to the manuscript preparation and for their guidance and assistance with the statistical analyses. Lastly, I would like to thank my incredibly helpful research assistants, Taylor Labadie, Varsha Vasudevan, and Jillian Takacs, who volunteered their time to assist with recruitment and content analyses. I am incredibly appreciative of everyone's support in the development of my thesis – thank you all.

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My Master's experience can be summarized by Isaac Newton who said, "*If I have seen further it is by standing on the shoulders of giants*". I owe so much of my growth as an academic, and as a human, to those who have gone before me. They have paved the way for my success, without whom none of this would have been possible.

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Chapter 1: Introduction and Literature Review

Given the rise in mental health concerns (namely negative stress, hereafter referred to as ‘stress’), mental health research has become increasingly more common (Johnson, 2017; Stewart-Brown et al., 2000). Stress has been described as the body’s response to any pressures or demands caused by pleasant or unpleasant environmental stimuli (Selye, 1956, 1985), and can be characterized by symptoms of anxiety and depression that may affect one’s physical functioning, including increased illness and somatization (Beasley et al., 2003; Headey & Wearing, 1992; Rawson et al., 1994). One population with particularly high levels of stress is post-secondary students (e.g., Adlaf et al., 2001). In fact, the majority of college students (versus their non-student counterparts) have reported experiencing moderate or severe levels of stress (77.6% versus 10.4%, respectively; Abouserie, 1994; Dixon & Kurpius, 2008). Further, 57% of undergraduate students and 61.4% of graduate students have reported their stress levels to be ‘more than average’ or ‘tremendous’ (American College Health Association, 2018a, p. 16, 2018b, p. 16).

While stress can exacerbate or trigger mental health problems, including clinical depression and anxiety, it also is associated with the challenging experiences of low levels of resilience, social anxiety, low positive affect, and high negative affect and mood (Bolger et al., 1989; Cohen et al., 1983; Dachew et al., 2015; Folkman & Moskowitz, 2000; Megivern et al., 2003; Ong et al., 2006; Wilks, 2008). Despite difficulties in defining the construct (Brewer et al., 2019), resilience has been broadly referred to as an individual’s ability to overcome adversity (Olsson et al., 2003; Tugade & Fredrickson, 2004) and includes protective factors that can actually buffer against the negative outcomes associated with such adversity or stress (Steinhardt & Dolbier, 2008). Resilience has been examined as a trait, a process, and as an outcome

(Jacelon, 1997; Olsson et al., 2003). While research has been conducted in all three of these areas (Jacelon, 1997; Olsson et al., 2003), it has been suggested that there are no pragmatic differences between the constructs (Macini & Bonanno, 2006). Conceptual differences of the resilience constructs matter in theory (Crann & Barata, 2016). In practice, individual differences and contextual and environmental factors are likely to influence an individual's response to stress, thus making it difficult to distinguish between the constructs (Crann & Barata, 2016).

Resilience

There is a distinct relationship between resilience and stress (Brewer et al., 2019; García-León et al., 2019). University students experience stressors that test their resilience including, but not limited to, examinations, concerns about the future, time constraints, and pressures to succeed (e.g., Lo, 2002; Sreeramareddy et al., 2007). Such stressors can lead to consequences that affect health, including burnout and suppression of the immune system (Passer et al., 2008; Stoliker & Lafreniere, 2015). Rio-Risquez and colleagues (2016) examined the relationship between resilience, burnout, and psychological health at a single time point. The researchers found that higher resilience resulted in greater wellbeing; however, burnout, characterized by exhaustion and cynicism, had the ability to negatively impact this relationship (Rio-Risquez et al., 2016). Tugade and Fredrickson (2004) found that undergraduate students with high resilience typically experienced positive emotions amidst their stressful experiences. Conversely, university students with low levels of resilience have reported higher levels of psychological distress compared to their peers who possessed high levels of resilience (Pidgeon et al., 2014).

Social Anxiety

In addition to being associated with overall psychological well-being, as described above, resilience has been found to be negatively correlated with social anxiety, such that individuals

who possess low levels of resilience exhibit high levels of social anxiety (Ko & Chang, 2019). Social anxiety is a form of psychological distress that tends to interfere with individuals' social interactions (Zhu et al., 2019). For example, although in-class presentations are a curricular feature of university degree experiences, they are also especially challenging for students with a heightened fear of being judged by other people (Essau et al., 1999; Siem & Spates, 2009). This is concerning as 31% of college students at a Midwest university reported a fear of public speaking, and 15.7% of undergraduate students measured as having moderate to severe symptoms of social anxiety (Russell & Shaw, 2009; Seim & Spates, 2009). Post-secondary students with social anxiety may experience additional barriers to participating fully in academic settings, as it has been reported that social anxiety negatively influences students' academic performance and is associated with lower academic achievement (Brook & Willoughby, 2015). This may be, in part, because students who experience social anxiety worry about the opinions of others and, resultantly, may be more reluctant to speak in group meetings or join social activities in school (Ko & Chang, 2019). Students with social anxiety have demonstrated avoidance behaviours, and a tendency to escape or avert undesired thoughts, feelings, and/or situations that may involve feedback or evaluation (Flynn et al., 2019; Ko & Chang, 2019). Such avoidance behaviours are associated with low resilience (Ko & Chang, 2019); avoidance may provide temporary relief for individuals but often has negative repercussions on students' general and mental health (i.e., increased risk for depression) and is associated with low social functioning (Ghaedi et al., 2010).

Affect

In addition to what has been described above, low levels of resilience have also been found to be associated with high levels of negative affect and low levels of positive affect among

undergraduate students (Smith et al., 2016). Positive affect, in broad strokes, is the extent to which an individual feels high energy, enthusiasm, alertness, and pleasure (Watson et al., 1988). Negative affect includes unpleasant mood states, such as anger, disgust, fear, and nervousness (Watson et al., 1988). Individuals who exhibit pessimistic characteristics and/or low self-esteem tend to cope with stress less effectively and experience greater negative affect (Scheier et al., 1986; Watson & Clark, 1984). In a study by Smith and colleagues (2016), individuals who possessed higher levels of resiliency reported lower levels of stress, anxiety, depression, and negative affect, and more positive affect and life satisfaction than those with lower levels of resiliency. Thus, while stress might further perpetuate negative affect in some individuals, resilience appears to buffer against the negative impact of stress and, in turn, increases positive affect (Smith et al., 2016).

Mood

A concept that is closely linked to affect—and one that has not been investigated among post-secondary students in relation to stress—is mood. Mood has been defined as various feelings or emotions that can range in both duration and magnitude (Lane & Terry, 2000). Recently, mood disorders (e.g., depression, anxiety, bipolar disorder) have increased in severity among the post-secondary student population globally (Auerbach et al., 2018). As noted above, the constructs of affect and mood tend to overlap in literature (McKinzie et al., 2006; Wunsch et al., 2017); however, given that mood is often researched in conjunction with anxiety (Auerbach et al., 2016; Falsafi, 2016), and that positive mood is linked to high resilience (Tugade & Fredrickson, 2004), there is a need for researchers to address this concept in a university student population.

Mental Health Interventions

From the above review of literature, it is evident that stress is associated with low resilience, high levels of social anxiety, low positive affect, and negative affect and mood. Several interventions have been designed and implemented to target some of these outcomes among university students (Yusufov et al., 2019). In a recent meta-analysis, Yusufov and colleagues (2019) evaluated the efficacy of stress reduction interventions for university students. The researchers investigated the impact of six interventions for undergraduate and graduate students including: cognitive behavioural therapy (CBT), coping skills training, relaxation training, mindfulness-based stress reduction, psychoeducation, and social support (Yusufov et al., 2019). While the majority of the interventions were effective at reducing the stress of university students, most of the studies did not report long-term follow-up data (Yusufov et al., 2019). While some studies did report 3- and 6-month follow-up points (e.g., Chiauzzi et al., 2008; Finkelstein et al., 2007; Fontana et al., 1999), the majority examined the effect of the interventions at two time points only (pre- and post-intervention; e.g., Ando, 2011; Call et al., 2014, Deckro et al., 2002; Frazier et al., 2015; Jain et al., 2007). It is thus unclear whether students' stress-reduction could be sustained longer-term (Yusufov et al., 2019). Further, the control groups included in the review were no-treatment or waitlist control groups, emphasizing a need for control groups that engage in activities (i.e., treatment component control groups) to determine the effectiveness of the intervention when compared to standard care or currently considered best practices (Freedland et al., 2011; Yusufov et al., 2019). Galante and colleagues (2017) conducted a study that investigated the effectiveness of mindfulness-based courses to improve students' resilience in response to stress. Students assigned to the intervention group received an 8-week mindfulness course plus mental health support, and those in the control

group received mental health support only (Galante et al., 2017). The authors concluded that those in the mindfulness-based course built psychological resilience and reported lower distress than the control group, as a result of the intervention (Galante et al., 2017). Though shown to be effective, Galante and colleagues (2017) suggested further research should be conducted to determine additional, effective interventions to increase resilience and reduce stress in university students.

Deliberate Acts of Kindness (DAKs)

In the current climate of budgetary challenges, low-to-no-cost innovative solutions that support and facilitate students' mental health are essential. To combat the stress that students experience, performing deliberate acts of kindness (DAKs; purposeful acts benefitting others that the others would presumably like; Trew & Alden, 2015) might result in improved levels of resilience – and reductions in social anxiety, higher levels of positive affect and lower levels of negative affect and mood – in the face of stressful situations. To the researchers' knowledge, DAKs have not been previously investigated as an intervention to reduce student stress and enhance resilience among university students. As such, it remains a gap in the literature that should be explored.

Kindness – actions intended for others' betterment (Curry et al., 2018) – has been associated with improvements in happiness and wellbeing among university students (Jasielska, 2018; Layous et al., 2012; Nelson et al., 2015; Paviglianiti & Irwin, 2017). In a study conducted by Jasielska (2018), the relationship between kindness, trust, and happiness was examined with a sample of university students ($n = 91$) who were asked to play a computer-based trust game and complete a questionnaire regarding happiness and acts of kindness. Jasielska found perceived kindness strengthened the connection between trust and happiness, as being kind contributed to

viewing people more favourably. Otake and colleagues (2006) echoed these findings when they found a relationship between performing acts of kindness and increased levels of happiness.

Specifically, Otake and colleagues (2006) asked undergraduate students in the intervention group ($n = 71$) to keep track of and report the type and number of kind acts they completed in a given week, compared to the no-treatment control group ($n = 48$) who were only asked to complete the measures. The researchers concluded that having students count the number of acts of kindness they completed increased their happiness, relative to the control group (Otake et al., 2006).

Similarly, Lyubomirsky, Tkach, and Sheldon (2004) asked undergraduate students to perform five acts of kindness per week for 6-weeks. Compared to the no-treatment control group whose only study involvement was their completion of wellbeing measures pre- and post-intervention, students who performed the acts of kindness experienced increased feelings of happiness and improved wellbeing (Lyubomirsky et al., 2004). Further, undergraduate students who engaged in a random acts of kindness health promotion project at a Canadian post-secondary institution also reported an increase in their happiness as a result of their participation in the project (Paviglianiti & Irwin, 2017). In addition to improved happiness, Nelson and colleagues (2015) examined the relationship between performing kind acts and autonomy support among undergraduate students. They concluded that performing acts of kindness while receiving autonomy support improved the wellbeing of the performer (Nelson et al., 2015).

Acts of kindness have shown promise in improving the happiness and overall wellbeing of students (Jasielska, 2018; Layous et al., 2012; Lyubomirsky et al., 2004; Paviglianiti & Irwin, 2017). However, the relationship between DAKs on the stress-related outcomes of resilience, social interaction anxiety, affect, and mood has yet to be explored.

Study Purpose

The current study aimed to assess the impact of engaging in daily DAKs for one month on the stress-related outcomes of resilience, social interaction anxiety, affect, and mood of undergraduate and graduate students at a Canadian post-secondary institution. We assessed the impact of engaging in DAKs plus access to a stress management booklet intervention, compared to access to a stress management booklet only on students': (a) resilience (primary outcome); (b) social interaction anxiety and affect (secondary outcomes); and (c) mood (exploratory outcome). Of important note, the construct of stress has been critiqued for its various interpretations and because stress, as an outcome, is difficult to measure (Segerstrom & O'Connor, 2012; Somerfield & McCrae, 2000), the above-noted and specific stress-related (versus 'stress' itself) outcomes were the focus for this study. Participants' engagement in and experiences with the study were also explored, as were the types of kind acts engaged in and booklet use. It was hypothesized that at immediate and 3-months post-intervention, the intervention group would report higher levels of resilience, reduced social interaction anxiety, higher levels of positive affect and lower levels of negative affect and mood, compared to the control group. No hypotheses were proposed for the anticipated kind acts or participants' experiences in the study and booklet use.

Chapter 2: Methods

Study Design

This study served as a follow-up randomized controlled trial (RCT) to a small pilot study (Shillington et al., 2019). A block randomized design was used to assign participants to either the intervention group (i.e., participating in DAKs plus receiving a reminder of access to a stress management booklet) or control group (i.e., receiving a reminder of access to a stress management booklet). Block randomization ensured that an equal number of participants were assigned to each group and was completed using an online random sequence generator (GraphPad Software, 2018). Only the researchers had access to participants' assignments. Participants were informed of their assigned group after the completion of baseline assessments. This study was approved by the host institution's Health Sciences Research Ethics Board (HSREB #114103; Appendix A) and registered as a clinical trial (NCT04013451; Appendix B).

Sample Size and Eligibility Criteria

Sample size was determined based on a power analysis using resilience as the primary outcome, wherein the inclusion of 200 full-time undergraduate and graduate students, randomized to either the intervention ($N = 100$) or control group ($N = 100$), was deemed sufficient to detect differences between groups ($p < 0.05$). Recruitment numbers for undergraduate ($N = 150$) and graduate students ($N = 50$) were based on the difference in the host university's enrollment, such that the undergraduate student population was larger than the graduate student population (24,535 versus 5,911, respectively; Western University Office of Institutional Planning & Budgeting, 2019). To be eligible for this study, participants had to be full-time undergraduate or graduate students at the host institution and/or the affiliate schools, and English-speaking.

Participants and Recruitment

Recruitment was four-fold via: (1) mass emails, (2) in-class announcements, (3) professor announcements, and (4) student Facebook groups. Three mass emails to all full-time students at the host institution were sent (once a week for three weeks in September 2019; Appendix C). Seventeen professors across six faculties were contacted and 10 professors allowed the research team to make an in-class announcement. These announcements were made in the faculties of Health Sciences, Mathematics, Science, and Media, Information and Technoculture (Appendix D). Additionally, 112 graduate and undergraduate class professors (38 and 74, respectively) across 20 faculties were contacted via email (Appendix E) and asked to share the study recruitment information with their classes. As the email request did not require a response it is difficult to know how many complied. Lastly, eight posts were made about study recruitment in six institution-student Facebook groups (Appendix F). Larger groups were posted in more than once. Two additional Facebook group administrators did not respond to the request. One hundred and seventy-six students expressed interest in participating in the study. Interested participants contacted the research team and were provided with a letter of information (Appendix G), as well as a link to a questionnaire (Appendix H) administered through Qualtrics®, where they were asked to confirm their eligibility, imply consent (i.e., by decision to complete questionnaire), and create a unique identification for themselves. The identification was required to match participants' data across time-points, while ensuring that no personally identifying information was revealed. Of the 176 who expressed interest, 112 students were eligible and provided consent (80 undergraduate and 32 graduate). Due to the study timeline (i.e., avoiding the Fall study break falling during the intervention period), recruitment ended prior to reaching the

desired sample size. Individuals were then randomized into either the control ($n = 56$) or the intervention group ($n = 56$) using a block randomization design.

Procedure

Deliberate Acts of Kindness (DAKs) Plus Stress Management Booklet (Intervention Group)

Participants in the intervention group received an email explaining they had access to a relaxation and stress management booklet from the host institution's Wellness Education Centre (Appendix I). Additionally, they were asked to: (1) complete and log/submit a minimum of three DAKs per day for one month; and (2) join a study-dedicated OWL webpage that would allow them to connect with, support, and share experiences/ideas with each other around DAKs. Participants received an email link to both the acts of kindness log and the OWL webpage, as well as a PDF document providing them with a list of DAKs ideas (Appendix J).

Stress Management Booklet (Control Group)

Participants in the control group received an email explaining they had access to a relaxation and stress management booklet from the host institution's Wellness Education Centre.

Data Collection

Data was collected at baseline (i.e., before the intervention); immediately post-intervention (i.e., one month); and at 3 months post-intervention. All assessments were conducted online. An email link was sent to participants asking them to complete the questionnaires. A maximum of three email reminders were sent if participants did not respond; after this point, participants were considered lost to follow-up for that time-point. Participants assigned to the intervention group were asked to submit a daily acts of kindness log, via an online survey link, which was utilized as a data source that was collected daily during the intervention period (one month).

Baseline, immediate post-intervention, 3-months post-intervention, and acts of kindness log data were linked via Participant IDs to maintain anonymity and confidentiality. To diminish social desirability bias associated with self-report measures, at the beginning of each questionnaire *honesty demands* (Bates, 1992) were used. That is, the instructions included the statement: ‘Please answer as honestly as possible. There are no right or wrong answers. Whatever you truly think or feel is the answer you should pick.’ Study data (i.e., exported survey files, consent forms, master list linking participant IDs) were stored on a password-protected computer at the host institution. Additionally, participants’ responses to the questionnaires submitted via Qualtrics® were kept on its secure server.

Immediately following the intervention, all participants completed the same assessments administered at baseline (minus demographics), with the addition of an open-ended question asking participants to describe their overall experience in the study, as well as how often they utilized the relaxation and stress management booklet during the intervention period. At 3-months post-intervention the same assessments were administered, with the addition of an open-ended question asking participants to describe how their experience in the study influenced their life, as well as how often they still used the relaxation and stress management booklet, if at all.

Measures

Baseline assessments consisted of demographic information (Appendix K), and the four previously validated scales that were administered at each follow-up time, as outlined in detail below.

Primary Outcome Measure

Brief Resilience Scale (BRS). The BRS (Appendix L) was previously validated (Cronbach’s α ranging from 0.80 - 0.91) and assesses one’s ability to “bounce back and recover

from stress” (Smith et al., 2008, p. 1). The BRS includes 6 items: items 1, 3, and 5 are positively worded (e.g., ‘I tend to bounce back quickly after hard times’) and items 2, 4, and 6 are negatively worded (e.g., ‘I have a hard time making it through stressful events’). Participants were asked the extent to which they agreed or disagreed with the statements using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The BRS was scored by reverse coding items 2, 4, and 6, and calculating the mean of the six items. For a detailed account of this scale see the scoring manual by Smith and colleagues (2008).

Secondary Outcomes Measures

Social Interaction Anxiety Scale-Straightforward (SIAS-S). The SIAS-S (Appendix M) was previously validated (Cronbach’s $\alpha = 0.95$) and includes 20 items assessing cognitive, affective, and behavioural aspects of social interaction anxiety using a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely; Rodebaugh et al., 2007). Participants were asked to indicate the degree to which they felt each statement was characteristic or true of them (e.g., ‘When mixing socially, I am uncomfortable’). The SIAS-S was scored by totalling all of the items excluding items 5, 9, and 11, which were omitted as researchers have indicated stronger scale validity when including only the straightforwardly worded items (Rodebaugh et al., 2007). A score of 28 or higher (out of 80) indicated probable social interaction anxiety disorder. For a detailed account of this scale see the scoring manual by Rodebaugh and colleagues (2007).

International-Positive and Negative Affect Schedule-Short Form (I-PANAS-SF). The I-PANAS-SF (Appendix N) was previously validated (Cronbach’s α for PA = 0.78; NA = 0.76) and includes 20 items from the Positive and Negative Affect Schedule (10 items = positive affect; 10 items = negative affect) using a 5-point Likert scale ranging from 1 (very slightly or not at all) to 5 (extremely; Thompson, 2007). Participants were asked to indicate the extent they

felt each adjective over the past week (e.g., ‘Excited’, ‘Upset’, ‘Determined’, ‘Nervous’). The positive affect score was obtained by summing the scores on items 1, 3, 5, 9, 10, 12, 14, 16, 17 and 19. The negative affect score was obtained by summing the scores on items 2, 4, 6, 7, 8, 11, 13, 15, 18 and 20. For a detailed account of this scale see the scoring manual by Thompson (2007).

Exploratory Outcome Measure

Brief Mood Introspection Scale (BMIS). The BMIS (Appendix O) was previously validated (see each sub-scale’s details outlined below; Mayer & Gaschke, 1988). It includes 16-items selected from eight mood states (Mayer & Gaschke, 1988). The BMIS includes four sub-scales: (1) *Pleasant-Unpleasant* (Cronbach α between 0.76-0.83)¹; (2) *Arousal-Calm* (Cronbach’s $\alpha = 0.58$); (3) *Positive-Tired* (Cronbach α between 0.76-0.83); and (4) *Negative-Relaxed* (Cronbach α between 0.76-0.83). Participants were asked to indicate how well each adjective described their present mood using a 4-point Likert scale ranging from 1 (definitely do not feel) to 4 (definitely feel). Examples of adjectives include: ‘Lively’, ‘Caring’, ‘Gloomy’, and ‘Grouchy’. The BMIS was scored by reverse scoring and summing items specific to each sub-scale, as consistent with that described by Mayer and Gaschke (1988).

DAKs Log

Each day participants were asked to submit a log of their acts of kindness performed that day. The log included six questions, three of which pertained to participants’ unique IDs as described earlier. The remaining questions were (1) ‘Please select the date you performed the DAKs’; (2) ‘Please submit the DAKs you performed’; and (3) ‘What effect did performing the

¹ The authors of the original validated scale (Mayer & Gaschke, 1988) did not present individual Cronbach’s α s for the sub-scales (with the exception of Arousal-Calm). Rather, a range of Cronbach’s α s was provided, as presented above.

act(s) of kindness have on you? Please tell us about your experience.’ Data obtained from the logs were assessed qualitatively (see details below).

Booklet Use

Participants in both groups were asked to select the extent to which they utilized the stress and relaxation management booklet ranging from ‘I did not utilize the booklet’ to using the booklet ‘5+ times a week’.

Data Analysis

Quantitative Analysis

To determine if there were any statistically significant differences in questionnaire completion (i.e., attrition) between groups at immediate post- and 3-months post-intervention, Pearson’s chi-square test was used. Additionally, a mixed-model ANOVA was used to determine if there were any significant differences in questionnaire completion between groups and over time with group (intervention versus control) and time (baseline, immediate post-intervention, and 3-months post-intervention) entered as fixed effects. To ensure that there was no violation of the assumption of sphericity, Mauchly’s Test of Sphericity was used. Pairwise comparisons were run on the statistically significant effects and to reduce multiple comparison bias, a Bonferroni correction was applied.

To determine if there were any statistically significant differences in demographics between groups at baseline an independent-sample t-test was run on the continuous variable (i.e., age) and Pearson’s chi-square test was used to study categorical variables (i.e., sex, ethnicity, marital status, residency, faculty, medication, and therapy/counseling received). To investigate the impact of DAKs plus access to a stress management booklet (intervention), compared to access to the booklet alone (control) on the stress-related outcomes of resilience, social

interaction anxiety, affect, and mood of post-secondary students, a maximum likelihood linear mixed-effects model was utilized, with group (intervention versus control), and time (baseline, immediate post-intervention, and 3-months post-intervention) entered as fixed effects. A linear mixed-effects model was deemed appropriate for this analysis as it reduces concerns regarding missing data on the dependent variables (i.e., the analysis uses all available data without the need for interpolation). Where appropriate we used a Bonferroni correction factor within families of comparison. For example, in the BMIS measure, there were four scale scores within that family of comparison, thus we compared p -values to an alpha of $0.05/4 = 0.0125$. All statistical analyses were performed using R version 3.6.1 (R Core Team, 2019), with linear mixed effects analyses conducted using the lme4 (Bates et al., 2015) and car (Fox & Weisberg, 2019) packages. All possible comparisons amongst the time periods were assessed using the emmeans package (Lenth, 2019).

Pearson's chi-square test was used to determine if there were any statistically significant differences between groups on the use of the stress and relaxation management booklet at immediate and 3-months post-intervention.

Analysis of Open-Ended Questions

Data from the open-ended questions in the acts of kindness log, and the pre-, immediate post-, and 3-months post-intervention questionnaires were analyzed by question (i.e., deductively) using the qualitative approach of inductive content analysis (Patton, 2015).

Although open-ended questions on a survey tool do not typically lend themselves to researcher-bias from a qualitative data collection perspective, the analysis lens of the researcher might. As such, positioned from a post-positivist stance (Clark, 1998), tools to reduce/control for researcher bias and support data trustworthiness (Guba & Lincoln, 1989) were incorporated during the

analysis. Inductive content analysis of the log entries and open-ended question responses was conducted independently, and simultaneously, by two researchers who read the transcripts line-by-line to code and draw out emerging themes. The use of multiple coders was in an effort to ensure confirmability and dependability (Guba & Lincoln, 1989). Themes were then given working titles and definitions, and participant quotes were categorized accordingly. Summative content analysis (Hsieh & Shannon, 2005) was also used to determine the frequencies and provide meaning of the different types of DAKs submitted and was conducted independently and simultaneously by two researchers to ensure accuracy. It initially involved the researchers reading through the transcripts and counting the frequency of certain key words. Key words were then assigned working titles. Once the researchers finalized themes individually, for both inductive and summative content analyses, they met to discuss and agree upon final themes (i.e., to support data confirmability; Guba & Lincoln, 1989).

Chapter 3: Results

Participants

This study was comprised of both undergraduate ($n = 80$) and graduate students ($n = 32$), with the majority of students identifying as female (73.2%, $n = 82$), predominantly Caucasian (51.8%, $n = 58$), and almost half between the ages of 18 and 22 (47.3%, mean = 23.63). Though there was a large distribution of participants across all faculties, the highest compliment came from the Faculty of Science (21.4%), followed by the Faculty of Social Science (16.1%), and the Faculty of Health Sciences (14.3%). Ninety-one participants (81.3%) were single and the majority of students lived off-campus (78.6%, $n = 88$). Twenty-eight participants (25.0%) reported being on medication for stress/anxiety/mood and 29 participants (25.9%) reported receiving therapy/counselling. There were no statistically significant differences at baseline between the intervention and control groups on any of the demographic variables (Table 1). At baseline all registered participants completed the questionnaires ($N = 112$) and at immediate post-and 3-month post-intervention, 39 and 31 intervention group and 48 and 35 control group participants, respectively, filled out the questionnaires. When questionnaire completion was examined between groups at immediate post-intervention, there was a significant difference ($p = 0.041$); however, there was no significant difference for questionnaire completion between groups at 3-months post-intervention. For the mixed-model ANOVA, the assumptions of Mauchly's Test of Sphericity were met and thus, analysis proceeded. When examining questionnaire completion between groups and over time, the interaction was not statistically significant. Rather, with regard to the main effect of time, there was a statistically significant difference in questionnaire completion ($F(2, 220) = 45.623, p < 0.001$). This indicates that there was a change over time in questionnaire completion across the whole sample. To determine

which of these time-points differed significantly from the rest, pairwise comparisons were used. Questionnaire completion reduced significantly ($p < 0.001$) at each of the time points, suggesting that questionnaire completion decreased over time for the whole sample. There were no statistically significant differences in questionnaire completion between groups.

Table 1*Demographic Information of Participants in the Control and Intervention Groups at Baseline (N**= 112)*

Participant Characteristic	Control N	Intervention N	Mean	SD	<i>p</i>
Sex (<i>N</i> = 112)					
Male	16	11			
Female	38	44			0.428
I prefer not to answer	2	1			
Age (<i>N</i> = 98)					
<20	14	16			
20-25	23	22	23.63	7.20	0.221
26-30	7	3			
30+	7	6			
Ethnicity (<i>N</i> = 112)					
Aboriginal	2	0			
African Heritage	1	0			
East Asian	8	12			
Caucasian	30	28			
Hispanic	1	1			
Middle Eastern	3	2			0.609
South Asian	7	7			
Southeast Asian	2	1			
Mixed Race	1	4			
European	0	1			
I prefer not to answer	1	0			
Marital Status (<i>N</i> = 112)					
Single	46	45			
Married/common law/engaged	6	7			0.993
Divorced/separated	2	2			
I prefer not to answer	2	2			
Residency (<i>N</i> = 112)					
On-campus	10	14			0.357
Off-campus	46	42			
Level of Study (<i>N</i> = 112)					
Undergraduate	16	40			1.00
Graduate	16	40			
Faculty (<i>N</i> = 112)					
Arts and Humanities	2	2			
Education	4	3			
Engineering	4	2			
Health Sciences	6	10			

Information and Media Studies	3	1	
Law	0	1	
Music	1	1	0.678
Science	11	13	
Social Science	13	5	
Huron University College	1	2	
Brescia University College	4	4	
Kings University College	5	9	
Ivey Business School	0	1	
Schulich Medicine and Dentistry	1	1	
Dual Degree	1	0	
Other	0	1	
On medication for stress/anxiety/mood ($N = 111$)			
Yes	12	16	0.413
No	43	40	
Receiving therapy/counselling ($N = 112$)			
Yes	15	14	
No	41	41	0.596
I prefer not to answer	0	1	

Quantitative Findings

The means, standard deviations, and the interaction effects of the linear mixed-effects model for the scales and their respective sub-scales separated by time and group can be found in Table 2. Findings for graduate and undergraduate students are presented together as the cell sizes were such that there was insufficient power to break the analysis down by level of study.

The KISS of Kindness II had a statistically significant effect on the intervention group participants' resilience, social anxiety, and negative affect, but had no significant impact on their positive affect or mood (Table 2). Regarding participants' resilience (BRS), the interaction between group and time was statistically significant ($p = 0.0099$; Figure 1). Post-hoc testing of the marginal means suggested that within the intervention group, there was a statistically significant difference between baseline and 3-months post-intervention ($t(157) = 4.35, p = 0.0001$), and between immediate post- and 3-months post-intervention ($t(149) = 2.88, p = 0.0126$). No significant difference was demonstrated between baseline and immediate post-intervention.

When we examined the interaction between group and time for social anxiety (SIAS-S), there was a significant effect ($p = 0.0016$; Figure 2). The scoring protocol for the SIAS-S states that items are to be totalled (excluding items 5, 9, and 11; Rodebaugh et al., 2007). We decided to take the average of the values in order to determine the total score rather than the sum, as the total sum would be bias downwards from students potentially skipping questions (i.e., default value of zero). Within the intervention group, statistically significant differences between baseline and immediate post-intervention scores ($t(157) = 4.23, p = 0.0001$) and baseline and 3-months post-intervention scores ($t(158) = 3.28, p = 0.0037$) were found. There was no significant difference between immediate- and 3-months post-intervention. We did not determine if

participants had social interaction anxiety disorder based on their total scores, as this information was not relevant to our research question. Additionally, the principal author of the scale was contacted and stressed that social interaction anxiety disorder often does not present itself in undergraduate student populations, as students tend to deny impairment (T. Rodebaugh, personal communication, October 29, 2018).

While there were no significant main effects or interactions for the positive affect sub-scale of the I-PANAS-SF, the negative affect sub-scale demonstrated a statistically significant interaction term ($p = 0.0033$; Figure 3). Post-hoc testing of the marginal means revealed changes for the I-PANAS-SF negative affect variable in both the control and the intervention group. While there was a suggested difference, the changes between groups were inversely related such that for the control group there was an increase in negative affect between baseline and 3-months post-intervention ($t(155) = 3.44, p = 0.0138$), and for the intervention group there was a decrease in negative affect between immediate and 3-months post-intervention ($t(151) = 3.49, p = 0.0249$).

Regarding mood (BMIS), there was a statistically significant interaction between group and time for two of the sub-scales: Pleasant-Unpleasant ($p = 0.0320$; Figure 4) and Negative-Relaxed ($p = 0.0120$; Figure 5). While the Pleasant-Unpleasant sub-scale showed a significant effect, it was not significant upon controlling for Type I error. Thus, the significant interaction for the Pleasant-Unpleasant sub-scale may be an artifact of multiple comparisons. Further, post-hoc testing of the marginal means found no significant effects within the intervention group, for either of the variables that demonstrated a statistically significant interaction term. Rather, for the Negative-Relaxed sub-scale significant differences between baseline and immediate post-intervention ($t(156) = 1.33, p = 0.0461$) and baseline and 3-months post-intervention ($t(163) =$

2.14, $p = 0.0021$) were found for the control group. In accordance with the BMIS questionnaire, participants were also asked to indicate their overall mood on a sliding scale ranging from -10 to +10; however, the data was not included in the scoring as it is often omitted² (Mayer & Gaschke, 1988).

There were no statistically significant differences between groups using the stress and relaxation management booklet at immediate and 3-months post-intervention (Table 3). The majority of participants in both groups did not utilize the booklet at immediate ($n = 54$) and 3-months post-intervention ($n = 47$). Further, the number of participants who did utilize the booklet decreased between time-points, with 29 participants reporting utilization of the booklet at immediate post-intervention and 18 participants reporting continued use of the booklet at 3-months post-intervention. Five intervention group participants used the online forum at any point during the intervention period, submitting a total of 13 comments.

² While there was no information on why this was done in the literature, the corresponding author was contacted and explained that the ‘overall mood’ sliding scale was never intended to be kept in the questionnaire (J. Mayer, personal communication, March 5, 2020). Rather, it was an error in process by the researchers during the validation procedures, as it was never assessed, but still included as, subjectively, some people might have found it interesting.

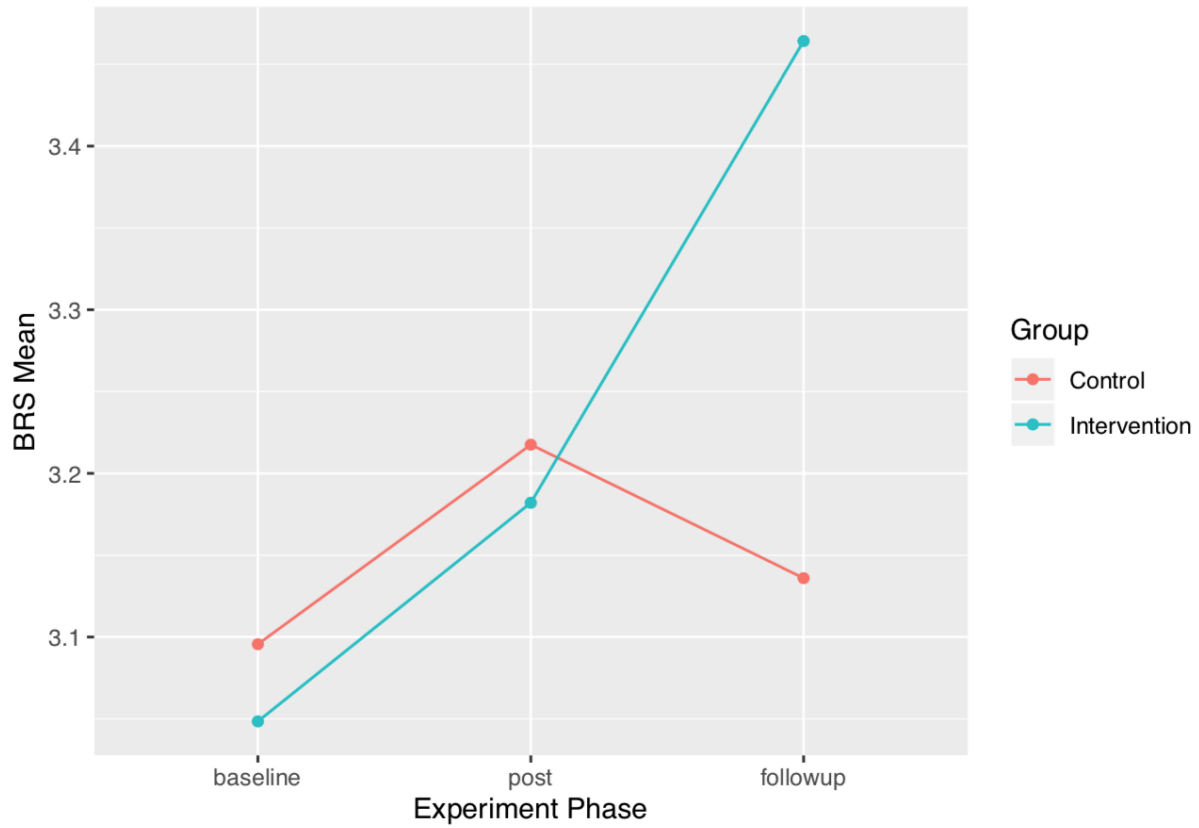
Table 2*Interaction Between Group and Time on Control (C) and Intervention (I) Group Participants'**Resilience, Social Interaction Anxiety, Affect, and Mood*

Scale		Pre- Intervention Mean (SD) [n = 56C; 56I]	Immediate Post- Intervention Mean (SD) [n = 48C; 39I] ³	3-Months Post- Intervention Mean (SD) [n= 35C; 31I] ⁴	F-ratio (Group x Time)
<i>Brief Resilience Scale (BRS)</i>					
	Control	3.08 (0.86)	3.22 (0.75)	2.94 (0.82)	F(2, 153) = 4.76 p = 0.0099
	Intervention	3.07 (0.85)	3.21 (0.86)	3.53 (0.83)	
<i>Social Interaction Anxiety Scale-Straightforward (SIAS-S)</i>					
	Control	1.46 (0.75)	1.41 (0.68)	1.53 (0.69)	F(2, 154) = 6.74, p = 0.0016
	Intervention	1.51 (0.75)	1.19 (0.65)	1.18 (0.62)	
<i>International Positive and Negative Affect Schedule-Short Form (I-PANAS-SF)</i>					
Positive Affect	Control	31.91 (7.90)	29.96 (8.71)	29.85 (8.12)	F(2, 155) = 0.75 p = 0.47
	Intervention	32.64 (8.09)	32.66 (7.36)	32.28 (8.49)	
Negative Affect	Control	24.48 (7.93)	26.09 (8.20)	28.24 (8.93)	F(2, 156) = 5.93 p = 0.0033
	Intervention	24.35 (8.39)	24.97 (7.77)	21.63 (6.96)	
<i>Brief Mood Introspection Scale (BMIS)</i>					
Pleasant- Unpleasant	Control	42.84 (7.79)	39.30 (8.24)	38.53 (8.04)	F(2, 153) = 3.52 p = 0.032
	Intervention	43.00 (7.58)	42.08 (8.73)	44.17 (8.66)	
Arousal- Calm	Control	30.30 (3.42)	30.35 (3.70)	31.76 (3.81)	F(2, 164) = 2.40 p = 0.094
	Intervention	30.55 (4.12)	30.28 (3.95)	29.97 (3.81)	
Positive- Tired	Control	18.32 (3.55)	16.78 (3.71)	16.97 (4.03)	F(2, 154) = 1.59

³ Three participants (1C; 2I) out of the 87 who submitted the questionnaire did not fully complete all measures at immediate post-intervention but were still included in the analyses.

⁴ One participant (1I) out of the 66 who submitted the questionnaire did not fully complete all measures at 3-months post-intervention but were still included in the analyses.

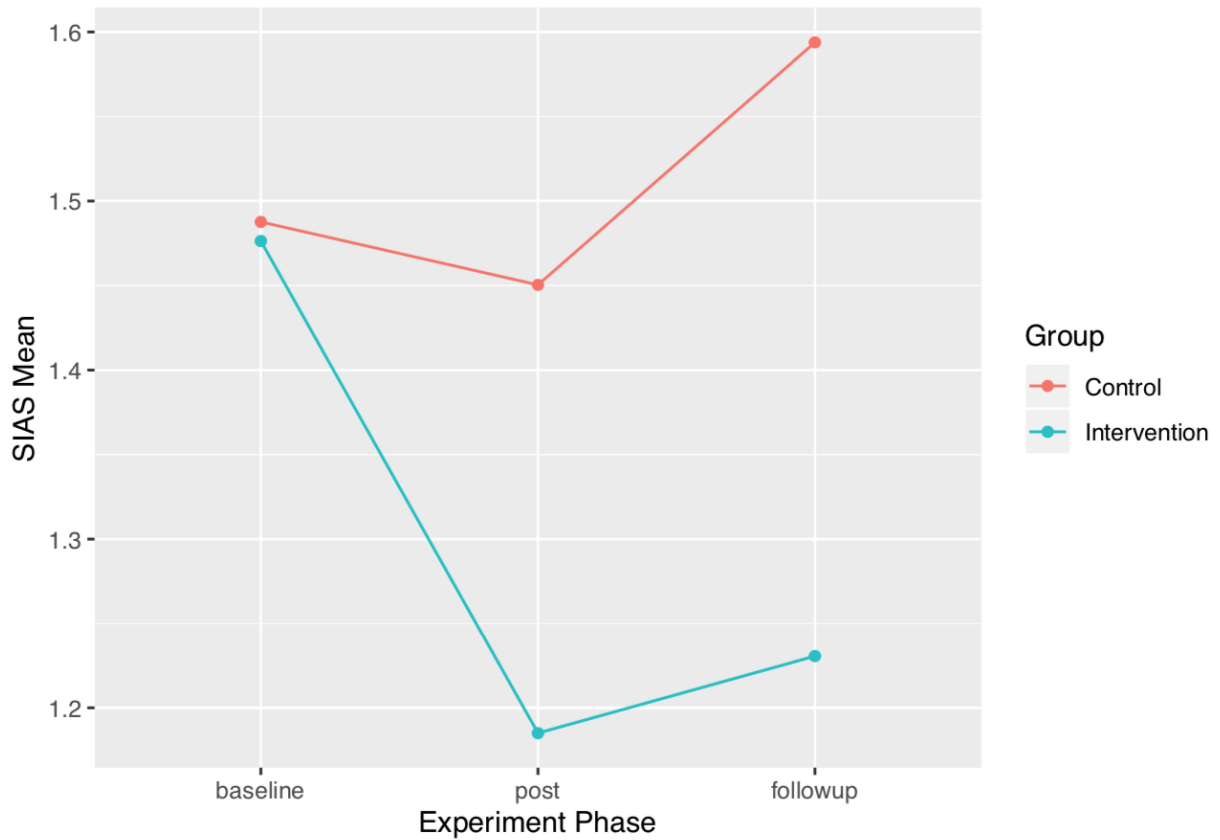
	Intervention	18.46 (3.24)	17.89 (3.90)	18.71 (4.48)	$p = 0.21$
Negative-Relaxed	Control	14.36 (3.52)	15.61 (3.82)	16.65 (3.37)	$F(2, 163) = 4.55$
	Intervention	14.38 (3.84)	14.66 (4.08)	13.55 (3.50)	$p = 0.012$

Figure 1*Brief Resilience Scale (BRS) Interaction Plot*

Note. The interaction between group and time for the Brief Resilience Scale. 'Post' refers to immediate post-intervention and 'followup' refers to 3-months post-intervention.

Figure 2

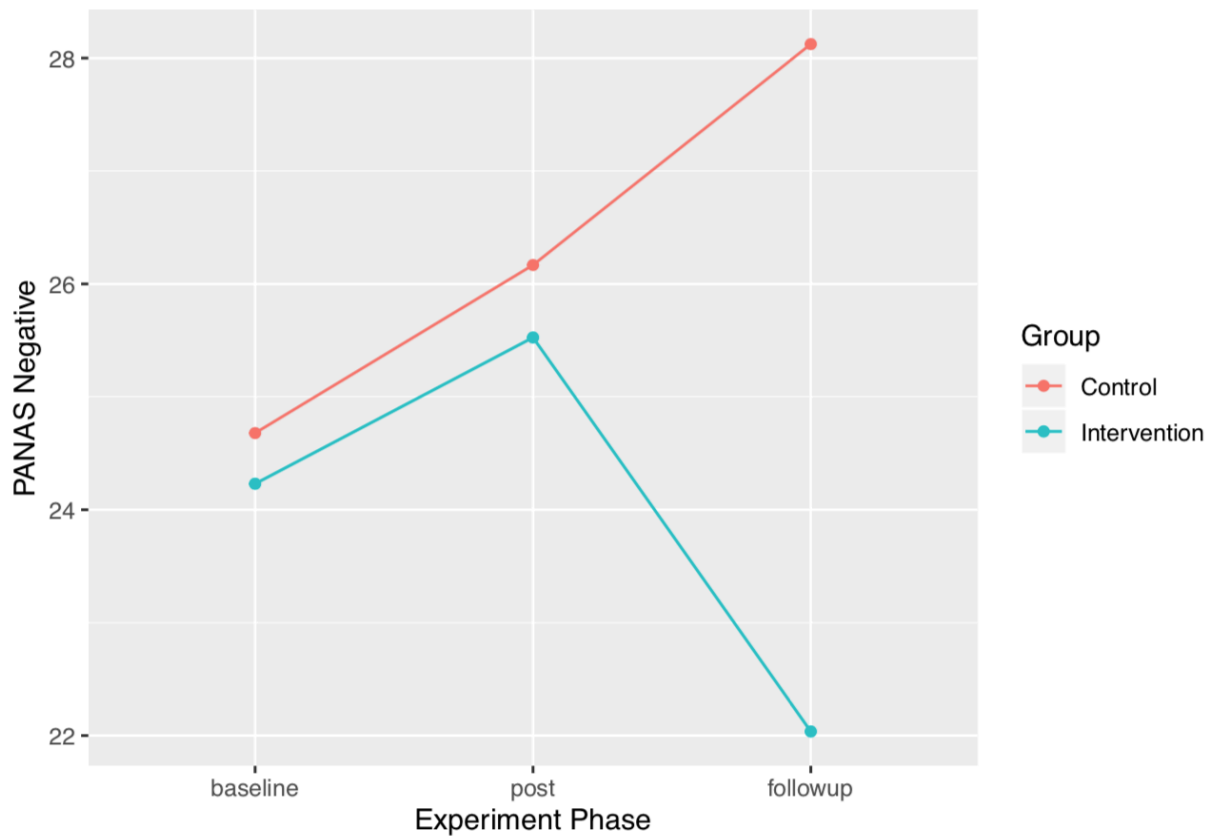
Social Interaction Anxiety Scale-Straightforward (SIAS-S) Interaction Plot



Note. The interaction between group and time for the Social Interaction Anxiety Scale-Straightforward. 'Post' refers to immediate post-intervention and 'followup' refers to 3-months post-intervention.

Figure 3

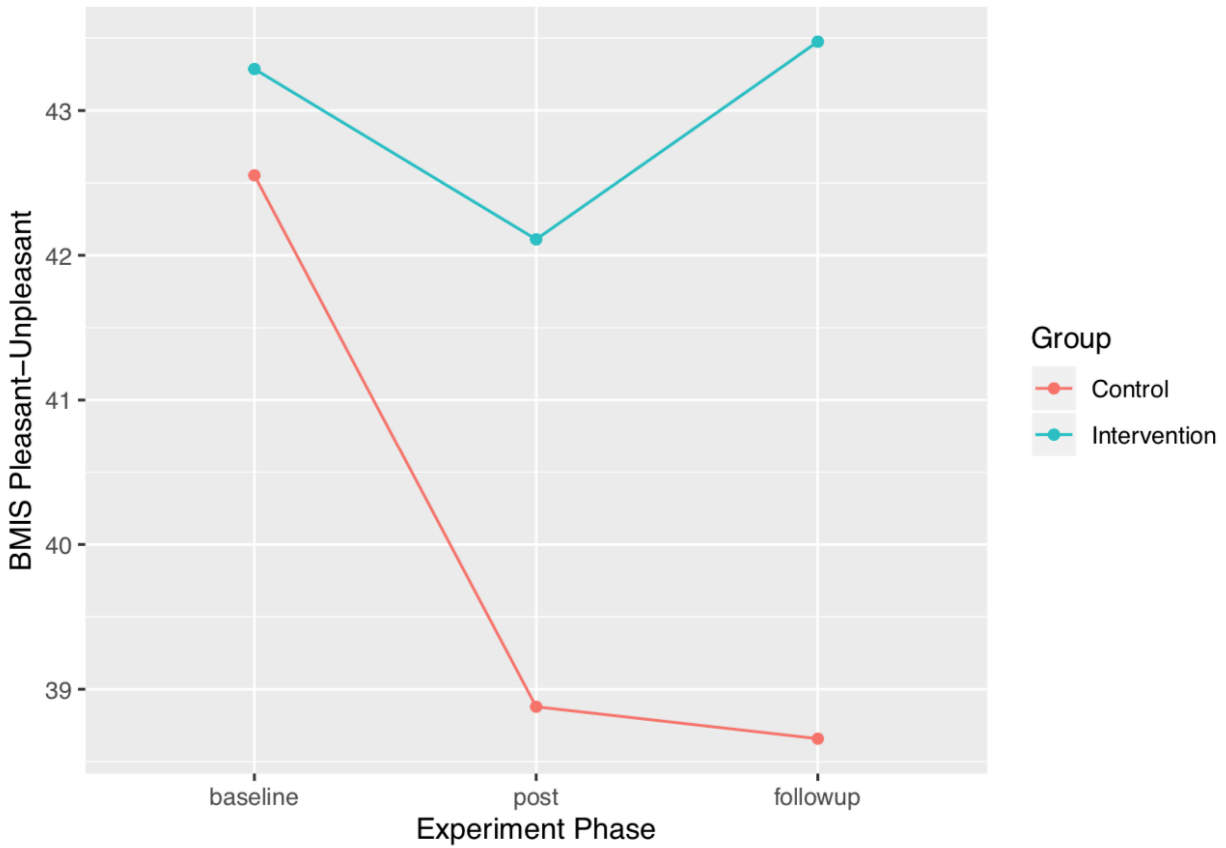
International-Positive and Negative Affect Schedule-Short Form (I-PANAS-SF) Negative Affect Sub-Scale Interaction Plot



Note. The interaction between group and time for the Negative Affect sub-scale of the International-Positive and Negative Affect Scale-Straightforward. ‘Post’ refers to immediate post-intervention and ‘followup’ refers to 3-months post-intervention.

Figure 4

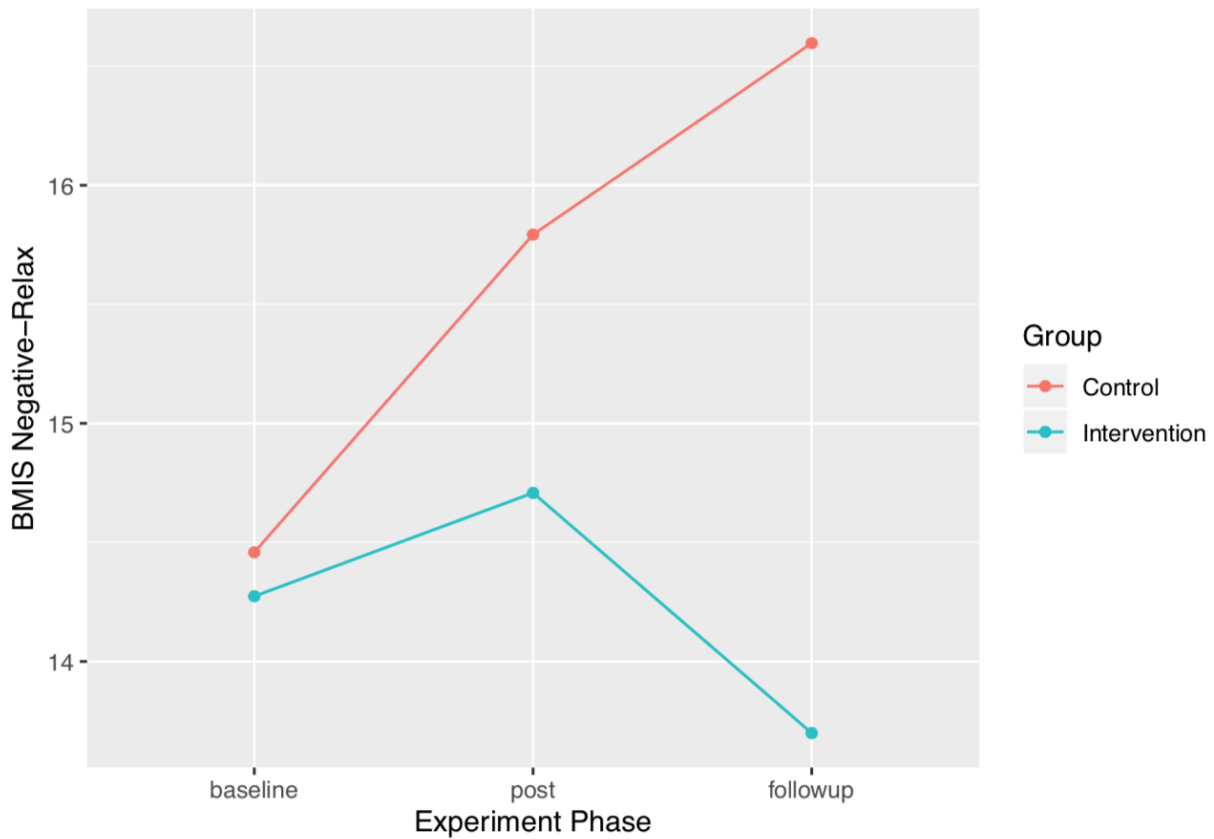
Brief Mood Introspection Scale (BMIS) Pleasant-Unpleasant Sub-Scale Interaction Plot



Note. The interaction between group and time for the Pleasant-Unpleasant sub-scale of the Brief Mood Introspection Scale. 'Post' refers to immediate post-intervention and 'followup' refers to 3-months post-intervention.

Figure 5

Brief Mood Introspection Scale (BMIS) Negative-Relaxed Sub-Scale Interaction Plot



Note. The interaction between group and time for the Negative-Relaxed sub-scale of the Brief Mood Introspection Scale. 'Post' refers to immediate post-intervention and 'followup' refers to 3-months post-intervention.

Table 3*Use of Stress Management Booklet by Group and Time*

	Immediate Post-Intervention			3-Months Post-Intervention		
	Control N	Intervention N	<i>p</i>	Control N	Intervention N	<i>p</i>
Use of Booklet						
Did not utilize	27	27		23	24	
<Once a week	10	9	0.221	8	4	0.635
Once a week	6	1		1	1	
2-3 times per week	2	0		1	2	
5+ times per week	1	0		1	0	

Findings from the Open-Ended Questions

Findings for the control and intervention groups' responses to the open-ended questions on the questionnaire are presented separately, below, by time-point. Quotations taken from participants' written entries are provided to illustrate each theme, although in some cases, paraphrasing of entries are instead provided due to entries' grammatical and/or wording challenges. In these situations, no liberties were taken with interpreting the entries. Rather, paragraphing was done to present them with clarity. Please note, although some quotations/entries are relevant for more than one theme, each is presented in the theme with which is best fits.

Control Group

Immediate Post-Intervention. At immediate post-intervention, two common themes emerged among the control group's responses: (1) participation in the study was beneficial and (2) difficulty accessing/utilizing the booklet.

Participation in the Study was Beneficial. The majority of control group participants found the study to be beneficial. A number of participants noted the benefit of the relaxation and stress management booklet. One participant emphasized the benefit of the booklet, writing, "...after getting into the habit of it [utilizing the booklet], my mood increased, and I found myself feeling better after each interaction" (AR01RU). This was paralleled by another participant who emphasized the immediate benefits of the booklet, writing, "I found the techniques [from the booklet] helped while immediately engaging in them..." (BL11LI). Other participants noted the study as being an educational experience in managing their stress. This was underscored by a participant, writing, "I enjoyed getting to be more educated regarding anxiety and how I can control it... [I] had a lot of fun and I think I improved or at least have

better ways to start improving” (HE08CA). This was echoed by another participant who wrote, “It’s been a learning experience about myself and how I deal with stressful and bad situations” (LI08DO). Individuals also expressed the benefit of participating in the study more generally, as a number of participants wrote that the study was a “good” experience (e.g., WA02SH, IS03ST).

Difficulty Accessing/Utilizing the Booklet. Some individuals in the control group expressed difficulty accessing/utilizing the relaxation and stress management booklet. A number of individuals were unsure about how to access the booklet as they felt they were given minimal guidance by the research team (e.g., WO01ES, BO01RO, CO01RE). This was expressed by one participant (BO01RO) who wrote:

I was unsure of what to do- I didn't get the info in the email and when I went to the UCC [university community centre] a week later to pick it up, they didn't have a physical copy and instead showed me where to find it online. I didn't end up using it.

This sentiment was echoed by another participant (CO01RE) who expressed that “it was hard to cope with stress and distress using the booklet as [they were] not given much guidance, reminders, or support”. In contrast, one participant (AR08MA) actively chose not to engage with the booklet as they “did not find [themselves] needing to use the booklet because [they weren’t] very stressed”, while another participant (VI08TA) “did not have time to implement many of self-care tactics since [they] had an extremely busy workload”.

3-Months Post-Intervention. Two dichotomously opposed themes emerged among the control group’s responses at 3-months post-intervention: (1) study had no impact and (2) increased self-reflection.

Study Had No Impact. Many individuals in the control group expressed that their participation in the study had no impact on them. This was emphasized by a few participants

who explained that the study did “not” influence their lives (e.g., CO02MA, SA10MO, IZ10YV). Other individuals described that the study had minimal impact on them because they did not feel compelled to use the stress and relaxation management booklet. This was highlighted by one participant who wrote, “I did not feel stressed enough to utilize the book, therefore it [the study] didn't influence my life very much” (AR08MA). One participant expressed that they forgot they had enrolled in the study, writing, “I completely forgot about it [the study] until I got the email to complete this survey” (CO07TR).

Increased Self-Reflection. Though some control group individuals described the study as having no influence on their lives, as outlined above, others experienced an increase in their self-reflection. This was underscored by one participant who stated, “It [the study] help[ed] me to reflect on my feelings and thoughts” (PA12QI), while other participants found that, as a result of participation in the study, they reflected more on their “mood” (e.g., HE09SA, MC04JE). Some participants explained that the study prompted increased self-awareness, as emphasized by one individual who wrote, “I mean, it is a good chance for me to think about myself” (SE02IN). Another participant echoed this sentiment writing, “Just being more mindful and aware can go a long way to improving yourself” (LI08DO). Despite not using the suggested stress and relaxation management booklet, one participant found that the study impacted their life and increased self-reflection as they often remind themselves to “take a step back” when feeling overwhelmed (RE02CH).

Intervention Group

Immediate Post-Intervention. Summative content analysis revealed 26 common acts of kindness performed by members of the intervention group. Some acts were more frequent than others, including: greeting/smiling at someone ($n = 223$); holding doors open for people ($n =$

149); providing academic support to other students ($n = 128$); assisting with cleaning/household tasks ($n = 114$); contributing monetary support to others ($n = 106$); complimenting/acknowledging someone ($n = 104$); and offering general assistance ($n = 104$). A detailed account of the DAKs can be found in Table 4.

Table 4*Types and Frequency of Deliberate Acts of Kindness Performed by the Intervention Group**Participants*

Deliberate Act of Kindness	N
Greeted/smiled at someone	223
Held door open for people	149
Academic support to other students	128
Assisted with cleaning/household tasks	114
Monetary support to others	106
Complimented/acknowledged someone	104
Offered general assistance	104
Called or sent someone a message (reached out)	86
Offered emotional support/advise	78
Cooked/baked for others	67
Offered someone a ride	59
Spent time with loved ones	52
Stated appreciation for someone (i.e., 'thank you')	50
Gave someone the gift of time	33
Shared something with someone	32
Encouraged someone	31
Self-care	24
Donated	19
Engaged in environmentally friendly action	17
Left a note for someone	14
Affectionate towards someone	13
Volunteered	13
Road safety	12
Surprised someone	7
Gave someone a back rub/massage	4
Stood up for someone	3

Note. Measures of central tendency and dispersion were not computed as when coding during summative content analysis, some of the counts were within one act submitted. For example, one submission might have been 'Act 1: Said good morning and thanked bus driver'; this would be one count under 'Greeted/smiled at someone' and a second count under 'Stated appreciation for someone'; however, it would only be recognized as one submission. Thus, measures of central

tendency and dispersion would not be accurate. 'Deliberate Act of Kindness' and 'N' are bolded in the table to differentiate between table headings and body.

Participant responses to their experience engaging in the DAKs yielded 10 themes and 10 subthemes, many of which are interrelated and yet sufficiently unique that they are presented as individual subthemes: (1) study had a positive impact (enjoyable experience, motivated participants to continue engaging in DAKs); (2) improved mental health (improved stress management, mood, wellbeing, self-esteem); (3) appreciation of the intentionality behind the DAKs; (4) fostered a sense of purpose; (5) enhanced social connection; (6) increased awareness; (7) positive empathy; (8) recognition that small DAKs can be impactful; (9) DAKs felt effortless; and (10) challenges regarding DAKs (logging, participating, DAKs had little/no effect, DAKs had negative effect).

Study had a Positive Impact (Enjoyable Experience, Motivated Participants to Continue Engaging in DAKs). Overall, the study had a positive impact on the majority of participants. Participants described the study as being an enjoyable experience, resultantly influencing their decision to continue engaging in kind acts following the intervention. Participants' enjoyment in the study was emphasized by one individual who stated, "I very much enjoyed the study. It was a cool experience" (BO01JE). Another participant echoed this comment writing, "It was a cool idea for a study, I found it interesting to be a part of and beneficial for my life for participating. I gained better social skills and felt happy for going out of my comfort zone" (PR04LI). Participants enjoyed being able to positively impact the lives of other people, as reflected by one who wrote, "It allowed me to take an otherwise very boring stay-at-home day and make it into a great chance to positively impact the people around me!" (WI08KE). Another participant paralleled this comment emphasizing their enjoyment writing, "I really enjoyed making everyone's days even a little more special" (LE04DE). Similarly, one participant (TR01MA) stated, "It felt great because I was able to help others and build a better

relationship with them [other people],” and another underscored that “spreading happiness... reinforced [their] love [of] being kind” (HO12CH). Helping people appeared to be at the centre of participants’ enjoyment in the study, as described by one individual (MA08EI) who wrote:

I really enjoyed the opportunity to participate in this study. It was nice to make an effort to brighten the day of those around me, and seeing their positive reactions was very nice... Overall, this study has positively impacted my daily life and I will continue to do deliberate acts of kindness for those around me.

Individuals expressed continued interest in participating in DAKs. For instance, one participant was encouraged to continue engaging in DAKs as they felt that it “improved [their] mental state” (EL11CO). Contentment while participating in the kind acts was a motivator for another participant who wrote, “Performing these acts of kindness made me feel good and each time I complete these acts it makes me want to keep completing more” (LE04DE). Another participant, who found engaging in DAKs made them feel good, had a desire to incorporate the acts into their everyday life, writing, “...they were acts that made me feel good but also encouraged me to try and incorporate my kind acts into my work if I have busy days, or even be kind to myself after a long day of work” (AM06CA). One participant (SC05MO) emphasized that stepping out of their comfort zone to perform the acts gave them the encouragement they needed to continue engaging, writing:

I often walk past homeless people and feel terrible not doing anything but feel awkward or embarrassed to offer help because it seems the social norm to look the other way.

Every time I see someone in need, I try to work up the courage to do something but rarely do. Being more deliberate in my kindness, I finally bought groceries for [a homeless] man and it made me feel human and more in touch with my humanity. In the long run,

this act of kindness will affect me forever because I will be more willing to do this act in the future.

Many participants were motivated to continue participating in kind acts even after the intervention had ended. Participants appreciated the DAKs as being a healthy distraction from their stress, as underscored by one participant who wrote, “I think I will try to continue doing a couple acts of kindness every few days because it was a wonderful distraction from my stressful studies” (BO01JE). Other participants were encouraged to continue engaging in kind acts (e.g., MA08EI, ZH01EI), while one individual recognized the mutual benefit that their acts had on both their personal wellbeing, as well as the wellbeing of others, writing, “I will continue to incorporate at least three acts of kindness a day as I know now that not only does it brighten other people’s days, but it also very much brightens my own as well” (LE04DE). These quotations underscore the positive impact the study had on individuals, specifically through their enjoyment participating and their motivation to continue engaging in DAKs.

Improved Mental Health (Improved Stress Management, Mood, Wellbeing, Self-Esteem). Many participants reported mental health improvements as a result of participating in the study. This was described by individuals as an improvement in stress management, mood, wellbeing, and self-esteem. One participant highlighted the benefit of engaging in DAKs for stress management, writing, “October has been a very stressful month because of all my midterms and completing a few acts of kindness every day has given me the opportunity to think about something else other than my studies” (BO01JE). DAKs to combat the stress of examinations was echoed by another participant, writing, “The last week has been difficult, admittedly, with midterm season and the stress that comes with it. Even so, it was especially nice

to reflect on each day and realize that there were small acts of kindness amidst the distress” (LO06EL).

In addition to stress management, DAKs were highly regarded as a tool to improve individuals’ mood. This was underscored by one participant who wrote, “I have seen good strides in my own mental health issues through work in this study, noting specifically my overall mood is increased when I remember some of the acts I did each day” (EL11CO). This sentiment was paralleled by another participant who emphasized, “My anxiety and mood/resilience are definitely better than I thought they would be... and I do believe that has to do with the fact that I’m now actively looking to do good and be kind” (DE02DE). Decreased feelings of anxiety as a result of engagement in DAKs was described by another participant, writing, “I was less anxious today. [I was] more aware of the good I was doing behind my actions, with less concern about making someone else maybe feel uncomfortable by reaching out. I feel good” (PR04LI). One individual felt that participating in the DAKs was a “spectacular boost in [their] positive affect” (RI09CL), while many noted increased “happiness” (e.g., MA08EI, YY06FY, BE11MA, BU02JE, RI02TH). This was emphasized by one participant who wrote, “[It] made me happy to know I’m consciously contributing to a kinder environment” (EL11CO). Another participant underscored this, writing, “Doing things for others really brings me a lot of satisfaction and contentment” (BR09CA), while one individual wrote, “It made me happier and stress-free” (NG02PH). Others emphasized that participating in DAKs made them feel happy when they were having difficult weeks, as indicated by one individual who wrote, “I was having a pretty tough week so doing kind things for others made me feel happy” (YY06FY). A large number of participants expressed “feel[ing] good” after engaging in DAKs (e.g., AM06CA, LE04DE, LO06EL). This was reflected by one participant who wrote, “I felt good after being kind to other

people. I like being kind and doing little actions throughout the day is a great way to do it” (CH02MA). Other participants noted feeling good knowing the potential positive impact they had on people’s lives, as emphasized by one participant who wrote, “It makes me happy to think that there can be cascading positive ripple effects from my actions” (ZH01EI). This sentiment was paralleled by another participant who wrote, “It made me feel good to care about other people and how my actions may potentially make their days slightly better” (SA04MA). One participant explained that their kind acts not only improved their immediate mood, but also had a long-term impact on their day, writing, “I felt that my kind acts really affected my immediate mood and carried with me throughout the day” (FO09JE). Another participant noted that they felt inspired engaging in the DAKs, writing, “It has made improvements to my mood here and there every day. It was inspiring. It made me feel better as a person, since I believed that I was doing something good” (LI05HO).

In addition to experiencing an improved mood, many participants highlighted an improvement in their overall wellbeing which, in turn, had a positive impact on their mental health. This was underscored by one participant who wrote, “I feel being kind is necessary for a healthy state of mind and functionality” (MI10FA). A few individuals recognized how participating in DAKs improved the outcomes of their days, as highlighted by one participant who wrote, “Originally I started my morning off horribly. It seemed everything was going wrong. After my acts of kindness, the day felt a lot better and it felt like everything was in my favour again” (HO01DE). This was echoed by another participant who felt that knowing they were able to make someone else’s day better, improved their own (LO06EL).

A number of individuals also discussed an improvement in their self-esteem. Participants described feeling like a “good person” (e.g., BR09CA, TR01MA) and feeling “better about

[themselves]” (e.g., BA04NA, DE02DE, RI02TH). One participant emphasized this, writing, “I think helping others helps my self-esteem” (CH02MA), while another wrote, “I felt better about myself and about the day in general [after completing DAKs]” (BA04NA). In sum, participants described mental health improvements through engagement in DAKs, via improved stress management, mood, wellbeing, and self-esteem.

Appreciation of the Intentionality Behind the DAKs. The majority of participants appreciated the intentionality behind performing the DAKs. A few participants highlighted the ease of performing DAKs when they had reason to do so, as underscored by one participant, writing, “I really enjoyed having a reason to do it [DAKs], and with each act I realized how easy it was to perform the acts on a daily basis” (LE04DE). This was paralleled by another participant who wrote, “It was nice to have an explicit reason to be nice and bring my attention to the nice things I do on a regular (or not so regular) basis” (BA04NA). One participant also felt that the intentionality behind participating and logging the DAKs allowed them to be “accountable to [their] actions” (SP04MA). Another individual expressed their “enjoyment” engaging in DAKs with intention (BR09CA). The study also appeared to act as an outlet for participants to engage in DAKs that they wouldn’t normally do. This was emphasized by one participant (SC05MO) who wrote:

I also was able to have a reason to commit acts of kindness I have been wanting to [do] before but have been too nervous to carry out. For example, I bought meals for a homeless man and complimented strangers on things that they were wearing. This is something I always want to do when I see the opportunity but have felt awkward doing so. Knowing I was to do at least 3 acts a day, I had the opportunity to push myself and these acts were very rewarding.

Participating in the study gave individuals a reason to be kind, which was favoured by many.

Fostered a Sense of Purpose. Some participants highlighted that engaging in DAKs fostered a sense of purpose. A few participants noted that this sense of purpose resultantly contributed to a positive outlook. This was highlighted by one participant who wrote, “I do recognize that it [DAKs] gave me more of a sense of purpose and has contributed towards me seeing the world in a more positive light” (ZH01EI). This was echoed by another participant who emphasized the benefit of being kind to others, writing, “I found it nice to look forward to doing something positive each day, no matter how big or small. It was uplifting to pay attention and be conscious of how even the littlest acts can spread joy and help out others” (LO06EL).

Recognizing the substantial impact of *small* DAKs was not an uncommon observation by participants. This was underscored by another participant who explained, “It felt very soothing to know that a portion of my daily time was allocated to something so small yet so wholesome and potentially impactful” (EL11CO). Another individual expressed that “without deliberately performing acts of kindness, [they] felt like [they were] missing something that day” (LO06EL). Participation in the study also prompted introspection for some participants, fostering a sense of purpose and reminding them of their worth. This was reflected by a participant who wrote, “It’s a reminder to me that I’m not a failure and I can be different than what people expect of me and I can be kinder than others have been to me” (DE02DE). Engagement in DAKs allowed individuals to find purpose and meaning in everyday acts.

Enhanced Social Connection. The majority of participants emphasized feelings of enhanced social connection as a result of engaging in DAKs. One participant highlighted this when they wrote, “Kindness connects us. We are meant to be kind, and these universal laws

come from beyond our frailties” (WO01JE). This was echoed by another individual who wrote, “I felt more connected with my colleagues and with the other residents in my building. A summary [of my experience performing DAKs] would be I felt a sense of ‘community’ both at home and at work” (BA04NA). Feeling a “sense of community” was a common theme that came from participant quotes as many felt closer to those for whom they performed the DAKs. For example, one individual expressed that they felt “less alone and more like part of a happy community” (BU02JE) and another wrote that engaging in DAKs “somehow created a sense of belonging” (RI02TH). Individuals described connecting with others as an opportunity to “slow down” (e.g., WO01JE, SC05MO). This was underscored by one participant who wrote, “It [the DAK] brought us [partners] close together... and gave us a moment to connect and slow down and appreciate each other in different ways” (SC05MO). Another participant felt that the change of pace allowed them to reconnect with people (WO01JE). One individual described how engaging in DAKs helped them in “achieving a personal goal of greater social connection” (ZH01EI). Engagement in the kind acts allowed individuals to feel socially connected, fostering a sense of community.

Increased Awareness. A number of participants expressed an increased awareness as a result of participation in the study, with some describing this awareness in relation to engaging in everyday DAKs. This was expressed by one participant (CO12LE) who wrote:

Most of the random acts of kindness I already did on a regular basis (i.e., holding the door for people, smiling at strangers), although it did make me more aware of it, as I was always assessing what I could count to record.

This sentiment was echoed by another participant (BE11MA) who found it equally beneficial to reflect and log their DAKs daily, writing:

It [logging DAKs] also helped me acknowledge when I was doing something nice by reflecting on it at the end of the day. Although sometimes I would forget to do acts of kindness, reflecting on what I had done (i.e., holding the door, complimenting someone) made me realize that I do more nice things than I had originally thought.

One individual explained that they did not consider their DAKs as acts in the moment they were doing them. Instead, it was upon reflection when they recognized that they were “drawn to take the extra step” due to engaging in kind acts regularly (AM06CA). Many participants found that they were more aware of how their actions positively impacted others. This was underscored by one participant who wrote, “It made me much more aware of those around me and most of the time I felt very good having a positive impact on others' lives” (SC05MO). This was paralleled by another participant who found that participation in the study made them “more aware” of being kind to others on a daily basis (CO12LE). One participant highlighted, “Although I would do these things normally, having an increased sense of awareness of my positive impact on others has provided me a lot of insight” (MA08EI). Another participant (WO01JE) overtly noted feelings of gratitude for participating in the study as it allowed them to recognize the connection between DAKs and wellness, writing:

Thank you for helping me to realize how kind action and wellness fit together. I was usually aware of this, but the study helped me to see that I do try, and I am making an effort, despite what I am perceiving/feeling.

A few individuals expressed becoming more aware of kindness being offered towards them. One participant underscored this, writing, “I have started to notice the kind things people are doing for me” (RE12SH), while another participant emphasized the belief that “kindness [is] return[ed] to us” (WO01JE). One individual highlighted increased awareness through a shift in

perspective, writing, “Yesterday was a stressful day, so being able to reflect on these acts of kindness was nice to bring it all into perspective” (LO06EL). Participation in the study reportedly helped individuals become more aware of the impact DAKs can have on others, as well as themselves.

Positive Empathy. Positive empathy was a phenomenon described by many participants and is understood as the shared experience of positive emotions (Morelli et al., 2015). This finding was illustrated by one individual who wrote, “It truly fills my heart with happiness when you see how other people are positively affected by your acts of kindness” (BR09CA). Another participant paralleled this comment, writing, “The acts of kindness that I performed today were more personal and provided me with instant gratification upon seeing the effects of my actions” (RE12SH). Seeing the positive impact of their DAKs improved participants’ mood and increased their happiness as highlighted by one participant who wrote, “Performing these acts brightened my mood because I saw the reaction on the recipients’ faces. Seeing their surprised and happy reactions to the acts I performed made me feel like I made a difference in their day” (FO09JE). For some participants, seeing receivers’ responses to their DAKs was enough for them to feel content, while others found that “just hearing the words ‘thank you’ were enough... to feel satisfied” (BO01JE) that they had done something good for someone else. Seeing the receivers’ reactions to the DAKs prompted feelings of happiness, as emphasized by one participant who wrote, “It made me happy because they were really happy when I did those actions” (TR01MA). Positive empathy was reportedly experienced by many and seemingly contributed to improved mood, happiness, and was overall substantially impactful.

Recognition that Small DAKs can be Impactful. A large number of participants recognized that small DAKs can have a significant impact. Though many kind acts were

simplistic in nature, participants found them to be effective nonetheless, as highlighted by a participant who wrote, “I think good deeds don’t have to be grand gestures and there is so much beauty in small acts of kindness!” (BR09CA). Others found that small DAKs had the potential to make a difference in the lives of those on the receiving end. This was underscored by one participant who wrote, “My acts of kindness... were sort of inspired by putting myself in others’ situations and realizing that sometimes very small acts can make others, as well as yourself, feel better” (AM06CA). Another participant recognized that “you never know how much of a difference a small act can make” (SA04MA). Individuals described feeling encouraged by the impact of their small DAKs as underscored by one participant who shared, “It is encouraging to see their [the receivers] happiness from the small actions I complete. It has shown me that it does not take a whole lot to make someone else's day a little better” (MA08EI). This was paralleled by another participant (SC05MO) who wrote:

Today I was only able to find small acts of kindness – holding the door, holding the elevator, giving a small tip, and smiling. ...I realized that acts of kindness don’t need to be grand to be kind. I keep thinking that I need to do something big or meaningful to make an impact, but [the above] examples made me feel less pressure to constantly focus on finding people that may need a big gesture and instead giving everyone a small piece of kindness.

Participants described a recognition that small DAKs should not be mitigated as they have the potential to significantly impact the lives of other people, as well as their own.

DAKs Felt Effortless. Many participants felt that the DAKs they performed came to them with ease, required minimal effort, and would be things they would normally do without enrollment in a study. Illustrating this finding is a quote from one individual who wrote, “All of

the acts of kindness I performed came naturally and were things I would hope others would do for me/my family” (AM06CA). Participants also noted that they were unintentionally performing DAKs as a direct result of participation in the study. This was explained by one participant who wrote, “These kindness acts make me realize that I do them [DAKs] almost daily without being conscious about them” (MA02SA). Another participant wrote, “I’ve noticed that since starting the study, I have been doing small acts every day either consciously or unconsciously” (BE11MA). Individuals explained that they felt that their DAKs were effortless or were not outside the norm of their regular actions.

Challenges Regarding DAKs (Logging, Participating, DAKs had Little/No Effect, DAKs had Negative Effect). While the majority of participants expressed having an overall positive experience participating in the study, some expressed challenges regarding logging and participating in DAKs, as well as the acts having little/no effect or a negative effect. A number of participants expressed difficulty finding the time to log the DAKs they completed each day. This finding was represented by one participant’s entry, which read, “[It was] extremely trying to enter info daily. I didn’t think it would be, but it was difficult to find time even though it doesn’t take long” (KR09MC). Another individual emphasized that their schedule was quite “busy” and logging the acts “added some stress” (BE11MA). Some participants found it challenging to recall the DAKs they completed each day and, at times, would forget to log their acts completely. This was highlighted by a participant who wrote, “...I wish I was more consistent with my logs. There were days where I would do deliberate acts of kindness and then forget to log them completely” (MA08EI).

In addition to challenges participants experienced logging their DAKs, some also experienced frustration participating in the DAKs. The difficulties that individuals experienced

while engaging in the DAKs appeared to be situation specific. One individual expressed challenges participating fully in the study due to having a “broken leg” which prevented them from the physical acts they had wished to do (ZH03YA), while another participant described their struggle with “clinical depression” and found that some days engaging in DAKs was more trying than beneficial (SC05MO). One participant found it difficult to engage in kind acts when feeling “mentally exhausted” (LI05HO) and another individual expressed concern regarding the authenticity of the acts, writing, “...altering my behaviour from day to day seem extrinsic. Documenting my good deeds felt ingenuine” (ST08DE). Time, or lack-there-of, was described as a barrier to fully participating in the study, as some participants felt as though they were too busy to engage in DAKs, or that engaging in the acts was “time consuming” (BA04NA). One individual specified fatigue as a challenge to participating fully, writing, “When tired myself, it's hard to extend myself” (MI10FA). Some participants described engaging in DAKs as being difficult, as underscored by one individual who wrote, “I think that it was hard to be kind – it's natural to offer support to someone when they are facing difficulties, but it's also hard to deal with the emotional baggage that arises” (ZH01EI). Others found the DAKs they engaged in had little to no effect on them. This was mainly attributed to the acts being things in which individuals would typically engage. One participant highlighted this when they wrote, “Some of these are things that I would typically do (e.g., holding the door or smiling at people), so I didn't notice any difference in my demeanor” (BA04NA). Other individuals reported that the acts had a minimal impact on them due to the fact that they were not able to see the recipients' reactions (MA08EI) or because they feel better when they are the recipient, versus giver, of kindness (TA01QI).

Though minimal and situation specific, some participants described their experiences participating in the DAKs to be negative. One participant found that deviating away from their normal routine to engage in kind acts “caused more issues than it did benefits” (DE02DE). While another participant was concerned about the response to their actions, writing, “Sometimes I felt like I had made the person uncomfortable and felt bad about it” (PR04LI). One participant also expressed cultural challenges to engaging in DAKs, as they found that their kind acts did not translate well between cultures (TA01QI). Though some participants expressed concern regarding logging and participating in DAKs, as well as the acts having little/no or negative effect, the majority of participants’ experiences were positive.

3-Months Post-Intervention. Participant responses as to how the study impacted their life at 3-months post-intervention yielded two themes and two subthemes: (1) continued engagement in DAKs and (2) increased awareness (actions, self).

Continued Engagement in DAKs. When asked how their experience in the study influenced their lives, participants expressed continued engagement in DAKs post-intervention. This was emphasized by one individual who wrote, “I try to be kind to others whenever I have the opportunity” (SA04MA). Another participant paralleled this comment explaining how they “started to do more kinder things on a daily basis”, which consequently made them feel better (TR01MA). The feeling of improved wellbeing was common among participants and the primary reason for continuing to engage in DAKs, as underscored by one participant who wrote, “I have found myself making more of an effort to help others in small ways because my experience showed me that it improves my mood a lot, and helps me appreciate the things around me more” (SC05MO). Another participant echoed this comment writing that they enjoyed the feeling that came from participating in DAKs and found that they were “looking for

little ways to do random acts of kindness even after the study” (BO01JE). Some participants provided examples of DAKs that they continued engaging in including “writing positive things about [their] day” (BE11MA) and “greeting [their] bus driver” (BA04NA). The participant who continued to greet the bus driver stated, “I sometimes did it before, but now when I step onto the bus I think of the RAK [random acts of kindness] days and it encourages me to give greetings regardless of the study being over.” One individual described that participating in the study has given them courage, writing, “It [the study] has given me more courage to do things I wouldn’t usually go out of my way to do” (PR04LI). Another individual reflected on the impact that logging their DAKs had on their life, writing, “...actually tracking what I did each day made me realize how infrequently I ordinarily reach out to others. So it motivated me to do better” (LE06LA). As described in the quotes above, many participants expressed continuing the practice of engaging in DAKs, which consequently improved their mood and overall wellbeing.

Increased Awareness (Actions, Self). Many individuals reported that participating in the study impacted their lives as it fostered an increased awareness. Some participants were more aware of how their actions impacted others, while other participants described experiences of increased self-awareness. One participant stated, “I am a little more mindful of how my actions impact others, and I understand the importance of helping people and look for opportunities to brighten their day” (MA08EI). This quote underscores an external awareness, which was paralleled by another participant who wrote, “This study helped me to be more conscious of my actions. It also helped to illuminate the fact that what I say and what I do has the potential to impact others and myself in interconnected ways” (SP04MA). Some participants’ increased awareness prompted continued engagement in kind acts due to the potential to positively impact another person. This was highlighted by one individual who wrote, “It [being in the study] has

reminded me to always be conscious in my actions towards others and... to always make an effort to help others more” (HO12CH). Another individual paralleled this comment expressing that “it [being in the study] has made [them] more attentive of the kind acts they do each day”, which has consequently served as a reminder for them to be kind even when experiencing a poor mood (LE04DE). The relationship between size and magnitude of kind acts in terms of increased awareness was highlighted by one participant writing, “This study has made me aware of the positive impacts, big and small, of acts of kindness. It has helped me become more content and proud of even the littlest things” (LE06EL).

While many participants described increased awareness in terms of the impact of their actions, others discussed an awareness of self. While DAKs are typically focused on the receiver, one participant’s entry emphasized the impact that performing the kind acts can have on oneself. They wrote, “It [being in the study] has definitely opened my eyes more to what performing random DAKs can do for the person performing it” (BO01JE). Other individuals underscored that participating in the study led them to being more aware of their mood. This was highlighted by one participant who wrote:

It [participating in the study] made me feel far more conscious about my moods and reactions, and thus allowed me to measure myself more carefully and become more aware of when I needed a break from work or socializing, or when I would benefit from talking to friends and family (WI08KE).

Another participant echoed this, writing, “It [participating in the study] has made me more wary of my mood and how events influence my mood” (ZH03YA). As a result, this participant “learned to put together methods” to manage their mood and implement self-care

practices. Participants described an increase in their awareness both intrinsically (i.e., personal gain) and extrinsically (i.e., others-focused).

Chapter 4: Discussion

The KISS of Kindness II study aimed to investigate the impact of engaging in daily DAKs for one month on the stress-related outcomes of resilience, social interaction anxiety, affect, and mood of undergraduate and graduate students, and to explore their experience participating in the study. As hypothesized, intervention group participants experienced increased resilience, reduced social anxiety and negative affect, and described improvements in mood. Specifically, there was a significant difference in resilience within the intervention group between baseline and 3-months post-intervention and immediate and 3-months post-intervention. Participants' resilience increased, with the largest changes appearing to occur post-intervention. It is possible that participants built their resilience over time via engagement in DAKs. Crann and Barata (2016) state that individual differences and contextual and environmental factors influence one's response to stress. Given that the intervention occurred during the midterm examination period – a time that is typically stressful for students – participants may have enhanced their resilience by engaging in DAKs to cope with their stress. As a result, it would be expected that participants' increase in resilience would be delayed. In contrast, participants' social anxiety declined, with the largest changes occurring during the intervention. Specifically, there was a significant difference between baseline and immediate post-intervention and baseline and 3-months post-intervention. The reduction in social anxiety during the intervention suggests that engagement in DAKs had more of an immediate impact on participants' levels of social anxiety, than it did on resilience. This seems appropriate given that the DAKs participants submitted typically involved some form of human interaction, wherein social anxiety could be present. Daily engagement in DAKs might have allowed participants to experience successful social interactions thus reducing their social anxiety, and making the action more habitual than

anxiety provoking. This interpretation is consistent with participants' responses, as a number of individuals stated that they engaged in acts that they wouldn't normally partake in due to fear or discomfort engaging with others.

In addition to what has been noted above, intervention group participants experienced a statistically significant decrease in negative affect between immediate and 3-months post-intervention. While this change occurred post-intervention, there is no way of knowing if it was a result of the intervention or if individuals continued engaging in DAKs post-intervention. We hypothesize that it may be the latter, as many participants indicated continual engagement at 3-months post-intervention. The decline in negative affect as a result of engaging in DAKs is consistent with findings from Pressman and colleagues (2015), who found that a brief 'pay it forward' intervention benefitted participants by decreasing their negative affectivity. Interestingly, there was also a statistically significant difference for negative affect within the control group from baseline to 3-months post-intervention. While the intervention group demonstrated a decrease in negative affect, the control group showed a significant increase. Moreover, there was a statistically significant difference for mood within the control group, specifically on the Negative-Relaxed sub-scale. There was a significant increase between baseline and immediate post-intervention and baseline and 3-months post-intervention. The Negative-Relaxed sub-scale is often abbreviated to Negative Affect (Mayer & Gaschke, 1988). As such, the findings from the Negative-Relaxed sub-scale are in accordance with that of negative affect sub-scale from the I-PANAS-SF, as the results from both indicated an increase in negative affect for the control group from baseline to 3-months post-intervention. It is possible that the experience of increased resilience as a result of the intervention group's engagement in

DAKs served as a buffer to the stress and anxiety typically associated with exam-time, and the control group's allocation meant that they did not end up having the benefit of this buffer.

Using Self-Determination Theory (SDT; Deci & Ryan, 2008; Ryan et al., 2008) to help explain and interpret the current study's findings, it is possible that the reduction in social anxiety and negative affect and improvement in mood might be attributed to participants' autonomous motivation. Autonomous motivation is one of two types of motivation central to SDT and it occurs when an individual personally values a health behaviour/practice (Deci & Ryan, 2008; Ryan et al., 2008). While autonomous motivation has led to improved mental health and wellbeing, controlled motivation is the main reason individuals engage in behaviour change (Ryan et al., 2008). Individuals who possess controlled motivation act strictly to receive an external award, gain approval, comply with social pressures, or avoid feelings of guilt (Deci & Ryan, 2008; Ryan et al., 2008). Controlled motivation does not facilitate long-term adherence and can result in low psychological wellbeing, poor mental and physical health, and high distress (Kasser & Ryan, 1996; Ng et al., 2012; Ryan et al., 2008); however, it remains the dominant motivation for behaviour change. Interventions that target individuals' personal values and evoke their intrinsic motivations are not only more successful but are also associated with greater health benefits (Deci & Ryan, 2008; Kasser & Ryan, 1996; Miquelon & Vallerand, 2008; Ng et al., 2012). An individual who is intrinsically motivated finds enjoyment in the behaviour itself (Ng et al., 2012). Intrinsic goals/aspirations satisfy basic psychological needs and can include the construct 'community feeling (helpfulness)', where individuals aim to improve the world through their work in activism and generativity (Kasser & Ryan, 1996; McAdams, 1992; Slater, 2002). To do this, they seek to positively affect the larger social community by engaging in prosocial behaviours (Deci & Ryan, 2008; Kasser & Ryan, 1996; Weinstein et al., 2009). Such

prosocial behaviours may include DAKs and are associated with healthy development (Ng et al., 2012), enhanced wellbeing (Deci & Ryan, 2008; Miquelon & Vallerand, 2008), and are negatively correlated to distress (Kasser & Ryan, 1996). Consistent with the SDT, participants in the current study may have been autonomously motivated through participation in DAKs – an intrinsic goal/aspiration – consequently resulting in reduced social anxiety and negative affect, improved mood, and enhanced wellbeing. Individuals who possess autonomous motivation and enjoy engaging in the behaviour are often intrinsically motivated to perform it (Deci & Ryan, 2000). This might help to explain participants' desire to continue engaging in DAKs post-intervention, a phenomenon that was also found in a study by Paviglianiti and Irwin (2017).

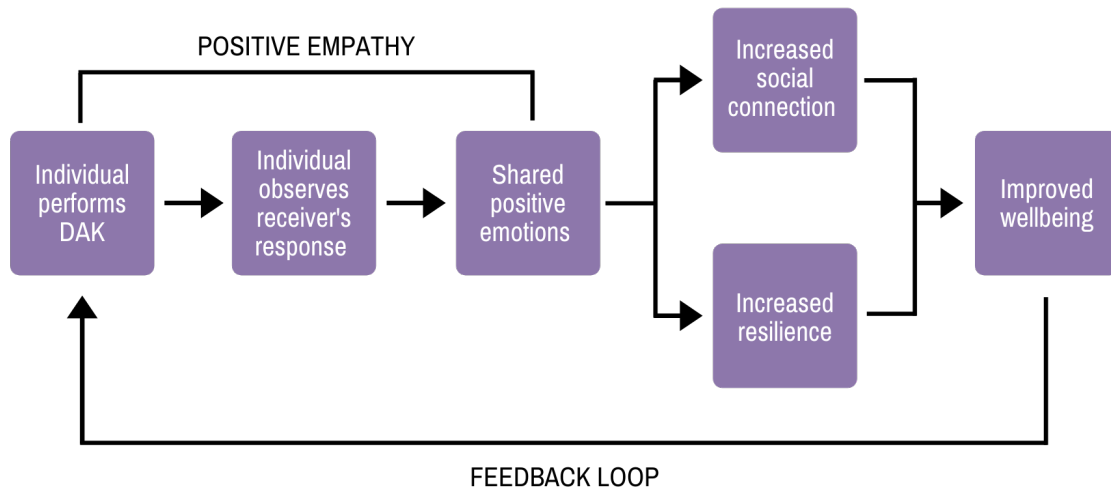
Many intervention group participants in the current study expressed the benefit of seeing and sharing the reactions of the DAKs receivers. This mutual engagement in positive emotion is termed positive empathy and is thought to reinforce prosocial behaviour (Morelli et al., 2015). Two previous studies found that individuals were more likely to help someone else if they saw the reaction of the recipient (Batson et al., 1991; Smith et al., 1989). This phenomenon can be experienced across all ages, as Akinin and colleagues (2012) found that toddlers were happier when they witnessed the positive reactions of giving treats to others, compared to receiving the treats themselves. This observation is consistent with the current study, as participants stated that they experienced gratification, improved mood, and increased happiness upon seeing the positive reactions of their DAKs receivers. Positive empathy is also associated with generosity and helpfulness (Morelli et al., 2015), which are two constructs that can be encapsulated within DAKs. This might aid in explaining why helping others was central to participants enjoyment in the study, as positive empathy can make engaging in prosocial acts (e.g., helping others) feel more rewarding (Morelli et al., 2015). Further, intervention group participants experienced

enhanced social connection as a result of engaging in DAKs. There is a correlation between positive empathy and strengthened relationships, suggesting that positive empathy might reinforce feelings of social closeness (Gable et al., 2004, 2006; Morelli et al., 2015). This notion is supported by the current study, as many participants described experiences of positive empathy and enhanced social connection. Specifically, participants described feeling a sense of belonging and experiencing less feelings of loneliness. This is consistent with a study that found a positive correlation between positive empathy and social connection, and a negative correlation between positive empathy and loneliness (Morelli et al., n.d.). While other researchers in the field of kindness did not describe a relationship between positive empathy and social connection, the association between acts of kindness and social connection was found in a number of studies (Otake et al., 2006; Paviglianiti & Irwin, 2017; Pressman et al., 2015). Paviglianiti and Irwin (2017) found that random acts of kindness facilitated social connections, noting that participants described experiencing a sense of belonging, similar to the present study. Additionally, Pressman and colleagues (2015) highlighted the role of the ‘other people matter’ effect, as described by Peterson (2006) in relation to positive psychology and social connectedness. The ‘other people matter’ effect has been used to explain the association between social connections and improved health (House et al., 1998; Pressman et al., 2015). Participants in the current study’s DAKs intervention described feelings of social connectedness and experienced decreased social anxiety and negative affect (i.e., improved health). These findings are consistent with what has been found in previous literature and can be explained by the ‘other people matter’ phenomenon (House et al., 1998; Pressman et al., 2015). Though there is evidence to support the relationship between social connection and positive empathy, it is not the only related construct. The shared positive affect (i.e., positive empathy) experienced between individuals might strengthen their

resilience to cope with stressful life experiences (Cohn et al., 2009; Morelli et al., 2015). This finding is consistent with the present study as individuals who engaged in acts of kindness experienced a significant improvement in resilience. This change in resilience might be attributable to the positive empathy experienced by participants. Morelli and colleagues (2015) suggest that social connection coupled with resilience might result in improved wellbeing for the empathizer (i.e., individual engaging in DAKs) and, in turn, encourage them to continue engaging in prosocial behaviours that reinforce positive empathy. This relationship might be conceptualized as a feedback loop (as depicted in Figure 6) to help explain participants' motivation to continue engaging in DAKs post-intervention. Further, the improved wellbeing (i.e., improved stress management, mood, wellbeing, and self-esteem) reported by participants is not uncommon in kindness research (Curry et al., 2018; Raposa et al., 2016; Rowland & Curry, 2019). Morelli and colleagues (2015) also hypothesized that positive empathy might be negatively correlated with social anxiety. It is plausible that participants in the present study engaged in DAKs, experienced positive empathy, and consequently had a significant reduction in social anxiety. As such, positive empathy might be negatively correlated with social anxiety, thus positioning the prosocial behaviour of DAKs as an effective mental health intervention.

Figure 6

Feedback Loop for Positive Empathy via Deliberate Acts of Kindness (DAKs)



Note. This feedback loop hypothesizes the possible relationship between performing a deliberate act of kindness (DAK) and improved wellbeing via positive empathy. When an individual performs a DAK and observes the receiver's reaction to be positive, the two individuals share positive affect – this is termed positive empathy. Positive empathy can increase feelings of social connection between the individuals, as well as increase the resilience of the DAK giver, ultimately buffering against stress and improving their overall wellbeing. The DAK giver's feeling of improved wellbeing might prompt them to continue engaging in DAKs.

Limitations and Future Directions

While intervention group participants experienced increased resilience, reduced social anxiety and negative affect, and described improvements in mood, the KISS of Kindness Study II is not without limitations. First, the total number of individuals that consented to participate in the study was less than the desired amount and analyses by level of study (undergraduate/graduate) was not feasible. Due to the intervention timeframe and the academic calendar, recruitment ended prior to reaching the desired sample size. Next, it is difficult for us to know if the effect of the intervention was due to the intervention itself, as there were a number of participants who identified as receiving medication for stress, anxiety, or mood ($n = 28$) and/or therapy or counselling ($n = 29$). While there were no differences in these variables between groups, it is still important to note that ours was not the only stress-related intervention in which some participants were engaging. To avoid the possibility of this occurring in the future, researchers might want to exclude individuals receiving medication and/or therapy from their eligibility criteria. Thirdly, there were a number of participants who expressed challenges engaging in the requested three DAKs per day, with the time commitment involved being the biggest barrier. Determining the ideal dosage of positive activities (e.g., DAKs) has been noted in previous kindness-related research, as the optimal dosage is dependent on each individual (Lyubomirsky & Layous, 2013). That said, we chose three DAKs/day based on it being more than one but not too many to be unruly. This decision was based, largely, on Rowland and Curry's (2019) finding of a positive correlation between the number of acts of kindness one does and happiness. Despite this, some participants still found three DAKs too many. This may be explained, in part, by the reality that not all DAKs were equally time-consuming and/or meaningful (e.g., opening the door for someone and making a meal for someone each counted as

one DAK, but the dosage may not be equivalent in terms of meaning/impact/time). Future research in this area might avoid this challenge by allowing participants to select a dosage suitable to their needs. Another limitation was the fact that there were a few negative comments about the intervention and one negative case. While a few participants described some negative experiences associated with engaging in DAKs, only one would be considered a “negative case”, described by Patton (1999) as participants whose responses fell outside of what others reported. While this singular negative case did not create any meaningful differences in the findings, it can help to understand a disparate view by this individual and, potentially, other members of a larger population (Patton, 1999). The one participant who described a consistently negative experience cited cultural differences as the root of their displeasure engaging in DAKs. Future studies might consider investigating the impact of DAKs within and between cultures to help address this challenge. Further, participants in the control group expressed challenges regarding accessing the stress and relaxation management booklet. To maintain the integrity of the control group condition, participants were not directly provided with the study resource; however, it was made available to them through the host-institution’s Wellness Education Centre’s website, which is how all registered students are typically offered this resource. Another study limitation was the fact that the OWL webpage created to connect intervention group participants may have served as its own intervention. That said, the likelihood of this is low given the lack of participant engagement (i.e., less than 10%) on the webpage. For researchers who wish to incorporate this component in future studies, utilizing a more common social media platform (e.g., Facebook) might garner higher participant interest and involvement. Additionally, all of the tools used were self-report measures, thus lending themselves to social desirability bias. To counter this, *honest demands* were employed (Bates, 1992). Further, there was a significant difference between

questionnaire completion and group at immediate post-intervention, consequently lowering the sample size which can negatively impact the results (i.e., smaller sample size can increase standard error and overinflate effect size; Hackshaw, 2008). Additionally, the mixed model ANOVA revealed a significant decrease in questionnaire completion across the three time points for the entire sample. To combat this, mixed-effects modelling can be used when attrition is high and there are data missing because it uses a maximum likelihood solution that does not require complete data. This is beneficial as participants that are missing data (e.g., those who did not complete the post-intervention questionnaires) are not discarded. Additionally, participants who did not complete the immediate post-intervention questionnaire were primarily from the intervention group. The difference in questionnaire completion between groups is known as differential nonresponse (Foster & Bickman, 1996; Lavrakas, 2008). This may be due to, what has been termed, ‘unobserved characteristics’ within the intervention group (Foster & Bickman, 1996; Mason, 1999). Unobserved characteristics of the intervention group within the present study might have been lack of time to complete the DAKs and thus not responding at follow-up, and/or interfering mental health challenges. Future studies should consider additional approaches for recruiting a larger sample, such as collaborating with administrative units in order to recruit students, via email, prior to the start of the school year, as this would help mitigate the impact of high attrition. Lastly, while we contend that the open-ended questions asked of participants at the follow-up time-points helped to understand experiences associated with being in the study, the lack of a true qualitative methodological approach, such as interviews or focus groups, meant that probing deeper into responses was not possible. In future, researchers should consider designing studies that incorporate interviews or focus groups in order to provide richer information about participants’ experiences.

Conclusions

The KISS of Kindness Study II has shown promise regarding the impact of DAKs on the stress-related outcomes of resilience, social interaction anxiety, negative affect, and mood of undergraduate and graduate students. Specifically, intervention group participants experienced increased resilience, reduced social anxiety and negative affect, and described improvements in mood. The findings from this study are grounded in the SDT (Ryan et al., 2008) and the phenomenon of positive empathy (Morelli et al., 2015), positioning DAKs as a theoretically sound and effective method to improve health and wellbeing among university students. Findings from this study should be used to inform a seemingly cost-effective mental health program for university students using DAKs as intrinsic motivation for behaviour change.

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Appendix A – Ethics Approval Notice



Date: 16 July 2019

To: Dr. Jennifer Irwin

Project ID: 114103

Study Title: Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect, and Mood – The Kiss of Kindness Study II

Application Type: HSREB Initial Application

Review Type: Delegated

Meeting Date / Full Board Reporting Date: 06/Aug/2019

Date Approval Issued: 16/Jul/2019

REB Approval Expiry Date: 16/Jul/2020

Dear Dr. Jennifer Irwin

The Western University Health Science Research Ethics Board (HSREB) has reviewed and approved the above mentioned study as described in the WREM application form, as of the HSREB Initial Approval Date noted above. This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained prior to the conduct of the study.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
The Kiss of Kindness II - Eligibility, Consent, ID - Revised June 27	Online Survey	27/Jun/2019	2
The Kiss of Kindness II - Kindness Log - Revised July 6	Other Data Collection Instruments	06/Jul/2019	3
The Kiss of Kindness II- Research Protocol - May 29	Protocol	29/May/2019	1
The Kiss of Kindness Study II - 3-Month - May 29	Online Survey	29/May/2019	1
The Kiss of Kindness Study II - Immediate - May 29	Online Survey	29/May/2019	1
The Kiss of Kindness Study II - Kindness Ideas - July 6	Other Data Collection Instruments	06/Jul/2019	2
The Kiss of Kindness Study II - LOI - Revised July 6	Written Consent/Assent	06/Jul/2019	3
The Kiss of Kindness Study II - Mass Email - Revised July 6	Email Script	06/Jul/2019	2
The Kiss of Kindness Study II - Mass Email - Revised July 6	Recruitment Materials	06/Jul/2019	2
The Kiss of Kindness Study II -Baseline - May 29	Online Survey	29/May/2019	1
WEC Relaxation and Stress Management Booklet	Other Data Collection Instruments	16/May/2019	1

Documents Acknowledged:

Document Name	Document Type	Document Date	Document Version
The Kiss of Kindness II - Rationale References	References	17/May/2019	1

No deviations from, or changes to, the protocol or WREM application should be initiated without prior written approval of an appropriate amendment from Western HSREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University HSREB operates in compliance with, and is constituted in accordance with, the requirements of the TriCouncil Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2); the International Conference on Harmonisation Good Clinical Practice Consolidated Guideline (ICH GCP); Part C, Division 5 of the Food and Drug Regulations; Part 4 of the Natural Health Products Regulations; Part 3 of the Medical Devices Regulations and the provisions of the Ontario Personal Health Information Protection Act (PHIPA 2004) and its applicable regulations. The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Patricia Sargeant, Ethics Officer (██████████) on behalf of Dr. Philip Jones, HSREB Vice-Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Appendix B – Clinical Trial Registration

ClinicalTrials.gov PRS
Protocol Registration and Results System

ClinicalTrials.gov Protocol Registration and Results System (PRS) Receipt

Release Date: October 14, 2019

ClinicalTrials.gov ID: NCT04013451

Study Identification

Unique Protocol ID: 114103

Brief Title: The Kiss of Kindness Study II

Official Title: Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect, and Mood

Secondary IDs:

Study Status

Record Verification: October 2019

Overall Status: Active, not recruiting

Study Start: September 27, 2019 [Actual]

Primary Completion: February 2020 [Anticipated]

Study Completion: February 2020 [Anticipated]

Sponsor/Collaborators

Sponsor: Western University, Canada

Responsible Party: Principal Investigator

Investigator: Jennifer Irwin [jirwin]

Official Title: Full-time Professor, Faculty of Health Sciences

Affiliation: Western University, Canada

Collaborators:

Oversight

U.S. FDA-regulated Drug: No

U.S. FDA-regulated Device: No

U.S. FDA IND/IDE: No

Human Subjects Review: Board Status: Approved

Approval Number: 114103

Board Name: Health Sciences Research Ethics Board (HSREB)

Board Affiliation: Western University

Phone: [REDACTED]

Email: [REDACTED]

Address:

Office of Human Research Ethics

Western University
London, Ontario, Canada, N6G 1G9

Data Monitoring: No
FDA Regulated Intervention: No

Study Description

Brief Summary: The objective of this study is to assess the impact of engaging in deliberate acts of kindness on resilience (primary outcome); social interaction anxiety and affect (secondary outcomes); and mood (exploratory outcome) of undergraduate and graduate students at Western University (UWO). Recruitment of 200 participants consisting of 150 full-time undergraduate and 50 graduate students, randomized to either the intervention (n=100) or control group (n=100) will be achieved via a mass email to all full-time students at UWO. Both intervention and control groups will receive an email with access to a relaxation and stress management booklet from UWO's Wellness Education Centre (<http://studentexperience.uwo.ca/docs/RelaxationAndStressManagement.pdf>). In addition, the intervention group will be asked to (1) complete and log/submit a minimum of three deliberate acts of kindness per day for one month, and (2) join the study-dedicated online site to connect with, support, and share experiences and ideas with each other around acts of kindness. Individuals in the intervention group will also receive a list of deliberate acts of kindness ideas, for reference. Baseline, immediate post intervention, and three-months post intervention data will be collected using previously validated questionnaires associated with each outcome of interest, and posted to Qualtrics, an online survey tool. Additionally, immediately following the intervention and 3 months post intervention all participants will complete an open-ended question asking them to describe their overall experience being involved in the study. Quantitative and qualitative data analysis will occur upon the completion of the study.

Detailed Description: Poor mental health is a significant public health concern that disproportionately affects university students, compared to their community counterparts, and stress is a main culprit. Although privileged in terms of attending higher education, the stress-related inequity experienced among university students stems from "academic load, constant pressure to succeed, competition with peers, financial burdens, and peer, teacher or parental pressure". These stressors can trigger or exacerbate anxiety levels, which are on the rise among students. The most recent National College Health Assessment Survey, which included Canadian postsecondary institutions, showed a marked increase in student anxiety between 2013 to 2016. Although less studied than undergraduates, graduate students' mental health also is worrisome with over 60% feeling exhausted, overwhelmed, hopeless, and/or depressed nearly all of the time. It is imperative that evidence-informed approaches to enhance resilience and reduce the negative mental health experiences of undergraduate and graduate students be implemented and evaluated. Although improving resilience and overall mental health is a growing focus across campuses, current programming is clearly unable to address the concern in its entirety, and additional interventions are required.

An emerging and promising approach to promoting positive mental health and resilience among secondary students is performing acts of kindness. Arguably, performing acts of kindness improves mental health through the strengthening of psychological resilience. Resilience, as an outcome, is predicated on six underlying dimensions: health, collaboration, purpose, composure, reasoning, and tenacity. In terms of health and collaboration, a small classroom-based kindness pilot entailing logging acts of kindness by undergraduate students at

Western University (UWO), found improvements in individual levels of wellbeing (i.e. confidence and decreased stress), perceptions of positive classroom culture, and classroom cohesion. Performing acts of kindness is correlated with happiness which results in a positive sense of purpose, increased composure, and improved reasoning and resilience. Moreover, the physiological effects are well-known as functional magnetic resonance images (fMRIs) show activation in the reward centres of the brain when subjects are engaged in acts of kindness. Despite the strong theoretical foundation that links acts of kindness with resilience, this area of research has yet to be sufficiently explored. To that end, the objective of this study is to assess the impact of engaging in deliberate acts of kindness on resilience (primary outcome); social interaction anxiety and affect (secondary outcomes); and mood (exploratory outcome) of undergraduate and graduate students at UWO.

Methods

Study Design

A longitudinal repeated-measures, mixed methods randomized control trial grounded in an interpretive description paradigm will be used. Interpretive description is an inductive analysis approach that creates ways of understanding phenomena yielding application-based implications for practice. Recruitment of 200 participants consisting of 150 full-time undergraduate and 50 graduate students, randomized to either the intervention (n=100) or control group (n=100) will be achieved via a mass email to all full-time students at UWO once ethical approval is obtained and the trial is registered. This sample size was selected considering two criteria: 1) based on our previous work in the area the sample size is feasible; and 2) from a power analysis using resilience as the primary outcome, a sample of 100 per group is sufficient to detect significant differences between groups ($p < 0.05$). Participants will be eligible if they are: (a) full-time undergraduate or graduate students at UWO and/or the affiliate schools (Kings, Brescia, Huron) and (b) English-speaking. Both intervention and control group participants will receive an email with access to a relaxation and stress management booklet from UWO's Wellness Education Centre. In addition, the intervention group will be asked to (1) complete and log/submit a minimum of three deliberate acts of kindness per day for one month, and (2) join the study-dedicated online site to connect with, support, and share experiences and ideas with each other around acts of kindness. Deliberate acts of kindness will be defined for participants as purposeful acts benefitting others that the others would presumably like.

Data Collection/Metrics

Baseline, immediate post intervention, and three-months post intervention data will be collected using Qualtrics, an online survey tool. Baseline will consist of basic demographic information, and four previously validated scales: (1) Brief Resilience Scale (BRS); (2) Social Interaction Anxiety Scale-Straightforward (SIAS-S); (3) International Positive and Negative Affect Schedule-Short Form (I-PANAS-SF); and (4) Brief Mood Introspection Scale (BMIS). The assessments will take 15-minutes to complete. After the completion of the baseline assessment participants will be randomized using stratification by degree level (i.e., undergraduate or graduate). Immediately following the intervention and 3 months post intervention all participants will complete the same assessments administered at baseline (minus demographics) with the addition of an open-ended question asking participants to describe their overall experience being involved in the study.

Data analysis

Data analysis will occur upon the completion of the study and quantitative data analysis will initially involve computing measures of central tendency and dispersion as well as the computation of the validated scales. Next, general

linear models will be used to examine both differences between groups and overtime. For the qualitative data, inductive content analysis using interpretive description will be conducted independently, and simultaneously by two researchers who will subsequently meet, upon the completion of analysis, to determine agreement in emerging findings. Statistical Package for Social Sciences (SPSS) will be used for quantitative analysis and QSR International NVivo software will be used to code and categorize qualitative data. Knowledge Translation will involve both traditional mechanisms (publications/conferences) and engagement with social media (infographics, youtube videos).

Conditions

Conditions: Anxiety
 Stress
 Mood
 Affect

Keywords: kindness
 social interaction anxiety
 mood
 affect
 resilience
 undergraduate students
 graduate students

Study Design

Study Type: Interventional
 Primary Purpose: Treatment
 Study Phase: N/A
 Interventional Study Model: Parallel Assignment
 Number of Arms: 2
 Masking: None (Open Label)
 Allocation: Randomized
 Enrollment: 112 [Actual]

Arms and Interventions

Arms	Assigned Interventions
Experimental: Intervention Group Participants allocated to the intervention group will participate in the intervention (acts of kindness).	Behavioral: Acts of kindness Both intervention and control groups will receive an email with access to a relaxation and stress management booklet from Western University's (UWO) Wellness Education Centre (http://studentexperience.uwo.ca/docs/RelaxationAndStressManagement.pdf). In addition, the intervention group will be asked to (1) complete and log/submit a minimum of three deliberate acts of kindness per day for one month, and (2) join the study-dedicated online site to connect with, support, and share experiences and ideas with each other around acts of kindness.
No Intervention: Control Group	

Arms	Assigned Interventions
Participants allocated to the control group will not participate in the intervention and will act as the comparison condition.	

Outcome Measures

Primary Outcome Measure:

1. Resilience (Brief Resilience Scale)

The Brief Resilience Scale (BRS) includes 6-items; items 1, 3, and 5 are positively worded and items 2, 4, and 6 are negatively worded. Participants will be asked the extent to which they agree or disagree with the statements using a 5-point scale; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The BRS is scored by reverse coding items 2, 4, and 6, such that 5 = strongly disagree, 4 = disagree, 3 = neutral, 2 = agree, and 1 = strongly agree. The mean of the six items is then determined to score the scale.

[Time Frame: Change from baseline resilience at immediate post-intervention and 3-month post-intervention]

Secondary Outcome Measure:

2. Social interaction anxiety (Social Interaction Anxiety Scale-Straightforward)

The Social Interaction Anxiety Scale-Straightforward (SIAS-S) includes 20 items assessing cognitive, affective and behavioural aspects of social interaction anxiety using a five-point scale; 0 = not at all, 1 = slightly, 2 = moderately, 3 = very and 4 = extremely. Participants will be asked to indicate the degree to which they feel the statement is characteristic or true to them. The SIAS-S uses reverse coding, such that items 5, 9 and 11 are reverse scored; however, they are not included in the total score. A total score of 28 or higher indicates probable social interaction anxiety.

[Time Frame: Change from baseline social interaction anxiety at immediate post-intervention and 3-month post-intervention]

3. Affect (International Positive and Negative Affect Schedule-Short Form)

The International Positive and Negative Affect Schedule-Short Form (I-PANAS-SF) includes 20 items from the Positive and Negative Affect Schedule (10 items = positive affect; 10 items = negative affect) using a five-point scale; 1 = very slightly or not at all, 2 = a little, 3 = moderately, 4 = quite a bit and 5 = extremely. Participants will be asked to indicate the extent they have felt the adjective over the past week. The positive affect score is obtained by adding the scores on items 1, 3, 5, 9, 10, 12, 14, 16, 17 and 19. The negative affect score is obtained by adding the scores on items 2, 4, 6, 7, 8, 11, 13, 15, 18 and 20.

[Time Frame: Change from baseline affect at immediate post-intervention and 3-month post-intervention]

Other Pre-specified Outcome Measures:

4. Mood (Brief Mood Introspection Scale)

The Brief Mood Introspection Scale (BMIS) is a mood-adjective scale that includes 16-items selected from eight mood states: (a) happy (happy, lively), (b) loving (loving, caring), (c) calm (calm, content), (d) energetic (active, peppy), (e) fearful/anxious (jittery, nervous), (f) angry (grouchy, fed up), (g) tired (tired, drowsy), and (h) sad (gloomy, sad). Participants will be asked to indicate how well each adjective or phrase describes their present mood. To score the BMIS, the numerical values from 1 to 4 are assigned to the Likert scale; 1 = definitely do not feel, 2 = do not feel, 3 = slightly feel and 4 = definitely feel, for both the positive and negative mood adjectives. Reverse scoring is used in order to accurately depict the participant's mood. To reverse score the BMIS, the numerical values assigned previously are reversed, such that 4 = definitely do not feel and 1 = definitely feel.

[Time Frame: Change from baseline mood at immediate post-intervention and 3-month post-intervention]

Eligibility

Minimum Age:

Maximum Age:

Sex: All

Gender Based: No
Accepts Healthy Volunteers: Yes
Criteria: Inclusion Criteria:

- full-time undergraduate or graduate students at Western University (UWO) and/or the affiliate schools (Kings, Brescia, Huron)
- English-speaking

Exclusion Criteria:

- non-English-speaking (i.e. unable to understand and complete surveys/questionnaires)
- part-time students

Contacts/Locations

Central Contact Person: Jennifer D Irwin, PhD
Telephone: [REDACTED]
Email: [REDACTED]

Central Contact Backup: Katie J Shillington, BHSc
Telephone: [REDACTED]
Email: [REDACTED]

Study Officials: Jennifer D Irwin, PhD
Study Principal Investigator
Western University, Canada

Locations: **Canada, Ontario**
Western University
London, Ontario, Canada, N6A 3K7
Contact: Jennifer D Irwin, PhD [REDACTED]
Contact: Katie J Shillington, BHSc [REDACTED]

IPDSharing

Plan to Share IPD: Yes
Individual participant data (IPD) will be disseminated via publications and presentations.
Supporting Information:
Study Protocol
Time Frame:
The intervention will take place during the month of November 2019 and the trial protocol will be submitted for publication; manuscript preparation will occur starting April 2020.
Access Criteria:
URL:

References

Citations: Patel V, Flisher AJ, Hetrick S, McGorry P. Mental health of young people: a global public-health challenge. Lancet. 2007 Apr 14;369(9569):1302-1313. doi: 10.1016/S0140-6736(07)60368-7. Review. PubMed 17434406

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Links:

Available IPD/Information:

U.S. National Library of Medicine | U.S. National Institutes of Health | U.S. Department of Health & Human Services

Appendix C – Mass Email Recruitment Script

Subject: Mass Email Recruitment

Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect and, Mood – The Kiss of Kindness Study II

Dear Student,

You are being invited to participate in a study assessing the impact of engaging in deliberate acts of kindness on resilience (primary outcome); social interaction anxiety and affect (secondary outcomes); and mood (exploratory outcome) of 150 full-time undergraduate and 50 full-time graduate students at UWO. For this study, you will be randomized to either the intervention group or the control group. Both intervention and control groups will receive an email reminding them that they have access to Relaxation and Stress Management Techniques, a booklet from Western University's Wellness Education Centre (WEC). In addition, the intervention group will be asked to (1) complete and log/submit a minimum of three deliberate acts of kindness per day for one month, and (2) join the study-dedicated OWL website to connect with, support, and share experiences and ideas with each other around acts of kindness. Baseline, immediate post-intervention, and three-months post-intervention data will be collected using Qualtrics, an online survey tool. Baseline will consist of basic demographic information, and four previously validated scales: (1) Brief Resilience Scale; (2) Social Interaction Anxiety Scale-Straightforward; (3) International Positive and Negative Affect Schedule-Short Form; and (4) Brief Mood Introspection Scale. The assessments will take 15-minutes in total to complete. Immediately following the intervention and 3-months post-intervention all participants will complete the same assessments administered at baseline (minus demographics) with the addition of an open-ended question asking participants to describe their overall experience being involved in the study. The information you provide will be de-identified (i.e. you will not be required to provide your Student ID, or any other personally identifying information), however, you will be asked to complete a demographic questionnaire that asks about: (a) sex; (b) age; (c) ethnicity; (d) enrollment status; (e) place of residence and living arrangement; (f) faculty and year of study; (g) therapy or counselling received; and (h) medication taken for stress, anxiety or mood. All of the information and data will be presented in aggregate form, ensuring confidentiality. The intervention will take a total of one month (October 2019).

The main form of communication for this study will be via email. It is important to note that email communication is not a secure form of communication and should you have any concerns feel free to contact one of the researchers: Katie Shillington (katie.shillington@uwu.ca); Dr. Jennifer Irwin (jennifer.irwin@uwu.ca).

Should you wish to participate in the study, please contact Katie Shillington (katie.shillington@uwu.ca) directly. If you have any further questions or you would like to know more about the study, please feel free to contact one of the researchers (Katie Shillington: katie.shillington@uwu.ca, Dr. Jennifer Irwin: jennifer.irwin@uwu.ca). Thank you for your consideration.

Kind regards,

Katie Shillington, BHSc
MSc Student – Health Promotion
Health and Rehabilitation Sciences
Western University
London, Ontario, Canada

[k.shill@uwo.ca](#)

Jennifer D. Irwin, PhD
Associate Professor
Faculty of Health Sciences
School of Health Studies, Room 238

Address: 100 University Ave., Health Sciences Building

Western University, Canada
London, Ontario, CANADA
N6A 5B9

(519) 661-2111 ext. 88867 (phone)

(519) 850-2422 (fax)

[Academic Website](#)

Appendix D – In-Class Announcement Recruitment Resources

In-Class Announcement – Recruitment Script


Good [morning/afternoon],

I want to begin by asking you a question – by a show of hands, how many of you have felt stressed as a result of school? [Look around, that’s almost all of you]. My name is [Katie] and I am a [first year Masters student in Health and Rehabilitation Sciences]. My supervisor, Dr. Irwin, and I are interested in assessing the impact of kindness as a mental health intervention. To examine this, we are conducting a study to assess the impact of engaging in deliberate acts of kindness on the resilience; social interaction anxiety; affect; and mood of undergraduate and graduate students. Over the course of our study, those allocated to the intervention group will be asked to engage in and log acts of kindness. If this sounds like something you wish to partake in, feel free to email me for more information. My email address is on the [board/screen]. Thank you!

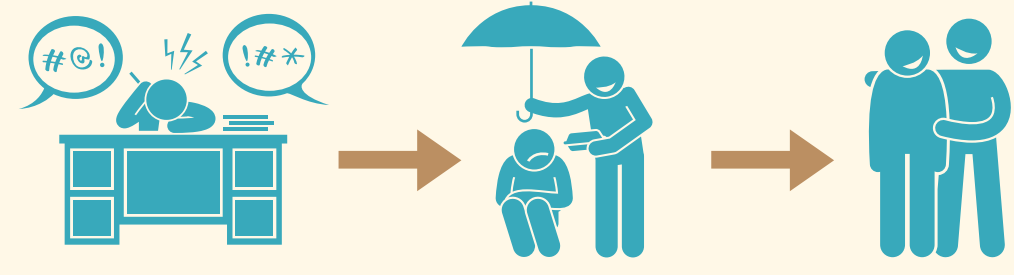
Good [morning/afternoon],

I want to begin by asking you a question – by a show of hands, how many of you have felt stressed as a result of school? [Look around, that’s almost all of you]. My name is [name] and I am a [third/fourth year student in Health Sciences]. I work as a research assistant under the supervision of Dr. Irwin and our research team is interested in assessing the impact of kindness as a mental health intervention. To examine this, we are conducting a study to assess the impact of engaging in deliberate acts of kindness on the resilience; social interaction anxiety; affect; and mood of undergraduate and graduate students. Over the course of the study, those allocated to the intervention group will be asked to engage in and log acts of kindness. If this sounds like something you wish to partake in, feel free to email Katie, the lead researcher, for more information. Her email address is on the [board/screen]. Thank you!

PDF for Posting



Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect, and Mood: The KISS of Kindness Study II



October 2019

Katie Shillington (kshillington@unh.edu)
Dr. Jennifer Irwin (jirwin@unh.edu)

Appendix E – Invitation Email to Course Instructors

Subject: [Course Title] Announcement?

Dear [professor],

My name is Katie Shillington and I am a first year Masters student in Health and Rehabilitation Sciences. My supervisor, Dr. Jennifer Irwin (copied), and I are interested in assessing the impact of kindness as a mental health intervention. To examine this, we are conducting a study to assess the impact of engaging in deliberate acts of kindness on the resilience; social interaction anxiety; affect; and mood of undergraduate and graduate students. I am emailing to inquire about recruiting for our study during your [class name, date, and time]. Should you agree, a member from our research team will be there at [time] to make an announcement. The announcement should take no more than 2-minutes of your time. Please consider and kindly let me know at your earliest convenience. Thank you in advance.

Kind regards,

Katie

Appendix F – Facebook Recruitment Script

[Greeting]

My name is Katie Shillington and I am a first year Masters student in Health and Rehabilitation Sciences. My supervisor, Dr. Irwin, and I are interested in assessing the impact of kindness as a mental health intervention. To examine this, we are conducting a study to assess the impact of engaging in deliberate acts of kindness on the resilience, social interaction anxiety, affect, and mood of undergraduate and graduate students. Over the course of our study, those allocated to the intervention group will be asked to engage in and log acts of kindness. If this sounds like something you wish to partake in, feel free to email me for more information. My email address is katie.shillington@unsw.edu.au. Thank you!

[Greeting]

My name is [name] and I am a [year] student in Health Sciences. I work as a research assistant under the supervision of Dr. Irwin and our research team is interested in assessing the impact of kindness as a mental health intervention. To examine this, we are conducting a study to assess the impact of engaging in deliberate acts of kindness on the resilience, social interaction anxiety, affect, and mood of undergraduate and graduate students. Over the course of the study, those allocated to the intervention group will be asked to engage in and log acts of kindness. If this sounds like something you wish to partake in, feel free to email Katie, the lead researcher, for more information. Her email address is katie.shillington@unsw.edu.au. Thank you!

Appendix G – Letter of Information



Health and Rehabilitation Sciences

Letter of Information

TITLE: Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect and Mood – The Kiss of Kindness Study II

Principal Investigator: Dr. Jennifer Irwin ((519) 661-2111 ext. 88867, jirwin@uwo.ca)

Co-Investigator: Katie Shillington, MSc Student

INTRODUCTION AND PURPOSE

You are being invited to participate in a study assessing the impact of engaging in deliberate acts of kindness on resilience (primary outcome); social interaction anxiety and affect (secondary outcomes); and mood (exploratory outcome) of 150 full-time undergraduate and 50 full-time graduate students at UWO. For this study, you will be randomized to either the intervention group or the control group. Those allocated to the intervention group will be asked to engage in acts of kindness in addition to receiving an email reminding them that they have access to a stress management booklet. Those allocated to the control group will receive an email reminding them that they have access to the booklet only and will serve as the comparison condition. Specifically, both intervention and control group participants will receive an email reminding them that they have access to *Relaxation and Stress Management Techniques*, a booklet from Western University's Wellness Education Centre (WEC). In addition, the intervention group will be asked to (1) complete and log/submit a minimum of three deliberate acts of kindness per day for one month, and (2) join the study-dedicated OWL site. By joining the OWL site, participants will have the opportunity to be a part of a larger community aimed at fostering connection and support. The OWL site will also act as a platform for participants to share experiences and ideas with each other around acts of kindness. Control group participants will be asked to reference a relaxation and stress management booklet, which will provide them with helpful techniques to combat stressful situations. Baseline, immediate post-intervention, and three-months post-intervention data will be collected using Qualtrics, an online survey tool. Baseline will consist of basic demographic information, and four previously validated scales: (1) Brief Resilience Scale; (2) Social Interaction Anxiety Scale-Straightforward; (3) International Positive and Negative Affect Schedule-Short Form; and (4) Brief Mood Introspection Scale. The assessments will take 15-minutes to complete. Immediately following the intervention and 3-months post-intervention all participants will complete the same assessments administered at baseline (minus demographics) with the addition of an open-ended question asking participants to describe their overall experience being involved in the study. The information you provide will be de-identified (i.e. you will not be required to provide your Student ID, or any other personally identifying information), however, you will be asked to complete a demographic questionnaire that asks about: (a) sex; (b) age; (c) ethnicity; (d) enrollment status; (e) place of

residence and living arrangement; (f) faculty and year of study; (g) therapy or counselling received; and (h) medication taken for stress, anxiety or mood. All of the information and data will be presented in aggregate form, ensuring confidentiality. The intervention will take a total of one month (October 2019).

Should you wish to participate in the study please contact Katie Shillington ([REDACTED]) directly. If you have any further questions or you would like to know more about the study, please feel free to contact one of the researchers (Co-investigator, Katie Shillington: [REDACTED], Principal Investigator, Dr. Jennifer Irwin: ([REDACTED] 661-2111 ext. 88867, [REDACTED])).

PARTICIPATION INCLUSION/EXCLUSION CRITERIA

Inclusion Criteria:

- Full-time undergraduate or graduate student at Western University
- English-speaking

Exclusion Criteria:

- Non-English-speaking students (i.e. unable to understand and complete surveys/questionnaires)
- Part-time students

MEASUREMENTS

The study will examine the following:

Psychological Health and Well-Being

1. Social Interaction Anxiety Scale-Straightforward: You will be asked to complete a 20-item survey assessing cognitive, affective and behavioural aspects of social interaction anxiety.
2. Brief Resilience Scale: You will be asked to complete a 6-item survey examining your ability to bounce back or recover from stress.
3. Brief Mood Introspection Scale: You will be asked to complete a 16-item survey evaluating individual mood from eight mood states.
4. International Positive and Negative Affect Scale Short Form: You will be asked to complete a 20-item survey evaluating the extent you have felt various adjectives over the past week.

Demographic Questionnaire:

You will be asked to complete a demographic questionnaire which will include the following information: (a) sex; (b) age; (c) ethnicity; (d) enrollment status; (e) place of residence and living

arrangement; (f) faculty and year of study; (g) therapy or counselling received; and (h) medication taken for stress, anxiety or mood.

STUDY BENEFITS

It may be beneficial for you to be reminded that you have access to the Wellness Education Centre's Relaxation and Stress Management Techniques as you may choose to use these supports to enhance your wellbeing. You may experience benefits previously associated with engaging in deliberate acts of kindness. Namely, an increase in personal wellbeing, an increase in self-esteem and confidence, as well as a reduction in negative stress. By taking part in this study, you will be providing information about the engagement in acts of kindness as an intervention that may help to support students' social interaction anxiety, as well as strengthen resilience and promote positive affect and mood. In addition, the results from this study may inform future on-campus services and programs that could benefit students. There is also the potential that participating in this study might not provide any benefits.

STUDY RISKS

There are no known risks or harms to participating in this study; however, the study deals with topics regarding social interaction anxiety, resilience, affect and mood, and therefore, may be triggering to some. Please refer to the booklet provided by Western University's Wellness Education Centre (WEC), *Relaxation and Stress Management Techniques*, to cope with such feelings. Should you feel you need assistance at any point, please access Western's Mental Health Resource Guide:

https://uwo.ca/health/mental_wellbeing/resources.html or http://studentexperience.uwo.ca/student_experience/wellness_initiatives/mental_health_resource_guide.html.

The time needed to engage in the various study components represent potential inconveniences. Specifically, the study-related activities that may pose time inconveniences for you are: completing data collection questionnaires, reviewing the Relaxation and Stress Management Techniques booklet, and those in the intervention group completing the deliberate acts of kindness during the one-month intervention period.

YOUR PARTICIPATION

Participation in this study is voluntary. Taking part in this study is completely up to your discretion, which means you may refuse to answer any questions in the surveys/questionnaires or withdraw from the study at any time. If you decide to withdraw from the study, you have the right to request withdrawal of information collected about you. If you wish to have your information removed please let the researcher know; your data can be removed up until the point of data analysis. Withdrawing from the study will not affect your academic status.

CONFIDENTIALITY

In addition to the study data, we will also be collecting demographic information including: (a) sex; (b) age; (c) ethnicity; (d) enrollment status; (e) place of residence and living arrangement; (f) faculty and year of study; (g) therapy or counselling received; and (h) medication taken for

stress, anxiety or mood. The information you provide will be de-identified (i.e. you will be not be required to provide your Student ID). All of the information and data will be presented in aggregate form, ensuring confidentiality. Representatives of Western University's Health Sciences Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

Your participation in this study is completely confidential; however, because personal identifiers will be collected for this study, there is a risk of breach of privacy. Data collected from this study will only be accessible to the investigators and will be stored electronically on a password-protected computer at Western University, as well as on the personal computer and USB of co-investigator Katie Shillington, which are password protected and encrypted through security features called Firewall and FireVault. Additionally, responses to the questionnaires/surveys submitted via Qualtrics, will be kept on their secure server. Data will be safeguarded and will be destroyed after 7 years. By participating in this research, you agree that your results may be used for scientific purposes, including publication in scientific and exercise & health specific journals. A master list will be maintained linking your name as a participant to a unique ID, which will also be destroyed 7 years post-study, as per regulatory requirements. The results of the study will be reported without identifying you personally, thus maintaining your confidentiality.

ALTERNATIVES TO STUDY PARTICIPATION

You may choose not to participate in this study. Should you agree to participate, answering certain questions on the questionnaires/surveys is up to your discretion.

REIMBURSEMENT/COMPENSATION

There is no reimbursement or compensation for participating in this study.

CONTACT INFORMATION

If you have any questions regarding this study, please contact:

Principal Investigator: Dr. Jennifer Irwin (jirwin@uwo.ca), 519-661-2111 ext. 30367

Co-Investigator: Katie Shillington, MSc Student (kshill1@uwo.ca)

If you have any questions about your rights as a research participant or the conduct of this study, you may contact the Office of Human Research Ethics at: (519) 661-3036, or via email:

ethics@uwo.ca

Appendix H – Eligibility, Consent, and Participant Identification Form

The Kiss of Kindness Study II - Consent, Eligibility, ID

Thank you for your interest in this study. We kindly ask that you confirm your eligibility, imply consent, and create a unique ID for yourself. All of this information must be completed to enrol in the study. The information that you disclose will be confidential and will only be used for research purposes.

Part 1: Eligibility

Please indicate your enrolment status.

- Full-time
 Part-time

Are you English-speaking?

- Yes
 No

Part 2: Consent

Please enter your first and last name. By entering your first and last name you consent to participating in this study.

Please enter your email address. By entering your email address you consent to participating in this study.

Part 3: Participant ID

What are the first two letters of **your last name**?

What is your birth month?

- January
 February
 March
 April
 May
 June
 July
 August
 September

- October
- November
- December

What are the first two letters of your **mother's first name**?

Appendix I – Relaxation and Stress Management Booklet

Relaxation and stress management techniques

Understanding your stress response can help you determine which **relaxation** and **stress management** techniques will be most effective for you (Segal et al., 2016).

Use this booklet to learn about a variety of techniques to help respond constructively to your body's stress response.

TIME TO RELAX

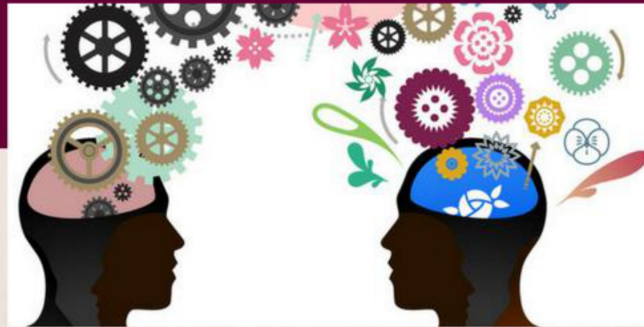
Are you feeling angry, agitated or full of energy?

Try **relaxation techniques** to help calm you, such as deep breathing and mindful meditation.

MANAGING STRESS

Are you feeling depressed, withdrawn or zoned-out? Try **stress management techniques** that are stimulating such as yoga and exercise.

What is Stress?



- *Stress is a physical response to environmental demands or "stressors" that cause your body to engage the 'fight or flight' response. Stressors are different for every person - for the typical student, they might include deadlines, exams, relationships, money problems, and more.*
- *Under certain short-term conditions, stress can improve our mental and physical performance (positive stress). However, when stress becomes prolonged or chronic, it can become unhealthy (negative stress) (Benson and Casey, 2013).*
- *The signs of stress are different for every person but can include worry, rapid heart rate, muscle pain, sleep deprivation, anger, depression, and abuse of food and drugs (Mayo Clinic Staff, 2016).*

Understanding Your Stress Response

Every person has a certain level of stress that will improve their performance and efficiency (Benson and Casey, 2013).

Beyond this optimal level, stress can negatively impact our overall wellness. This is when you can use short-term and long-term stress management techniques to constructively respond to stress.

If you're finding that your stress response is prolonged with no end in sight, please reach out for support!

HELP!

Don't know where to begin? Come see us at the Wellness Education Centre - we're happy to help!

wec.uwo.ca



Techniques and Resources	Method	Goal
<p>Deep Breathing Related Resources:</p> <ul style="list-style-type: none"> • <i>What To Do When You Can't Study Anymore (But Have To)</i> WEC Publication available online at wec.uwo.ca 	<ul style="list-style-type: none"> • Focus on taking slow, deep breaths with air coming in from your nose, filling your lungs, and exhaling slowly from your mouth. • If you feel your mind wandering, gently refocus back on your breathing. • Try this technique for 10 minutes 	<ul style="list-style-type: none"> • Focus your attention away from stressful thoughts • Increase oxygen exchange in your lungs • Slow your heartbeat
<p>Body Scan/ Progressive Muscle Relaxation Related Resources:</p> <ul style="list-style-type: none"> • <i>Mindfulness & Metta-based Trauma Therapy</i> (https://mmtt.ca/About.php) <i>Body Scan Guided Meditation videos</i> 	<ul style="list-style-type: none"> • Begin with deep breathing. • Focus your thoughts on one part of your body (e.g. your toes). • Imagine that body part becoming warm and relaxed – release any tension you feel. • Slowly move to all of your other body parts, progressively releasing tension in all of your muscles 	<ul style="list-style-type: none"> • Helps you find and release muscle tension • Become more aware of your body
<p>Guided Imagery/ Visualization Related Resources:</p> <ul style="list-style-type: none"> • <i>Mindfulness & Metta-based Trauma Therapy: Mountain, Tree, Sun, and Holding a Candle Imagery Guided Meditation videos</i> 	<ul style="list-style-type: none"> • Begin with deep breathing • Focus your thoughts and imagine a calming image or place • Engage your senses (e.g., smell) • Practice for 10-20 minutes 	<ul style="list-style-type: none"> • Focus your thoughts towards a safe, calming place
<p>Mindful Meditation Related Resources:</p> <ul style="list-style-type: none"> • <i>Three Ways to Be Mindful</i> WEC Publication online at wec.uwo.ca • <i>Mindfulness & Metta-based Trauma Therapy: Mindful Awareness of Sight & Sound Guided Meditation Video</i> 	<ul style="list-style-type: none"> • In a comfortable position, begin with deep breathing • Focus on all of your experiences in the moment (e.g. your senses and ideas) • If you lose focus, gently re-center yourself on the current moment 	<ul style="list-style-type: none"> • Aims to focus your thoughts on one task at a time and live in the moment • Release the need to multi-task • Relieve stress, pain, sleep problems and more
<p>Yoga or Tai Chi Related Resources:</p> <ul style="list-style-type: none"> • <i>Living Well@Western Tai Chi class</i> • <i>Yoga classes at Campus Recreation and the WEC</i> 	<ul style="list-style-type: none"> • If you are new to yoga or tai chi, try taking a class or following along using a video or an app as a guide 	<ul style="list-style-type: none"> • Improve body awareness • Exercise while engaging relaxation response
<p>Massage Therapy Related Resources:</p> <ul style="list-style-type: none"> • Available at <u>three places on campus</u>. Your health plan covers anywhere from 80% (SOGS) to 100% (USC) of the service. 	<ul style="list-style-type: none"> • Professional massages • Self-massage can be done throughout the day at work and home (e.g. massage your shoulders, neck and face) 	<ul style="list-style-type: none"> • Release muscle tension • Relieve pain and stress

By Sarah Peirce | wec.uwo.ca

Finding Your Optimal Stress Level and Long-Term Management Techniques

Did you know that most of the stress we experience daily is positive stress? This is the day-to-day stress that helps improve our performance and efficiency at work, at school, and in our lives. Our goal is not to make life stress-free but to harness our positive stress and lower our long-term or chronic negative stress responses. Here are some ideas and techniques for long-term stress management that will help you find your optimal stress levels and reduce unhealthy stress responses in the future (Robinson et al., 2016).

Technique	Method	WEC Resources
Practice your relaxation response	<ul style="list-style-type: none"> Practice the techniques listed in the previous chart to determine which work best for you Set aside 10-20 minutes a day to exercise your relaxation responses Pro tip: Try practicing in the morning to start your day off in control of your relaxation response! 	<ul style="list-style-type: none"> See techniques in the previous chart 3 Ways To Be Mindful What To Do When You Can't Study Anymore (But Have To)
Physical activity	<ul style="list-style-type: none"> Incorporate moderate-intensity physical activity into your daily life Start small and aim for 30 minutes per day Examples include yoga, tai chi, and repetitive exercises such as walking, running, swimming, bicycling, rowing 	<ul style="list-style-type: none"> Top 10 Tips To Get Active Everything Is Awful And I'm Not Okay
Connect with yourself and others	<ul style="list-style-type: none"> Connect to a friend or family member who is a good listener Be kind to yourself Talking face-to-face can have an immediate calming effect 	<ul style="list-style-type: none"> Everything Is Awful And I'm Not Okay Connect With Yourself Connect With Others
Eat well	<ul style="list-style-type: none"> Eat mindfully by eating slowly, concentrating on your senses (e.g. taste, smell etc.) Reduce caffeine and sugar Reduce alcohol, cigarettes, and drugs 	<ul style="list-style-type: none"> FRESH Education Library Everything Is Awful And I'm Not Okay
Sleep well	<ul style="list-style-type: none"> Create a regular sleep schedule and bedtime ritual to help you stay energized Being tired can also increase stress, so stay well rested 	<ul style="list-style-type: none"> Top 10 Tips To Sleep Well Everything Is Awful And I'm Not Okay
Be prepared	<ul style="list-style-type: none"> Remove unnecessary stressors Alter your situation (e.g., can you manage your time better to reduce the stress of barely meeting deadlines?) Adapt (e.g., can you find an enjoyable challenge or a learning opportunity in the situation?) Accept the uncontrollable 	<ul style="list-style-type: none"> Extreme Makeover: Exam Edition So You're Anxious About Exams? Stressed About Exams? So You're Procrastinating?
Self-care	<ul style="list-style-type: none"> Personally caring for your own wellness 	<ul style="list-style-type: none"> Self-Care Toolkit for University Students
Stress Management Journal/Calendar	<ul style="list-style-type: none"> Keep track of your progress Keep track of which techniques work best for you 	<ul style="list-style-type: none"> See the calendar on the next page!

Stress Management Self-Help Calendar

Technique	MON	TUES	WED	THURS	FRI	SAT	SUN	Notes
<i>Practiced deep breathing for 5 minutes</i>								
<i>Engaged in physical activity for 30 minutes</i>								
<i>Talked face-to-face with a good listener</i>								
<i>Ate well</i>								
<i>Slept well</i>								
<i>Removed an unnecessary stressor</i>								
<i>Altered a stressful situation</i>								
<i>Adapted my perspective to a stressful situation</i>								
<i>Accepted the uncontrollable</i>								
<i>Practiced self-care</i>								

Adapted from Robinson et al., 2016b

By Sarah Peirce | wec.uwo.ca

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Segal, J., Smith, M., Segal, R., Robinson, L (2016) Stress Symptoms, Signs, Causes. Helpguide.org: <http://www.helpguide.org/articles/stress/stress-symptoms-causes-and-effects.htm>.

Appendix J – Deliberate Acts of Kindness Ideas



Health and Rehabilitation Sciences

Deliberate Acts of Kindness Ideas

TITLE: Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect and Mood – The Kiss of Kindness Study II

Principal Investigator: Dr. Jennifer Irwin

Co-Investigator: Katie Shillington, MSc Student

You have agreed to participate in a research study assessing the mental health and wellbeing of undergraduate students. We are investigating the relationship between engaging in acts of kindness on the affect, resilience, social interaction anxiety, and mood of full-time undergraduate students and graduate students at Western University. For this study, you are being asked to engage in three deliberate acts of kindness per day for the duration of one month.

Acts of kindness may include but are not limited to:

- Smile. A warm smile is the universal language of kindness
- Say “hello”
- Visit a sick friend
- Let someone cut in line at the grocery store
- Read to a child or senior
- Send your boss an email complimenting a co-worker’s hard work
- Help a neighbor (e.g., shovel, garden)
- Hold the door for someone
- Leave change in the vending machine
- Help someone carry their groceries
- Leave a note on the bathroom mirror that says “you look amazing!”
- Send flowers to a friend
- Deliver a cup of coffee/tea
- Leave a nice note on someone’s desk
- Leave a copy of your favourite book on a bus with a note in it
- Teach someone how to cook a healthy meal
- Mentor a child
- Volunteer your time with an organization that matters to you
- Cook a meal for a family with a new baby

Please note that this is not an exhaustive list and the acts of kindness you perform are up to your discretion. For a more detailed list of ideas please refer to:

<http://www.unitedway.ca/blog/conscious-kindness/>.

Appendix K – Demographic Questionnaire

The Kiss of Kindness Study II – Demographic Questionnaire

Thank you for your participation in this study. This survey consists of a short demographic questionnaire followed by four separate questionnaires assessing social interaction anxiety, resilience, affect, and mood. Please answer as honestly as possible. There are no right or wrong answers. Whatever you truly think or feel is the answer you should pick.

Part 1: Demographic Questionnaire

The following questions will pertain to demographic information. Information provided will be confidential and used strictly for data analysis.

What is your age? (years)

What is your sex/How do you identify?

- Male
- Female
- Other
- I prefer not to answer

If other, please specify:

What is your ethnicity?

- Aboriginal
- African Heritage
- East Asian
- Caucasian
- Hispanic
- Middle Eastern
- South Asian
- Other
- I prefer not to answer

If other, please specify:

What is your current marital status?

- Single
- Married/common law/engaged
- Divorced/separated

- Widowed
- I prefer not to answer

Please indicate your enrolment status.

- Full-time
- Part-time

What is your place of residence/living arrangement?

- On-campus (i.e., residence)
- Off-campus by myself
- Off-campus with roommates
- Off-campus with relatives
- Off-campus with spouse/partner
- Other
- I prefer not to answer

If other, please specify:

What is your program of registration?

- Faculty of Arts and Humanities
- Faculty of Education
- Faculty of Engineering
- Faculty of Health and Rehabilitation Sciences
- Faculty of Information and Media Studies
- Faculty of Law
- Faculty of Music
- Faculty of Science
- Faculty of Social Science
- Huron University College
- Brescia University College
- King's University College
- Other

If other, please specify:

What is your current year of study?

- First year
- Second year
- Third year
- Fourth year

Other

If other, please specify:

Are you currently receiving any therapy or counselling?

Yes

No

I prefer not to answer

Are you currently taking any medication for stress, anxiety, or mood?

Yes

No

I prefer not to answer

Appendix L – Brief Resilience Scale



Brief Resilience Scale (BRS)

Please respond to each item by marking one box per row		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
BRS 1	I tend to bounce back quickly after hard times	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
BRS 2	I have a hard time making it through stressful events.	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
BRS 3	It does not take me long to recover from a stressful event.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
BRS 4	It is hard for me to snap back when something bad happens.	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
BRS 5	I usually come through difficult times with little trouble.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
BRS 6	I tend to take a long time to get over set-backs in my life.	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1

Scoring: Add the responses varying from 1-5 for all six items giving a range from 6-30. Divide the total sum by the total number of questions answered.

My score: _____ item average / 6

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine, 15*(3), 194-200.

Appendix M – Social Interaction Anxiety Scale-Straightforward

Social Interaction Anxiety Scale

Instructions

In this section, for each item, please circle the number to indicate the degree to which you feel the statement is characteristic or true for you. *The rating scale is as follows:*

0	=	Not at all characteristic or true of me.
1	=	Slightly characteristic or true of me.
2	=	Moderately characteristic or true of me.
3	=	Very characteristic or true of me.
4	=	Extremely characteristic or true of me

	Characteristic	Not at all	Slightly	Moderately	Very	Extremely
01.	I get nervous if I have to speak with someone in authority (teacher, boss).	0	1	2	3	4
02.	I have difficulty making eye contact with others.	0	1	2	3	4
03.	I become tense if I have to talk about myself or my feelings.	0	1	2	3	4
04.	I find it difficult to mix comfortably with the people I work with.	0	1	2	3	4
05.	I find it easy to make friends my own age.	0	1	2	3	4
06.	I tense up if I meet an acquaintance in the street.	0	1	2	3	4
07.	When mixing socially, I am uncomfortable.	0	1	2	3	4
08.	I feel tense when I am alone with just one person.	0	1	2	3	4
09.	I am at ease meeting people at parties, etc.	0	1	2	3	4
10.	I have difficulty talking with other people.	0	1	2	3	4
11.	I find it easy to think of things to talk about.	0	1	2	3	4
12.	I worry about expressing myself in case I appear awkward.	0	1	2	3	4
13.	I find it difficult to disagree with another's point of view.	0	1	2	3	4

(continued)

Characteristic		Not at all	Slightly	Moderately	Very	Extremely
14.	I have difficulty talking to attractive persons of the opposite sex.	0	1	2	3	4
15.	I find myself worrying that I won't know what to say in social situations.	0	1	2	3	4
16.	I am nervous mixing with people I don't know well.	0	1	2	3	4
17.	I feel I'll say something embarrassing when talking.	0	1	2	3	4
18.	When mixing in a group, I find myself worrying I will be ignored.	0	1	2	3	4
19.	I am tense mixing in a group.	0	1	2	3	4
20.	I am unsure whether to greet someone I know only slightly.	0	1	2	3	4

Appendix N – International-Positive and Negative Affect Schedule-Short Form



Positive and Negative Affect Schedule (PANAS-SF)

Indicate the extent you have felt this way over the past week.		Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
PANAS 1	Interested	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 2	Distressed	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 3	Excited	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 4	Upset	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 5	Strong	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 6	Guilty	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 7	Scared	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 8	Hostile	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 9	Enthusiastic	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 10	Proud	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 11	Irritable	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 12	Alert	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 13	Ashamed	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 14	Inspired	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 15	Nervous	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 16	Determined	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 17	Attentive	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 18	Jittery	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 19	Active	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
PANAS 20	Afraid	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

Appendix O – Brief Mood Introspection Scale

Brief Mood Introspection Scale (BMIS)

by John D. Mayer

INSTRUCTIONS: Circle the response on the scale below that indicates how well each adjective or phrase describes your present mood.

(definitely do not feel) (do not feel) (slightly feel) (definitely feel)

	XX	X	V	VV		XX	X	V	VV
Lively	XX	X	V	VV	Drowsy	XX	X	V	VV
Happy	XX	X	V	VV	Grouchy	XX	X	V	VV
Sad	XX	X	V	VV	Peppy	XX	X	V	VV
Tired	XX	X	V	VV	Nervous	XX	X	V	VV
Caring	XX	X	V	VV	Calm	XX	X	V	VV
Content	XX	X	V	VV	Loving	XX	X	V	VV
Gloomy	XX	X	V	VV	Fed up	XX	X	V	VV
Jittery	XX	X	V	VV	Active	XX	X	V	VV

Overall, my mood is:

Very Unpleasant		Very Pleasant
-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10		

Please Note: The "Overall, my mood is" section is usually omitted, although some people use it and fold it into the overall score.

Original Citation: Mayer, J. D., & Gaschke, Y. N. (1988). The experience and meta-experience of mood. *Journal of Personality and Social Psychology*, 55, 102-111. [Scoring instructions are described there]

Some Other Articles that Have Used the Scale:*

- Examination of the paths between personality, current mood, its evaluation, and emotion regulation. Kokkonen, Marja; Pulkkinen, Lea; *European Journal of Personality*, Vol 15(2), Mar-Apr 2001. pp. 83-104.
- Resolution of lexical ambiguity by emotional state. Halberstadt, Jamin B.; Niedenthal, Paula M.; Kushner, Julia; *Psychological Science*, Vol 6(5), Sep 1995. pp. 278-282.
- Intrusive thoughts as determinants of distress in parents of children with cancer. Hall, Martica; Baum, Andrew; *Journal of Applied Social Psychology*, Vol 25(14), Jul 1995. Special issue: Rumination and intrusive thoughts. pp. 1215-1230.
- Mood inductions for four specific moods: A procedure employing guided imagery vignettes with music. Mayer, John D.; Allen, Joshua P.; Beaugard, Keith; *Journal of Mental Imagery*, Vol 19(1-2), Spr-Sum 1995. pp. 151-159.
- Mood-congruent judgment over time. Mayer, John D.; Hanson, Ellen; *Personality & Social Psychology Bulletin*, Vol 21(3), Mar 1995. pp. 237-244.

*The scale has been used in many other articles; I do not have a comprehensive list at this time. If you know of other uses, I would be delighted to hear of them.

CURRICULUM VITAE

1. **NAME:** Katie J. Shillington

2. **EDUCATION**

Degree	University	Department	Year
M.Sc.	Western University	Health and Rehabilitation Sciences	<i>In progress</i>
B.HSc.	Western University	School of Health Studies	2019

SPECIALTY QUALIFICATIONS/CERTIFICATIONS

Certification	Organization	Date
Evidence-Informed Motivational Interviewing and Coaching Approaches	The Monarch System	2019
Teaching Assistant Training Program	Centre for Teaching and Learning (Western University)	2019
safeTALK	Centre for Teaching and Learning (Western University)	2019
CORE Ethics Certificate	Western University	2018
First Aid and CPR Level C/AED	Canadian Red Cross	2018

3. **EMPLOYMENT HISTORY**

Date	Rank & Position	Department	Institution
Sept 2019- Present	Research Assistant	School of Health Studies	Western University
Sept 2019- Dec 2019	Teaching Assistant	Health and Rehabilitation Sciences	Western University
May 2019- Present	Student Assistant	Centre for Public Health and Family Medicine	Western University
May 2018- May 2019	Research Assistant	School of Health Studies	Western University
Sept 2017- May 2019	Research Assistant	School of Health Studies	Western University

4. **HONOURS AND AWARDS**

2020 - Society of Graduate Students Travel Subsidy Award
(recipient of \$500.00)

2019 - Faculty of Health Sciences Travel Conference Award
(recipient of \$210.00)

2019 - Western University's Graduate Funding Support Package
(recipient of \$7000.00)

2019 - Graduate Student Assistant Funding
(recipient of \$15,000.00)

2018, 2019 - Dean's Honor List
(recognizes full-time students registered in the faculty of Health Sciences who completed a minimum of 4.0 courses during the previous fall/winter Session [September-April] and earned an average for the session of 80% or more with no failed courses)

2017 - Muskoka Woods Sports Resort's Jamie Groves Bursary Fund
(recipient of \$500.00)

2015 - Entrance Admission Scholarship
(recipient of \$1500.00)

2015 - Catholic Leadership Award (Ursuline College Chatham)
(recognizes students who demonstrate service to others)

2015 - Joe Vasko's First Lancer Award (Ursuline College Chatham)
(recognizes one student for outstanding contributions to the community and outstanding representation as a student; recipient of \$150.00)

2015 - Lancer Award (Ursuline College Chatham)
(recognizes students who demonstrate outstanding leadership in the community)

2014 - The Catholic Education Foundation of Ontario Catholic Student of the Year Award
(recognizes and celebrates the excellence and accomplishments of young Catholic men and women)

2014 - Highest Academic Standing in History (Ursuline College Chatham)
(awarded to the student who achieves the overall highest final grade in the course)

2013-2015 - Highest Academic Standing in Religion (Ursuline College Chatham)
(awarded to the student who achieves the overall highest final grade in the course)

2013 - Highest Academic Standing in Comprehensive Arts (Ursuline College Chatham)
(awarded to the student who achieves the overall highest final grade in the course)

2012-2015 - Academic Award of Excellence (Ursuline College Chatham)
(recognizes students who receive honours with distinction - average of above 80% in every class)

5. PUBLICATIONS

I. Publication Summary:

a) Articles in Peer-Reviewed Journals	1
b) Accepted for publication (i.e., in press, forthcoming)	2
c) Submitted Manuscripts	2

d) Acknowledgements in Peer-Reviewed Journal Articles	1
e) Articles in non-Peer-Reviewed Journals, Conference Proceedings, Professional Newsletters, or Technical Writings	2
f) Abstracts, Presentations at Professional Meetings/Conferences	3
g) Invited Guest Lectures	2
h) Invited Knowledge Mobilization Events	1
i) Invited/Accepted Conferences and Presentations - Declined/Unable to Accept	3
j) Workshops Delivered	4
k) Other (e.g., translational work, academic blog posts, media)	6

II. Publication Details [listed below in reverse order by date]:

a) Articles in Peer-Reviewed Journals ($N = 1$)

1. Mantler, T., Jackson, K.T., Baer, J., White, J., Ache, B., **Shillington, K.**, Ncube, N. (2020). Changes in Care- A Systematic Scoping Review of Transitions for Children with Medical Complexities, *Current Pediatric Reviews*, 16, 1-11.
doi:10.2174/1573396316666191218102734

b) Accepted for Publication (i.e., in press, forthcoming) ($N = 2$)

2. Mantler, T., Jackson, K.T., Walsh, E.J., Tobah, S., **Shillington, K.**, & Jackson, B. (Accepted pending revisions February 2020). Sharing Personal Experiences of Accessibility and Knowledge of Violence: A Qualitative Study. *Journal of Interpersonal Violence*.
1. **Shillington, K. J.**, Johnson, A. M., Mantler, T., & Irwin, J. D. (Accepted pending revisions January 2020). Kindness as an intervention for student social interaction anxiety, affect, and mood: The KISS of kindness study. *International Journal of Applied Positive Psychology*.

c) Submitted Manuscripts ($N = 2$)

2. Mantler, T., Jackson, K.T., Walsh, E.J., Shillington, K., Tobah, S., & Jackson, B. (Submitted February 2020). Exploring the Influences and Meaning of Rural Women's Decision to Disclose Intimate Partner Violence. *Journal of Interpersonal Violence*.
1. Mantler, T., Jackson, K.T., Walsh, E.J., Jackson, B., Baer, J.R., **Shillington, K.**, & Parkinson, S. (Submitted December 2019). Promoting Attachment Through Healing (PATH): Results of a Retrospective Feasibility Study. *Journal of Interpersonal Violence*.

d) Acknowledgements in Peer-Reviewed Journals ($N = 1$)

1. Fried, R. R., Atkins, M. P., & Irwin, J. D. (2019). Breaking grad: Building resilience among a sample of graduate students struggling with stress and anxiety utilizing a peer coaching model derived from mentoring, and motivational interviewing via Co-Active Life Coaching (MI-via-CALC) – A pilot study. *International Journal of Evidence Based Coaching*, 17(2), 3-19. doi:10.24384/sa09-av91
(Acknowledgement as a research assistant).

e) Articles in non-Peer Reviewed Journals, Conference Proceedings or Professional Newsletters, Technical Writings (N = 2)

2. Gulyani, P., **Shillington, K.**, Fish, E., Gorjup, R., Loveless, S., and Bahoti, M. (2018). Environmental Health Promotion 3290B: ReForest London. *Community Engaged Learning Final Projects*, 8. [Article in non-peer reviewed journal]
1. **Shillington, K.**, Federovich, E., and Hardy, K. (2017). Health Communication 3210A: Evonne Sullivan. *Community Engaged Learning Final Projects*, 7. [Article in non-peer reviewed journal]

f) Abstracts, Presentations at Professional Meetings/Conferences (N = 3)

3. **Shillington, K. J.**, Johnson, A. M., Mantler, T., & Irwin, J.D. (2020). Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect, and Mood: The KISS of Kindness Study II. The Health and Rehabilitation Sciences Graduate Research Conference, Western University, London, Ontario, February 3-4, 2020. Poster Presentation.
2. **Shillington, K. J.**, Johnson, A. M., Mantler, T., & Irwin, J. D. Kindness as an intervention for student social interaction anxiety, affect and mood: The KISS of kindness study. (2019). Ninth International Conference on Health, Wellness & Society, University of California Berkeley, USA, September 18-19, 2019. Poster Presentation.
1. **Shillington, K.**, Johnson, A. M., Mantler, T., & Irwin, J. D. Kindness as an intervention for student social interaction anxiety, affect and mood: The KISS of kindness study. (2019). Western Student Research Conference, Western University, London, ON, Canada, March 29, 2019. Oral Presentation.

g) Invited Guest Lectures (N = 2)

2020 **Shillington, K.** Ecological Model of Aging. An invited guest lecture to students in *HS 3704B: Population Health and Aging*, Western University, London, ON, Canada, January 22, 2020. 2-hr. N = 40.

Shillington, K. Applied Motivational Interviewing for Health Promoters. An invited guest lecture to students in *KIN 2992B: Fitness Assessment and*

Strength Training, Western University, London, ON, Canada, January 17, 2020. 1-hr. $N = 81$.

h) Invited Evidence-Informed Knowledge Mobilization Events ($N = 1$)

2019 **Shillington, K.** Research shared through art and poetry: An artistic interpretation of a novel health care intervention to support at risk women during the antenatal period. A knowledge mobilization community event. Artist, Western University, London, ON, Canada, October 8, 2019.

i) Invited Conferences and Presentations - Declined/Unable to Accept ($N = 3$)

3. **Shillington, K.** Ontario Universities Fair. Invited by the School of Health Studies to represent the faculty at the annual university fair for incoming undergraduate students. Toronto, ON, Canada, September 27-29, 2019. *Declined due to academic priorities.*
2. **Shillington, K. J., Johnson, A. M., Mantler, T., & Irwin, J.D.** Kindness as an intervention for student social interaction anxiety, affect and mood: The KISS of kindness study. The Schwartz Center's Compassion in Action Healthcare Conference. Boston, Massachusetts, September 8-10, 2019. *Declined due to prior commitment.*
1. **Shillington, K. J., Johnson, A. M., Mantler, T., & Irwin, J.D.** Kindness as an intervention for student social interaction anxiety, affect and mood: The KISS of kindness study. Crossroads Interdisciplinary Health Research Conference. Dalhousie University, Nova Scotia, Canada, March 15-16, 2019. *Declined due to academic priorities.*

j) Workshops Delivered ($N = 4$)

4. **Shillington, K.** IBM-SPSS: A training session on the basics of IBM-SPSS for an undergraduate research assistant and two graduate students. Developed manuals on using the program and facilitated the workshop. Western University, London, ON, Canada, October 29, 2019. 1-hr session. $N = 3$.
3. **Shillington, K.** Undergraduate research assistant training: A training session on the basics of IBM-SPSS and Qualtrics for undergraduate research assistants. Developed manuals on using the programs and facilitated the workshop. Western University, London, ON, Canada, February 28, 2019. 2-hr session. $N = 7$.
2. Fried, R.R., **Shillington, K., & Irwin, J.D.** Motivational interviewing Level 1: Booster session. A refresher course for Western University graduate students participating in the study *Breaking Grad: A Motivational Interviewing via Co-Active Life Coaching (MI-via-CALC) Intervention to Address Mental Health and Build Resiliency Among the Western University Graduate Student Population*. Western University, London, ON, Canada, January 24, 2018. 2-hr session. (Note taker)
1. Fried, R.R., **Shillington, K., & Irwin, J.D.** Motivational interviewing Level I: Training for motivational interviewing for Western University graduate students participating in the

study *Breaking Grad: A Motivational Interviewing via Co-Active Life Coaching (MI-via-CALC) Intervention to Address Mental Health and Build Resiliency Among the Western University Graduate Student Population*. Western University, London, ON, Canada, September 22, 2017. Full-day session. (Note taker)

k) Other (e.g., Translational work, blog posts, media) (N = 6)

6. **Shillington, K.** (2019, May 7). From reactive to proactive: Examining the rise of chronic disease on a global scale. Retrieved from <https://www.ivey.uwo.ca/healthinnovation/blog/2019/05/from-reactive-to-proactive-examining-the-rise-of-chronic-disease-on-a-global-scale/>
5. **Shillington, K.** (2019, May 2). Providing real world experience to students through practicum placements. Retrieved from https://www.ivey.uwo.ca/healthinnovation/news/2019/05/providing-real-world-experience-to-students-through-practicum-placements/?fbclid=IwAR24F-ItTj7v13uGiH-VTfxMu6QcBxZoJV_qKqJ1TDodzogzpHbvds4w1Yo
4. **Shillington, K.** (2019, March 12). Women's experiences with intimate partner violence and healthcare in rural environments. Retrieved from <https://www.ivey.uwo.ca/healthinnovation/blog/2019/03/women-s-experiences-with-intimate-partner-violence-and-healthcare-in-rural-environments/>
3. **Shillington, K.** Invited by Jess Bechard, Health Sciences Manager of Communication and Technology, to be filmed for Western University's promotional video showcasing student profiles in the faculty of Health Sciences. Interviewed about experiential learning opportunities, research, and university experience as a whole. Western University, London, ON, Canada, February 14, 2019. Retrieved from http://welcome.uwo.ca/programs/programs_by_faculty/health_studies.html
2. **Shillington, K.** (2018, December 11). Kindness cures: An innovative approach to reducing burnout in healthcare settings. Retrieved from <https://www.ivey.uwo.ca/healthinnovation/blog/2018/12/kindness-cures-an-innovative-approach-to-reducing-burnout-in-healthcare-settings/>
1. **Shillington, K.** (2018, November 13). Beyond the patch: A person-centred approach to behaviour change for smoking cessation. Retrieved from <https://www.ivey.uwo.ca/healthinnovation/blog/2018/11/beyond-the-patch-a-person-centred-approach-to-behaviour-change-for-smoking-cessation/>

6. SERVICE – OTHER SCHOLARLY AND PROFESSIONAL ACTIVITIES

2020	Judge for Health Studies Students' Association Annual Healthcare Challenge
2019-current	Senior Advisor on the Health Studies Students' Association
2019-current	Graduate Student Mentor for undergraduate students
2019	HRS Independent Study Research Forum Judge
2019	Graduate Student Panelist for Grads Helping U event hosted by the Health Studies Students' Association

2019 Panelist at the first year Health Sciences tutorial
2018-2019 Fourth Year Representative on the Health Studies Students' Association
2018-2019 Undergraduate Student Mentor for undergraduate students
2018 Panelist at the HS 4995: Health Practicum student orientation
2015 Student Intern at the Chatham-Kent Health Alliance Hospital