A Web-Based Intervention for Perfectionism: An Extension of Previous Findings

by

Alyssa Smith

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Arts (MA) in Applied Psychology

The Faculty of Graduate Studies
Laurentian University
Sudbury, Ontario, Canada

© Alyssa Smith, 2019

THESIS DEFENCE COMMITTEE/COMITÉ DE SOUTENANCE DE THÈSE
Laurentian Université/Université Laurentienne
Faculty of Graduate Studies/Faculté des études supérieures

Title of Thesis Titre de la thèse	A Web-Based Intervention for Perfectionism: An Extension of Previous Findings
Name of Candidate Nom du candidat	Smith, Alyssa Joan
Degree Diplôme	Master of Arts
Department/Program Département/Programme	Psychology
Date of Defence Date de la soutenance	July 26, 2019

APPROVED/APPROUVÉ

Thesis Examiners/Examinateurs de thèse:

Dr. Chantal Arpin-Cribbie
(Supervisor/Directrice de thèse)

Dr. Cynthia Whissell
(Committee member/Membre du comité)

Dr. Michel Larivière
(Committee member/Membre du comité)

Dr. Danielle Sirianni Molnar
(External Examiner/Examinatrice externe)

Approved for the Faculty of Graduate Studies
Approuvé pour la Faculté des études supérieures
Dr. David Lesbarrères
Monsieur David Lesbarrères
Dean, Faculty of Graduate Studies
Doyen, Faculté des études supérieures

ACCESSIBILITY CLAUSE AND PERMISSION TO USE

I, **Alyssa Joan Smith**, hereby grant to Laurentian University and/or its agents the non-exclusive license to archive and make accessible my thesis, dissertation, or project report in whole or in part in all forms of media, now or for the duration of my copyright ownership. I retain all other ownership rights to the copyright of the thesis, dissertation or project report. I also reserve the right to use in future works (such as articles or books) all or part of this thesis, dissertation, or project report. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purposes may be granted by the professor or professors who supervised my thesis work or, in their absence, by the Head of the Department in which my thesis work was done. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that this copy is being made available in this form by the authority of the copyright owner solely for the purpose of private study and research and may not be copied or reproduced except as permitted by the copyright laws without written authority from the copyright owner.

Abstract

Transdiagnostic interventions may be a beneficial approach for reducing a number of mental health concerns. As such, the current study replicated and extended on a 10-week online intervention for perfectionism to reduce perfectionism, depressive and anxious symptomology, and negative affect using three groups: cognitive behaviour therapy (CBT), general stress management (GSM), and no treatment (NT) waitlist. Moreover, a process and outcome approach was used to monitor weekly changes in psychological functioning, while considering the role of treatment readiness. At posttest, the CBT group exhibited greater adaptive changes in depressive and anxious symptomology, and negative affect than the GSM and NT groups. Although the CBT group exhibited declines on cognitively-focused perfectionism indicators and some trait-like perfectionism indicators, the GSM group exhibited more adaptive changes on most perfectionism indicators. Treatment adherence and treatment readiness are discussed as possible contributors to treatment outcomes and attrition.

Keywords: perfectionism, online intervention, treatment, treatment motivation, treatment readiness, stage of change

Acknowledgements

I would like to take this time to acknowledge several individuals who have made the completion of this thesis possible. First, I would like to thank my supervisor, Dr. Chantal Arpin-Cribbie, for her invaluable wisdom, patience, and guidance throughout this process. She has repeatedly contributed to my success in both academic and personal pursuits over the past years, to which I am forever grateful. I cannot thank you enough for your support as a mentor, which has tremendously shaped my skills and abilities as a training researcher, teacher, and clinician.

My sincere thanks also goes to my advisor committee, Dr. Cynthia Whissell and Dr. Michel Larivière, for their input on several methodological, structural, and theoretical components of this project. Thank you for generously sharing your knowledge to enhance the quality of my work and providing me with insight to help accomplish my goals.

Finally, I would like to express my deepest gratitude to my family and friends. To my parents who have always instilled the value of hard work, my siblings who always remind me to enjoy the little things in life, my grandparents who offer encouragement in the hard times, and my friends who are always there when I need them most. Your encouragement and support have made the completion of this thesis truly a rewarding process.

Table of Contents

List of Tables

List of Figures

List of Appendices

A Web-Based Intervention for Perfectionism: An Extension of Previous Findings

Perfectionism, the characteristic of having excessively high standards for oneself or others, has been found to affect individuals across multiple areas of daily functioning (e.g., Stoeber & Stoeber, 2009). Although there is much debate surrounding the extent to which perfectionism may either positively or negatively influence psychological functioning, higher levels of perfectionism have been often associated with negative outcomes (e.g., Chang, 2000; Stoeber & Otto, 2006). For example, perfectionism has been linked to poorer levels of general functioning and increased levels of depression, anxiety, disordered eating, and obsessive-compulsive tendencies (see Egan, Wade, & Shafran, 2011 for a review). Perfectionism has also been recognized as a contributing factor to suicide, as levels of perfectionism are higher in those with suicidal ideation compared to nonsuicidal counterparts (Shahnaz, Saffer, & Klonsky, 2018). Furthermore, individuals with greater internal and perceived external pressure to be perfect have a greater desire to commit suicide than those without such stringent pressures (Smith et al., 2018; Smith, Vidovic, Sherry, & Saklofske, 2017).

The societal impact of perfectionism is recognized by its prevalence in specific domains. To date, there have been few studies conducted on the prevalence of perfectionism in the general population; however the research that exists suggests that there are gender differences within specific domains (e.g., housework/cleaning domain more prominent for females; Slaney & Ashby, 1996), and that perfectionism decreases with age (Landa & Bybee, 2007). In regard to the prevalence of perfectionism in specific domains, a study, surveying both university students and individuals from the general population, found that the highest levels of perfectionistic tendencies are reported to affect every day functioning in domains of work and education (Stoeber & Stoeber, 2009). Specific to education, students completing post-secondary studies

typically suffer from perfectionism-related distress as a result of stringent and competitive environmental conditions related to school performance, such as increased school workload and time constraints (Grzegorek, Slaney, Franze & Rice, 2004; Van Bavel, 2002). Moreover, recent research lends support to generational differences in trait perfectionism in college students, which suggests that young people have an increasing risk of higher self-oriented, socially prescribed, and other-oriented perfectionism given the increasingly competitive educational environments (Curran & Hill, 2019). In contrast, individuals from the general population (ranging from under 20 to 79 years of age) have reported higher levels of perfectionism involving work-related tasks, such as giving oral presentations and writing reports (Stoeber & Stoeber, 2009). These findings underscore how pertinent perfectionism is to functioning in a broad range of individuals and domains.

There have been many different conceptualizations of perfectionism, however there is a general consensus that it is viewed as a multidimensional construct manifested by numerous facets (Frost et al., 1990; Hewitt & Flett, 1991) and is generally described as a personality characteristic that is marked by setting extremely high standards resulting in comparative evaluations between the perceived self and the ideal self (Flett et al., 1998). Although it is unclear to what extent various facets of perfectionism may be considered adaptive or maladaptive (Bieling, Israeli, & Antony, 2004; Enns & Cox, 2002; Stoeber, 2012a; Stoeber & Otto, 2006), there is consensus in the literature that automatic self-deleterious cognitions are salient in perfectionism and that these are associated with poorer adaptation and increased anxiety over the need to be perfect (Frost et al., 1990; Gaudreau & Thompson, 2010; Hewitt & Flett, 2002; Lloyd, Schmidt, Khondoker, & Tchanturia, 2015; Stoeber & Otto, 2006). It is the combination of high-level performance standards, known as trait perfectionism, and distorted

cognitions that contribute to unhealthy psychological functioning. The cognitive comparisons that are persistent in those with higher levels of perfectionism are, theoretically, an attempt at reducing or avoiding anxiety by achieving perfection; however, this can actually increase distress when there is a failure to meet the standards set by the individual (Hewitt & Flett, 2002).

To capture perfectionism in its entirety, it is important to assess both the cognitive and trait dimensions of perfectionism, especially given that specific perfectionistic presentations are associated with greater mental health concerns (e.g., Xie, Kong, Yang, & Chen, 2019). As such, cognitively-focused perfectionism generally encompasses automatic negative perfectionistic thoughts, concerns over mistakes, and the perceived gap between high standards and level of attainment. In terms of trait perfectionism, Hewitt and Flett (1991) developed a model to capture three varying traits of perfectionism: having high standards for the self (self-oriented), the perception that others hold high standards toward the individual (socially prescribed), and having high standards for others (other-oriented). Specific perfectionistic presentations include varying degrees of both trait and cognitive dimensions, with higher levels of trait perfectionism typically associated with more automatic perfectionistic thoughts which has been linked to increased psychological distress (Xie et al., 2019), anxiety (Burgess & DiBartolo, 2016) and thoughts regarding disordered eating (Flett, Newby, Hewitt, & Persaud, 2011), for example.

The salient cognitive distortions characteristic of those high in perfectionism impede treatment of other psychological disorders and are often associated with poor treatment outcomes (Lloyd et al., 2015). Therefore, targeting perfection specifically may lead to symptom reduction across a variety of disorders (Bieling et al., 2004), with more recent support for decreased symptoms of depression and anxiety when targeting perfectionism (see Lloyd et al., 2015 for a review). Given the salience of dysfunctional cognitions in perfectionism, the use of cognitive

behavioural therapy (CBT) may be a very beneficial therapeutic modality in treating perfectionism and perfectionism-related distress. CBT targets the automatic negative thoughts and cognitive distortions that reinforce the individual's negative beliefs of one's perceived self-identity (Beck, 1970; Beck 1979). Given that perfectionism is generally characterized by persistent rumination and maladaptive cognitions of the attainment of the ideal self, therapy involving the alteration of cognitive distortions would be beneficial for treating the maladaptive components of perfectionism.

A recent meta-analysis by Lloyd et al. (2015) examined eight different intervention-based studies designed for reducing perfectionism and perfectionism-related distress, including web-based and individual CBT. It was found, across all studies examined, that cognitive-behavioural interventions seem to be effective in treating perfectionism, as there were generally significant reductions in levels of perfectionism, depression, and anxiety from baseline to posttreatment. To date, there are only a limited number of studies that have directly assessed intervention techniques to treat perfectionism and perfectionism-related distress, therefore it is unclear which treatment protocols and modalities are most effective (Lloyd et al., 2015). It was noted that future research should focus on the optimal dosage of therapy and the format for administration of treatment as all of the studies investigated had different methodologies, including different tools for assessment, type of therapy (e.g., individual versus group), and duration of treatment. Furthermore, none of the studies assessed in the meta-analysis included a measure of treatment motivation, or treatment readiness, which may be particularly relevant when assessing the effectiveness of intervention techniques when one considers that research has identified treatment motivation as a key predictor of treatment outcome (Prochaska & DiClemente, 1983).

One model that has been proposed to help understand the process of change in the individual is Prochaska and DiClemente's Transtheoretical Model (1983) also known as the Stages of Change. This formulation was developed in order to conceptualize behaviour change in an individual during the treatment process using the six stages of change: pre-contemplation, contemplation, preparation, action, maintenance, and termination. Therefore, this model was designed to effectively monitor the progression of an individual within each stage, and to provide specific methods of treatment for the individual tailored to the stage that they conceptually fit into. For example, the action stage of change refers to the point at which an individual is actively making changes to their lives to change the problem behaviour; individuals in this stage are more likely to adhere to the treatment protocols as well as have more rapid improvement compared to those in the previous stages of change (Prochaska & DiClemente, 1983). Given that individuals may volunteer to participate in studies involving treatment for perfectionism (e.g., Arpin-Cribbie, Irvine, & Ritvo, 2012) based on their own perceived awareness that they experience negative attributions of perfectionism, these individuals may be in the action stage for therapeutic change (Prochaska & DiClemente, 1983; Prochaska, DiClemente, & Norcross, 1992) therefore resulting in greater improvement on treatment outcomes. An effective measure of treatment readiness should be incorporated to effectively monitor and understand how individuals improve within the therapeutic process.

Even though research has evidenced a clear benefit to understanding readiness for change in delivering interventions (Mander et al., 2012; Prochaska & DiClemente, 1983), one cannot overlook the extent to which readiness for change may only be of benefit when paired with the availability and accessibility of affordable mental health services. Significant barriers, such as limited income and resources, can prevent individuals from receiving treatment. Often,

individuals are put on waitlists for months before receiving treatment, therefore prolonging the aversive effects of their mental health concerns. Approximately 33% of Canadians who experienced a need for mental health care in the past 12 months reported that their needs were unmet or partially unmet (Sunderland & Findlay, 2013). Moreover, one's access to treatment may be limited by their socioeconomic status, as lower education level has been a predictor of, and barrier to, mental health service use in Canada (Katz, Kessler, Frank, Leaf, & Lin, 1997; Steele, Dewa, & Lee, 2007; Steele, Glazier, & Lin, 2006).

Given that society today relies heavily on the use of the Internet, as approximately 90% of Canadians are reported Internet users with almost all individuals under the age of 45 reporting daily Internet use (Statistics Canada, 2017), offering web-based interventions may be beneficial and cost effective in relation to traditional face-to-face treatment, as this is easily accessible in multiple settings, such as in university and community settings. Web-based interventions offer easy dissemination and increase client anonymity, while requiring minimal training for those administering. Moreover, self-help interventions are more efficient in terms of time and location, as there is more flexibility to fit individualized schedules. Overall, research lends support to the effectiveness of web-based interventions in improving cognitive and behavioural outcomes as they tend to be, on average, as effective as face-to-face therapy (e.g., Wantland, Portillo, Holzemer, Slaughter, & McGhee, 2004; see Barak, Hen, Boniel-Nissim, & Shapira, 2008 for a review). Moreover, online interventions have been previously found effective in treating a range of symptoms in university students, with reported improvements in depression, anxiety, stress, disordered eating, and social and academic functioning (see Harrer et al., 2019 for a review). Although it can be argued that there is a lack of nonverbal communication and decreased visibility with the psychologist through online mediums, it is suggested that adopting online

intervention approaches can often be equally as beneficial as traditional face-to-face therapies for treating a variety of problems (Barak et al., 2008). Although it is acknowledged that online interventions may not always be beneficial, given the nature of the mental health concerns, online interventions have been found effective in treating anxiety and stress, as they result in similar treatment outcomes as face-to-face therapies, and should therefore be explored further (Barak et al., 2008).

A particular study of interest is an online form of treatment for perfectionism, which was conducted by Arpin-Cribbie et al. (2012); this was the first study designed to specifically target perfectionistic cognitions using an online modality. The design of Arpin-Cribbie et al. (2012) involved a 10-week web-based intervention involving university students who evidenced a high frequency of automatic perfectionistic thoughts. The results indicated a reduction in levels of perfectionism and perfectionism-related distress between treatment groups; specifically, they found reduced levels of perfectionism, depressive symptomology, anxiety, and cognitive vulnerability to negative affect in the CBT group compared to the no treatment (NT) control group from pretest to posttest, and reduced levels of cognitive and trait perfectionism compared to the general stress management (GSM) group. The NT group was a waitlist condition used to control for expectancy effects that can occur while waiting for treatment, as improvement in psychological functioning has been noted in waitlist groups (e.g., Ahola et al., 2017). Given the significant improvements noted in the CBT group, this self-directed modality of therapy would be beneficial to explore further by understanding how the online material may contribute to positive changes in the treatment process.

Although there have only been a few studies using an online intervention to treat perfectionism to date, there has been an increasing awareness of the importance to treat

perfectionism and perfectionism-related distress using online modalities. For example, a new web-based treatment protocol was designed for targeting perfectionism using CBT by providing feedback to the individuals as part of the online treatment process (Kothari, Egan, Wade, Andersson, & Shafran, 2016). Although this study is informative, it was unclear if the material they were using would be effective in treating perfectionism in an online format as the study was incomplete at the time that the current research study was designed (Shafran et al., 2017). Similarly, another study found online interventions targeting perfectionism effective in terms of reducing perfectionistic attitudes and behaviours, but not as effective as face-to-face therapy in terms of reducing related distress, such as depression or anxiety (Egan et al., 2014). Therefore, it may be of more benefit to explore online interventions that have previously found decreases in perfectionism and perfectionism-related distress, such as that of Arpin-Cribbie et al. (2012). However, the current study is not intended to assess whether online interventions are equally or more effective than in-person treatments. Thus, the objective of the proposed research was to replicate and extend on the research design of Arpin-Cribbie et al. (2012) in order to effectively address some of the limitations in the literature and provide extensions suggested in the meta-analysis by Lloyd et al. (2015) where it was concluded that treatment modalities, such as duration and format of treatment, should be further explored to improve interventions for perfectionism.

In order to explore which components of therapy may be more relevant to treating trait perfectionism and automatic perfectionistic thoughts, and whether a shorter intervention period may be effective enough to note significant improvement in the participants, assessing therapy as a process, rather than an outcome, would be of value. Most research involving clinical interventions use an outcome approach by assessing psychological functioning at pretreatment

and posttreatment (Orlinsky, Grawe, & Parks, 1994). However, much information is lost when not accounting for changes in the individual across the therapeutic process, which can aid in the understanding of *how* therapy works rather than what it *does*. Synthesizing the information that is gained by exploring therapy as a process can help explain which components of therapy are most relevant to improved treatment outcomes, and to classify findings into a conceptual framework for future research (Orlinsky et al., 1994). Therefore, the current study assessed therapy as a process, as well as an outcome, in order to gain a broader perspective into the components of the methodology most pertinent to psychological improvement.

In summary, the purpose of the current study was to extend on the methodology of a web-based intervention for perfectionism by Arpin-Cribbie et al. (2012) by examining treatment readiness and treatment adherence to effectively monitor therapeutic improvement as both a process and outcome. More specifically, the current study implemented a 10-week online intervention for perfectionism using a baseline and posttest design which included three experimental conditions: the cognitive behavioural intervention (CBT), the general stress intervention (GSM), and the waitlist condition (NT). Perfectionism, depressive symptomology, anxiety, negative affect, and treatment readiness were assessed at baseline and posttest, with a subset of individuals assessed on a weekly basis. Treatment readiness, which is one's willingness to engage in or adhere to psychological treatment, was conceptualized by using the stages of change in the Transtheoretical Model (Prochaska & DiClemente, 1983), including pre-contemplation, contemplation, action, and maintenance stages. Additionally, treatment adherence was conceptualized as the quantity and quality of time dedicated to intervention use.

Exploring patterns in the data regarding frequency of usage of material, the specific materials used, and changes in psychological functioning over time contribute to understanding

the process of change in therapy and specific mechanisms of change associated with improved treatment outcomes for perfectionism. Both a process and outcome group were used as it was unclear if multiple incidences of contact with the groups on a weekly basis would significantly influence the outcome of the participants, as limited research has been conducted in this area. However, two meta-analyses have found that increased support in treatment is related to greater effect size for treatment outcome, where there is a significant difference between no human contact (or no support) compared to contact throughout therapy (or large amount of support; Johansson & Andersson, 2012; Richards & Richardson, 2012). Therefore, inclusion of both process and outcome groups provided more information regarding contact points versus no contact throughout a self-directed treatment process.

Hypotheses

1. Participants in the CBT group will evidence greater improvements from baseline to posttest on measures of perfectionism, depressive symptomology, anxiety, and negative affect compared to the GSM and NT groups.
2. In regard to treatment readiness, participants that are in the action stage of change will evidence greater improvement on outcome measures compared to participants that are in the pre-contemplation and contemplation stages of therapy. More specifically, those in the action stage will have decreased levels of perfectionism, depressive symptomology, anxiety, and negative affect compared to previous stages of change.
3. There will be greater improvement in psychological functioning for individuals in the process groups compared to outcome groups. Increased contact points in therapy will result in greater decreases in perfectionism, depressive symptomology, anxiety, and negative affect.

Method

Participants

There were 12 participants who completed the study, with five participants in the CBT group, three participants in the GSM group, and four in the NT group. Participants included post-secondary students from Laurentian University, individuals from the community of Sudbury, and individuals from the general online community. Eligible participants were those who were at least 17 years of age. A diagram of the flow of participants is presented in Figure 1; note that only the participants who completed posttest were used for main study analyses.

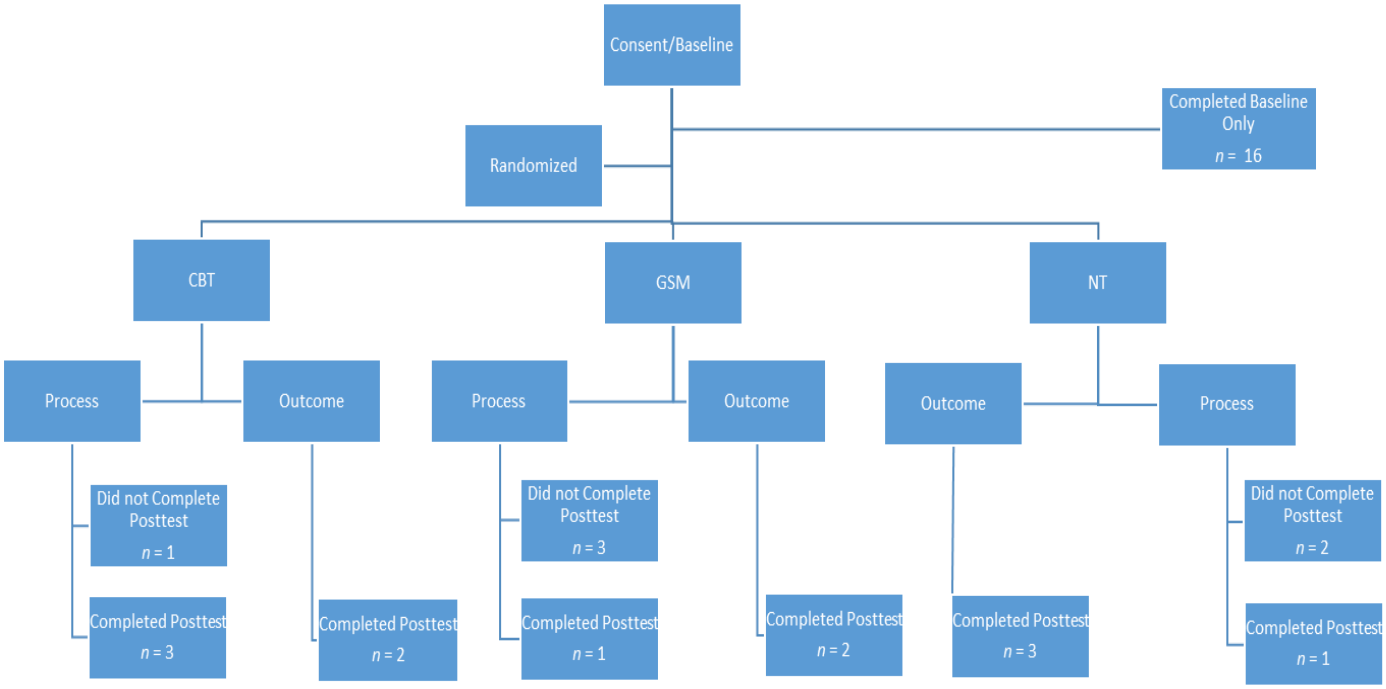

Figure 1. Flow diagram of study participants.

Interventions

The intervention materials were made available online through a Laurentian University website. The material was presented as online modules, in the form of PDFs, which included both psychoeducational and self-directed homework components. Participants were sent the

website link via an email address created for this study. The interventions were designed in such a way that the CBT intervention included the modules that had a cognitive behavioural focus as well as the modules that focused on more general stress management. The GSM intervention, however, only included the modules that focused on stress management. Chapter 1 for both the CBT and GSM groups served as an introduction to the online intervention program. Although there was a suggested progression through the material, the participants were free to move through the material in any order they wished; this format was consistent with the design of Arpin-Cribbie et al. (2012).

Cognitive Behavioural Therapy. The maladaptive components of perfectionism that emphasize cognitive distortions include the factor concern over mistakes (CM), which is a component of this concept (Frost et al., 1990). Therefore, a cognitive based intervention should help to reduce distorted thinking that is a key feature of perfectionism. The CBT treatment was comprised of 13 modules (see Appendix A), including all of the materials from the GSM intervention, as well as content that is directly related to targeting perfectionistic thinking. The CBT specific content consisted of the following six modules: (a) living in the real world (checking out your interpretations); (b) living in the world of "should" (examining and re-evaluating expectations and the importance of personal choice); (c) working out your mind (recognizing how certain ways of thinking cause distress); (d) dealing with negative moods (three skills for dealing with negative moods); (e) when a "want" becomes "necessity" (keeping perspective on desires); and (f) dealing with performance anxiety (helping you do and feel your best).

General Stress Management. The participants in the GSM intervention had access to seven modules (see Appendix B), with one module being an introduction to the program and six

modules specific to stress management techniques including: (a) recognizing and dealing with stress (recognizing how stress uniquely "gets to you" and learning what helps you reduce stress); (b) dealing with distractions and distractibility (seeing how stress gets you distracted and discovering what you can do to maintain focus); (c) changing your stressors (learning to relax, including progressive relaxation and breath-focused relaxation); (d) first, try exercise (getting started and monitoring your progress); (e) sleep (healthier sleep makes your brain work better); and (f) meditation (maintaining awareness and balance).

No Treatment Waitlist. The NT participants were informed that they were put on waitlist until an opening was available for the treatment group. All participants in this group were asked to complete posttest measures after 10 weeks. At this time, all NT participants were provided with the CBT intervention materials, which included both GSM and CBT specific modules.

Process vs. Outcome

In order to remain consistent with the previous design of Arpin-Cribbie et al. (2012), the nature of the intervention remained mostly unchanged. Therefore, the current study implemented a baseline and posttest design, where participants were provided with baseline measures prior to random assignment into one of the three experimental conditions and posttest measures following 10 weeks after commencement of the program; this design was known as an outcome approach. Modifications included the addition of a process approach to monitor changes in psychological functioning over the course of therapy with weekly measures of depressive and anxious symptomology, vulnerability to negative affect, and perfectionism, in addition to baseline and posttest measures. Weekly short forms of measures were provided to a subset of each treatment condition (CBT, GSM, and NT) in order to explore which components of therapy

may be more beneficial, and whether a shorter intervention period may be effective enough to note significant improvement in the participants. Therefore, participants assigned to the outcome group were only provided with baseline and posttest measures, whereas participants in the process group were provided with measures on a weekly basis during the intervention program in addition to baseline and posttest measures.

Baseline and Posttreatment Measures

Perfectionism. The Perfectionism Cognitions Inventory (PCI; Flett et al., 1998) is a 25-item test developed to assess frequency of automatic perfectionistic thoughts (Flett, Hewitt, Whelan, & Martin, 2007). The PCI is rated on a 5-point Likert scale ranging from (0) *not at all* to (4) *all the time* (see Appendix C). Total scores can range from 0 to 100, with higher scores indicating more frequent automatic perfectionistic thoughts. The PCI is reported to have high internal consistency and test-retest reliability with a normative mean of 46.79 (*SD* = 24.49; Flett et al., 2007). The PCI has been associated with elevated levels of anxiety and depression, and with associated deficits in cognitive self-management. For the purpose of this study, mean scores were used with a cut-off score of 2.4, which is one standard deviation above the mean.

The Multidimensional Perfectionism Scale (MPS-F; Frost et al., 1990) is a 35-item measure used to assess six dimensions of perfectionism: concern over mistakes, doubts about actions, personal standards, parental expectations, parental criticism, and organization. The MPS-F is rated on a 5-point Likert scale where participants are asked the extent of agreement with the statements from (1) *strongly disagree* to (5) *strongly agree*. Internal consistencies have been reported to range from .77 to .93 for each of the factors, and there is a high reliability for the total scale (.90). For the purpose of this study, only the concern over mistakes (CM) subscale was used which includes 9 items (see Appendix D), with higher scores indicative of a greater

concern over mistakes.

The Multidimensional Perfectionism Scale (MPS-HF; Hewitt & Flett, 1991) is a 45-item measure which assesses perfectionistic tendencies at the trait level on three different facets: self-oriented perfectionism (SOP), socially prescribed perfectionism (SPP) and other-oriented perfectionism (OOP). These items are rated on a 7-point Likert scale for the extent of agreement with the statements from (1) *strongly disagree* to (7) *strongly agree*, with higher scores indicating a higher level of trait perfectionism. Internal consistencies for each subscale found alpha coefficients of .86 for SOP, .87 for SPP, and .82 for OOP from a college sample (Hewitt & Flett, 1991). A shortened version (MPS-HF-S; see Appendix E) was used in place of the original 45-item measure, which consisted of 15 items; five items for each of the three categories (SOP, SPP, OOP; Hewitt, Habke, Lee-Baggley, Sherry, & Flett, 2008).

The Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi & Ashby, 2001) is a 23-item questionnaire that assesses three dimensions of perfectionism: discrepancy, high standards, and order. The APS-R has previously demonstrated high internal consistencies for all subscales (.82 to .92). For the purpose of this study, only the 12-item discrepancy subscale (DISCR) was utilized, as it examines the perceived gap between perfectionistic standards and level of attainment, to assess the cognitive dimension of perfectionism (see Appendix F). The items are measured on a 7-point Likert scale from (1) *strongly disagree* to (7) *strongly agree* of attitudes toward themselves, with higher scores indicating a greater discrepancy between perfectionistic standards and attainment level.

Depressive symptomology. The Center for Epidemiologic Studies – Depression Scale (CES-D; Radloff, 1987) is a 20-item measure that includes six scales reflecting major dimensions of depression: depressed mood, feelings of guilt and worthlessness, feelings of

helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance (Orme, Reis, & Herz, 1986; see Appendix G). The CES-D is rated on a 4-point Likert scale ranging from (0) *rarely or none of the time* to (3) *most or all of the time* (5-7 days). Scores for items 4, 8, 12, and 16 are reversed scored before summing all responses. Total scores can range from 0 to 60 with higher scores indicating more depressive symptomology. The CES-D is reported to have strong internal consistency, and high concurrent and construct validity (Radloff, 1987). Mean scores were used for the purpose of this study.

Anxiety. The General Anxiety Disorder-7 (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006) is a 7-item measure used to assess the frequency of symptoms of anxiety on a 4-point Likert scale ranging from (0) *not at all* to (3) *nearly every day* (see Appendix H). This brief measure was used in place of the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown & Steer, 1988), which is a 21-item measure that was used to assess clinical anxiety in the original study by Arpin-Cribbie et al. (2012). The GAD-7 was used in order to reduce cost of administration and provide more brevity to the measure of anxiety for participants. The GAD-7 has been reported to have a 0.76 correlation with the BAI and Cronbach's alpha of .92 (Seo, & Park, 2015). Higher scores are indicative of more anxious symptomology.

Vulnerability to negative affect. The Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980; Hollon & Kendall, 1987) is a 30-item questionnaire rated on a 5-point Likert scale assessing the frequency of each of the negative thoughts that crossed one's mind in the last week from (1) *not at all* to (5) *all the time* (see Appendix I). Higher scores are indicative a greater degree of vulnerability to negative affect. The ATQ has been found to have an alpha coefficient of .97, which demonstrates high internal consistency (Hollon & Kendall, 1980).

Treatment readiness. The University of Rhode Island Change Assessment-Short

(URICA-S; Mander et al., 2012) is a 16-item measure used to assess the stage of change relative to therapy based off of the University of Rhode Island Change Assessment (URICA; McConnaughy, Prochaska, & Velicer, 1983). Participants are asked the level of agreement with statements regarding their awareness of their mental illness on a 5-point Likert scale from (1) *strongly disagree* to (5) *strongly agree* (see Appendix J). This reflects a greater agreement to one of the four factors of stage of change: pre-contemplation (PC), contemplation (C), action (A), or maintenance (M). The URICA-S has strongly predicted outcomes of individuals with depression, eating disorders, and somatoform disorders. The total treatment readiness score is calculated by summing the mean scores from the C, A, and M subscales, while subtracting the mean PC score. A total score of ≤ 8, 8-11, 11-14, or ≥ 14 is indicative of stages PC, C, A, or M, respectively.

Treatment adherence. At posttest, participants were asked a series of questions pertaining to the web-based modules that they completed in total, with one tailored to the CBT group (see Appendix K) and the other to the GSM group (see Appendix L). The NT waitlist group did not receive a treatment adherence measure as they were not involved in any form of intervention.

Demographics. Participants were asked a few questions pertaining to their age, gender, marital status, and level of education, as well as a few questions surrounding the use of external mental health services and medications at baseline (see Appendix M) and at posttest (see Appendix N).

Process Measures

It has been found that various factors, such as burden of the program, website accessibility, and questionnaire length, for example, can influence attrition rates in intervention programs (Christensen, Griffiths, & Farrer, 2009; Davies, Morriss, & Gladebrook, 2014; Rolstad,

Adler, & Rydén, 2011). Therefore, individuals that were assigned to the process groups were provided with shortened versions of the outcome measures in place of the full versions to limit the workload on participants during weekly monitoring to reduce the risk of attrition. The administration schedule for the process group is included in Table 1.

Table 1
Measures Administered at Baseline, During Treatment, and Posttreatment for Process Groups

	Week											Items
Measure	0	1	2	3	4	5	6	7	8	9	10	
Perfectionism												
PCI	x					x					x	25
CM	x		x		x		x		x		x	9
MPS-HF-S	x	x		x		x		x		x	x	15
DISCR	x										x	12
Depression												
CES-D	x										x	20
CES-D-S		x	x	x	x	x	x	x	x	x		4
Anxiety												
GAD-7	x	x	x	x	x	x	x	x	x	x	x	7
Negative Affect												
ATQ	x										x	30
ATQ-S		x	x	x	x	x	x	x	x	x		8
Treatment Readiness												
URICA-S	x										x	16
TR-S		x	x	x	x	x	x	x	x	x		1

Note. x = measure administered during that time period; Week 0 = Baseline and Week 10 = Posttest; PCI = Perfectionism Cognitions Inventory; CM = Concern over Mistakes; MPS-HF-S = Multidimensional Perfectionism Scale Short; DISCR = Discrepancy; CES-D = Center for Epidemiological Studies – Depression; CES-D-S = Center for Epidemiological Studies – Depression Scale Short Form; GAD-7 = Generalized Anxiety Disorder – 7; ATQ = Automatic Thoughts Questionnaire; ATQ-S = Automatic Thoughts Questionnaire – Short Form; URICA-S = University of Rhode Island Change Assessment – Short; TR-S = Treatment Readiness Short.

Perfectionism. All process measures of perfectionism were the same as the baseline and posttest measures and, therefore, are rated on the same scaling system as previously indicated. Participants were assessed with the PCI only once throughout the process evaluation, after

baseline and before posttest, as there have been no shortened versions of this measure. The shortened version of the MPS-HF and the MPS-F subscale, CM, were used on an alternating biweekly schedule. The DISCR subscale was not used as a process measure.

Depressive symptomology. The 4-item CES-D Short (Melchior, Huba, Brown, & Reback, 1993) has a .87 correlation with the 20-item CES-D (Radloff, 1977) with a reported Cronbach's alpha of .81. The items have been taken from the full version (see Appendix O), rated on a 4-point Likert scale, and a cut-off sum score of 3 for mild or significant depressive symptoms (Melchoir et al., 1993; Zauszniewski, & Graham, 2009). However, mean scores were used for the purpose of this study which were calculated using the formula by Melchoir et al. (1993) of 4.08 x (4-item sum score) = 20-item predicted sum score, which were then converted to mean scores and used for direct comparison with the 20-item CES-D.

Anxiety. The GAD-7 was used as a weekly measure of anxiety to assess the frequency of anxious symptomology. The GAD-7 was rated on the same scale as previously indicated in the outcome measures section.

Vulnerability to negative affect. There is an 8-item short version of the ATQ (ATQ-S) which was used for weekly monitoring of the frequency of negative automatic thoughts (Hollon & Kendall, 1980; Netemeyer et al., 2002). This short version has previously shown good internal consistency (.92) and nomoligcal validity with the full questionnaire. The items are taken from the full version and are rated on a 5-point Likert scale (see Appendix P). The short version is considered a reliable alternative to measuring cognitions associated with depression and obsessive thoughts. During the trend and latency analyses in the present study, only the 8 corresponding items from the 30-item ATQ were used for direct comparison to the ATQ-S.

Treatment readiness. A single item measure was included to measure treatment

readiness (TR-S; see Appendix Q). This item has been adapted from the URICA-S, where one item from each of the stages was selected (pre-contemplation, contemplation, action, and maintenance) to create one item with four possible responses. The response selected by the participants was used to reflect the stage of treatment readiness of the individual.

Treatment adherence. Participants were briefly asked which modules they had completed within the previous week, assessing time and frequency of usage separately for the CBT group (see Appendix R) and the GSM group (see Appendix S).

Procedure

The procedural design of this study closely resembled that of Arpin-Cribbie et al. (2012). Participants were asked to volunteer to take part in the current study if they felt, or if someone suggested to them, that perfectionism was negatively affecting their lives. Participants were recruited through business cards, posters, and newspaper advertisements on the Laurentian University campus, local grocery stores, and community centres. Participants were also recruited through various social media sites (e.g., Facebook, Reddit, etc.). With all forms of recruitment, a website link directed participants to the secure, online survey system of REDCap which had a pre-screening script (see Appendix T). This pre-screening script provided a slightly more detailed description of the procedure of the study. Participants were informed that a working email address was required to participate in the study in order to send the website links to access the intervention modules on the Laurentian University website and to complete the study questionnaires via REDCap.

Participants who agreed to participate in the study were asked to provide informed consent (see Appendix U) before providing an email address and creating an ID code (see Appendix V). Each participant created an ID code in order to track their responses across the

intervention period; this ID code used the participant's initials, birth day and birth month (e.g., John Smith Birthday June 1st = JS0106). These ID codes are not linked to the participant's identity, as their full names were not required. This format was used to reduce the likelihood of duplicate ID codes and for easy recall when prompted. After participants provided their email address and created their ID code, they completed all baseline measures (PCI, CM, MPS-HF-S, DISCR, CES-D, GAD-7, ATQ, and URICA-S) including demographic information.

After the baseline measures were completed, participants were randomly assigned to either the CBT, GSM, or NT group. Researchers used a random number table generator to randomly assign participants to one of six experimental conditions (within the three experimental groups, participants were assigned to a process or outcome approach to treatment). Furthermore, four separate random number tables were used, divided by two variables: sample type (university students or general community) and PCI score (one standard deviation above or below the cut-off). It was unclear at the time of study the extent that the two samples would differ in demographic characteristics, as the previous study only consisted of post-secondary students. Moreover, participants who scored below the cut-off on the PCI had not previously participated in this intervention. To ensure similar characteristics across all experimental conditions, separate random number tables were used.

Once participants were randomly assigned to a condition, they were contacted via email and provided with instructions on how to access the intervention materials through a Laurentian University website link (see Appendix W). The NT group was also directed to a Laurentian University website link which explained that they were on the waitlist and would be provided with the intervention materials in 12 weeks' time. The timing of the current study differed across participants, as the program was not administered in a controlled group format (i.e., participants

did not have to wait until a specific number of individuals were recruited to begin the program). The timeline for individual participants commenced once baseline measures were completed and finished 10 weeks following this date, at which time posttest measures were administered.

One week following the initial email to participants, individuals who were assigned to the process group were asked to complete a weekly questionnaire, which was sent as a REDCap website link via email. The weekly measures administered followed the schedule indicated in Table 1, which were administered on the same day each week for 9 consecutive weeks. If participants did not complete the weekly questionnaire within two days, a follow-up email was sent. Upon completion of the 10-week treatment period, all participants (process and outcome groups) were asked to complete posttest measures. Participants were then directed to the debriefing form (see Appendix X) on REDCap through a website link sent via email.

Results

Sample Characteristics

Demographic information. The sample included 12 participants who completed the intervention program. Participants had a mean age of 30.25 years (*SD* = 13.63) and consisted of 2 males and 10 females. Reported ethnicities included Caucasian/White (50%), European (17%), Indian (8%), Chinese (8%), or other (8%). Furthermore, this sample included 6 postsecondary students and 6 individuals from the general community. See Table 2 for a summary of the demographic information for each participant by experimental condition. No significant differences (all p's > .05) were noted between the experimental groups on the demographic information.

Data Cleaning

Missing Data Analysis (EM) was conducted, for all participants, on the baseline

indicators with less than 15% missing data per measure. All other participants were removed before conducting the Missing Data Analysis. In total, six items were replaced by the Missing Data Analysis across the 12 participants who completed the intervention program. Missing data for process and posttest scale and subscale scores were calculated by using the mean of all items presented for that measure. The reason for using mean scores rather than calculating scores using the Missing Data Analysis was due to the smaller sample size, which made it difficult to conduct the analysis in that way.

Table 2

Sample Characteristics of Participants who Completed the Intervention Program

	P/O	Gender	Age	S/C	PCI Score	TBI	MBI	TDI	MDI
CBT									
CBT_5	P	F	20	S	>1SD	--	--	--	--
CBT_{16}	P	F	47	C	>1SD	--	--	--	--
CBT_{17}	P	F	20	S	>1SD	--	--	--	--
CBT_{18}	O	F	21	S	<1SD	--	--	--	--
CBT_{23}	O	F	57	C	<1SD	--	--	--	--
GSM									
GSM_{28}	O	F	22	C	>1SD	26	52	10	10
GSM_{38}	P	F	22	S	>1SD	--	--	--	--
GSM_{39}	O	M	20	S	>1SD	--	21.5	7	10
NT									
NT_{13}	O	M	22	S	<1SD	30	52	7	10
NT_{20}	P	F	50	C	>1SD	--	--	--	--
NT_{35}	O	F	26	C	<1SD	--	--	--	--
NT_{42}	O	F	36	C	>1SD	--	364	--	--

Note. CBT = Cognitive Behaviour Therapy; GSM = General Stress Management; NT = No Treatment (Waitlist); The numbers that follow the abbreviations are ID codes created by the researchers for individual participant data based on treatment group; P/O = Process/Outcome; F = Female, M = Male; S/C = Student/Community Member; PCI = Perfectionistic Cognitions Inventory; >1SD = one standard deviation above the mean at baseline; <1SD = one standard deviation below the mean at baseline; TBI = therapy before intervention (number of weeks spent using alternate psychological services prior to intervention program); MBI = medication before intervention (number of weeks spent using medication for mental health concerns prior to intervention program); TDI = therapy during intervention (number of weeks spent using alternate psychological services); MDI = medication during intervention (number of weeks spent using medication for mental health concerns).

Interrelatedness of Baseline Measures

A summary of correlations between baseline measures, including scale and subscale scores, is presented in Table 3.

Table 3
Summary of Bivariate Correlations at Baseline for Perfectionism, Depressive Symptomology, Anxiety, and Negative Affect of Participants who Completed the Intervention

Measure	1	2	3	4	5	6	7	8	9
1. PCI	--								
2. SOP	.593*	--							
3. SPP	.535	.485	--						
4. OOP	.266	.094	.269	--					
5. CM	.857**	.714**	.628*	.426	--				
6. DISCR	.750**	.521	.413	-.106	.579*	--			
7. CES-D	.413	.292	.507	.270	.529	.441	--		
8. GAD-7	.349	.110	.126	-.341	.293	.494	.623*	--	
9. ATQ	.416	.077	.378	.005	.392	.562	.806**	.806**	--

Note. *$p < .05$, **$p < .01$. PCI = Perfectionism Cognitions Inventory; SOP = Self-Oriented Perfectionism; SPP = Socially Prescribed Perfectionism; OOP = Other-Oriented Perfectionism; CM = Concern over Mistakes; DISCR = Discrepancy; CES-D = Center for Epidemiological Studies – Depression Scale; GAD-7 = Generalized Anxiety Disorder – 7; ATQ = Automatic Thoughts Questionnaire.

Scale Reliability

A reliability analysis was conducted to assess the internal consistency of baseline indicators for all participants and only those who completed the intervention program (see Table 4). All scales, except for the Action subscale on the URICA-S, exceeded a Cronbach's alpha of .70, which suggests an appropriate level of reliability (Nunnally, 1978).

Trend Analyses

The level, trend, and latency of the intervention data for each dependent variable was analyzed separately. Level of change was assessed by the change in mean score across two time points: baseline and posttest. The trend and latency, defined as the gradual increase or decrease observed in the dependent variable across time (trend) and the time it takes to observe distinct

changes in the dependent variable after baseline (latency), were assessed by using data from repeated measures (e.g., weekly, biweekly, etc.) during the intervention phase for each dependent variable. The trend was analyzed by calculating the line of best fit across the intervention phase, relative to the baseline data, whereas the latency was analyzed by highlighting variability of scores across time. A visual representation of level, trend, and latency is included in the figures for each of the outcome variables of interest. More specifically, figures for each variable include four charts which demonstrate changes from baseline to posttest by experimental condition (CBT = top left, GSM = top right, and NT = bottom left) and changes across time (i.e., weekly, biweekly, etc.) for all experimental conditions (bottom right).

Table 4
Reliability Analysis of Items for Baseline Indicators of Perfectionism, Depressive Symptomology, Anxiety, Negative Affect, and Stages of Change

Scale	Number of items	α_c	α_t
PCI	25	.893	.916
SOP	5	.812	.865
SPP	5	.704	.739
OOP	5	.915	.854
CM	9	.773	.782
DISCR	12	.937	.948
GAD-7	7	.839	.864
CES-D	20	.782	.742
ATQ	30	.964	.975
PC	4	.695	.741
C	4	.925	.874
A	4	.509	.678
M	4	.938	.891

Note. $_c$ = reliability of completers only; $_t$ = reliability of all participants (completers and non-completers); PCI = Perfectionism Cognitions Inventory; SOP = Self-Oriented Perfectionism; SPP = Socially Prescribed Perfectionism; OOP = Other-Oriented Perfectionism; CM = Concern over Mistakes; DISCR = Discrepancy; CES-D = Center for Epidemiological Studies – Depression Scale; GAD-7 = Generalized Anxiety Disorder – 7; ATQ = Automatic Thoughts Questionnaire; PC = Pre-Contemplation; C = Contemplation; A = Action; M = Maintenance.

Trend Analyses Testing Treatment Effects: Hypothesis 1

In hypothesis 1, it was expected that the participants in the CBT group would evidence greater declines in perfectionism, depressive and anxious symptomology, and negative affect compared to participants in the GSM and NT groups.

Perfectionism. Four measures were used to assess perfectionistic cognitions, attitudes, and behaviours at baseline and then again at posttest, encompassing both cognitive and trait dimensions. A summary of the mean scores across all baseline and posttest perfectionism indicators are presented in Table 5. Repeated measures of five perfectionism indicators (PCI, CM, SOP, SPP, OOP) were also conducted according to the timeline outlined in Table 1 above. Separate trend analyses were conducted for each perfectionism variable.

PCI.

Level. At baseline, 8 of the 12 participants (3_{CBT}, 3_{GSM}, 2_{NT}) had PCI scores that were above the implemented cut-off, set at one standard deviation above the mean (≥ 2.4), and four participants (2_{CBT}, 2_{NT}) were below this cut-off (< 2.4). However, at posttest, two of the three CBT participants and two of the three GSM participants were no longer above the cut-off, and one NT participant moved from below the cut-off to above. Therefore, participants in the intervention groups exhibited decreases in automatic perfectionistic thinking compared to NT participants, partially supporting hypothesis 1.

In terms of overall reductions in PCI scores, exclusive of the cut-off, four of the five participants in the CBT group had lower PCI scores after completing the intervention program compared to baseline levels (see Figure 2). Similarly, all GSM participants had declines in scores after 10 weeks in the program. In contrast, three of the four NT participants had increased PCI scores at posttest relative to their baseline levels. Therefore, it appears that the two treatment

Table 5

Mean Scores of Perfectionism Indicators for Individual Participants and Across Treatment Groups at Baseline and Posttest

	Baseline						Posttest					
	PCI	CM	SOP	SPP	OOP	DISCR	PCI	CM	SOP	SPP	OOP	DISCR
CBT	**2.43**	**3.64**	**5.32**	**4.36**	**4.96**	**5.27**	**1.80(-)**	**3.02(-)**	**5.20(-)**	**4.68(+)**	**4.32(-)**	**4.70(-)**
CBT_5	2.76	3.88	6.00	3.60	2.00	6.42	2.68(-)	3.22(-)	6.40(+)	3.60(/)	1.80(-)	6.35(-)
CBT_{16}	3.08	4.11	6.80	6.40	6.20	6.92	2.36(-)	3.00(-)	6.00(-)	5.60(-)	5.40(-)	4.83(-)
CBT_{17}	3.12	4.22	5.40	4.20	6.80	6.00	1.64(-)	3.22(-)	5.40(/)	3.80(-)	6.60(-)	4.33(-)
CBT_{18}	2.16	3.67	5.20	4.80	5.20	5.17	1.24(-)	3.00(-)	3.60(-)	5.40(+)	3.20(-)	3.83(-)
CBT_{23}	1.04	2.33	3.20	2.80	4.60	1.83	1.08(+)	2.67(+)	4.60(+)	5.00(+)	4.60(/)	4.17(+)
GSM	**2.77**	**4.11**	**5.80**	**5.20**	**4.20**	**5.92**	**1.56(-)**	**3.33(-)**	**4.47(-)**	**3.93(-)**	**3.53(-)**	**4.25(-)**
GSM_{28}	2.60	3.44	5.00	5.40	1.20	6.75	1.60(-)	3.44(/)	3.00(-)	3.60(-)	2.80(+)	6.33(-)
GSM_{38}	2.64	4.33	6.80	5.20	4.60	4.75	0.60(-)	3.44(-)	5.40(-)	4.60(-)	4.60(/)	2.91(-)
GSM_{39}	3.08	4.56	5.60	5.00	6.80	6.25	2.48(-)	3.11(-)	5.00(-)	3.60(-)	3.20(-)	3.50(-)
NT	**2.33**	**3.78**	**5.25**	**4.55**	**4.25**	**5.69**	**2.63(+)**	**3.59(-)**	**5.60(+)**	**5.45(+)**	**4.65(+)**	**5.52(-)**
NT_{13}	2.16	3.78	6.40	4.20	3.80	5.00	2.28(+)	3.22(-)	5.80(-)	4.60(+)	2.40(-)	5.25(+)
NT_{20}	2.84	4.33	4.80	6.20	5.40	5.17	3.00(+)	4.56(+)	6.00(+)	6.80(+)	7.00(+)	6.25(+)
NT_{35}	1.60	3.44	5.00	4.40	4.00	5.83	2.56(+)	3.67(+)	6.40(+)	5.80(+)	5.00(+)	6.17(+)
NT_{42}	2.72	3.56	4.80	3.40	3.80	6.75	2.68(-)	2.89(-)	4.20(-)	4.60(+)	4.20(+)	4.42(-)

Note. (+) is indicative of an increase in score on the respective perfectionism indicator relative to baseline, (-) is indicative of a decrease in score on the respective perfectionism indicator relative to baseline, (/) is indicative of no change between baseline and posttest score; CBT = Cognitive Behaviour Therapy; GSM = General Stress Management; NT = No Treatment (Waitlist); PCI = Perfectionistic Cognitions Inventory; CM = Concern Over Mistakes; SOP = Self-Oriented Perfectionism; SPP = Socially Prescribed Perfectionism; OOP = Other-Oriented Perfectionism; DISCR = Discrepancy. Bolded numbers are the computed averages for each perfectionism indicator across individual participants by experimental condition (CBT, GSM, NT).

groups exhibited more adaptive changes with regard to their perfectionistic cognitions after completing the intervention program compared to those on the waitlist.

Figure 2. Perfectionistic cognitions score by experimental condition. This figure illustrates changes in mean PCI score from baseline to posttest by experimental condition and across all experimental conditions for participants in the process group. Mean PCI scores range from 0-4.

Trend. When analyzing the trend across the three assessment points (i.e., baseline, Week 5, and posttest), all four treatment group participants (3_{CBT}, 1_{GSM}) exhibited a downward trend.

Conversely, and as expected, the only NT participant is on a slight upward trend; however, changes were minimal.

Latency. For those in the intervention groups, the majority exhibited the steepest declines in PCI levels by Week 5 and maintained a fairly stable score when assessed at the following timepoint (i.e., posttest). Observable differences were noted for participants CBT_{17} and GSM_{38}. CBT_{17} continued to decline at a steady rate from baseline through to posttest which may be attributed to observed differences in treatment adherence. For example, participant CBT_{17} reported steady, continual use of the intervention materials after Week 5, whereas other participants had heavier use for the first half of the intervention and reported lighter use (≤ 15 minutes/week) in the following weeks. Furthermore, participant CBT_{17} had read all CBT modules by Week 5 and continued to review most of the modules in the latter half of the intervention program, whereas the others in the intervention groups reported more sporadic use across the 10-week period. It should be noted that participant GSM_{38} stopped reading materials after Week 3, but they did note at Week 4 that "now that the school semester is over, much of my stress, worrying, and anxiety has diminished. I am also taking a lot more time for self-care practices. Overall, I do not feel as much pressure to be perfect at this time in my life" which may have contributed to their sustained lower PCI score at Week 5 and posttest. The modules that were covered prior to halting intervention use covered recognizing and dealing with stress, distractions and distractibility, and changing stressors (learning to relax) which may have been relevant to the idea of increasing time for self-care practices in the following weeks for this individual.

SOP.

Level. After the completion of the intervention phase, seven participants' scores

decreased from baseline (2_{CBT}, 3_{GSM}, 2_{NT}), four participants' scores increased (2_{CBT}, 2_{NT}), and one participant's score did not change (1_{CBT}). Scores were analyzed by treatment group but, overall, there appears to be more variability in the participants' level of this trait perfectionism indicator across the 10-week duration rather than a consistent increasing or decreasing pattern.

Of the five in the CBT group, two participants had lower levels of SOP at posttest, one participant did not see any change, and two participants had higher levels (see Figure 3). It was further noted that treatment readiness scores seem to be positively related to SOP score. The two CBT participants who decreased in SOP had higher levels of treatment readiness compared to participants who had unchanging or increased SOP levels. This pattern with treatment readiness was also noted among the NT group, but not the GSM group.

The general level of SOP in the GSM group decreased from baseline to posttest for all participants, with the greatest decline observed by participant GSM_{28}. Conversely, the changes in SOP levels by NT participants were unexpected, particularly for two of the four participants who decreased in SOP after 10 weeks on the waitlist. The other two NT participants had increased levels of SOP. Therefore, hypothesis 1, which states that those in the CBT group would have greater declines compared to GSM and NT groups, appears to not be supported for this perfectionism indicator.

Trend. Though the level analysis provides an overview of the changes observed in participants, it appears that the general trend of the biweekly assessment points provides a slightly different explanation, in favour of hypothesis 1. When analyzing the trend of the intervention data across the 10-week period, it is apparent that two of the three CBT participants exhibited a downward trend, and the other CBT participant had a slight incline. Although participant CBT_{17} appeared to have a stable SOP score when assessed at posttest, the biweekly

assessments suggest the individual was on a downward trend. For the remaining participants in the other experimental groups, the trends paralleled the patterns exhibited in the level analysis. In the GSM treatment condition, there was a general decreasing trend in the level of SOP across time, even though two time points were missing. Lastly, the trend of the NT participant (NT_{20}) was an upward incline from baseline to posttest scores on SOP.

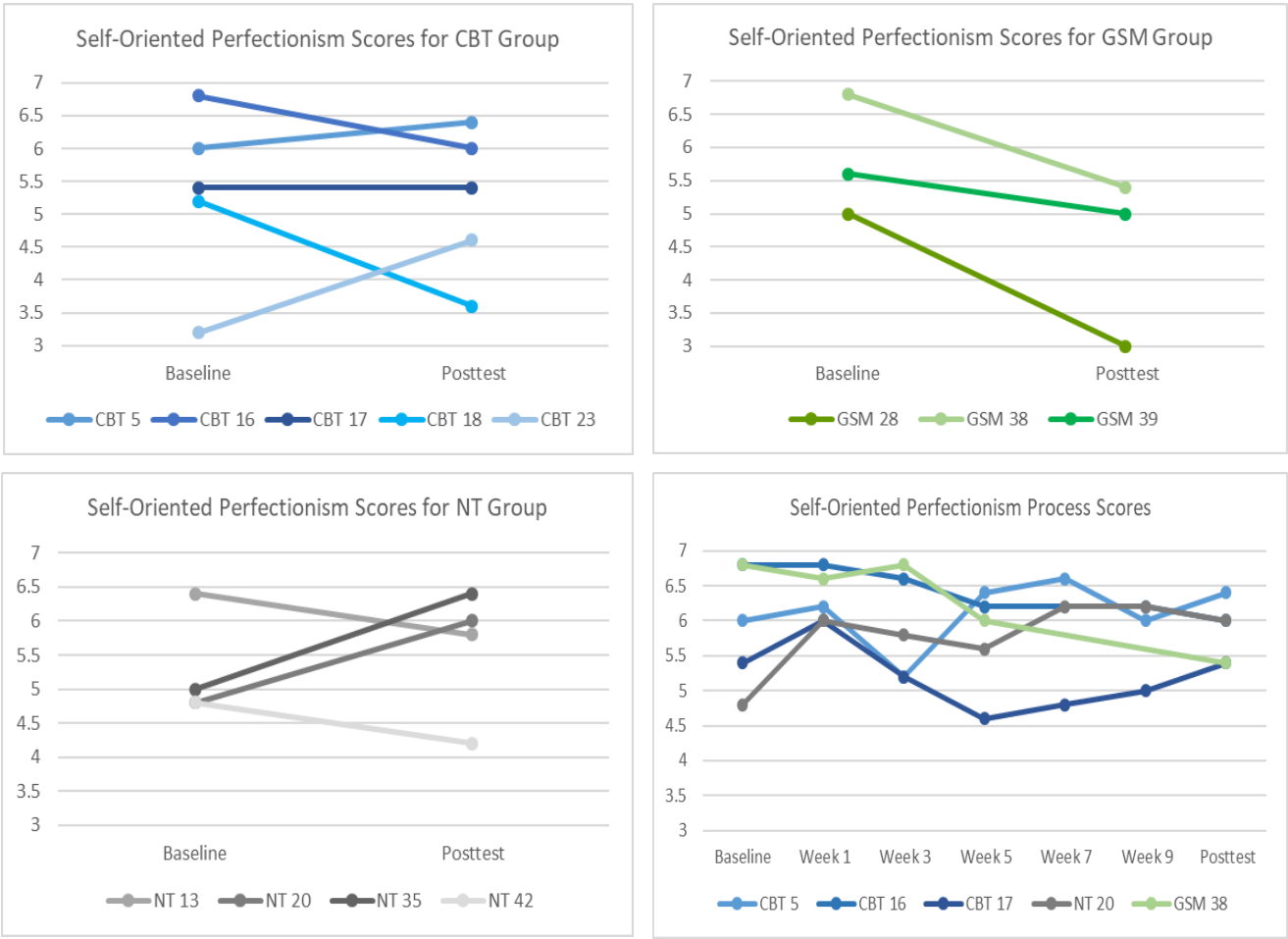

Figure 3. Self-Oriented Perfectionism score by experimental condition. This figure illustrates changes in mean SOP score from baseline to posttest by experimental condition and across all experimental conditions for participants in the process group. Mean SOP scores range from 1-7.

Latency. The participant in the GSM group decreased in the first week of treatment, whereas all other participants, in both the CBT and NT groups, increased in SOP one week following baseline measures. However, the following time point, Week 3, the opposite effect is noted where the GSM participant increased, and all other participants decreased. It appears that treatment adherence may play a role in the changes that occur across the 10-week period. For example, participant CBT_5 had a steep increase in SOP level at Week 5 which continued to increase in Week 7 and, in relation to treatment adherence, they spent little to no time reading the intervention materials during these weeks, whereas the other CBT participants spent longer reading the intervention materials in both weeks. Thus, the change in level may be better explained by external factors including change in work or school environment, for example. This may be the case for CBT_{17} and GSM_{38}, as they reported having significantly increased or reduced stress levels, depending on the start or completion of an examination period, respectively. However, treatment adherence likely plays a larger role given that when viewing the NT participant trend, general increases in SOP are present from Week 1 to posttest, with all biweekly scores higher than baseline, suggesting that no intervention use may be generally related to increases on this measure.

SPP.

Level. Changes observed in participants in the GSM and NT groups were consistent, but there was no consistent pattern of results for participants in the CBT group. Two CBT participants decreased from their baseline level of SPP, one did not change, and two participants' scores were elevated (see Figure 4). In contrast, all participants in the GSM group had lower levels of SPP and all NT participants had elevated scores at posttest. It was expected that NT participants would not see improvements (i.e., declines), but it was not expected that they would

increase in score. However, as there were inconsistent patterns in the CBT group, hypothesis 1 was not supported.

Figure 4. Socially Prescribed Perfectionism score by experimental condition. This figure illustrates changes in mean SPP score from baseline to posttest by experimental condition and across all experimental conditions for participants in the process group. Mean SPP scores range from 1-7.

Trend. When viewing the biweekly assessments, the general trend of both treatment group participants was on a decline, except for CBT_5, who was trending upwards. This

participant had appeared to be unchanging at the level analysis but is observed trending on an incline across the intervention phase during the trend analysis. Participant NT_{20} also exhibited an upward trend in SPP score while on the waitlist, whereas the GSM participant exhibited a decline, which was in line with the level analysis.

Latency. One week after joining the program, all participants had an increase in their level of SPP, except for one CBT participant who remained stable (CBT_5). However, the most noteworthy change was exhibited at the midpoint assessment; all treatment group participants (CBT or GSM), had a steep drop in SPP levels, with the only NT participant exhibiting no changes in SPP. With the exception of CBT_5, the pattern of scores generally stabilizes in the following weeks for treatment group participants, exhibiting some level of variability, but most scores fall below baseline levels. Although a spike is observed for CBT_5, this appears to be an anomaly as their scores remained fairly stable up until this point. It should be noted that there was a ceiling effect for the NT participant for several assessment points, suggesting that the very slight downward trend after a pattern of more stable elevation may not necessarily be indicative of positive change and could instead be related to the idea that the individual can no longer report a higher level of symptom severity, only a lower score.

OOP.

Level. Of the 12 participants that completed the intervention program, five of eight participants in the treatment groups (4_{CBT}, 1_{GSM}) and one of four NT participants had reduced levels of OOP when assessed at posttest. Therefore, the majority of CBT participants had reductions of OOP, as expected, but the other CBT participant (CBT_{23}) remained unchanged from baseline and posttest (see Figure 5). However, differences observed in the level of OOP in the GSM group were inconsistent; one participant increased at posttest, one decreased, and one

remained unchanged. Three of the four NT group participants had similar baseline scores, however, at posttest, it can be noted that one participant had declined whereas the other two showed slight increases. The fourth NT participant had generally higher levels of OOP at baseline and posttest compared to all other NT participants.

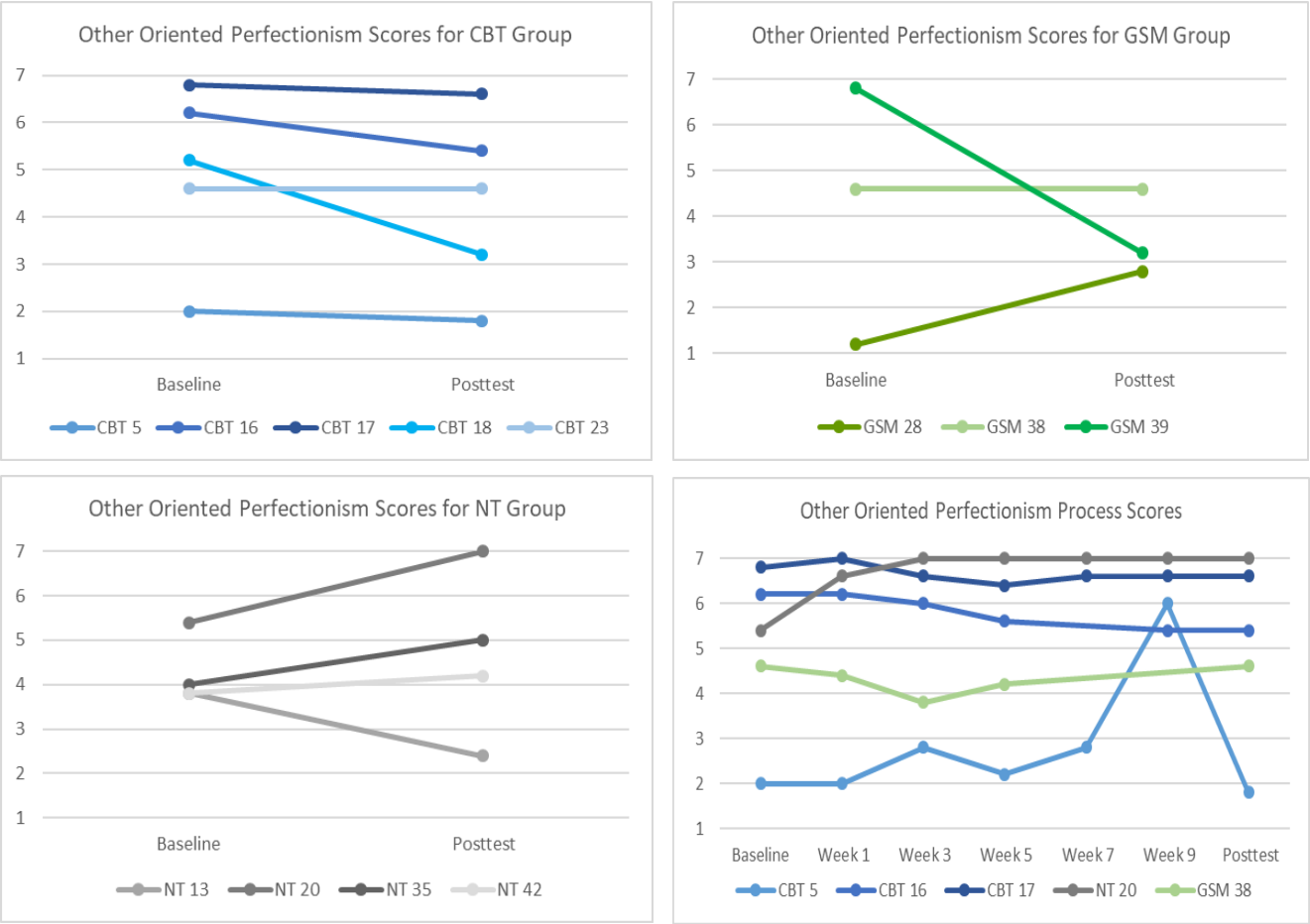

Figure 5. Other-Oriented Perfectionism score by experimental condition. This figure illustrates changes in mean OOP score from baseline to posttest by experimental condition and across all experimental conditions for participants in the process group. Mean OOP scores range from 1-7.

Trend. A stable, linear trend can be noted in most treatment group participants, either slightly decreasing, or remaining unchanged. However, one treatment group participant (CBT_5) had an opposite, increasing trend. Similarly, the NT participant had an upward trend in their level of OOP from baseline to posttest.

Latency. There is generally little change exhibited between biweekly assessment intervals in the intervention group participants. During the first assessment interval, following baseline, the NT participant showed a steeper increase on this measure compared to their treatment condition counterparts who remained either stable or only showed slight changes to their scores. It should be noted that NT_{20} had reached the highest attainable score of OOP on the 7-point scale from Week 3 through to posttest. Therefore, the NT participant was unable to reach a higher level once at this point. Another observable difference was noted for CBT_5 as they had a steep spike in their level of OOP in Week 9, but it returned to a lower level at posttest compared to all other assessment points, including baseline. Although the reason for this anomaly is unclear, all other time points were within the range of their baseline score, therefore, it is unlikely that the change would have been longstanding.

CM.

Level. Across all groups, the majority of participants (4_{CBT}, 3_{GSM}, 2_{NT}) decreased on CM from baseline to posttest, however three participants (1_{CBT}, 2_{NT}) increased. At posttest, four of the five CBT participants had decreased on this perfectionism indicator (see Figure 6). The one participant who increased in score (CBT_{23}), had a much lower mean score at baseline, which may explain, in part, the reason for an increase at posttest: a floor effect. Two of the three participants in the GSM group decreased from baseline to posttest, whereas the third participant (GSM_{28}) did not see a change in score. Mean scores for NT individuals differed from baseline to

posttest, such that two participants increased in scores and two decreased. Therefore, it appears that hypothesis 1 is not fully supported for this perfectionism indicator.

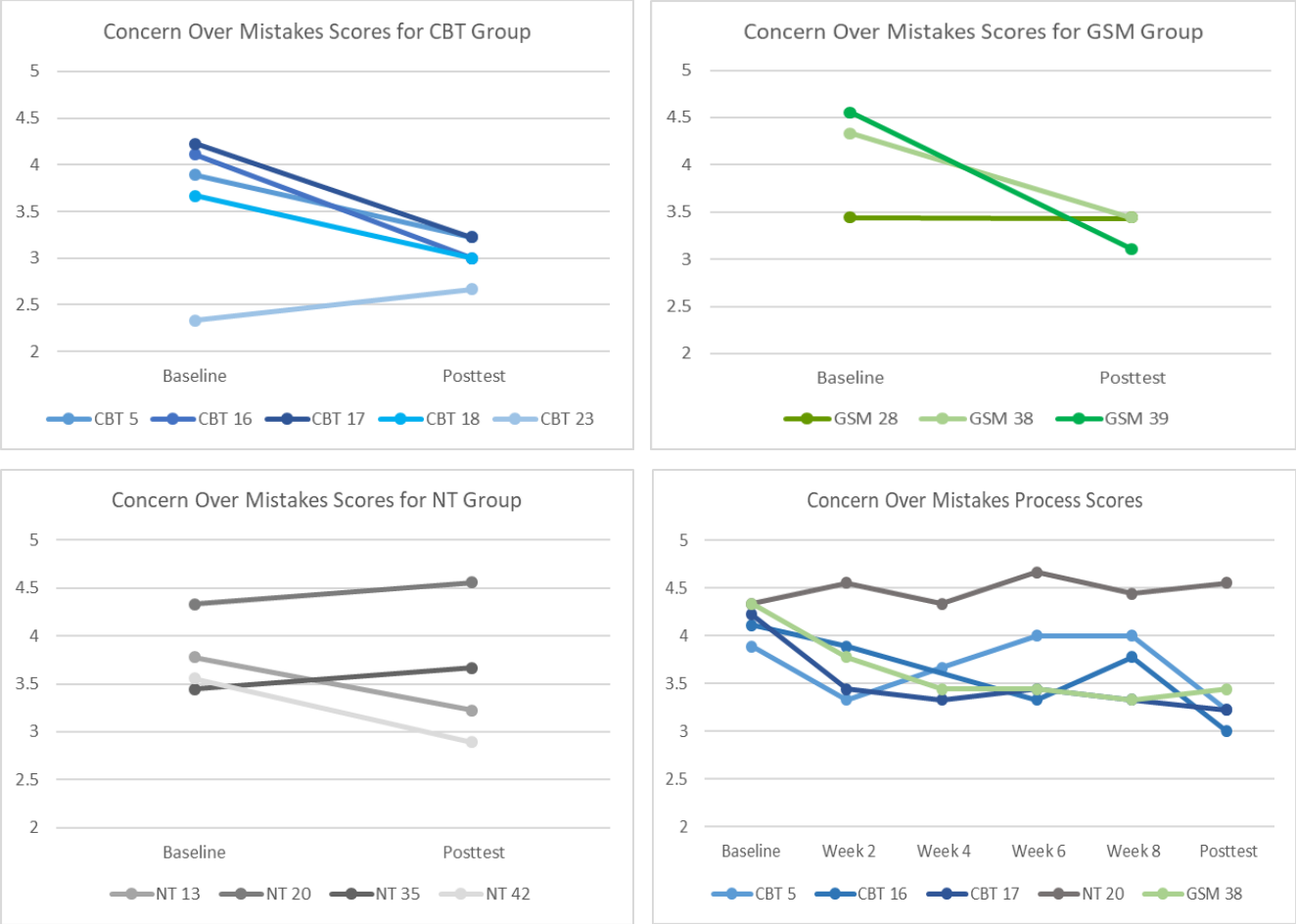

Figure 6. Concern over mistakes score by experimental condition. This figure illustrates changes in mean CM score from baseline to posttest by experimental condition and across all experimental conditions for participants in the process group. Mean CM scores range from 1-5.

Trend. The general trend of the CBT group is decreasing, as with the GSM group. The NT participant is following the opposite trajectory, as they have an increasing trend across the 10-week period.

Latency. When analyzing the biweekly process scores, participants in both the CBT and GSM groups had decreased in CM after two weeks into the program, whereas the NT participant had increased. Over this two-week period, those who used the intervention materials for the shortest duration saw the smallest decrease in score. In the following weeks, notable differences were found between CBT_5 and CBT_{16} which may also be related to treatment adherence. CBT_5 had steadily increased in levels of CM after Week 2 and it was noted that they also reported significantly reduced reading consumption after Week 3 to less than a third of the time spent in the preceding weeks. CBT_{16} noted in Week 8 that "Changing Your Stressors (Ch.10) was a worthwhile read because I am going through some severe stress in my personal life right now" suggesting the anomalous increase in CM at this time may be related to external pressures beyond this study. The idea that CBT_{16} was drawing on the intervention materials during under stress could perhaps be related to positive expectancy for treatment.

DISCR.

Level. Generally, the level of perfectionistic discrepancy displayed at baseline was higher than when reassessed after completing the intervention program. The majority of the decreases were noted in treatment group participants, as opposed to waitlist participants. In the CBT group, four of the five participants had lower levels on the discrepancy subscale, compared to baseline, after completing the program (see Figure 7). However, one participant (CBT_{23}) had a drastic incline in their mean discrepancy score from baseline to posttest. All participants in the GSM group declined on this subscale after 10 weeks in the program. In contrast, three of the four NT participants had increased in their discrepancy levels, with only one NT participant exhibiting reductions. Therefore, the results suggest that hypothesis 1 was partially supported for this perfectionism indicator.

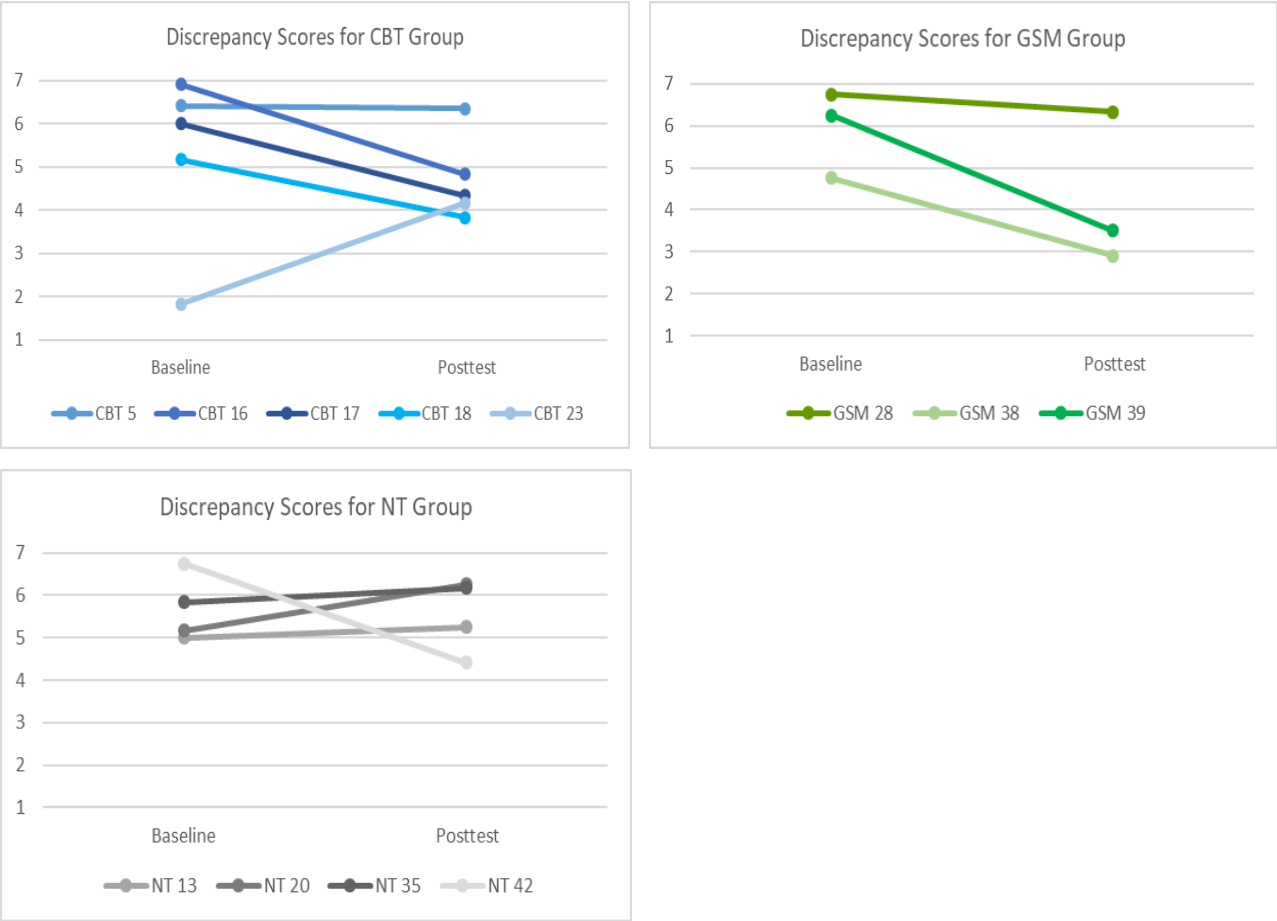

Figure 7. Perfectionistic discrepancy score by experimental condition. This figure illustrates changes in mean DISCR score from baseline to posttest by experimental condition. Mean DISCR scores range from 1-7.

Trend and latency. Given that this measure was only administered twice, at baseline and posttest, there is no trend or latency to analyze in terms of additional changes across the 10-week duration.

Distress indicators. A summary of the mean scores across all baseline and posttest distress indicators, including depressive symptomology, anxiety, and negative affect, are presented in Table 6. Separate trend analyses were conducted for each distress variable.

Table 6
Mean Scores of Indicators of Depressive Symptomology, Anxiety, and Negative Affect for Individual Participants and Across Treatment Groups at Baseline and Posttest

	Baseline			Posttest		
	CES-D	GAD-7	ATQ	CES-D	GAD-7	ATQ
CBT	**1.38**	**1.54**	**2.29**	**0.93(-)**	**0.83(-)**	**1.61(-)**
CBT_5	1.45	2.57	2.50	1.10(-)	1.57(-)	1.70(-)
CBT_{16}	1.55	0.86	2.27	0.65(-)	0.14(-)	1.37(-)
CBT_{17}	1.25	1.86	2.53	0.95(-)	0.43(-)	1.67(-)
CBT_{18}	1.90	1.86	2.93	1.10(-)	1.14(-)	1.73(-)
CBT_{23}	0.75	0.57	1.20	0.84(+)	0.86(+)	1.60(+)
GSM	**1.72**	**2.00**	**3.24**	**1.43(-)**	**1.46(-)**	**2.58(-)**
GSM_{28}	1.55	2.71	3.87	1.80(+)	2.43(-)	3.80(-)
GSM_{38}	1.30	1.00	1.48	0.95(-)	0.67(-)	1.48(/)
GSM_{39}	2.30	2.29	4.37	1.55(-)	1.29(-)	2.47(-)
NT	**1.13**	**1.29**	**2.34**	**1.33(+)**	**1.50(+)**	**2.93(+)**
NT_{13}	0.90	1.29	2.20	1.15(+)	1.00(-)	2.55(+)
NT_{20}	1.30	1.43	2.56	1.55(+)	2.14(+)	3.33(+)
NT_{35}	1.45	1.57	2.63	1.50(+)	2.00(+)	3.87(+)
NT_{42}	0.85	0.86	1.97	1.10(+)	0.86(/)	1.97(/)

Note. (+) is indicative of an increase in score on the respective perfectionism indicator relative to baseline, (-) is indicative of a decrease in score on the respective perfectionism indicator relative to baseline, (/) is indicative of no change between baseline and posttest score; CBT = Cognitive Behaviour Therapy; GSM = General Stress Management; NT = No Treatment (Waitlist). Bolded numbers are the computed averages for each indicator across individual participants by experimental condition (CBT, GSM, NT).

Depressive symptomology.

Level. In terms of changes in depressive symptomology, four of the five CBT participants decreased after 10 weeks in the intervention program and one increased (see Figure 8). In the other treatment group, one GSM participant (GSM_{28}) had increased in their level of depressive symptomology at posttest whereas the two others had decreased. All NT participants had higher levels of depressive symptoms at posttest relative to baseline, supporting hypothesis 1 that the CBT group would exhibit greater declines in depressive symptomology.

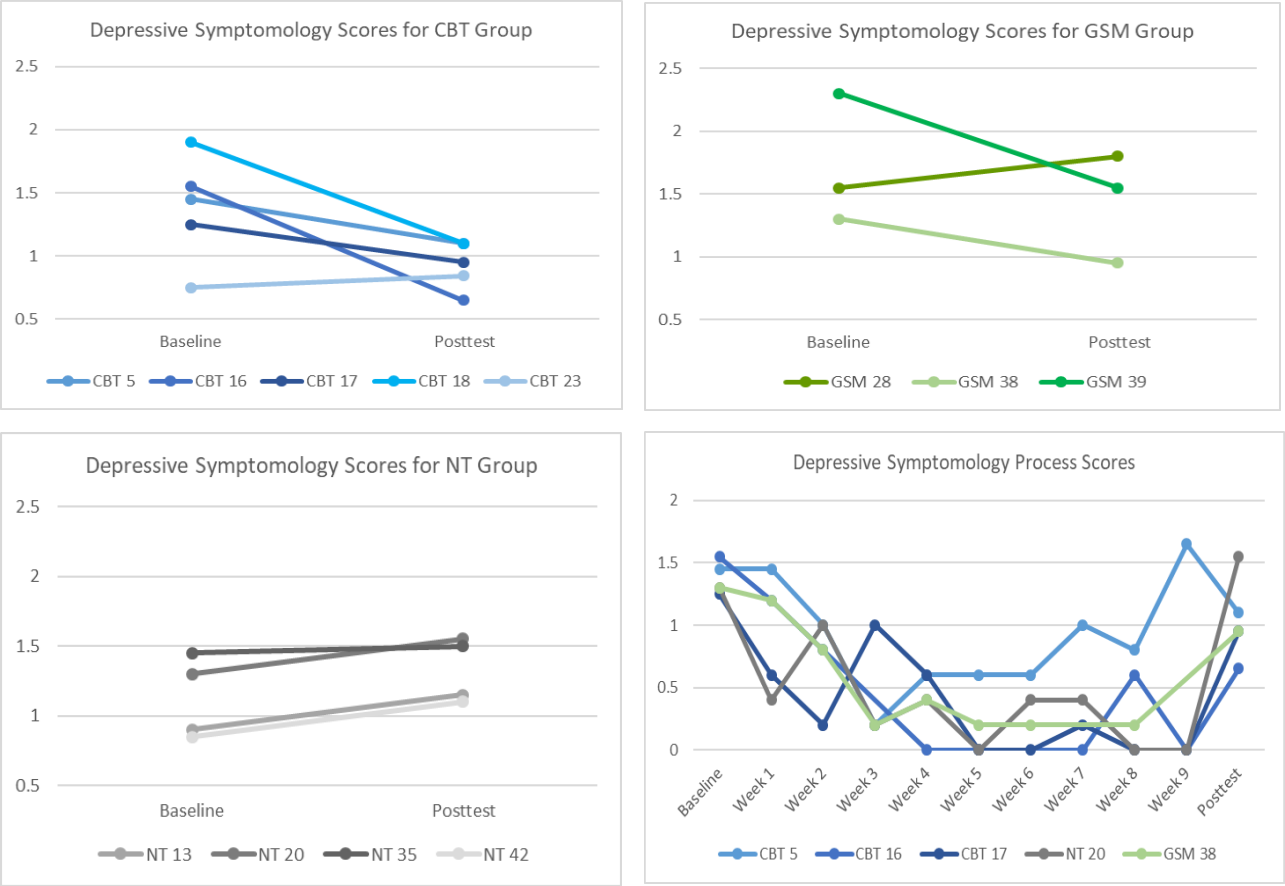

Figure 8. Depressive symptomology score by experimental condition. This figure illustrates changes in mean CES-D score from baseline to posttest by experimental condition and across all experimental conditions for participants in the process group. Mean CES-D scores range from 0-3.

Trend. All participants monitored with weekly assessments of depressive symptomology exhibited downward trends over the course of the intervention except for participant CBT_5 who exhibited a stable, unchanging trend, based on the line of best fit. Though all NT participants had higher CES-D scores at posttest, the trend of the one NT participant suggests a general decline in depressive symptomology over the 10 weeks on the waitlist.

Latency. Although the ratings of depressive symptomology varied across the weekly assessment points among participants, there was an overall declining trend in scores. Even CBT_5, whose pattern evidenced an increase following Week 3, still exhibited majority of their weekly and posttest scores below baseline. Overall, there was no particular pattern to the variability across the weekly assessment, suggesting that depressive symptomology is a largely state-like variable. Only the NT participant had a posttest score higher than their baseline measure of depressive symptomology, yet scored lower on all weekly assessment points.

Anxiety.

Level. Of the 12 participants in this study, three participants had higher levels of anxiety at posttest relative to their baseline anxiety scores (1_{CBT}, 2_{NT}). In the CBT group, four of the five participants had declined in their anxiety scores when reassessed at posttest, while one participant (CBT_{23}) had increased levels of anxiety at posttest, although the increase was small (see Figure 9). All GSM participants had slight decreases in anxiety scores after the 10-week intervention phase. In contrast, NT participants generally had inconsistent levels of anxiety, with two participants having increases, one remaining stable, and one participant exhibiting a decline at posttest.

Trend. All three CBT participants assessed during the weekly intervals had downward trends in their anxiety over the 10-week period. Similarly, the GSM participant was trending downward. However, the NT participant exhibited an upward trend; although it appears their anxiety levels were on a steady downward trend in the earlier weeks, overall the line of best fit is on an incline.

Latency. Changes in the CBT group were not apparent until Week 3, at which time all participants in this treatment group declined in their levels of anxiety. However, one participant

(CBT_{17}) began declining in Week 2, which may, in part, be linked to their greater treatment adherence. It is apparent that anxiety scores varied week to week, which is somewhat expected given the state-like nature of this variable, but most of participants' weekly scores were below their baseline levels. The only participant exhibiting a steady declining score was NT_{20} with the reason for the sudden and steep incline in Week 9 being unclear. Although the NT participant was on an upward trend based on the line of best fit, given the apparent and steady declining trend in the earlier weeks, hypothesis 1 is partially supported for this dependent measure.

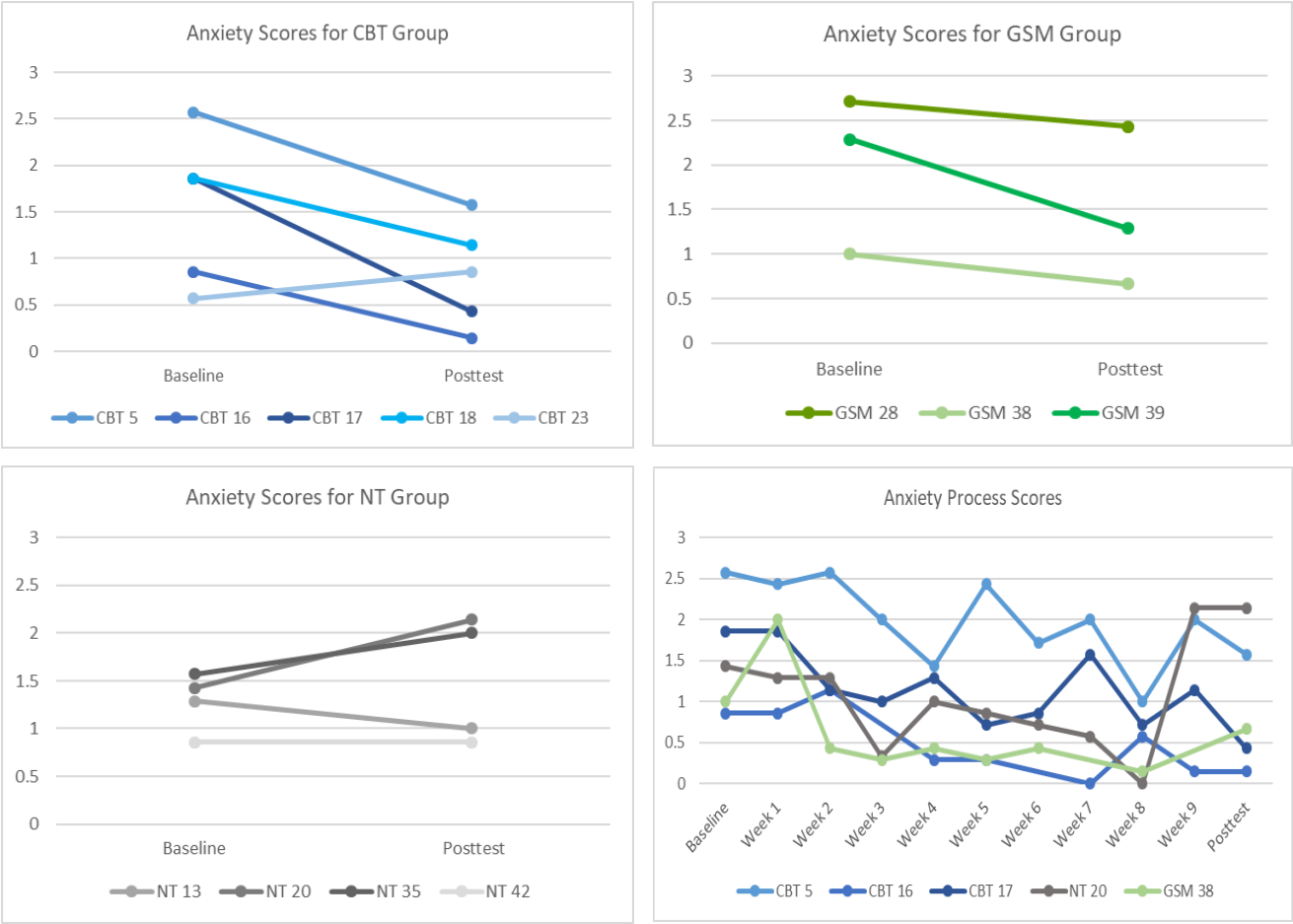

Figure 9. Anxious symptomology score by experimental condition. This figure illustrates changes in mean GAD-7 score from baseline to posttest by experimental condition and

across all experimental conditions for participants in the process group. Mean GAD-7 scores range from 0-3.

Negative affect.

Level. The majority of the CBT participants had declines in negative affect at posttest, with only one participant (CBT_{23}) having the reverse trend (see Figure 10). GSM participants exhibited very little change, if any, from baseline to posttest, with the exception of one participant (GSM_{39}). All participants in the treatment groups (CBT or GSM) that either increased in automatic negative thinking or remained fairly unchanged (< 0.1 difference) reported using less than 60% of the intervention materials over the course of the 10 weeks. As expected, the NT group did not see any adaptive change in their levels of automatic negative thinking, such that most scores increased or remained unchanged. Therefore, hypothesis 1 appears to be supported for this distress indicator, as CBT participants exhibited greater adaptive changes.

Trend. A downward trend was noted across weekly assessments for most CBT participants, which suggests an overall lowering of negative affect in the intervention program. However, CBT_5 exhibited an unchanging trend when calculating the line of best fit. It should be noted that without the anomalous assessment point in Week 9, the trend for CBT_5 is declining. The GSM participant had a slight downward trend (GSM_{38}), but their score was already low to begin with, therefore there was not much room for improvement. In contrast, the NT participant (NT_{20}) has an unchanging trend over the 10-week duration.

Latency. In general, treatment group participants declined in automatic negative thinking in the first week. Treatment adherence may explain some of the variability in scores, such that those who used the intervention materials for longer and more consistently did not exhibit steep changes across weeks. Moreover, participants who reported using the intervention materials for 5

minutes or less (CBT_5, CBT_{16}, GSM_{38}) had steep increases in ATQ scores for that corresponding week compared to those who reported a longer duration. Interestingly, the NT participant (NT_{20}) exhibited the greatest variability, with more exaggerated increases and decreases in negative affect across the 10 weeks. However, the majority of their ATQ scores were above the baseline score. Conversely, the treatment group participants only exhibited, on average, one highly discrepant increase in negative affect comparative to their other weekly assessment points.

Figure 10. Negative affect score by experimental condition. This figure illustrates changes in mean ATQ score from baseline to posttest by experimental condition and across all experimental conditions for participants in the process group. Mean ATQ mean

scores range from 1-5. Baseline and posttest process mean scores (bottom right) were calculated only using the 8 items for direct comparison to the ATQ-S.

Trend Analyses Testing Treatment Readiness: Hypothesis 2

In hypothesis 2, it was expected that participants in the action stage of change would evidence greater improvement on outcome measures compared to participants that are in the pre-contemplation or contemplation stages of therapy. More specifically, they would have decreased levels of perfectionism, depressive symptomology, anxiety, and negative affect compared to previous stages of change.

Treatment readiness. A summary of mean scores for each URICA-S subscale (PC, C, A, M) along with a total treatment readiness score is presented in Table 7.

Level. All CBT, GSM, and NT participants were either in the pre-contemplation or contemplation stages at baseline, with the exception of two participants. GSM_{28} and GSM_{39} were the only participants to enter the study in the action stage, as exhibited by their treatment readiness scores at baseline. However, at posttest, GSM_{28} dropped in treatment readiness, moving to the contemplation stage, whereas GSM_{39} remained in the action stage. It should be noted that GSM_{39} exhibited declines on all dependent measures at posttest, whereas GSM_{28} did not have this same pattern. Another notable change from baseline to posttest was exhibited by NT_{42} who moved from the contemplation to action stage. Similarly, this NT participant exhibited adaptive changes on some perfectionism indicators, or exhibited little negative change compared to other NT participants. However, the small number of individuals in the action stage of change at baseline and posttest provide limited support for hypothesis 2.

Moreover, participants typically stayed within a 1-point difference of their baseline and posttest treatment readiness level (see Figure 11), suggesting that increases or decreases of this

Table 7

Mean Scores on Stages of Change and Treatment Readiness for Individual Participants and Across Treatment Groups at Baseline and Posttest

	Baseline					Posttest				
	TR	PC	C	A	M	TR	PC	C	A	M
CBT	**8.35**	**2.05**	**3.50**	**3.60**	**3.30**	**8.65(+)**	**1.90(-)**	**3.60(+)**	**3.55(-)**	**3.40(+)**
CBT_5	9.75	1.50	3.50	3.75	4.00	8.75(-)	1.75(+)	3.50(/)	3.25(-)	3.75(-)
CBT_{16}	10.25	1.50	4.75	3.25	3.75	10.25(/)	1.50(/)	4.25(-)	4.00(+)	3.50(-)
CBT_{17}	9.00	2.25	4.25	3.50	3.50	8.75(-)	2.50(+)	4.00(-)	3.50(/)	3.75(+)
CBT_{18}	10.50	2.00	4.00	4.25	4.25	9.00(-)	1.50(-)	3.50(-)	4.00(-)	3.00(-)
CBT_{23}	2.25	3.00	1.00	3.25	1.00	6.50(+)	2.25(-)	2.75(+)	3.00(-)	3.00(+)
GSM	**10.83**	**1.50**	**4.42**	**4.42**	**3.50**	**10.08(-)**	**1.67(+)**	**4.00(-)**	**4.08(-)**	**3.67(+)**
GSM_{28}	12.50	1.00	4.75	5.00	3.75	11.00(-)	1.25(+)	4.25(-)	4.00(-)	4.00(+)
GSM_{38}	7.75	2.50	4.25	4.25	1.75	7.25(-)	2.50(/)	3.50(-)	3.75(+)	2.50(+)
GSM_{39}	12.25	1.00	4.25	4.00	5.00	12.00(-)	1.25(+)	4.25(/)	4.50(-)	4.50(-)
NT	**9.75**	**1.38**	**4.31**	**3.38**	**3.44**	**10.75(+)**	**1.25(-)**	**4.50(+)**	**3.19(-)**	**4.31(+)**
NT_{13}	9.75	1.50	4.00	3.75	3.50	10.00(+)	1.25(-)	4.25(+)	3.00(-)	4.00(+)
NT_{20}	8.50	1.25	4.25	2.75	2.75	9.75(+)	1.00(-)	4.50(+)	2.00(-)	4.25(+)
NT_{35}	10.50	1.00	4.75	3.00	3.75	10.00(-)	1.75(+)	4.75(/)	3.00(-)	4.00(+)
NT_{42}	10.25	1.75	4.25	4.00	3.75	13.25(+)	1.00(-)	4.50(+)	4.75(+)	5.00(+)

Note. (+) is indicative of an increase in score on the respective stage of change or treatment readiness indicator relative to baseline, (-) is indicative of a decrease in score on the respective stage of change or treatment readiness indicator relative to baseline, (/) is indicative of no change between baseline and posttest score; CBT = Cognitive Behaviour Therapy; GSM = General Stress Management; NT = No Treatment (Waitlist); TR = Treatment Readiness (Calculated by summing C + A + M and subtracting PC); PC = Pre-Contemplation; C = Contemplation; A = Action; M = Maintenance. Bolded numbers are the computed averages for each indicator across individual participants by experimental condition (CBT, GSM, NT).

magnitude likely do not reflect a significant degree of change in treatment readiness. Two participants that particularly stand out in terms of greater degrees of change are CBT_{23} and NT_{42}. Both participants had steep inclines in treatment readiness scores, from baseline to posttest, yet differed greatly in their presentation across various perfectionism and distress indicators at posttest. CBT_{23} had increased on the majority of indicators, whereas NT_{42} exhibited declines on several indicators. Given the experimental conditions these individuals were assigned to, the direction of change on posttest indicators was unexpected for both individuals. Therefore, treatment readiness may play a role in symptom change. CBT_{23} was in the pre-contemplation stage at both baseline and posttest, exhibiting the lowest treatment readiness score at baseline and posttest compared to all other CBT, GSM, and NT participants, whereas NT_{42} moved from the contemplation to action stage, with the highest treatment readiness score observed among all experimental groups at posttest.

Trend and latency. Given that treatment readiness was measured in terms of single item responses, rather than a score, trend and latency were analyzed based on the number of weeks spent in each treatment readiness stage. During the weekly assessment intervals, the waitlist condition participant (NT_{20}) had indicated being in the contemplation stage for the entire duration while on the waitlist, such that there were no changes week by week. Similarly, the GSM participant (GSM_{38}) reported being in the action stage of change during every completed weekly assessment point, therefore no changes were observed weekly in treatment readiness. However, all three CBT participants had moved between at least two different stages (contemplation, action, or maintenance stages) over the nine weekly assessment points. All three CBT participants spent most weeks in the contemplation stage ($5/9_{weeks}$ = 55.6%). However, they spent the remaining weeks in the action stage, ranging from two to four weeks (22.2%-44.4%)

depending on the participant, with only one participant spending one week in the maintenance stage ($1/9_{weeks}$ = 11.1%). Please note that one participant had two missing data points, which accounts for the difference in cumulative percentage ($2/9_{weeks}$ = 22.2%).

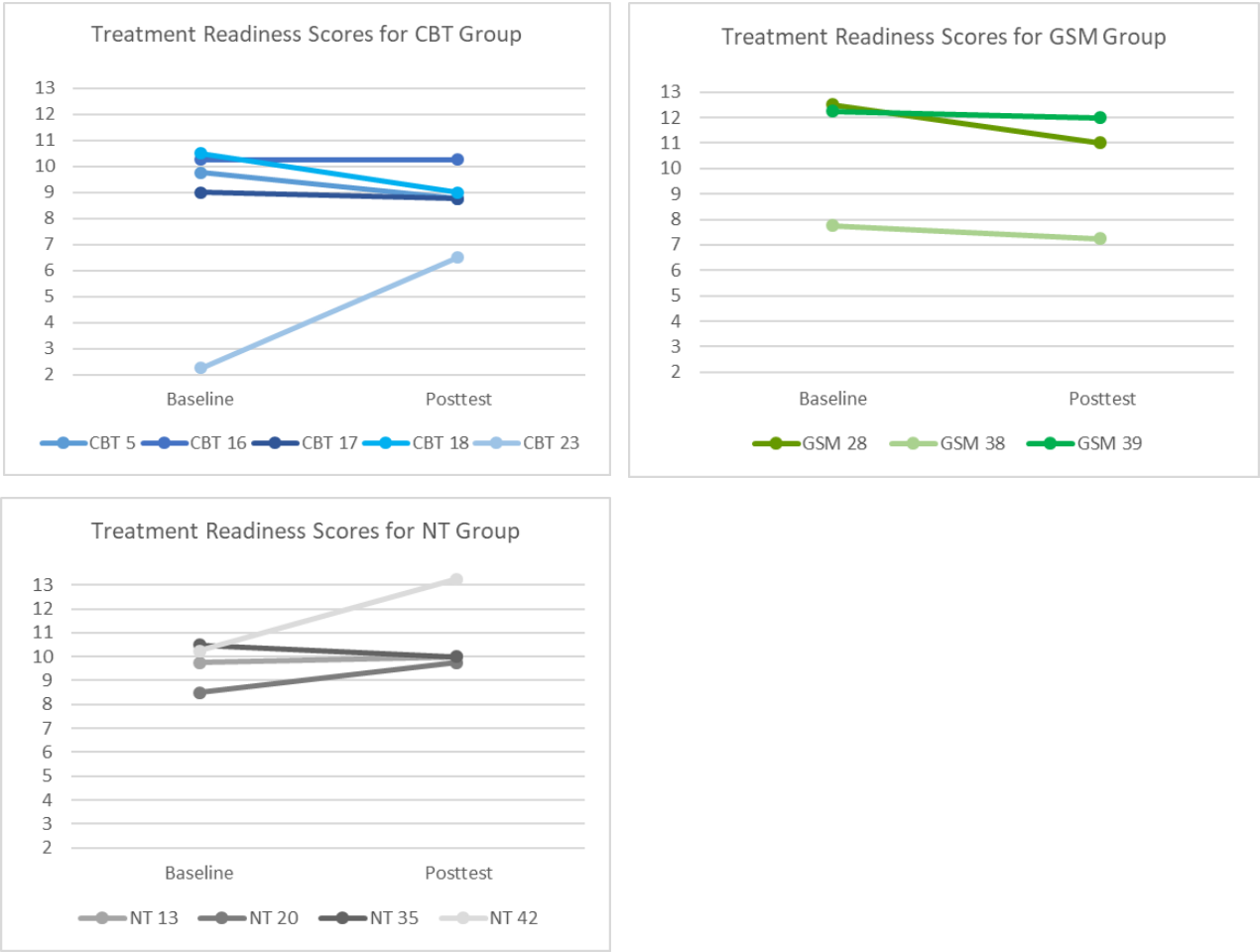

Figure 11. Treatment readiness score by experimental condition. This figure illustrates changes in mean treatment readiness score from baseline to posttest by experimental condition. Treatment readiness scores range from -2 to 14.

Testing Differences Between Process and Outcome Groups: Hypothesis 3

In hypothesis 3, it was expected that there would be greater improvement in psychological functioning for individuals in the process group compared to outcome groups. Increased contact points in therapy would result in greater decreases in perfectionism, depressive

symptomology, anxiety, and negative affect.

At this time, the small sample size of each experimental condition in both the process and outcome groups limits the conclusions that could be drawn in regard to hypothesis 3. Therefore, it is unclear if individuals in process groups tend to exhibit greater degrees of change than those in the outcome group. However, this does not limit the value of using process and outcome approaches in research designs, including the ability to track treatment adherence across weekly assessments as well as at posttest.

Treatment adherence. The time spent reading the intervention materials across weekly assessments and, in total, at posttest are presented in Table 8. Moreover, the reported use of the modules, by chapter, are presented in Table 9.

Table 8
Total Time Spent (in Minutes) Reading the Intervention Materials at Posttest and Across Weekly Assessments

		Week								
	Total[a]	1	2	3	4	5	6	7	8	9
CBT										
CBT_5	180	120	60	90	20	0	15	10	12	nr
CBT_{16}	90	10	5	nr	15	20	nr	15	10	10
CBT_{17}	300	30	30	20	20	20	20	30	25	20
CBT_{18}	300	--	--	--	--	--	--	--	--	--
CBT_{23}	180	--	--	--	--	--	--	--	--	--
GSM										
GSM_{28}	60	--	--	--	--	--	--	--	--	--
GSM_{38}	60	2	20	60	0	0	0	nr	0	nr
GSM_{39}	240	--	--	--	--	--	--	--	--	--
NT										
NT_{13}	--	--	--	--	--	--	--	--	--	--
NT_{20}	--	--	--	--	--	--	--	--	--	--
NT_{35}	--	--	--	--	--	--	--	--	--	--
NT_{42}	--	--	--	--	--	--	--	--	--	--

Note. nr = not reported; [a] = the total number of minutes spent reading may not be equal to the sum of all reported weeks as this was a separate self-report question asked at posttest; -- = not applicable (NT had no intervention use; CBT and GSM participants in the outcome groups were not asked about weekly use).

Table 9

Total Intervention Module Use at Posttest and Across Weekly Assessments (by Chapter Number)

		Week								
	Total[a]	1	2	3	4	5	6	7	8	9
CBT										
CBT_5	All[†]	1-2, 13	9	6, 10	12	0	8	11	10	nr
CBT_{16}	All[†]	1-4	5	nr	3-4	6-8	nr	7-10	9-10	11
CBT_{17}	All[†]	1-4	5-8	9-10	10-12	8-9, 13	8-9, 12	4, 7-9	2-6	5, 7, 9, 12
CBT_{18}	All[†]	--	--	--	--	--	--	--	--	--
CBT_{23}	1-6	--	--	--	--	--	--	--	--	--
GSM										
GSM_{28}	1, 12-13	--	--	--	--	--	--	--	--	--
GSM_{38}	1, 7-8, 10	1	1, 7	1, 7-8, 10	0	0	0	nr	0	nr
GSM_{39}	All[††]	--	--	--	--	--	--	--	--	--
NT										
NT_{13}	--	--	--	--	--	--	--	--	--	--
NT_{20}	--	--	--	--	--	--	--	--	--	--
NT_{35}	--	--	--	--	--	--	--	--	--	--
NT_{42}	--	--	--	--	--	--	--	--	--	--

Note. [†] = modules 1-13 (CBT + GSM); [††] = modules 1, 7-8, 10-13 (GSM only); nr = not reported; [a] = the total modules read may not be equal to the sum of all reported weeks as this was a separate self-report question asked at posttest; -- = not applicable (NT were not provided with modules; CBT and GSM participants in the outcome groups were not asked about weekly use); 0 = no modules read.

Observable differences between scores on several dependent indicators were related to treatment adherence. For example, GSM_{39} reported greater use in terms of both the number of chapters read and the total time spent using the intervention materials compared to GSM_{28} and GSM_{38}. Participant GSM_{39} had greater decreases in concern over mistakes, OOP, perfectionistic discrepancy, depressive and anxious symptomology, and negative affect at posttest compared to participants GSM_{28} and GSM_{38}. Similarly, changes on all indicators during weekly or biweekly assessments appeared to be related to treatment adherence. For example, participant GSM_{38} was the only treatment group participant to report using the intervention materials for less than 5 minutes in the first week in the intervention program, and had greater increases on SPP, anxiety, and negative affect compared to all other treatment group participants who exhibited declines or only slight increases. Participant CBT_{17} was the only participant to have a consistent reading schedule, in terms of duration and breadth, and respond to all questionnaires in a timely manner. Additionally, with the option to leave comments each week, CBT_{17} always left feedback. Therefore, in combination with the greatest total duration spent using the intervention materials, they exhibited the greatest commitment and involvement in the intervention program. As an additional note, this participant exhibited declines on all measures, except one (SOP) which was unchanging.

Although CBT_5 reported using all of the intervention materials at posttest, during the weekly assessments they only reported using some of the materials, missing out on most CBT-related modules (Chapters 3-5). Given the nature of the CBT materials, missing a few modules may result in a lesser degree of change on perfectionism indicators at posttest, which may partially explain the results for this particular individual. All other CBT participants, except for CBT_{23}, reported using all of the intervention materials, and those with weekly assessments did

report single and repeated use of all of the intervention materials.

Participant feedback. Participants were provided with the option to leave feedback about the intervention program or to leave general comments about their state of being during weekly assessments if in the process group, and all were asked at posttest. Detailed feedback provided by individual participants can be found in Appendix Y.

Summary

Individuals in the CBT group generally had decreased levels of perfectionistic thinking such as concern over mistakes, perfectionistic cognitions, and perfectionistic discrepancy (between perceived standards and level of attainment) after completing the intervention program. However, trait level measures had greater variability. For example, those with decreased internal pressure (SOP) may not have also had decreased perceived external pressure (SPP), or decreased standards for others (OOP). Similarly, participants in the GSM group had decreases on all perfectionism indicators, both cognitive and trait in nature, except for OOP. In contrast, the NT group generally exhibited increases for most indicators assessing automatic perfectionistic thoughts and trait perfectionism.

In terms of differences across other indicators, the majority of the participants in the CBT group exhibited declines in depressive symptomology, anxious symptomology, and negative affect after the 10-week intervention phase. The GSM group followed a similar trend with reported decreases in anxiety, and to some extent depressive symptomology, however this trend was not observed with negative affect. Conversely, the NT participants had generally increased levels of depressive and anxious symptomology as well as negative affect at posttest.

Across most dependent variables, increased treatment adherence, including the breadth of intervention materials and duration spent using the materials, appeared to be related to stable

decreases during weekly and posttest assessments. However, different trends were noted for individual participants across a variety of dependent measures which suggest other possible contributing factors for unexpected changes within each experimental group. For example, the majority of CBT participants exhibited declining trends across all measures, but consistently participant CBT_{23} had increasing or unchanging scores. Furthermore, CBT_{23} had the lowest score on all dependent measures (except for OOP) at baseline, therefore having a greater chance for negative change than positive change to occur (i.e., floor effect). It should be noted that CBT_{23} had the lowest readiness score at baseline and at posttest and scored the highest on the PC subscale on the URICA-S at baseline compared to all other participants across experimental groups, suggesting this participant was at an earlier stage of change than all participants in this program. In terms of treatment adherence, four of the five CBT participants read all of the chapters over the course of the 10-week period, whereas participant CBT_{23} only read less than half of the chapters, which were centered around cognitive restructuring of perfectionistic thoughts, but did not read any related to general stress reduction techniques or performance anxiety. Therefore, these differences may account for the anomalous trend exhibited by this participant.

Although individuals in the CBT group generally exhibited similar trends across measures, the GSM participants had more inconsistent trends. An explanation for this may be differences in demographics. Two of the three GSM participants (GSM_{28} and GSM_{39}) were seeking alternate therapy and using medications for mental health concerns while in the intervention program. Therefore, it is difficult to conclude whether the intervention materials themselves had a positive impact on their mental health, if it was the combined effect of alternate treatment and this intervention program, or if there are other demographic factors contributing to

this discrepancy. Moreover, these GSM participants reported prior use of mental health services (i.e., therapy and/or medication) before taking part in this intervention program. Another difference noted was that GSM_{38} reportedly stopped reading the intervention materials after Week 3, noting reduced anxiety and stress after the completion of the school semester in Week 4. Therefore, an absence of a large stressor in their life may aid in explaining the reason for the continual and stable decline in perfectionism, depressive symptomology, anxiety, and negative affect after Week 3.

In terms of the NT group, two of the four participants had reductions on some perfectionism indicators (CM, SPP, OOP, DISC). One of these participants (NT_{13}) was using medication for mental health concerns and accessing other therapeutic services while on the waitlist, whereas all other NT participants did not seek alternative service while on the waitlist. Therefore, it is unclear to what extent these factors mitigated any negative effects on the waitlist, and possibly lead to adaptive changes. However, treatment credibility or expectancy, which is the idea that one may exhibit adaptive change as a result of being placed on a waitlist for treatment, may have been a potential contributor. The second participant (NT_{42}) also exhibited adaptive changes on some measures yet was not seeking alternative treatment. However, they had the highest treatment readiness scores at posttest compared to all other participants, suggesting a possible link between increased motivation for treatment and adaptive changes (e.g., self-acceptance, etc.).

Exploratory Analyses

To better understand some of the potential contributors to attrition in this sample, statistical analyses were performed comparing those who completed the intervention to those who dropped out of the program. It is worth noting that the number of participants in each of the

groups used for comparison was relatively low and, therefore, it is important to interpret the results of these analyses with caution. The purpose of conducting the exploratory analyses, however, was to help inform future research on potential contributors to attrition in this sample of post-secondary students and general community members.

Baseline differences between completers and non-completers. Given the high attrition rate in this intervention program, an analysis of variance (ANOVA) was conducted, on all baseline indicators, between three groups of participants: those who completed baseline and posttest (Completers [CO]), those who completed at least one other assessment point following baseline, but not posttest (Non-Completers$_{Partial}$ [NC_P], n = 6; e.g., Week 1, Week 2, etc.), and those who only completed the initial baseline assessment (Non-Completers$_{Baseline}$ [NC_B], n = 16). No significant differences were found between any of the groups on indicators of perfectionism, depressive symptomology, anxiety, negative affect, or treatment readiness (including PC, C, A, and M) at baseline (all p's > .05). Age, therapy services duration, and medication duration prior to intervention were also analyzed for differences, however, only therapy services duration was found to be significant, $F(2 , 33) = 8.412$, $p = .001$. Tukey HSD post hoc analyses found that participants in the NC_P group had a significantly higher mean number of weeks spent using alternate therapy (M = 103.67, SD = 129.40) prior to commencing this intervention program compared to both NC_B (M = 5.50, SD = 14.97; p = .002) and CO (M = 4.67, SD = 10.93; p = .002) groups. No significant differences were noted when both NC_P and NC_B data were pooled together for t-test analyses with CO. These finding were noted when including both those who reported no use of alternate therapy services (0 weeks) and those who reported some use of these services (> 0 weeks). It is important to note that there was a greater number of individuals who

reported no use of alternate therapy services than there were participants who reported use of these services.

Correlation analyses. Bivariate correlations were conducted on baseline measures for both NC_P and NC_B groups combined (NC_{Total} [NC_T]). The results are presented in Table 10. Correlations between treatment readiness indicators for the CO group were also conducted for comparative purposes. The results of the CO correlation analyses between treatment readiness and baseline indicators are presented in Table 11 (a summary of bivariate correlations between perfectionism and perfectionism-related indicators are presented in Table 3).

It should be noted that PC was positively correlated with some perfectionism and distress indicators in the NC_T group, whereas PC was negatively correlated with DISCR and ATQ in the CO group and treatment readiness was positively correlated with perfectionistic cognitions, perfectionistic discrepancy, depressive and anxious symptomology, and negative affect. Moreover, C was positively correlated with perfectionism indicators and M was positively correlated with distress indicators (CES-D, GAD-7, ATQ) in the CO group.

Table 10
Summary of Bivariate Correlations between Stages of Changes and Treatment Readiness on Baseline Indicators for Non-Completers

Measure	PCI	SOP	SPP	OOP	CM	DISCR	CES-D	GAD-7	ATQ
PC	.160	.026	.551**	-.436*	.309	.147	.552**	.641**	.526*
C	.209	.276	.000	.100	.282	-.043	-.006	-.187	-.203
A	.067	.090	-.133	-.152	.084	-.282	-.177	-.342	-.284
M	.231	.259	.100	-.218	.120	-.278	.081	.145	-.147
TR	.166	.276	-.231	.050	.065	-.343	-.260	-.382	-.493*

Note. $^{*}p < .05$, $^{**}p < .01$. PCI = Perfectionism Cognitions Inventory; SOP = Self-Oriented Perfectionism; SPP = Socially Prescribed Perfectionism; OOP = Other-Oriented Perfectionism; CM = Concern over Mistakes; DISCR = Discrepancy; CES-D = Center for Epidemiological Studies – Depression Scale; GAD-7 = Generalized Anxiety Disorder – 7; ATQ = Automatic Thoughts Questionnaire; PC = Pre-Contemplation; C = Contemplation; A = Action; M = Maintenance; TR = Treatment Readiness (C + A + M - PC).

Table 11
Summary of Bivariate Correlations between Stages of Changes and Treatment Readiness on Baseline Indicators for Participant who Completed the Intervention

Measure	PCI	SOP	SPP	OOP	CM	DISCR	CES-D	GAD-7	ATQ
PC	-.364	-.244	-.466	.213	-.392	-.710**	-.502	-.563	-.743**
C	.642*	.609*	.657*	.031	.687*	.849**	.448	.347	.500
A	.191	.187	-.019	-.445	.022	.274	.271	.458	.385
M	.506	.328	.218	.046	.456	.792**	.674*	.632*	.784**
TR	.588*	.472	.450	-.126	.552	.889**	.636*	.639*	.787**

Note. $^{*}p < .05$, $^{**}p < .01$. PCI = Perfectionism Cognitions Inventory; SOP = Self-Oriented Perfectionism; SPP = Socially Prescribed Perfectionism; OOP = Other-Oriented Perfectionism; CM = Concern over Mistakes; DISCR = Discrepancy; CES-D = Center for Epidemiological Studies – Depression Scale; GAD-7 = Generalized Anxiety Disorder – 7; ATQ = Automatic Thoughts Questionnaire; PC = Pre-Contemplation; C = Contemplation; A = Action; M = Maintenance; TR = Treatment Readiness (C + A + M - PC).

Discussion

Although perfectionism has been linked to both purportedly adaptive and maladaptive outcomes, the consensus is that perfectionism contributes to a variety of negative mental health concerns including depression, anxiety, and disordered eating (Egan et al., 2011). In attempts to mitigate the potential risks associated with maladaptive perfectionistic tendencies, creating interventions targeting perfectionism may aid in reducing both perfectionism and the related distress associated with same. The present study attempted to replicate results of an online intervention for perfectionism originally designed by Arpin-Cribbie et al. (2012) while extending on the methodology by including a measure of treatment readiness and exploring treatment as both a process and an outcome. It was expected that the CBT intervention group would see greater adaptive changes on measures of perfectionism, depressive and anxious symptomatology, as well as negative affect compared to the GSM intervention group and the NT waitlist group.

In the present study, this hypothesis appeared to be supported for distress indicators including depressive symptomology, anxiety, and vulnerability to negative affect. However, this hypothesis seemed to be only partially supported for perfectionism indicators given that the

GSM group tended to have greater degrees of positive change compared to the CBT group. These results are different from what was found in the study by Arpin-Cribbie et al. (2012) between the CBT and GSM group; the CBT group had significantly lower perfectionism scores on all indicators, except for perfectionistic discrepancy, compared to the GSM group. Moreover, there were no significant differences between the CBT and GSM group on distress indicators in the original study. However, the results of the present study suggest that the CBT group exhibited more adaptive changes than the NT group on most perfectionism indicators and all distress indicators, which is in line with the results of the original study.

Though the results regarding perfectionism indicators did not completely parallel those of Arpin-Cribbie et al. (2012), there are potential reasons for this discrepancy. First, several individuals were using alternate forms of treatment (e.g., therapy and/or medications) while in this intervention program, which may have contributed to adaptive or maladaptive changes in their mental health. More specifically, this was the case for the majority of participants in the GSM program. It was expected that the GSM group would exhibit some degree of positive change, as found previously, but not to the extent that was observed in the present study. Given the discrepancy in patterns of use of alternative treatments across the intervention groups in the present study, it is unclear whether the current intervention program, concurrent therapy, or the combination of these may have had the greatest contribution to the improvements that were observed. Given that stress management techniques have been found helpful in reducing distress but not perfectionism (Arpin-Cribbie et al., 2012), it may be that the alternate therapy that they were seeking included CBT components, contributing to declines on perfectionism indicators. Therefore, the unexpected results of the GSM group compared to the CBT group may partially be explained by concurrent treatment effects.

Additionally, treatment readiness may be a vital factor in reducing thoughts and behaviours associated with perfectionism and perfectionism-related distress. Research has suggested that stage of change is linked to the amount of progress made in treatment, as those who are typically in the action stage at baseline evidence more adaptive outcomes more rapidly than individuals in previous stages (Krebs et al., 2018; Prochaska, Norcross, & DiClemente, 2013). In the present study, individuals with a greater degree of treatment readiness, especially those typically categorized as being in the action stage, exhibited a greater degree of positive change on the majority of the perfectionism and distress indicators compared to their same group counterparts. More specifically, the majority of individuals in the GSM group were in the action stage of change upon entering the intervention program, whereas no CBT participants were categorized in this stage. It was expected that individuals in the action stage of change would exhibit greater declines on all perfectionism and distress indicators. Yet, the current study did not have enough participants in the action stage to fully support this hypothesis as most participants were categorized in the contemplation stage. Furthermore, those in the action stage in the GSM group were seeking alternative treatment in addition to the current intervention program, therefore it is unclear whether treatment effects, treatment readiness, or the combined effect is responsible for greater changes in the GSM group.

In order to understand how different perfectionism facets are influenced by treatment intervention protocols, an examination was conducted between outcomes on perfectionism indicators. Trait-like perfectionism indicators (SOP, SPP, OOP) were only associated with minor positive changes compared to more cognitively-focused perfectionism indicators for those in the CBT group. In regard to the literature on trait perfectionism, it is well documented that SOP may have both adaptive and maladaptive functions (e.g., Enns, Cox, & Clara, 2002; Hicks & Wu,

2018; Park & Jeong, 2015; see Stoeber & Otto, 2006), therefore increases in this perfectionism indicator may not be solely reflective of maladaptive change. However, Arpin-Cribbie et al. (2012) found significantly lower SOP, SPP, and OOP scores in the CBT group from baseline to posttest, and compared to the GSM group, suggesting that inconsistent changes in SOP in the current study may not be specifically related to the intervention itself. Although the data do not allow for conclusive statements to be made regarding the reason for this discrepancy, a more detailed pattern from the perspective of the transtheoretical model suggests treatment readiness may contribute to inconsistent changes across various perfectionism indicators.

In the current study, the majority of individuals in the CBT group were in the contemplation stages, with none falling in the action stage at baseline or at posttest. Individuals in the contemplation stage are known to have greater ambivalence about changing behaviours (Prochaska, Redding, & Evers, 2015), which may translate to difficulty with modifying individual characteristics or traits about themselves rather than simply modifying associated perfectionistic or negative thoughts. Therefore, individuals in the contemplation stages may not have the motivational drive to elicit change in trait-like variables as much as individuals in the action stage. Instead, individuals in the contemplation stage may only be able to elicit changes in cognitions (e.g., perfectionistic cognitions, concern over mistakes, automatic negative thinking) and state-like symptoms (e.g., depressive and anxious symptomology). Given that treatment readiness was not measured in the original study, its effects on treatment outcomes are unclear. It is possible that a number of participants were in the action stage upon entering the CBT group, eliciting change in trait-like behaviours, resulting in greater degrees of change in trait perfectionism indicators compared to the present study.

One of the factors that can contribute to change in treatment outcomes is the nature of perfectionistic presentation. In the current study, there was one participant who had anomalous trends relative to the remainder of the CBT participants, entering the program with very low scores on all perfectionism and distress indicators except for OOP. This is particularly noteworthy since participants were recruited based on the premise that they felt, or others had suggested to them, that their lives were negatively affected by perfectionism. The current literature on OOP, which are the high standards that one holds for others, is not as extensive as that of SOP and SPP, but what is known about this trait-like variable is that it is often associated with antisocial and narcissistic personality characteristics (Stoeber, 2014; Stoeber, 2015). Therefore, individuals with higher levels of OOP present quite differently than those who hold high standards for themselves or perceive a pressure to be perfect from others.

Typically, those with higher levels of OOP exhibit fewer prosocial behaviours and have lower emotionality, while displaying increased levels of narcissism (Stoeber, 2014; Stoeber, 2015), suggesting that an individual higher in OOP is less likely to internalize their problems and is unlikely to be aware of the impact of their perfectionistic tendencies on others. Paradoxically, if one also has higher levels of SOP in conjunction with higher OOP, they are more likely to experience fear of embarrassment and shame in the presence of failure while having lower achievement motivation (Conroy, Kaye, & Fifer, 2007). The individual in the present study had a presentation similar to the literature in terms of limited levels of self-distress, with low SOP and SPP. Although the reason for which the above-mentioned individual sought out this intervention is unclear, it is possible that a significant other suggested they seek help for their perfectionism, given that OOP often plays a role in dyadic perfectionism and conflict (Haring, Hewitt, & Flett, 2003; Stoeber, 2012b).

Unexpectedly, after completing the intervention program this individual had increases on all perfectionism and distress indicators, except for OOP. Moreover, they exhibited a notable increase in treatment readiness. Given that individuals with higher levels of OOP tend to have low self-interest (i.e., desire for self-improvement; see Stoeber, 2015), changes in treatment readiness may have contributed to self-reevaluation, which is the assessment of one's experience of themselves in relation to the current problem (Krebs, Norcross, Nicholson, & Prochaska, 2018) or environmental reevaluation, which is the assessment of the impact of personal behaviour on one's social environment (Prochaska, Redding, & Evers, 2015). Self-reevaluation occurs as one moves from pre-contemplation to contemplation stages, and though this individual remained in the pre-contemplation stage based on their treatment readiness score, they exhibited the greatest degree of change relative to all other participants in overall readiness from baseline to posttest. It has been previously noted that the distinction between pre-contemplation and contemplation stage is not clearly delineated (e.g., Balmford, Borland, & Burney, 2008), suggesting an arbitrary boundary between two concepts. Therefore, the degree of change may be more relevant to the process of treatment readiness than the specific stage associated with change. However, it is unclear whether the intervention itself or some other factor contributed to increased treatment readiness, which may have then led to self-reevaluation. Nonetheless, the degree of change which one exhibits in terms of treatment readiness likely contributes the degree of awareness one has, which can impact the degree and direction of change in treatment outcomes.

The rates of attrition were high in this intervention trial, with 22 participants (65%) dropping out or losing contact after baseline. It is common for attrition rates for online interventions to range from 2% to 83% (Melville, Casey, & Kavanagh, 2010), yet these are quite

high compared to another online intervention for perfectionism that observed a rate of 39% (Shafran et al., 2017) and an overall average of 35% for Internet-based interventions (Melville et al., 2010). To better understand the differences between those who dropped out or lost contact after baseline and those who completed the intervention, baseline differences on all measures were assessed. Results were consistent with a meta-analysis of predictors of treatment adherence in online interventions which found that baseline symptom severity, marital status, and level of education were not related to adherence (Beatty & Binnion, 2016). It should be noted that treatment adherence is distinct from attrition, whereby treatment adherence is related to the amount of treatment one participates in and attrition is when one discontinues treatment (Beatty & Binnon, 2016). Nonetheless, in another online perfectionism study, it was noted that those who completed fewer intervention modules were more likely to be non-completers, suggesting treatment adherence plays a role in attrition (Shafran et al., 2017). Furthermore, the study found that non-completers had significantly higher parental expectations and parental criticism than completers at baseline (Shafran et al., 2017). Though parental expectations and criticism were not measured in the present study, the findings underscore the relevance that although some variables may play a role in attrition, most may not solely be responsible for drop-outs.

A noteworthy finding, when assessing differences at baseline, was the number of weeks spent using alternate therapy services prior to starting this treatment program. The number of weeks was significantly higher in individuals who dropped out part way through the study compared to individuals who only completed baseline or those who completed the study. Therefore, the time spent using previous psychological services may influence rates of attrition; paradoxically, a longer duration of therapy service use may contribute to greater treatment adherence while also increasing the risk of drop out. Given that a number of individuals tended

to endorse more extreme representations of use (i.e., no use or a lot of use), findings should be interpreted with caution. Nonetheless, prior use of psychological services, whether it speaks to the complexity or chronicity of the individual's problem, may be a contributing factor to attrition and treatment adherence.

Treatment readiness, however, may play a complex role in attrition. For example, a study by Monaghan et al. (2015) on the treatment of obsessive-compulsive disorder found that the relationship between treatment motivation and outcome was not as straightforward as hypothesized, suggesting that treatment readiness may fluctuate over time and influence other factors, which may then lead to changes in treatment adherence and attrition. Although baseline comparisons between completers and non-completers did not yield any significant differences in treatment readiness or its subscales (i.e., PC, C, A, M), bivariate correlations found that completers had positive associations between treatment readiness and baseline symptom severity on distress indicators, whereas non-completers had negative associations with pre-contemplation and baseline symptom severity on perfectionism and distress indicators. Moreover, completers had positive correlations between symptom severity on the majority of baseline perfectionism indicators and contemplation, with negative correlations between baseline symptom severity and pre-contemplation. Therefore, those with greater symptom severity at baseline had higher treatment readiness in the completers group. It has been previously found that treatment readiness is a moderator of treatment outcomes when assessing symptom severity using a transdiagnostic CBT intervention (Boswell et al., 2012). Specifically, those with higher levels of baseline symptom severity exhibited a greater degree of symptom change when having higher levels of treatment readiness.

Research assessing the process and outcome of treatment is not as common as outcome research, however, there may be added value in more closely examining treatment process. One benefit of examining the treatment process is to explore if a shorter intervention period may be observed for adaptive change to occur. In the present study, a pattern was noted for those who had greater treatment adherence (i.e., duration of use of intervention materials and breadth of materials); they had greater declines in distress symptomology in the corresponding week. Although no pattern emerged suggesting that a shorter intervention period is required in general, this is likely not the case given symptom change appears to be dependent on the quantity and quality of time dedicated to treatment activities. The reason for assessing both process and outcome was because it was expected that the process groups would exhibit greater declines on all measures compared to outcome groups given the idea that increased contact points, or support, in the treatment process would contribute to adaptive change on treatment indicators, as suggested in previous research (Johansson & Andersson, 2012; Richards & Richardson, 2012). However, support for this trend was unable to be captured in its entirety given the limited number of participants in each experimental condition within the process and outcome groups.

An obvious limitation of this study is the sample size. Given the small number of participants in each experimental condition, statistical analyses could not be conducted, therefore reducing the ability to make causal inferences of the changes observed in the dependent measures to the intervention itself. However, there are several benefits of including small case-design studies. For example, the design allows for a more detailed examination of anomalous trends in the data that would not otherwise be observed in a large sample, especially in cases when data points are considered “outliers.” This was the case in the present study, as the exploratory component of this research uncovered one individual’s noteworthy perfectionistic

presentation. Given the limited research in the area of OOP, the significance of this finding is merited; the current study was able to provide a perspective of intervention research for individuals with higher levels of OOP combined with the effect of lower treatment readiness that would otherwise be missed when assessing samples of a larger magnitude.

Moreover, small case-designs allow for immediate tracking of individual progress, such as changes in level of treatment readiness, which suggest that specific treatment protocol may need modification as there is typically no “one size fits all” approach (Vannest & Ninci, 2015). Given that stage of change may be related to trait-like modifications in perfectionism, it would be important to explore this factor in future designs and how it relates to treatment adherence. Research suggests that tailoring interventions to be more personal, including guidance with materials, may contribute to higher treatment adherence and reduce attrition (Beatty & Binnion, 2016). Therefore, it may not only be useful to include intervention modules focusing on motivational interviewing (MI; Miller & Rollnick, 2002) to aid individuals in shifting treatment readiness to contemplation or action stages, but also to tailor treatment to specific individuals.

One way that individualized treatment could be implemented in online interventions is through email communication. In a recent meta-analysis on technology-based methods of MI deliverance, it was found that they are several feasible ways to implement MI strategies, including email (Shingleton & Palfai, 2016). Personalized email communication would be a cost-effective way of implementing treatment strategies without in-person contact. In the current study, email communication was standardized, but it could be an influential factor in reducing attrition rates when paired with one’s level of treatment readiness. Therefore, future online intervention research should consider tailoring email communication to be reflective of one’s stage of change, with strategies to increase one’s treatment readiness when they are less willing

to change. Albeit, individuals in contemplation stages can benefit from the use of these intervention materials, suggesting that individuals do not need to have greater treatment readiness (e.g., action stage) to see adaptive change.

Other treatment considerations include the implications of those with low treatment readiness paired with higher OOP scores, which may act as a form of MI for those with high standards of others and an absence of distress of one's own problem(s). Though the individual in the current study exhibited maladaptive change at posttest, it is likely that their level of awareness increased, which is one of the main goals of MI (Miller & Rollnick, 2002). Therefore, it would be worth looking into the utility of the intervention materials for different types of perfectionistic presentations. It may be beneficial to create match-based treatment readiness programs for perfectionism as there is a lack of research in this area in general, across depression, anxiety, and eating disorders research (Krebs et al., 2018). Future research should also aim to explore the effectiveness of this online intervention in comparison to, and in combination with, face-to-face treatment. It is unclear at this time how this specific intervention compares to in-person treatments for individuals high in cognitive and trait perfectionism.

In contrast to the original design, individuals with any level of perfectionistic cognitions were included in the study. Though there was a greater number of individuals with higher PCI scores compared to lower ones who sought out this intervention program, it is unclear if those who reported fewer perfectionistic cognitions would exhibit the same extent of change as those with higher PCI scores. As suggested in previous research, individuals with greater symptom severity paired with higher treatment readiness tend to exhibit greater adaptive changes (Boswell et al., 2012). Therefore, it is unclear if individuals that score lower on cognitively-focused perfectionism measures with lower levels of treatment readiness would see any specific gains,

especially in trait perfectionism. Given that this intervention was designed to target cognitions, future research should include cognitive perfectionism indicators as screening tools as those higher in perfectionistic cognitions may see the most benefit from this intervention.

A final limitation of this study is that treatment expectancy has been recognized as a predictor of lower treatment adherence (Beatty & Binnion, 2016), and given that this was not measured in the current study, it is unclear if treatment expectancy played a role in treatment adherence. Including a measure of treatment expectancy would be informative in its role with attrition and treatment adherence in future research. Furthermore, it would be important to observe expectancy effects for individuals waiting to receive intervention materials on the waitlist.

Conclusion

The present study attempted to replicate results of a 10-week online intervention for perfectionism by Arpin-Cribbie et al. (2012) and extend on it by including a measure of treatment readiness and exploring treatment as both a process and an outcome. Trend analyses suggested that individuals in the CBT intervention improved on indicators of cognitively-focused perfectionism and distress symptomology compared to individuals on the waitlist. Moreover, CBT and GSM participants had lower perfectionistic cognitions, depressive and anxious symptomology, and negative affect compared to individuals on the waitlist. However, differences between the CBT and GSM groups were inconsistent with previous findings. Although this study does not provide causal conclusions, its findings can help inform future research in terms of the influence of treatment readiness on treatment adherence and attrition. Future research should focus on including a measure of treatment readiness and treatment expectancy to better understand the causes of attrition.

References

Ahola, P., Joensuu, M., Knekt, P., Lindfors, O., Saarinen, P., Tolmunen, T., ... & Lehtonen, J. (2017). Effects of scheduled waiting for psychotherapy in patients with major depression. *The Journal of Nervous and Mental Disease*, *205*(8), 611-617. doi:10.1097/NMD.0000000000000616

Arpin-Cribbie, C., Irvine, J., & Ritvo, P. (2012). Web-based cognitive-behavioral therapy for perfectionism: A randomized controlled trial. *Psychotherapy Research*, *22*(2), 194-207. doi:10.1080/10503307.2011.637242

Balmford, J., Borland, R., & Burney, S. (2008). Is contemplation a separate stage of change to precontemplation? *International Journal of Behavioral Medicine*, *15*(2), 141-148. doi:10.1080/10705500801929791

Barak, A., Hen, L., Boniel-Nissim, M., & Shapira, N. A. (2008). A comprehensive review and a meta-analysis of the effectiveness of Internet-based psychotherapeutic interventions. *Journal of Technology in Human Services*, *26*(2-4), 109-160. doi:10.1080/15228830802094429

Beatty, L., & Binnion, C. (2016). A systematic review of predictors of, and reasons for, adherence to online psychological interventions. *International Journal of Behavioral Medicine*, *23*(6), 776-794. doi:10.1007/s12529-016-9556-9

Beck, A. T. (1970). Cognitive therapy: Nature and relation to behavior therapy. *Behavior Therapy*, *1*(2), 184-200. doi:10.1016/S0005-7894(70)80030-2

Beck, A. T. (1979). *Cognitive therapy of depression*. New York, NY: Guilford Press.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56,* 893-897. doi:10.1037/0022-006X.56.6.893

Bieling, P. J., Israeli, A. L. & Antony, M. M. (2004). Is perfectionism good, bad, or both? Examining models of the perfectionism construct. *Personality and Individual Differences*, *36*, 1373–1385. doi:10.1016/S0191-8869(03)00235-6

Boswell, J. F., Sauer-Zavala, S. E., Gallagher, M. W., Delgado, N. K., & Barlow, D. H. (2012). Readiness to change as a moderator of outcome in transdiagnostic treatment. *Psychotherapy Research*, *22*(5), 570-578. doi:10.1080/10503307.2012.688884

Burgess, A., & DiBartolo, P. M. (2016). Anxiety and perfectionism: Relationships, mechanisms, and conditions. In *Perfectionism, health, and well-being* (pp. 177-203). Springer, Cham.

Chang, E. C. (2000). Perfectionism as a predictor of positive and negative psychological outcomes: Examining a mediation model in younger and older adults. *Journal of Counseling Psychology*, *47*(1), 18-26. doi:10.1037/0022-0167.47.1.18

Christensen, H., Griffiths, K. M., & Farrer, L. (2009). Adherence in Internet interventions for anxiety and depression: systematic review. *Journal of Medical Internet Research*, *11*(2), e13. doi:10.2196/jmir.1194

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Conroy, D. E., Kaye, M. P., & Fifer, A. M. (2007). Cognitive links between fear of failure and perfectionism. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *25*(4), 237-253. doi:10.1007/s10942-007-0052-7

Curran, T., & Hill, A. P. (2019). Perfectionism is increasing over time: A meta-analysis of birth cohort differences from 1989 to 2016. *Psychological Bulletin, 145*(4), 410-429.

Davies, E. B., Morriss, R., & Glazebrook, C. (2014). Computer-delivered and web-based interventions to improve depression, anxiety, and psychological well-being of university students: a systematic review and meta-analysis. *Journal of Medical Internet Research, 16*(5), 18-39. doi:10.2196/jmir.3142

de Jong, M., Korrelboom, K., van der Meer, I., Deen, M., Hoek, H. W., & Spinhoven, P. (2016). Effectiveness of enhanced cognitive behavioral therapy (CBT-E) for eating disorders: Study protocol for a randomized controlled trial. *Trials*, *17*(1), 573. doi:10.1186/s13063-016-1716-3

Dunkley, D. M., Mandel, T., & Ma, D. (2014). Perfectionism, neuroticism, and daily stress reactivity and coping effectiveness 6 months and 3 years later. *Journal of Counseling Psychology, 61*(4), 616-633. doi:10.1037/cou0000036

Egan, S. J., van Noort, E., Chee, A., Kane, R. T., Hoiles, K. J., Shafran, R., & Wade, T. D. (2014). A randomised controlled trial of face to face versus pure online self-help cognitive behavioural treatment for perfectionism. *Behaviour Research and Therapy*, *63*, 107-113. doi:10.1016/j.brat.2014.09.009

Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: A clinical review. *Clinical Psychology Review*, *31*(2), 203-212. doi:10.1016/j.cpr.2010.04.009

Enns, M. W., & Cox, B. J. (2002). The nature and assessment of perfectionism: A critical analysis. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism* (pp. 33-62). Washington, DC: APA. doi:10.1037/10458-002

Enns, M. W., Cox, B. J., & Clara, I. (2002). Adaptive and maladaptive perfectionism: Developmental origins and association with depression proneness. *Personality and Individual Differences*, *33*(6), 921-935. doi:10.1016/S0191-8869(01)00202-1

Flett, G. L., Hewitt, P. L., Blankstein, K., & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Social Psychology*, *75*, 1363-1381. doi:10.1037/0022-3514.75.5.1363

Flett, G. L., Newby, J., Hewitt, P. L., & Persaud, C. (2011). Perfectionistic automatic thoughts, trait perfectionism, and bulimic automatic thoughts in young women. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *29*(3), 192-206.

Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, *14*, 449-468. doi:10.1007/BF01172967

Gaudreau, P., & Thompson, A. (2010.) Testing a 2 x 2 model of dispositional perfectionism. *Personality and Individual Differences*, *48*, 532-537. doi:10.1016/j.paid.2009.11.031

Glover, D., Brown, G., Gairburn, C., & Shafran, R. (2007). A preliminary evaluation of cognitive-behaviour therapy for clinical perfectionism: A case series. *British Journal of Clinical Psychology*, *46*(1), 85-94. doi:10.1348/014466506X117388

Haring, M., Hewitt, P. L., & Flett, G. L. (2003). Perfectionism, coping, and quality of intimate relationships. *Journal of Marriage and Family*, *65*, 143-158. doi:10.1111/j.1741-3737.2003.00143.x

Harrer, M., Adam, S. H., Baumeister, H., Cuijpers, P., Karyotaki, E., Auerbach, R. P., ... & Ebert, D. D. (2019). Internet interventions for mental health in university students: A systematic review and meta-analysis. *International Journal of Methods in Psychiatric Research*, *28*(2), 1-18. doi:10.1002/mpr.1759

Hewitt, P. L., & Flett, G. L. (1987). Multidimensional perfectionism scale. In K. Corcoran & J. Fischer (Eds.), *Measures for clinical practice: A sourcebook* (pp. 142-145). New York, NY: Collier Macmillan.

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology*, *60*(3) 456-470. doi:10.1037/0022-3514.60.3.456

Hicks, R. E., & Wu, F. M. Y. (2018). Psychological capital as mediator between adaptive perfectionism and academic procrastination. *GSTF Journal of Psychology*, *2*(1), 34-40. doi:10.5176/2345-7872_2.1_27

Hollon, S. D., & Kendall, P. C. (1980). Cognitive self-statements in depression: Development of an automatic thoughts questionnaire. *Cognitive Therapy Research*, *4*(3), 383-395. doi:10.1007/BF01178214

Hollon, S. D., & Kendall, P.C. (1987). Automatic thoughts questionnaire. In K. Corcoran & J. Fischer (Eds.), *Measures for clinical practice: A sourcebook* (pp. 103-104). New York: Collier Macmillan.

Hollon, S. D., & Ponniah, K. (2010). A review of empirically supported psychological therapies for mood disorders in adults. *Depression and Anxiety*, *27*(10), 891-932. doi:10.1002/da.20741

Johansson, R., & Andersson, G. (2012). Internet-based psychological treatments for depression. *Expert Review of Neurotherapeutics*, *12*(7), 861–870. doi:10.1586/ern.12.63

Katz, S. J., Kessler, R. C., Frank, R. G., Leaf, P., & Lin, E. (1997). Mental health care use, morbidity, and socioeconomic status in the United States and Ontario. *Inquiry*, *34*(1), 38-49.

Kothari, R., Egan, S., Wade, T., Andersson, G., & Shafran, R. (2016). Overcoming Perfectionism: Protocol of a randomized controlled trial of an Internet-based guided self-help cognitive behavioral therapy intervention. *JMIR Research Protocols*, *5*(4), e215. doi:10.2196/resprot.6378

Krebs, P., Norcross, J. C., Nicholson, J. M., & Prochaska, J. O. (2018). Stages of change and psychotherapy outcomes: A review and meta-analysis. *Journal of Clinical Psychology*, *74*(11), 1964-1979. doi:10.1002/jclp.22683

Landa, C. E., & Bybee, J. A. (2007). Adaptive elements of aging: Self-image discrepancy, perfectionism, and eating problems. *Developmental Psychology*, *43*, 83-93. doi:10.1037/0012-1649.43.1.83

Lloyd, S., Fleming, C., Schmidt, U., & Tchanturia, K. (2014). Targeting perfectionism in anorexia nervosa using a group-based cognitive behavioural approach: A pilot study. *European Eating Disorders Review*, *22*(5), 366-372. doi:10.1002/erv.2313

Lloyd, S., Schmidt, U., Khondoker, M., & Tchanturia, K. (2015). Can psychological interventions reduce perfectionism? A systematic review and meta-analysis. *Behavioural and Cognitive Psychotherapy*, *43*(6), 705-731. doi:10.1017/S1352465814000162

Mander, J., Wittorf, A., Teufel, M., Schlar, A., Hautzinger, M., Zipfel, S., & Sammet, I. (2012). Patients with depression somatoform disorders and eating disorders on the stages of change validation of a short version of the URICA. *Psychotherapy*, *49*(4), 519-527. doi:10.1037/a0029563

Melchior, L. A., Huba, G. J., Brown, V. B., & Reback, C. J. (1993). A short depression index for women. *Educational and Psychological Measurement*, *53*(4), 1117-1125. doi:10.1177/0013164493053004024

Melville, K. M., Casey, L. M., & Kavanagh, D. J. (2010). Dropout from Internet-based treatment for psychological disorders. *British Journal of Clinical Psychology*, *49*(4), 455-471. doi:10.1348/014466509X472138

Miller, W.R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change* (2nd ed.). New York, NY: Guilford Press.

Milyavskaya, M., Harvey, B., Koestner, R., Powers, T., Rosenbaum, J., Ianakieva, I., & Prior, A. (2014). Affect across the year: How perfectionism influences the pattern of university students' affect across the calendar year. *Journal of Social and Clinical Psychology*, *33*(2), 124-142. doi:10.1521/jscp.2014.33.2.124

Monaghan, S. C., Cattie, J. E., Mathes, B. M., Shorser-Gentile, L. I., Crosby, J. M., & Elias, J. A. (2015). Stages of change and the treatment of OCD. *Journal of Obsessive-Compulsive and Related Disorders*, *5*, 1-7. doi:10.1016/j.jocrd.2014.12.005

Nehmy, T., & Wade, T. (2015). Reducing the onset of negative affect in adolescents: Evaluation of a perfectionism program in a universal prevention setting. *Behaviour Research and Therapy*, *67*(4), 55-63. doi:10.1016/j.brat.2015.02.007

Netemeyer, Richard G., illiamson, Donald A., Burton, Scot, Biswas, Dipayan, Jindal, Supriya, Landreth, Stacy, Mills, Gregory, & Primeaux, Sonya. (2002). Psychometric properties of shortened versions of the Automatic Thoughts Questionnaire. *Educational and Psychological Measurement*, *62*(1), 111-129. doi:10.1177/0013164402062001008

Orlinsky, D. E., Grawe, K., & Parks, B. K. (1994). Process and outcome in psychotherapy: Noch einmal. In A. E. Bergin & S. L. Garfield (Eds.), *Handbook of psychotherapy and behavior change* (4th ed., pp. 270-376). Oxford, England: John Wiley & Sons.

Park, H. J., & Jeong, D. Y. (2015). Psychological well-being, life satisfaction, and self-esteem among adaptive perfectionists, maladaptive perfectionists, and nonperfectionists. *Personality and Individual Differences*, *72*, 165-170. doi:10.1016/j.paid.2014.08.031

Pirbaglou, M., Cribbie, R., Irvine, J., Radhu, N., Vora, K., & Ritvo, P. (2013). Perfectionism, anxiety, and depressive distress: Evidence for the mediating role of negative automatic thoughts and anxiety sensitivity. *Journal of American College Health*, *61*(8), 477-483. doi:10.1080/07448481.2013.833932

Prochaska, J. Q, & DiClemente, C. C. (1983). Stages and processes of self-change in smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, *5*, 390-395. doi:10.1037/0022-006X.51.3.390

Prochaska, J.O., DiClemente, C.C., & Norcross, J.C. (1992). In search of how people change: Applications to the addictive behaviors. *American Psychologist*, *47*(9), 1102-1114. doi:10.1037/0003-066X.47.9.1102

Prochaska, J. O., Norcross, J. C., & DiClemente, C. C. (2013). Applying the stages of change. *Psychotherapy in Australia*, *19*(2), 10-15.

Prochaska, J. O., Redding, C. A., & Evers, K. E. (2015). The transtheoretical model and stages of change. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior: Theory, research, and practice* (5th ed., pp. 125-148). San Francisco, CA: Jossey-Bass.

Radhu, N., Daskalakis, Z. J., Arpin-Cribbie, C. A., Irvine, J., & Ritvo, P. (2012). Evaluating a web-based cognitive-behavioral therapy for maladaptive perfectionism in university students. *Journal of American College Health*, *60*(5), 357-366. doi:10.1080/07448481.2011.630703

Radloff, L. S. (1987). Center for epidemiologic studies: Depressed mood scale. In K. Corcoran & J. Fischer (Eds.), *Measures for clinical practice: A sourcebook* (pp. 118-119). New York, NY: Collier Macmillan.

Reiss, S., Peterson, R. A., Gursky, D. M., & McNally, R. J. (1986). Anxiety sensitivity, anxiety frequency, and the prediction of fearfulness. *Behaviour Research and Therapy*, *24*, 1-8. doi:10.1016/0005-7967(86)90143-9

Rice, K. G., Ray, M. E., Davis, D. E., DeBlaere, C., & Ashby, J. S. (2015). Perfectionism and longitudinal patterns of stress for STEM majors: Implications for academic performance. *Journal of Counseling Psychology*, *62*(4), 718-731. doi:10.1037/cou0000097

Richards, D., & Richardson, T. (2012). Computer-based psychological treatments for depression: A systematic review and meta-analysis. *Clinical Psychology Review*, *32*(4), 329–342. doi:10.1016/j.cpr.2012.02.004

Richardson, C. E., Rice, K. G., & Devine, D. P. (2014). Perfectionism, emotion regulation, and the cortisol stress response. *Journal of Counseling Psychology*, *61*(1), 110-118. doi:10.1037/a0034446

Rolstad, S., Adler, J., & Rydén, A. (2011). Response burden and questionnaire length: Is shorter better? A review and meta-analysis. *Value in Health*, *14*(8), 1101-1108. doi:10.1016/j.jval.2011.06.003

Seo, J. G., & Park, S. P. (2015). Validation of the Generalized Anxiety Disorder-7 (GAD-7) and GAD-2 in patients with migraine. *The Journal of Headache and Pain*, *16*(97), 1-7. doi:10.1186/s10194-015-0583-8

Shafran, R., Wade, T. D., Egan, S. J., Kothari, R., Allcott-Watson, H., Carlbring, P., ... & Andersson, G. (2017). Is the devil in the detail? A randomised controlled trial of guided

Internet-based CBT for perfectionism. *Behaviour Research and Therapy*, *95*, 99-106. doi:10.1016/j.brat.2017.05.014

Shahnaz, A., Saffer, B. Y., & Klonsky, E. D. (2018). The relationship of perfectionism to suicide ideation and attempts in a large online sample. *Personality and Individual Differences*, *130*, 117-121. doi:10.1016/j.paid.2018.04.002

Slaney, R. B., & Ashby, J. S. (1996). Perfectionists: Study of a criterion group. *Journal of Counselling & Development*, *74*(4), 393-398. doi:10.1002/j.1556-6676.1996.tb01885.x

Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised Almost Perfect Scale. *Measurement and Evaluation in Counselling and Development*, *34*, 130-145.

Smith, M. M., Sherry, S. B., Chen, S., Saklofske, D. H., Mushquash, C., Flett, G. L., & Hewitt, P. L. (2018). The perniciousness of perfectionism: A meta-analytic review of the perfectionism–suicide relationship. *Journal of Personality*, *86*(3), 522-542. doi:10.1111/jopy.12333

Smith, M. M., Vidovic, V., Sherry, S. B., & Saklofske, D. H. (2017). Self-oriented perfectionism and socially prescribed perfectionism add incrementally to the prediction of suicide ideation beyond hopelessness: A meta-analysis of 15 studies. In U. Kumar (Ed.) *Handbook of suicidal behaviour* (pp. 349-371). New York, NY: Springer.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, *166*(10), 1092-1097. doi:10.1001/archinte.166.10.1092

Statistics Canada. (2017). *2016 General Social Survey (Canadians at Work and Home).* (Catalogue no 11-627-M). Retrieved from https://www150.statcan.gc.ca/n1/en/pub/11-627-m/11-627-m2017032-eng.pdf?st=0IwzyWhx

Steele, L., Dewa, C., & Lee, K. (2007). Socioeconomic status and self-reported barriers to mental health service use. *The Canadian Journal of Psychiatry*, *52*(3), 201-206.

Steele, L. S., Glazier, R. H., & Lin, E. (2006). Inequity in mental health care under Canadian universal health coverage. *Psychiatric Services*, *57*(3), 317-324. doi:10.1176/appi.ps.57.3.317

Steele, A., & Wade, T. (2008). A randomised trial investigating guided self-help to reduce perfectionism and its impact on bulimia nervosa: A pilot study. *Behaviour Research and Therapy*, *46*(12), 1316-1323. doi:10.1016/j.brat.2008.09.006

Steele, A., Waite, S., Egan, S., Finnigan, J., Handley, A., & Wade, T. (2013). Psycho-education and group cognitive-behavioural therapy for clinical perfectionism: A case-series evaluation. *Behavioural and Cognitive Psychotherapy*, *41*(2), 129-143. doi:10.1017/S1352465812000628

Stoeber, J. (2012a). The 2 × 2 model of perfectionism: A critical comment and some suggestions. *Personality and Individual Differences*, *53*(5), 541-545. doi:10.1016/j.paid.2012.04.029

Stoeber, J. (2012b). Dyadic perfectionism in romantic relationships: Predicting relationship satisfaction and longterm commitment. *Personality and Individual Differences*, *53*, 300-305. doi:10.1016/j.paid.2012.04.002

Stoeber, J. (2014). How other-oriented perfectionism differs from self-oriented and socially prescribed perfectionism. *Journal of Psychopathology and Behavioral Assessment*, *36*(2), 329-338. doi:10.1007/s10862-013-9397-7

Stoeber, J. (2015). How other-oriented perfectionism differs from self-oriented and socially prescribed perfectionism: Further findings. *Journal of Psychopathology and Behavioral Assessment*, *37*(4), 611-623. doi:10.1007/s10862-015-9485-y

Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review*, *10*(4), 295-319. doi:10.1207/s15327957pspr1004_2

Stoeber, J., & Stoeber, F. S. (2009). Domains of perfectionism: Prevalence and relationships with perfectionism, gender, age, and satisfaction with life. *Personality and Individual Differences*, *46*(4), 530-535. doi:10.1016/j.paid.2008.12.006

Sunderland, A. & Findlay, L. C. (2013). Perceived need for mental health care in Canada: Results from the 2012 Canadian Community Health Survey - Mental Health, *Health Reports*, *24*(9), 3-9.

Van Bavel, J. (2002). Applying for graduate studies in psychology: A 12-step program. *Psynopsis: Canada's Psychology Newspaper*, *24*, 12.

Vannest, K. J., & Ninci, J. (2015). Evaluating intervention effects in single-case research designs. *Journal of Counseling & Development*, *93*(4), 403-411. doi:10.1002/jcad.12038

Wantland, D. J., Portillo, C. J., Holzemer, W. L., Slaughter, R., & McGhee, E. M. (2004). The effectiveness of web-based vs. non-web-based interventions: A meta-analysis of behavioral change outcomes. *Journal of Medical Internet Research*, *6*(4), e40. doi:10.2196/jmir.6.4.e40

Xie, Y., Kong, Y., Yang, J., & Chen, F. (2019). Perfectionism, worry, rumination, and distress: A meta-analysis of the evidence for the perfectionism cognition theory. *Personality and Individual Differences*, *139*, 301-312. doi:10.1016/j.paid.2018.11.028

Zauszniewski, J. A., & Graham, G. C. (2009). Comparison of short scales to measure depressive symptoms in elders with diabetes. *Western Journal of Nursing Research*, *31*(2), 219-234. doi:10.1177/0193945908326065

Appendix A

Table of Contents for CBT Modules

Contents at a Glance

Appendix B

Table of Contents for GSM Modules

Contents at a Glance

Appendix C

Perfectionism Cognitions Inventory (PCI; Flett et al., 1998)

DIRECTIONS: Listed below are a variety of thoughts about perfectionism that sometimes pop into people's heads. Please read each thought and indicate how frequently, if at all, the thought occurred to you *over the last two weeks*. Please read each item carefully and circle the appropriate number, using the scale below:

0 = Not at all 1 = Sometimes 2 = Moderately Often 3 = Often 4 = All the time

1. 0 1 2 3 4 Why can't I be perfect?
2. 0 1 2 3 4 I need to do better.
3. 0 1 2 3 4 I should be perfect.
4. 0 1 2 3 4 I should never make the same mistake twice.
5. 0 1 2 3 4 I've got to keep working on my goals.
6. 0 1 2 3 4 I have to be the best.
7. 0 1 2 3 4 I should be doing more.
8. 0 1 2 3 4 I can't stand to make mistakes.
9. 0 1 2 3 4 I have to work hard all the time.
10. 0 1 2 3 4 No matter how much I do, it's never enough.
11. 0 1 2 3 4 People expect me to be perfect.
12. 0 1 2 3 4 I must be efficient at all times.
13. 0 1 2 3 4 My goals are very high.
14. 0 1 2 3 4 I can always do better, even if things are almost perfect.
15. 0 1 2 3 4 I expect to be perfect.
16. 0 1 2 3 4 Why can't things be perfect?
17. 0 1 2 3 4 My work has to be superior.
18. 0 1 2 3 4 It would be great if everything in my life were perfect.
19. 0 1 2 3 4 My work should be flawless.
20. 0 1 2 3 4 Things are seldom ideal.
21. 0 1 2 3 4 How well am I doing?
22. 0 1 2 3 4 I can't do this perfectly.
23. 0 1 2 3 4 I certainly have high standards.
24. 0 1 2 3 4 Maybe I should lower my goals.
25. 0 1 2 3 4 I am too much of a perfectionist.

Appendix D

Frost Multidimensional Perfectionism Scale (MPS-F; Frost et al., 1990)
Concern over Mistakes (CM) subscale

INSTRUCTIONS: Please answer the following questions in relation to how much they apply to you. Do not spend too much time on any one question.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

1. 1 2 3 4 5 If I fail at work/school, I am a failure as a person.
2. 1 2 3 4 5 I should be upset if I make a mistake.
3. 1 2 3 4 5 If someone does a task at work/school better than me, then I feel like I failed the whole task.
4. 1 2 3 4 5 If I failed partly, it is as bad as a complete failure.
5. 1 2 3 4 5 I hate being less than the best at things.
6. 1 2 3 4 5 People will probably think less of me if I make a mistake.
7. 1 2 3 4 5 If I do not do as well as other people, it means I am an inferior human being.
8. 1 2 3 4 5 If I do not do as well all the time, people will not respect me.
9. 1 2 3 4 5 The fewer mistakes I make, the more people will like me.

Appendix E

Brief Hewitt and Flett Multidimensional Perfectionism Scale (MPS-HF; Hewitt et al., 2008)

INSTRUCTIONS: Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree and to what extent.

1 = Strongly Disagree 2 = Moderately Disagree 3 = Slightly Disagree 4 = Neutral 5 = Slightly Agree 6 = Moderately Agree 7 = Strongly Agree

6. One of my goals is to be perfect in everything I do (SOP)
7. Everything that others do must be of top-notch quality (OOP)
11. The better I do, the better I am expected to do (SPP)
14. I strive to be as perfect as I can be (SOP)
15. It is very important that I am perfect in everything I attempt (SOP)
16. I have high expectations for the people who are important to me (OOP)
20. I demand nothing less than perfection of myself (SOP)
22. I can’t be bothered with people who won’t strive to better themselves (OOP)
25. Success means that I must work even harder to please others (SPP)
26. If I ask someone to do something, I expect it to be done flawlessly (OOP)
27. I cannot stand to see people close to me make mistakes (OOP)
32. I must work to my full potential at all times (SOP)
35. My family expects me to be perfect (SPP)
39. People expect nothing less than perfection from me (SPP)
41. People expect more from me than I am capable of giving (SPP)

* = reverse scored

(SOP) = Self-Oriented Perfectionism

(SPP) = Socially Prescribed Perfectionism

(OPP) = Other-Oriented Perfectionism

Appendix F

Almost Perfect Scale-Revised (APS-R; Slaney et al., 1996)

Discrepancy (DISCR) subscale

INSTRUCTIONS: The following items are designed to measure attitudes people have toward themselves, their performance, and toward others. There are no right or wrong answers. Please respond to all of the items. Use your first impression and do not spend too much time on individual items in responding.

1 = Strongly Disagree 2 = Disagree 3 = Slightly Disagree 4 = Neutral

5 = Slightly Agree 6 = Agree 7 = Strongly Agree

3. 1 2 3 4 5 6 7 I often feel frustrated because I can't meet my goals.

6. 1 2 3 4 5 6 7 My best just never seems to be good enough for me.

9. 1 2 3 4 5 6 7 I rarely live up to my high standards.

11. 1 2 3 4 5 6 7 Doing my best never seems to be enough.

13. 1 2 3 4 5 6 7 I am never satisfied with my accomplishments.

15. 1 2 3 4 5 6 7 I often worry about not measuring up to my own expectations.

16. 1 2 3 4 5 6 7 My performance rarely measures up to my standards.

17. 1 2 3 4 5 6 7 I am not satisfied even when I know I have done my best

19. 1 2 3 4 5 6 7 I am seldom able to meet my own high standards of performance.

20. 1 2 3 4 5 6 7 I am hardly ever satisfied with my performance.

21. 1 2 3 4 5 6 7 I hardly ever feel that what I've done is good enough.

23. 1 2 3 4 5 6 7 I often feel disappointment after completing a task because I know I could have done better.

Appendix G

Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977)

DIRECTIONS: Below is a list of some of the ways you may have felt or behaved. Please indicate how often you've felt this way during the past week.

0 = Rarely or none of the time (less than 1 day)

1 = Some or a little of the time 1-2 days)

2 = Occasionally or a moderate amount of time (3-4 days)

3 = All of the time (5-7 days)

During the past week…

1. 0 1 2 3 I was bothered by things that usually don't bother me.
2. 0 1 2 3 I did not feel like eating; my appetite was poor.
3. 0 1 2 3 I felt that I could not shake off the blues even with help from my family.
4. 0 1 2 3 I felt that I was just as good as other people.*
5. 0 1 2 3 I had trouble keeping my mind on what I was doing.
6. 0 1 2 3 I felt depressed.
7. 0 1 2 3 I felt that everything I did was an effort.
8. 0 1 2 3 I felt hopeful about the future.*
9. 0 1 2 3 I thought my life had been a failure.
10. 0 1 2 3 I felt fearful.
11. 0 1 2 3 My sleep was restless.
12. 0 1 2 3 I was happy.*
13. 0 1 2 3 I talked less than usual.
14. 0 1 2 3 I felt lonely.
15. 0 1 2 3 People were unfriendly.
16. 0 1 2 3 I enjoyed life.*
17. 0 1 2 3 I had crying spells.
18. 0 1 2 3 I felt sad.
19. 0 1 2 3 I felt that people disliked me.
20. 0 1 2 3 I could not "get going."

* = reverse scored

Appendix H

Generalized Anxiety Disorder – 7 (GAD-7; Spitzer et al., 2006)

DIRECTIONS: Over the last 2 weeks, how often have you been bothered by the following problems?

0 = Not at all 1 = Several days 2 = More than half the days 3 = Nearly every day

1. 0 1 2 3 Feeling nervous, anxious or on edge
2. 0 1 2 3 Not being able to stop or control worrying
3. 0 1 2 3 Worrying too much about different things
4. 0 1 2 3 Trouble relaxing
5. 0 1 2 3 Being so restless that it is hard to sit still
6. 0 1 2 3 Becoming easily annoyed or irritable
7. 0 1 2 3 Feeling afraid as if something awful might happen

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not at all	**Somewhat difficult**	**Very difficult**	**Extremely Difficult**
_____	_____	_____	_____

(For office coding: Total Score T____ = Add columns ____ + ____ + ____)

Total Score Interpretation

≥10	Possible diagnosis of GAD; confirm by further evaluation
5	Mild Anxiety
10	Moderate anxiety
15	Severe anxiety

Appendix I

Automatic Thought Questionnaire (ATQ; Hollon & Kendall, 1980)

INSTRUCTIONS: How frequently have each of these statements crossed your mind during the past week.

1 = Not at all 2 = Sometimes 3 = Moderately Often 4 = Often 5 = All the time

1. 1 2 3 4 5 The world doesn't like me. (I feel like I'm up against the world)
2. 1 2 3 4 5 I'm no good.
3. 1 2 3 4 5 Why can't I do anything right? (Why can't I ever succeed?)
4. 1 2 3 4 5 No one understands me.
5. 1 2 3 4 5 I have let people down.
6. 1 2 3 4 5 I don't think I can go on.
7. 1 2 3 4 5 I wish I were a better person.
8. 1 2 3 4 5 I'm not strong at all. (I'm so weak)
9. 1 2 3 4 5 My life is not going the way I want it to.
10. 1 2 3 4 5 I'm so disappointed in myself.
11. 1 2 3 4 5 Nothing feels good anymore.
12. 1 2 3 4 5 I can't stand this anymore.
13. 1 2 3 4 5 I can't get anything started. (I can't get started)
14. 1 2 3 4 5 What's wrong with me?
15. 1 2 3 4 5 I wish I were somewhere else.
16. 1 2 3 4 5 I can't get things together.
17. 1 2 3 4 5 I hate myself.
18. 1 2 3 4 5 I'm not worth anything. (I'm worthless)
19. 1 2 3 4 5 I wish I could just disappear.
20. 1 2 3 4 5 What's the matter with me?
21. 1 2 3 4 5 I'm a loser.
22. 1 2 3 4 5 My life is a mess.
23. 1 2 3 4 5 I can't do anything well. (I'm a failure)
24. 1 2 3 4 5 I feel so helpless.
25. 1 2 3 4 5 I'll never make it.
26. 1 2 3 4 5 Something has to change.
27. 1 2 3 4 5 There must be something wrong with me.
28. 1 2 3 4 5 When I grow up, things will be bad. (My future is bleak)
29. 1 2 3 4 5 It's just not worth it.
30. 1 2 3 4 5 I can't finish anything

Appendix J

University of Rhode Island Change Assessment – Short (URICA-S; Mander et al., 2012)

DIRECTIONS: Each statement below describes how a person might feel when stating therapy or approaching problems in his life. Please indicate the extent to which you tend to agree or disagree with each statement. In each case, make you choice in terms of how you feel right now, not what you have felt in the past or would like to feel. For all the statements that refer to your "problem," answer in terms of problems related to mental health. The words, "here" and "this program" refer to this intervention program.

1 = Strongly Disagree 2 = Disagree 3 = Undecided 4 = Agree 5 = Strongly Agree

1. 1 2 3 4 5 I'm not the problem one. It doesn't make much sense for me to be here.
2. 1 2 3 4 5 I'm hoping this program will help me to better understand myself.
3. 1 2 3 4 5 I am doing something about the problems that had been bothering me.
4. 1 2 3 4 5 It worries me that I might slip back on a problem I have already changed, so I am here to seek help.
5. 1 2 3 4 5 I guess I have faults, but there's nothing that I really need to change.
6. 1 2 3 4 5 I wish I had more ideas on how to solve the problem.
7. 1 2 3 4 5 At times my problem is difficult, but I'm working on it.
8. 1 2 3 4 5 I'm not following through with what I had already changed as well as I hoped, and I'm here to prevent a relapse of the problem.
9. 1 2 3 4 5 All this talk about psychology is boring. Why can't people just forget about their problems?
10. 1 2 3 4 5 Maybe this program will be able to help me.
11. 1 2 3 4 5 I am really working hard to change.
12. 1 2 3 4 5 I'm here to prevent myself from having a relapse of my problem.
13. 1 2 3 4 5 I have worries but so does the next guy. Why spend time thinking about them?
14. 1 2 3 4 5 I hope that this program will have some good advice for me.
15. 1 2 3 4 5 I am actively working on my problem.
16. 1 2 3 4 5 It is frustrating, but I feel I might be having a recurrence of a problem I thought I had resolved.

Pre-contemplation – 1, 5, 9, 13
Contemplation – 2, 6, 10, 14
Action – 3, 7, 11, 15
Maintenance – 4, 8, 12, 16

URICA-S Scoring

1. Obtain the average score per subscale using the following grid:
   Pre-contemplation (PC)
   1._____
   5._____
   9._____
   13._____ Total_____ divided by 4 = Average____
   Contemplation (C)
   2._____
   6._____
   10._____
   14._____ Total_____ divided by 4= Average____
   Action (A)
   3._____
   7._____
   11._____
   15._____ Total_____ divided by 4 = Average____
   Maintenance (M)
   4._____
   8._____
   12._____
   16._____ Total_____ divided by 4 = Average____

2. Compute the "Readiness for Change" score via the following formula:
   (Avg C + Avg A + Avg M) – Avg PC = _____

3. Compare the Readiness for change score to the following group means. Chose the stage whose group average is closest to the computed Readiness Score:

	STAGE GROUP AVG
Pre-contemplation	9.3
Contemplation	11.0
Action	12.6
Maintenance	(Not Available)

Appendix K
Treatment Adherence – CBT

1. Select all of the following modules that you have read over the ENTIRE COURSE of this online intervention program (PAST 10 WEEKS):

   _____ Chapter 1 – Introduction
   _____ Chapter 2 – Living in the Real World
   _____ Chapter 3 – Living in the World of "Shoulds"
   _____ Chapter 4 – Work Out Your Mind!
   _____ Chapter 5 – Dealing with Negative Moods
   _____ Chapter 6 – When a "Want" Becomes a "Necessity"
   _____ Chapter 7 – Recognizing and Dealing with Stress
   _____ Chapter 8 – Dealing with Distractions and Distractibility
   _____ Chapter 9 – Dealing with Performance Anxiety
   _____ Chapter 10 – Changing Your Stressors
   _____ Chapter 11 – Exercise
   _____ Chapter 12 – Sleep
   _____ Chapter 13 – Meditation

2. How much time did you spend, ON AVERAGE, reading the modules EACH WEEK? (Please provide numerical value) Once you have included a value, you will be prompted to specify in minutes or hours: _____

   Was this in minutes or hours?

   ____ Minutes

   ____ Hours

3. How many TOTAL HOURS did you spend reading the modules over the entire course of this program (PAST 10 WEEKS)? _____

4. Please indicate how helpful you thought the modules were by dragging the slider for each module to a value (0 = Not at all helpful, 100 = Extremely helpful).

   _____ Chapter 1 – Introduction
   _____ Chapter 2 – Living in the Real World
   _____ Chapter 3 – Living in the World of "Shoulds"
   _____ Chapter 4 – Work Out Your Mind!
   _____ Chapter 5 – Dealing with Negative Moods
   _____ Chapter 6 – When a "Want" Becomes a "Necessity"
   _____ Chapter 7 – Recognizing and Dealing with Stress
   _____ Chapter 8 – Dealing with Distractions and Distractibility

_____ Chapter 9 – Dealing with Performance Anxiety
_____ Chapter 10 – Changing Your Stressors
_____ Chapter 11 – Exercise
_____ Chapter 12 – Sleep
_____ Chapter 13 – Meditation

5. Which of the following intervention materials (modules) did you find to be the MOST HELPFUL? _____ (Select one option from Chapter 1 to Chapter 13)

6. Which of the following intervention materials (modules) did you find to be the 2ND MOST HELPFUL? _____ (Select one option from Chapter 1 to Chapter 13)

7. Which of the following intervention materials (modules) did you find to be the 3RD MOST HELPFUL? _____ (Select one option from Chapter 1 to Chapter 13)

8. Which of the following intervention materials (modules) did you find to be the LEAST HELPFUL? _____ (Select one option from Chapter 1 to Chapter 13)

9. If you have any feedback or comments about this intervention program, or the modules you have read, please let us know:

   _____

Appendix L

Treatment Adherence – GSM

1. Select all of the following modules that you have read over the ENTIRE COURSE of this online intervention program (PAST 10 WEEKS):

   _____ Chapter 1 – Introduction
   _____ Chapter 2 – Recognizing and Dealing with Stress
   _____ Chapter 3 – Dealing with Distractions and Distractibility
   _____ Chapter 4 – Changing Your Stressors
   _____ Chapter 5 – Exercise
   _____ Chapter 6 – Sleep
   _____ Chapter 7 – Meditation

2. How much time did you spend, ON AVERAGE, reading the modules EACH WEEK? (Please provide numerical value) Once you have included a value, you will be prompted to specify in minutes or hours: _____

   Was this in minutes or hours?

   ____ Minutes

   ____ Hours

3. How many TOTAL HOURS did you spend reading the modules over the entire course of this program (PAST 10 WEEKS)? _____

4. Please indicate how helpful you thought the modules were by dragging the slider for each module to a value (0 = Not at all helpful, 100 = Extremely helpful).

   _____ Chapter 1 – Introduction
   _____ Chapter 2 – Recognizing and Dealing with Stress
   _____ Chapter 3 – Dealing with Distractions and Distractibility
   _____ Chapter 4 – Changing Your Stressors
   _____ Chapter 5 – Exercise
   _____ Chapter 6 – Sleep
   _____ Chapter 7 – Meditation

5. Which of the following intervention materials (modules) did you find to be the MOST HELPFUL? _____ (Select one option from Chapter 1 to Chapter 7)

6. Which of the following intervention materials (modules) did you find to be the 2ND MOST HELPFUL? _____ (Select one option from Chapter 1 to Chapter 7)

7. Which of the following intervention materials (modules) did you find to be the 3RD MOST HELPFUL? _____ (Select one option from Chapter 1 to Chapter 7)

8. Which of the following intervention materials (modules) did you find to be the LEAST HELPFUL? _____ (Select one option from Chapter 1 to Chapter 7)

9. If you have any feedback or comments about this intervention program, or the modules you have read, please let us know:

   _____

Appendix M

Demographic Questionnaire (Baseline)

1. What is your age (in years): _____
2. What do you identify as:

    _____ Male

    _____ Female

    _____ Non-binary/Third gender

    _____ Prefer not to say

    _____ Other

3. What is your marital status:

    _____ Married

    _____ Single

    _____ Divorced/Separated

    _____ Widowed

    _____ Common law

    _____ Other (Please specify)

4. Are you a college/university student? _____ Yes* _____ No**

    *Please specify the province/state that you are attending university:_____

    *Year in program: _____

    *What is the type of program you are in?

    ____ Bachelor's

    ____ Master's

    ____ PhD

    ____ Other (Please specify)

    *Program specialization: _____

    **Highest Degree Obtained:

    ___ High School Diploma

    ___ College

    ___ Bachelor's

    ___ Master's

    ___ PhD

___ Other (Please specify)

5. Country of Residence (please specify): _____
6. Ethnicity (please specify): _____
7. Are you currently accessing psychological services? ____ Yes ____ No
   a. If yes, please specify:

      ____ Individual therapy

      ____ Group therapy

      ____ Other (please specify)

   b. How long have you been accessing these psychological services for? (Please specify by entering the number of weeks):_____
8. Are you currently taking prescription medication for any form of mental health concerns? ____ Yes ____ No
   a. If yes, please specify the type of medication:

      ____ Anti-depressants (e.g., Prozac, Zoloft)

      ____ Anti-anxiety (e.g., Xanax, Valium)

      ____ Anti-psychotic (e.g., Risperdal, Clozaril)

      ____ Stimulant (e.g., Adderall, Desoxyn)

      ____ Other (Please specify)

   b. How long have you been using this medication for? (Please specify by entering the number of weeks): _____
9. How did you hear about this intervention program? (Select all that apply):

      ____ Business card

      ____ Community poster

      ____ On campus at Laurentian University

      ____ On social media site (e.g., Facebook)

      ____ Friend, relative or colleague

      ____ Other

*= Questions asked if indicated “Yes” for student

**= Questions asked if indicated “No” for student

Appendix N

Demographics Questionnaire (Posttest)

1. What is your age (in years): _____
2. Over the course of this web-based intervention (PAST 10 WEEKS), have you accessed any other psychological services? ____ Yes ____ No
    a. Over the course of this intervention (PAST 10 WEEKS) what psychological services have you been accessing?
        ____ Individual Therapy
        ____ Group Therapy
        ____ Other (Please specify)
    b. Over the course of this intervention (PAST 10 WEEKS) how many weeks have you been accessing these psychological services? (Please specify by entering a number from 0-10): _____
3. Over the course of this web-based intervention (PAST 10 WEEKS), have you been taking any prescription medication for any form of mental health concerns? ____ Yes ____ No
    a. If yes, Please specify the type of medication (select all that apply):
        ____ Anti-depressants (e.g., Prozac, Zoloft)
        ____ Anti-anxiety (e.g., Xanax, Valium)
        ____ Anti-psychotic (e.g., Risperdal, Clozaril)
        ____ Stimulant (e.g., Adderall, Desoxyn)
        ____ Other (Please specify)
    b. Over the course of this intervention (PAST 10 WEEKS) how many weeks have you been using this medication? (Please specify by entering a number from 0-10): _____

Appendix O

Center for Epidemiological Studies Depression Scale – Short Form (CESD-S; Melchior et al., 1993)

DIRECTIONS: Below is a list of some of the ways you may have felt or behaved. Please indicate how often you've felt this way during the past week. Respond to all items.

0 = Rarely or none of the time (less than 1 day)

1 = Some or a little of the time (1-2 days)

2 = Occasionally or a moderate amount of time (3-4 days)

3 = All of the time (5-7 days)

During the past week…

6. 0 1 2 3 I felt depressed.
14. 0 1 2 3 I felt lonely.
17. 0 1 2 3 I had crying spells.
18. 0 1 2 3 I felt sad.

Appendix P

Automatic Thoughts Questionnaire – Short Form (ATQ-S; Netemeyer et al., 2002)

INSTRUCTIONS: How frequently have each of these statements crossed your mind during the past week.

1 = Not at all 2 = Sometimes 3 = Moderately Often 4 = Often 5 = All the time

2. 1 2 3 4 5 I'm no good.
10. 1 2 3 4 5 I'm so disappointed in myself.
14. 1 2 3 4 5 What's wrong with me?
18. 1 2 3 4 5 I'm worthless.
24. 1 2 3 4 5 I feel so helpless.
26. 1 2 3 4 5 Something has to change.
28. 1 2 3 4 5 My future is bleak.
30. 1 2 3 4 5 I can't finish anything.

Appendix Q

Treatment Readiness – Short

Please indicate which statement best represents how you feel toward treatment?

1. I'm not the problem one. It doesn't make much sense for me to be here.
2. I'm hoping this place will help me to better understand myself.
3. I am doing something about the problems that had been bothering me.
4. It worries me that I might slip back on a problem I have already changed, so I am here to seek help.

Appendix R

Treatment Adherence – Short: CBT

1. Which modules did you read this PAST WEEK (Select all that apply):

   _____ Chapter 1 – Introduction
   _____ Chapter 2 – Living in the Real World
   _____ Chapter 3 – Living in the World of "Shoulds"
   _____ Chapter 4 – Work Out Your Mind!
   _____ Chapter 5 – Dealing with Negative Moods
   _____ Chapter 6 – When a "Want" Becomes a "Necessity"
   _____ Chapter 7 – Recognizing and Dealing with Stress
   _____ Chapter 8 – Dealing with Distractions and Distractibility
   _____ Chapter 9 – Dealing with Performance Anxiety
   _____ Chapter 10 – Changing Your Stressors
   _____ Chapter 11 – Exercise
   _____ Chapter 12 – Sleep
   _____ Chapter 13 – Meditation

2. How many minute or hours did you spend reading the modules this PAST WEEK? (Please provide numerical value) Once you have included a value, you will be prompted to specify in minutes or hours.

   _____

   Please specify in minutes or hours:

   ____ Minutes

   ____ Hours

3. Please provide any feedback on the modules you have read over this PAST WEEK:

_____

Appendix S
Treatment Adherence – Short: GSM

1. Which modules did you read this PAST WEEK (Select all that apply):

   _____ Chapter 1 – Introduction
   _____ Chapter 2 – Recognizing and Dealing with Stress
   _____ Chapter 3 – Dealing with Distractions and Distractibility
   _____ Chapter 4 – Changing Your Stressors
   _____ Chapter 5 – Exercise
   _____ Chapter 6 – Sleep
   _____ Chapter 7 – Meditation

2. How many minute or hours did you spend reading the modules this PAST WEEK? (Please provide numerical value) Once you have included a value, you will be prompted to specify in minutes or hours: _____

   Please specify in minutes or hours:

   ____ Minutes

   ____ Hours

3. Please provide any feedback on the modules you have read over this PAST WEEK:

_____

Appendix T

Pre-Script to Informed Consent

Thank you for your interest in our study. We are conducting an online intervention for perfectionism, which will take approximately 10 weeks, and will include accessing PDF modules on the internet, remotely at any time of day. These modules discuss the managing of perfectionistic cognitions and psychological distress. Your participation would involve filling out several questionnaires at the beginning, middle and end of the intervention program. The questionnaires range from 5-20 minutes to complete, for a total investment of 50-95 minutes. Therefore, to participate, you would need regular access to the internet and you would need to provide us with an email address to send you the related intervention materials and questionnaire packages. Your participation is strictly voluntary and at any point in time, if you wish to drop out of the study, there will be no penalties for doing so.

If you are interested in participating, please follow the link listed below for the informed consent and access to the first set of questionnaires: https://redcap.laurentian.ca/surveys/?s=dDhPxF*

If you do not wish to participate, please press "Submit" to close the window. Thank you.

*Please note that the website address varied depending on student or community sample. Student website was linked to the following: https://redcap.laurentian.ca/surveys/?s=jaMdhm

Appendix U

Informed Consent

Study Title: A Web-Based Intervention for Perfectionism

Investigators: Alyssa Smith, Honours BA (Master's Student) & Dr. Chantal Arpin-Cribbie

This study is intended to assess the effectiveness of web-based interventions with individuals who feel that their lives are negatively affected by perfectionism, be it personally, professionally, or academically. It is hoped that the results of this study will help better inform online intervention plans for individuals with perfectionism.

As part of the study, you will be asked to fill out a series of online questionnaires at the beginning and once again at the end of the study which will assess perfectionism and its related cognitions, mood, and anxiety. The questionnaires will require approximately 20 minutes of your time. Upon completion of the initial set of online questionnaires, you will be randomly assigned to one of the three experimental conditions: either (a) or (b), which will receive a web-based intervention, or (c), a waitlist condition. If assigned to the waitlist condition, the intervention materials will be made available to you in approximately 12 weeks from this date. If you are randomly assigned to either online intervention group, you will proceed through the respective web-based intervention protocol following the initial set of questionnaires. The intervention trial will last approximately 10 weeks and may be conducted from any location you wish, provided you have internet to access the web-based program from there. At the end of the 10 week period, you will be contacted once again to complete the post intervention questionnaire package regardless of the group to which you have been assigned. You will contacted again at a follow up period of one month and three months and asked to complete a brief set of questionnaires that will take approximately 4 minutes of your time.

As a separate component of this study, you may be randomly assigned within each of these experimental conditions to a process group. If you are assigned to the process group, you will be asked to complete a very brief set of questionnaires over the course of the 10 week intervention. These questionnaires will take approximately 5 minutes of your time each week to complete. Those who are not assigned to this process group will only complete the set of questionnaires at the beginning and end of the 10 week trial. Therefore, the total time investment for filling out questionnaires across the entire 10 week intervention phase can range from 50-95 minutes. However, please note that this time does not include the length of time spent on reading the intervention materials because it is up to you to read as often or as little as you wish. Therefore, overall time investment varies across participants.

Although both web-based interventions have been previously evaluated for their efficacy, you should be aware that there is no guarantee that your involvement in this study will benefit you specifically. We do expect, however, that this study will help advance an understanding about how to help individuals better cope with perfectionistic attitudes. Should you have been randomly assigned to the waitlist condition, you will be offered access to the online intervention at the completion of the study.

In order to access the study questionnaires mentioned above, you will be sent separate links via email to REDCap, a secure online survey system. Therefore, <u>an email address is required</u> to participate in this study.

If you do not wish to provide an email address that is linked to your work or personal life, you might wish to create a new account just for the purpose of this study. By providing your email address we will be able to send you the links to questionnaire packages and send you information related to the intervention materials. In addition, we will ask you to create an ID code to track your responses across the intervention period. This code will include your initials and birth month and day. However, please note that your identity will in no way be linked to your responses and data will be gathered in such a way as to ensure anonymity.

Please note that your participation in this study is strictly voluntary and your responses are kept anonymous and confidential. Only the researchers directly associated with the research project will be able to see the completed questionnaires. The data will be stored on a secure online server, and backed-up on secure, password protected computers locked in a laboratory for 5-10 years where it will then be destroyed. All questionnaires will be ID-coded to ensure the confidentiality of all study participants. Names of the participants will not appear on files. Only group data will be reported in any published studies or presentations. You have the right to discontinue your participation or withdraw your data at any time without penalty by notifying the researcher. The decision to participate or to discontinue participation in the study will not impact your academic standing at Laurentian University.

This research has been reviewed and approved for compliance to research ethics protocols by the Research Ethics Board (REB) of Laurentian University. There is minimal risk related to participation in the study. If you have any questions regarding the study, you can contact the researcher, Alyssa Smith via email (ajsmith@laurentian.ca), or the research supervisor, Dr. Chantal Arpin-Cribbie via email (carpincribbie@laurentian.ca) or by phone (1.855.675.1151 ext. 6702). If you have any questions about the ethics of your participation in the study, you may contact the University's Research Ethics Officer, Office of Research Services, at 705.675.1151 ext. 3681 or 2436 or toll free at 1.800.461.4030 (ethics@laurentian.ca).

Since the study will involve reflection about your personal situation and issues related to perfectionism, this may cause some discomfort or difficult feelings as you try to understand your perfectionism. This study is not intended to be a crisis intervention. If you need immediate assistance, or you feel the need for additional help at any point in time, you can access the national and international crisis centers in your area by referring to the following link: www.iasp.info/resources/Crisis_Centres or Kids/Teens Help Phone at 1.800.668.6868 (www.kidshelpphone.ca). Students may also access additional support through Student Services on the Sudbury Campus of Laurentian University. Student Services is located in room P230 in the Parker Building and can be reached by phone at 705.673.6506. Additional information can be located at http://www.laurentian.ca/student-services.

Please note that this study is intended for individuals aged 17 and older. Therefore, clicking the button below both confirms that you agree to consent to the above terms and conditions and that you are of age to participate in the study.

_____ _____

Participant Name Date

**Highlighted areas were removed from the general community version of informed consent

Appendix V

Scripts for Email Address and ID Code

Email Address

As indicated in the informed consent, in order to access the study questionnaires and receive information about the intervention materials, you will be sent separate links via email to REDCap, a secure online survey system. Please provide us with the email address you would like for this purpose.

Eventual Results

If you would like to receive an email summary of the eventual results of the study, please select yes in order to send it to the email address you provided above. If you wish, you can provide an alternate email address where the results summary can be sent.

ID Code

You will also create your ID code that you will use to fill out every questionnaire you complete. You will only create **one** ID code (Note: There will be a hint on each questionnaire to help you remember your ID code).

The ID code will be created as follows:

Initial of First Name, Initial of Last Name, Birth Day, Birth Month

Example (John Smith, Birthday June 1st):

JS0106

1. Email Address:_____
2. If you would like to receive an email summary of the eventual results of the study, please select yes in order to send it to the email address you provided above. If you wish, you can provide an alternate email address where the results summary can be sent.

   __Yes

   __No

   __Alternate Email Address

   Alternate Email Address:_____
3. Please enter your ID code:_____

   (Refer to instructions above)

Appendix W

Email Scripts

Initial Script

Dear Participant,

Many thanks for having completed the initial set of questionnaires for this study. Instructions on how to complete your participation in this study are listed on the website below:

https://laurentian.ca/dept/psychology/instructions-trial

Please email the researcher (perfectionism.research@gmail.com) to confirm that you were successfully able to access the website listed above. If you could do this at your earliest convenience, it would be most appreciated.

Please Note…
If you have any questions or concerns at any point in time, please feel free to contact the principal investigator, Dr. Chantal Arpin-Cribbie, or researcher, Alyssa Smith, via email at perfectionism.research@gmail.com.

Thank you,

Perfectionism Research Team

Weekly Assessment Script

Dear Participant,

Thank you for your continued participation in our study. We have provided you with the link to complete the first set of weekly questionnaires. It will only take 5 minutes of your time. It includes questions regarding your mood and thoughts. The questionnaire can be accessed at:

https://redcap.laurentian.ca/surveys/?s=zf2jdE

The link will direct you to Laurentian University's secure online survey system, REDCap. As a reminder, all responses are kept anonymous and confidential and will in no way be linked to your identity.

It would be greatly appreciated if you could complete the questionnaire at your earliest convenience.

Thank you again for your participation!

Perfectionism Research Team

Follow-Up Script

Dear Participant,

This is just a reminder that you have not yet completed the first weekly questionnaire. The questionnaire can be accessed at:

https://redcap.laurentian.ca/surveys/?s=zf2jdE

The link will direct you to Laurentian University's secure online survey system, REDCap. As a reminder, all responses are kept anonymous and confidential and will in no way be linked to your identity.

It would be greatly appreciated if you could complete the questionnaire at your earliest convenience. It will take no longer than 5 minutes of your time.

Thank you again for your participation!

Perfectionism Research Team

Appendix X

Debriefing Form

Study Title: A Web-based Intervention for Perfectionism: An Extension of Previous Findings

Investigators: Alyssa Smith, Honours BA (Master's Student) & Dr. Chantal Arpin-Cribbie

Thank you for your participation in our study! We would like to take this opportunity to elaborate on what we are trying to accomplish in this study. The purpose of this work is to help us better understand the relationships between psychological functioning, motivation for treatment, and the use of online intervention materials. Specifically, the researchers want to examine how modifying perfectionistic thinking can influence changes in depressive and anxious symptoms as well as automatic negative thinking. The researchers also want to better understand how one's motivation to change perfectionistic thinking is related to the use of the intervention materials. Finally, the researchers hope the results of this study will help guide how to best design web-based interventions so that they can be of most benefit to people struggling with perfectionism related concerns.

In this study you were assigned to one of three groups as follows: (a) a group that received a cognitive behavioural intervention aimed at modifying the effects of perfectionistic beliefs, (b) a stress management group that received an intervention for modifying distress, or a (c) waitlist condition that received no intervention for the 10 week duration. Some participants were asked to complete a series of questionnaires at the beginning and at the end of the intervention period. Others may have also been asked to complete short weekly questionnaires throughout the intervention period. In order to understand when and why changes in psychological functioning occurred during the intervention, some participants received these questionnaires to monitor week by week changes in psychological well-being.

We are expecting that the cognitive behavioural intervention group will experience the most beneficial changes in psychological well-being compared to the stress management and waitlist groups. Specifically, we were expecting greater reductions in levels of perfectionism, depressive and anxious symptoms, and negative thinking in the cognitive behavioural group than the two other groups. We also expect to see the least amount of change in psychological health for participants in the waitlist condition. Previous research using these intervention materials have reported these trends as well (Arpin-Cribbie, Irvine & Ritvo, 2012).

Finally, we also expect that individuals who reported more willingness to change their perfectionistic thinking would have greater improvements at the end of the treatment period, compared to those who were less motivated to change, and that individuals who completed the weekly questionnaires would have greater benefits in psychological functioning, compared to those who only received questionnaires at the beginning and at the end of the study, due to added involvement with the intervention trial.

Although both web-based interventions have been previously evaluated for their efficacy, you may not have specifically benefited from participating in this intervention. Should you have been randomly assigned to the waitlist condition, you will be offered access to the online intervention. This information will be sent to you via email.

As a reminder, you will be contacted in one month and three months from this date to complete a brief set of follow-up questionnaires that will take no more than 4 minutes of your time. Please note that your participation in these follow up questionnaires is completely voluntary and you have the right to discontinue your participation or withdraw your data at any time without penalty by notifying the researcher.

All of the responses you provided will remain anonymous and confidential. Although participation in this study is not associated with any inherent risks, some of the questions may be considered personal, as they contain content that requires self-evaluation. The researchers have made every effort to ensure the minimization of any negative emotional reactions, however there is a possibility that some participants may experience feelings of uneasiness during the process of completing the intervention and study questionnaires. If you feel the need for additional support, mental health resources for students are listed at the end of this document.

If you have questions regarding the study, you may contact either researcher:

Dr. Chantal Arpin-Cribbie – carpincribbie@laurentian.ca or 1-855-675-1151 ext. 6702
Alyssa Smith – ajsmith@laurentian.ca

For questions regarding the ethics of your participation in the study, you may contact:

University's Research Ethics Officer:
Office of Research Services
(E): ethics@laurentian.ca
(T): 705-675-1151 ext. 3681 or 2436
Toll Free: 1-800-461-4030

Student Services:

Laurentian University (Sudbury Campus)
Room: P-230, Parker Building
(T): 1-705-673-6506
(W): www.laurentian.ca/student-services

Community Crisis Intervention:

For access to national and international crisis centers in your area, please refer to the following link: www.iasp.info/resources/Crisis_Centres

Kids/Teens Help Phone:

(Toll Free): 1-800-668-6868
(W): www.kidshelpphone.ca

We thank you again for participating in our study!

Appendix Y

Participant Feedback

Week 1

CBT_{16} – "I would have like the reading to be a little more detailed."
CBT_{17} – "I found the examples and exercises in chapter 4 particularly helpful"

GSM_{38} – "I felt like I did not have time to read any modules this week because I was so worried about studying for final exams."

Week 2

CBT_{16} – "I really should have made more time to do the reading. I feel like I have been backsliding a bit which has me down. I'll try to do better for next week."
CBT_{17} – "The scored exercises in module 7 were a great way to put things into perspective"

GSM_{38} – "Gave me a confidence boost, made me feel good about doing something to help manage my stress. Made me realize that working out and yoga are beneficial to managing my stress"

Week 3

CBT_{16} – "The material and exercises in Chapter 4 - Work Out Your Mind was quite good and I feel I benefited from it."
CBT_{17} – "chapter 9 is very relevant to my life thank you"

GSM_{38} – "Chapter 3 helped me realize that I become irritable when I am distracted from my work and this negatively affects my relationship with someone that is trying to help me get past my stress. I have tried the techniques for dealing with stress and with practice, I believe this will help. Chapter 4 also helped motivate me to deal with the things that make me stressed. I am taking on a 30 day yoga challenge for this purpose."

Week 4

CBT_{17} – "u could not p a y me to exercise im so sorry"

GSM_{38} – "I did not read any modules this week. Now that the school semester is over, much of my stress, worrying, and anxiety has diminished. I am also taking a lot more time for self care practices. Overall, I do not feel as much pressure to be perfect at this time in my life."

Week 5

CBT_{16} – "I found the self scored exercise s very interesting. They provided some insights to myself that I was not aware of."
CBT_{17} – "perhaps a counting exercise during meditation would also be a good suggestion, even though it is mentioned elsewhere"

GSM_{38} – "Have not felt the need. Have not even really thought about my worries/this program."

Week 6

CBT_{17} – "provided a different perspective for me when I was worried about doing a presentation for my class."

GSM_{38} – "Never remind myself to read through any modules. I try to apply what I have already read from these modules in my daily life anyway."

Week 7

CBT_{17} – "exams approach, so I chose to read the modules that were most relevant. I found that they helped me to focus on something else for a few minutes and calm down"

Week 8

CBT_{16} – "Changing Your Stressors (Ch.10) was a worthwhile read because I am going through some severe stress in my personal life right now."
CBT_{17} – "school is over so the largest source of my stress has pretty much gone away, but these modules still provide good general life advice"

Week 9

CBT_{16} – "I would have liked the chapter to include more tips for motivating myself to exercise and information about proven benefits of exercise."
CBT_{17} – "good advice in chapter 12 was particularly useful to me this week"

Posttest

CBT_{16} – "I felt the materials were worthwhile to read but some could have been more detailed. This program has certainly made me more aware of my perfectionist tendencies and has given me so ideas for dealing with these tendencies."
CBT_{17} – "Certain questions seemed to be repeated in the same questionnaire, and it occasionally felt like I was being asked the same thing multiple times"
CBT_{18} – "I probably found some of the chapters less helpful because it caused me to ruminate more. Chapter 1 gave me hope. I have done CBT before."

GSM_{38} – "Advice given seemed more like common sense for my personal situation. I already recognize my stressors and have ways to deal with stress. The main problem is feeling that I need to be perfect. While this causes some stress in my life, this can be managed. I thought this program would help me think differently about the need to be perfect... not dealing with the stress of trying to be perfect. Expected more of a transformation of thinking."

NT_{35} – "Recently completed 3 years of therapy due to depression but I feel like things still aren't in control."