Internet-based Small Changes for young Adults' life Longevity and wEight health: The iSCALE feasibility study

by

Ashley Nicole Felske

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The following individuals certify that they have read, and recommend to the College of Graduate Studies for acceptance, a thesis entitled:

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submitted by Ashley Nicole Felske in partial fulfillment of the requirements of the degree of Master of Arts.

Dr. Lesley Lutes, Faculty of Arts and Social Sciences, Department of Psychology

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Supervisor:

Dr. Ali McManus, Faculty of Health and Social Development, School of Health and Exercise Science

---

Supervisory Committee Member:

Dr. Zach Walsh, Faculty of Arts and Social Sciences, Department of Psychology

---

Supervisory Committee Member:

Dr. Leanne ten Brinke, Faculty of Arts and Social Sciences, Department of Psychology

---

Neutral Chair:

Dr. Eli Puterman, Faculty of Education, School of Kinesiology

---

University Examiner:

Abstract

Lifestyle, developmental, and transitional factors contribute to young adults gaining weight faster than any other age group and at a rate faster than previous generations. Left untreated, overweight and obesity increases the risk for chronic conditions and can reduce the quality and length of life. A weight management approach per 2020 clinical practice guidelines is *Small Changes,* a cognitive-behavioural healthy lifestyle program that promotes modest (i.e., gradual changes relative to a person's baseline behavioural levels) and self-selected (i.e., non-prescriptive) diet and physical activity changes. *Small Changes* has positively impacted psychological and physical health outcomes among difficult-to-treat populations, but has not yet been tested among young adults. This study assessed the acceptability and feasibility of a self-paced, online-delivered, podcast- and community forum-augmented version of *Small Changes* among young adults. The secondary aims evaluated the impact on weight, symptoms of depression and anxiety, self-compassion, and frequency of weight control strategies. Fifteen modules included cognitive-behavioural-based content, and five modules included an accompanying podcast. For social support, participants had access to an optional online community forum. Fifty-two participants self-reported their height and weight and completed an online questionnaire package at pre-intervention and 27 at post-intervention (12 weeks). The intervention was largely acceptable to completers, as the average satisfaction rating across modules was 8.30/10.00 and the average likelihoods that a participant would continue to use the skills learned and recommend the modules to another individual were 76.09% and 74.30%, respectively. Completers tended to be younger and have a lower starting weight and BMI than those that dropped out. Average weight change was -1.08kgs; further, 42.90% of the sample lost 3% or more of their total body weight. Symptoms of depression and anxiety did not significantly

improve pre- to post-intervention, nor did levels of self-compassion; however, the frequency of weight control strategies did significantly increase pre- to post-intervention. The intervention was feasible in terms of recruitment ease (e.g., two weeks duration and cost $5.00 per participant), but not in terms of adherence (35.96%) or retention (46.65%).

Keywords: Small Changes; Young adults; Weight; Feasibility study; Online intervention

Lay Summary

Young adults gain weight for many reasons including, sedentary lifestyles, life transition/stress, or parenthood. This weight gain is troubling as the reduction in life expectancy associated with overweight/obesity is greatest when beginning in young adulthood. *Small Changes,* a healthy lifestyle program, advises relative and self-selected changes to diet and physical activity to prevent weight gain/produce modest weight loss. This approach has been successful in several populations but has not been tested among young adults. The study aimed to assess the feasibility and acceptability of a tailored version of Small Changes among young adults. Height, weight, weight management strategies, anxiety, depression, and self-compassion were measured before and after a 12-week intervention. Results show that Small Changes is largely acceptable to young adults with overweight, can prevent weight gain among this population, and increases weight management strategies with minimal cost investment, but is not feasible with adherence and retention rates below 50%.

Preface

This thesis is an original intellectual product of the author, Ashley Nicole Felske. The author was primarily responsible for the identification and design of the research program, the performance of the various parts of the research, and the analysis of the research data. The University of British Columbia's Okanagan Behavioural Research Ethics Board granted ethical approval for this research on 19 February 2022. The ethics approval certificate number for this research is H21-03397.

Table of Contents

List of Tables

List of Figures

Acknowledgments

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Dedication

This work is dedicated to anyone working towards a goal, big or small; you can do it.

Chapter 1: Introduction

1.1 Weight Gain Among Young Adults

Young adulthood represents the period of the lifespan that follows adolescences; it is characterized as a period for identity, belief, and value formation and increased independence (Higley, 2019). In Canada, the rate of overweight and obesity [i.e., a body mass index (BMI) >25kg/m^2 and ≥30kg/m^2, respectively] has been increasing annually for the past 30 years (Wharton et al., 2020). Specifically, 30 to 60% of young adults (i.e., ages 18 to 34 years) now have overweight or obesity, despite the increasing prevalence of individuals 'dieting' to lose weight (Montani et al., 2015; Statistics Canada, 2019). Even more, young adults are gaining weight faster than any other age group, and at a rate greater than any generation before (Kuk et al., 2020; Lytle et al., 2014; Munt et al., 2017; Wing et al., 2016). Reasons for this include poor diet [i.e., lack of fruits, vegetables, and wholegrains, overconsumption of surgery drinks, highly-processed foods, and fast-food; (Munt et al., 2017; Pereira et al., 2005; Strong et al., 2008)], alcohol consumption (e.g., binge drinking) and stress/life transitions (Nanney et al., 2015), sedentary behaviour (Calfas et al., 2000; Nanney et al., 2015), pregnancy/parenthood (Saxbe et al., 2018; Umberson et al., 2011), and first-year university/college weight gain (Holm-Denoma et al., 2008; Vella-Zarb & Elgar, 2009), to list a few (Nelson et al., 2008). Untreated overweight and obesity are associated with increased risk and development of chronic conditions [e.g., type II diabetes (Chu et al., 2018); cancer (Wharton et al., 2020); and coronary heart disease (Lytle et al., 2014)], which hinder both the quality and quantity of life. Early mortality is a significant concern; it is estimated that for those with weight concerns beginning in young adulthood and left unmanaged between nine and 13 years of life could be lost (Fontaine et al., 2003; Grover et al., 2015). In addition to the human costs, the financial costs of overweight and obesity and

weight-related chronic conditions such as diabetes are staggering; 11 and 15 billion Canadian dollars are spent annually to manage these health concerns, respectively (Bilandzic & Rosella, 2017; Tran et al., 2013). These costs are unlikely to be maintainable if the prevalence of overweight and obesity continue to increase at their current rates. A weight management intervention that is effective, can be disseminated at a national level, and produces 5% weight loss could reduce the costs associated with diabetes by over 2 billion dollars a year in Canada (Bilandzic & Rosella, 2017). Thus, interventions targeting healthy weight management beginning in young adulthood are clearly warranted and, if effective, likely to have a large impact at individual and systems levels (Kelly et al., 2008; Moe et al., 2017).

1.2 The Traditional Approach to Weight Management

Traditional behavioural therapy, the original gold standard treatment for weight management, takes a dieting approach and prescribes significant (and challenging to sustain) changes to diet and physical activity to produce a period of caloric deficit and large initial weight loss in order to buffer against future weight gain (Wadden et al., 2004). While effective at producing initial weight loss, weight regain or recidivism is an ever-present limitation of traditional behavioural therapies (Salvia, 2017; Tate et al., 2007; Wadden, 2014). High costs have been reported as consistent limitations of traditional weight management programs (Tsai et al., 2005). Countless clinical trials conducted over four decades show that the trajectory following large and rapid weight loss [i.e., >10% total body weight lost in ≤6 months; (Centers for Disease Control and Prevention (CDC), 2020; National Institutes of Health & National Heat, Lung, and Blood Institute, 1998)] is regaining back to baseline weight or even greater than baseline weight for a vast majority [e.g., up to 80%; (Anderson et al., 2001)] of people following traditional and intensive methods for weight loss [e.g., (Fothergill et al., 2016; Hall & Kahan,

2018; Mann et al., 2007; Quinn et al., 2020)]. Moreover, traditional behavioural therapy has shown the highest rates of dropout among young adults resulting in poor weight loss maintenance among this age group in particular (Gokee-LaRose et al., 2009; Wadden & Butryn, 2003). Therefore, not only are weight management inventions targeting young adults needed, but these interventions need to be tailored according to the unique needs and lifestyles of young adults in order to produce lasting change.

1.3 A Small Changes Approach to Weight Management

An alternative approach to traditional behavioural therapy for weight management is *Small Changes* (Lutes et al., 2008). Small Changes is a cognitive-behavioural based approach to weight management. Its original aim was to produce modest incremental weight loss. Small Changes was developed and first evaluated over a decade ago (Lutes et al., 2008). Small Changes selected components of its predecessor, known as Behavioural Choice Therapy, for its development (Sbrocco et al., 1999). The Small Changes approach fits with the most current clinical practice guidelines for weight management, which recommend the use of cognitive-behavioural interventions in the treatment plan for overweight and obesity (Wharton et al., 2020). In addition, these guidelines emphasize that weight management interventions should be sustainable in terms of adherence to health behaviour changes and maintenance of weight loss (Vallis et al., 2020). Indeed, Small Changes promotes modest and individualized diet and physical activity changes to buffer against weight gain and produce incremental and more sustainable weight loss; however, Small Changes is not a dieting program, but rather a healthy lifestyle intervention with some of its participants experiencing changes in their weight as a result of changes to their healthy lifestyle behaviours (e.g., physical activity, stress reduction, and sleep hygiene behaviours, etc.) Diet, physical activity, and lifestyle goals are self-selected such

that they are relative and realistic for each individual. In this way, goals are set relative to the individual's baseline level of behaviour and are therefore thought to be more maintainable than other one-size-fits-all approaches that do not consider where each individual is at before recommending changes and setting goals. For example, requiring an individual who typically drinks six soda beverages per day to cut back to zero may be considered unrealistic as it likely would not be maintained long-term, and it will likely create a feeling of deprivation that may have the person returning to their typical beverage quantity or more. However, if a person can set their own *relative* goal of cutting down to two to three soda beverages per day, this may be more likely to be achieved and continued long term and be better for weight management overall. Goals within Small Changes can be revised when new baseline levels are reached.

The effectiveness of the Small Changes approach on psychological and physical health outcomes has been demonstrated. Specifically, Small Changes has been delivered effectively in group-based in-person and/or individual over-the-phone formats among populations of highly comorbid US veterans [i.e., average >3.8 (*SD* = 2.5) chronic conditions; (Damschroder et al., 2010, 2014; Lutes et al., 2013; Lutes, Damschroder, et al., 2017; Vimalananda et al., 2016)], predominately low-income Black American women with uncontrolled Type II Diabetes [T2D, (Lutes, Cummings, et al., 2017)], rural Americans with T2D management distress and depressive symptoms (Lutes et al., 2020), middle-aged women with obesity (Lutes et al., 2012), sedentary adults with overweight or obesity (Lutes et al., 2008), and sedentary workers in New Zealand with overweight or obesity (Zinn et al., 2012). The first systematic review and meta-analysis of Smaller Change approaches for weight management was recently published in 2021 by Graham and colleagues. Twenty-one trials utilizing and evaluating a Smaller Change approach, defined as approaches that encouraged health behaviour changes equivalent to 100kcal or incremental

increases in steps counts of 1000 or less at a time, were included in this review. The authors of this systematic review concluded that these approaches are effective for preventing weight gain but not for producing weight loss yet (Graham et al., 2021). A published conference abstract presenting a systematic review of 12 Small Changes trials reported mean weight loss at three months to be 2.50kg and 2.96kg at 12-months (Ciszewski & Lutes, 2019). Therefore, the Small Changes approach has demonstrated effectiveness in general populations and harder-to-treat populations, but further work is still needed to enhance and optimize this approach for additional high-risk population groups.

To date, the Small Changes program has not been evaluated among a young adult population in Canada. Therefore, Small Changes needs to be studied among young adults, who are one of the most at risk and hardest to treat populations. It is hoped that a Small Changes intervention targeting and tailored for young adults (i.e., online-delivered, self-paced, and podcast- and community forum-augmented) may provide a substitute or solution to the limitations of traditional behavioural approaches for weight management and serve as an acceptable and feasible treatment for this at-need population, as indicated at the outset.

1.4 Modest But Mighty Weight Loss

As previously touched upon, overweight and obesity are risk factors for a number of life-threatening and limiting health conditions. However, research has shown that even modest weight loss of 3 to 5% can have a clinically meaningful impact on health outcomes, such as reducing the risk of developing chronic health conditions, if weight loss is maintained [e.g., T2D (Abdullah et al., 2010; Bilandzic & Rosella, 2017; Ely et al., 2017; Wharton et al., 2020).]. Thus, more than modest weight loss may be unnecessary to demonstrate a clinically meaningful impact and losing a greater percentage of body weight may potentially be harmful (or

counterproductive) in the longer term. For example, large and rapid initial weight loss can have an impact on resting metabolic rate and increase the risk of weight regain via the process known as metabolic adaption (Fothergill et al., 2016). In one study, massive weight loss (*M* = 58.3kg, *SD* = 24.9 achieved in 30 weeks) impacted metabolism by reducing the caloric needs of patients by an average of 275kcal/day (*SD* = 207) at 30 weeks and an average of 499kcal/day (*SD* = 207) at six years follow-up. Lower caloric need makes maintaining weight loss harder; for patients in this study, average weight regain at 6-years follow-up was approximately 70% of initial weight lost (specifically, 41.0kg, *SD* = 31.3), despite persistent efforts to limit their diet and engage in exercise (Fothergill et al., 2016). In a recent reinterpretation of these findings, it was additionally noted that metabolic adaption was greatest among participants who engaged in more physical activity across the follow-up period (Hall, 2021). More than modest fluctuations in body weight can become problematic especially when beginning at a younger age (i.e., 25 years); for instance, in a seminal study, with a 32-year follow-up period, weight cycling had the most severe outcomes (i.e., development of coronary heart disease and increased total mortality) for the youngest adult age cohort in the study [i.e., ages 30 to 44 years (Lissner et al., 2010)].

In addition to metabolic disruption, though taking slightly longer to accumulate empirical evidence, are the psychological consequences for individuals who succeed in their weight loss efforts initially but regain their lost weight post-intervention or during follow-up (Quinn et al., 2020). One example is a study that used a large national US sample and reported that greater yo-yo dieting or weight cycling is associated with greater symptoms of depression and that this association is partially mediated by internalized weight stigma (Quinn et al., 2020); another qualitative study conducted in the UK, reiterated an association between yo-yo dieting and depressive symptoms (Qazi & Keval, 2013). Among a sample of 560 female university students,

significant correlations were observed between lifetime dieting frequency and emotional distress; specifically, (independent of BMI) greater dieting frequency was significantly correlated with greater depression severity, disorder eating behaviours, body dissatisfaction, and lower self-esteem (Ackard et al., 2002). In a review of health consequences of the weight loss and weight regain cycle, results showed that despite weight status, increased disease risk was present for weight cyclers (Montani et al., 2015). Therefore, it could be said that large initial weight loss can be physically and psychologically problematic and should not be the goal of weight management interventions (with the exception of medically necessary and supervised weight management, e.g., bariatric surgery). Indeed recommendations for clinical practice from 2016 state that realistic and achievable weight loss goals should be set and that any plan(s) for weight loss and weight loss maintenance should be manageable and sustainable long term (Vallis, 2016). Therefore, interventions, such as the Small Changes program aiming to buffer against weight gain and produce modest and maintainable weight loss, could be superior to traditional treatment methods. In this study, the goal was first and foremost to determine the acceptability and feasibility of Small Changes among young adults. In terms of weight management outcomes, this study aimed for weight gain prevention (i.e., no weight increase) and modest weight loss (3% total body weight) for a portion of the sample as a secondary outcome.

1.5 Online Health Interventions

A systematic review and meta-analysis of 84 eHealth (i.e., internet-based) interventions for weight management reported that online interventions were more effective at producing weight loss than no treatment or minimal treatment groups (Hutchesson et al., 2015). Further, online delivery of weight management interventions can be enhanced with additional augmented technologies, for example, online discussion groups (providing an opportunity for social

connection and support), electronic reminders to engage with the online intervention, podcasts, or text messaging. Of the 139 treatment groups reviewed across these 84 studies, less than 3% (*n* = 4) included a podcast element suggesting that podcasts are a relatively novel element of online weight management programs (Hutchesson et al., 2015). Despite podcasts being infrequently employed, one trial compared two 24-episode podcast treatment protocols for weight management among an adult sample in the US and concluded that weight loss can be achieved through this medium (Turner-McGrievy et al., 2009). Recommendations for retaining participants, as per a weight gain prevention trial conducted in the US with college students, reported that minimizing face-to-face visits was important for retention (Moe et al., 2017). However, others have recommended against a purely online form of delivery without any face-to-face interactions (Wing et al., 2016).

1.6 Psychological Correlates of Weight

Considering their shared etiologies and treatments, the relationship between mental and physical health is supported (Haibach et al., 2014). For example, an estimated 20 to 50% of those with overweight or obesity also struggle with depression (Taylor et al., 2020). A lifetime diagnosis of depression and/or anxiety is associated with an increased risk of obesity among men and women and inactivity among women (Strine et al., 2008). Respectively, individuals with a lifetime diagnosis of depression or anxiety are 60% and 30% more likely to have obesity than individuals with no such history (Strine et al., 2008). Treatment for depression or anxiety embedded within weight gain prevention programs, particularly for females, has been recommended by authors of an 18-year-long longitudinal study (Anderson et al., 2006). This recommendation fits with more current clinical practice guidelines, which recommend that treatments for overweight and obesity include components that address both mental and physical

health concerns (Taylor et al., 2020). In previous alternative interventions using a cognitive-behavioural approach, despite not having psychological health as the primary treatment target, improvements in depression and health-related distress were observed (Lutes et al., 2020; Steinberg et al., 2014). In terms of self-compassion, among first-year university students, the relationship between concerns about body weight and shape and disordered eating behaviours was attenuated by self-compassion such that the relationship between concerns and eating behaviours was less pronounced among those scoring higher on self-compassion, suggesting that weight management programs augmented with self-compassion education or activities could be beneficial (Stutts & Blomquist, 2018). Indeed at least one systematic review of six interventions and one meta-analysis of 15 research studies both concluded that self-compassion is positively associated with weight management efforts, such as eating and exercise behaviours and body image and stress management, respectively (Rahimi-Ardabili et al., 2018; Sirois et al., 2015). Taken together, it is valuable to measure mental health and well-being variables alongside traditional weight-related health outcomes in weight management research that utilizes a cognitive-behavioural foundation.

1.7 Purpose of the Present Study

The current study aimed to examine the impact of a self-paced, online-delivered, podcast- and community forum-augmented version of the Small Changes program for young adults' health over a period of 12 weeks. The following research questions and hypotheses were assessed.

1.7.1. Primary Research Question

The primary aim of this study was to assess the feasibility and acceptability of a self-paced, online-delivered, podcast- and community forum-augmented version of the Small

Changes intervention among young adults. It was hypothesized that young adults would rate this tailored version of the Small Changes intervention as acceptable, based on participant ratings of their satisfaction with each module, their likelihood of continuing to use what they have learned, and their likelihood of recommending the modules to others. The intervention modules would be deemed acceptable if average satisfaction ratings were ≥7 out of 10, if the average likelihood of continuing to use what they have learned is great 70%, and if the average likelihood of recommending the modules to others is greater than 70%. Further, it was hypothesized that this tailored version of the Small Changes intervention would be feasible based on ease of recruitment, average participant adherence (i.e., completion of modules), and retention (i.e., dropout rate).

1.7.2. Secondary Research Questions

A secondary aim of this study was to evaluate the impact of a self-paced, online-delivered, podcast- and community forum-augmented version of the Small Changes intervention on weight change among young adults. It was hypothesized that young adults would show the prevention of weight gain, and at least 50% of the sample would achieve modest clinically meaningful weight loss (i.e., ≥3% of total body weight) over the 12-week intervention period.

Another secondary aim of this study was to evaluate the impact of a self-paced, online-delivered, podcast- and community forum-augmented version of the Small Changes intervention on the frequency of weight control strategies and the psychological outcomes of anxiety, depression, and self-compassion. It was hypothesized that participants would report a greater number of weight control strategies at post-intervention than pre-intervention. Further, it was hypothesized that scores on measures of anxiety, depression, and self-compassion would improve pre (baseline) to post (12-weeks) intervention.

Chapter 2: Methods

2.1 Sample

Inclusion and exclusion criteria are presented tabularly below in Table 1. Eligible participants consisted of young adults (ages 18 to 29 years) with a BMI ≥21kg/m^2, living in British Columbia, with self-rated English literacy and reliable internet access. As well, during the screening questionnaire, participants must have endorsed a vested interest in the online weight management program (indicated as at least a 5/10 rating for the question: *On a scale from 0 – not interested at all to 10 – extremely interested, my level of interest in participating in this 12-week weight management study is?*) and participants must have endorsed a satisfactory level of commitment to all study elements [at least a 5/10 rating for the question: *Participating in this UBC study will involve completing two online questionnaires (each taking less than 30 mins to complete), nine online self-directed modules (approximately 20 mins each) of weight management psychoeducation, five related podcasts (average duration 8.50 mins each), and participation in an optional online community forum page for social support. On a scale from 0 – not at all committed to 10 – extremely committed, my level of commitment to this 12-week study, including all the elements listed is?*].

Ineligible participants included anyone who was pregnant, planning to become pregnant in the next six months, had contrary weight goals (such as a desire to gain weight or 'bulk up'), was already following another weight management program, did not have a weigh scale and could not commute to the UBCO campus to use the scale provided by the research team, and/or endorsed a severe level of binge eating (defined as five or more episodes per week).

Table 1. *Inclusion and exclusion criteria.*

Inclusion Criteria	Exclusion Criteria
1. Was between 18 and 29 years old	1. Had the desire to gain weight for any reason, for example, to "bulk up"
2. Had a BMI ≥21.00kg/m^2	2. Adhering to another weight management program
3. Was English literate to complete surveys and module materials and understand podcasts	3. Was pregnant or planning to become pregnant in the next six months
4. Had reliable internet access, congruent with online mode of delivery	4. Endorsed a severe level of binge eating
5. At least a 5/10 vested interested in the intervention aims (i.e., would like to learn how to manage their weight and improve their well-being)	5. Had recently lost ten or more pounds in the past six months
6. At least a 5/10 level of commitment to completing all study elements	
7. Located in British Columbia	
8. Had access to a weigh scale or was willing/able to travel to use the self-service scale made available to participants by the research team on the UBCO campus	

2.2. Study Design

A single-group feasibility study was conducted to answer the above research questions and test the above hypotheses. This study had two assessment time points, representing a pre-test post-test longitudinal design.

2.3 Measures

2.3.1. Screening Questionnaire. To ensure that all participants enrolled in this study met the specified inclusion and exclusion criteria, an author-developed screening questionnaire was administered at the study outset via Qualtrics survey software. This screening questionnaire included questions to clarify the characteristics of potential participants, including age, sex, height and weight (to calculate BMI), pregnancy status and intentions, weight goals, interest

level, commitment level, binge eating severity, English literacy, weigh scale access, history of weight loss (within the last six months), and whether another weight management program was already being adhered to. For example, binge eating severity is a contra-indicator for weight management intervention success and was screened for with a single item from the MOVE!23 questionnaire, which was developed for health interventions targeted to veteran populations (Kinsinger et al., 2009). Previous studies have used the single binge eating item from this questionnaire as an indicator of binge eating severity (Dorflinger et al., 2017; Masheb et al., 2015). Another exclusion criterion that was important to screen for was intention to become pregnant in the next six months, as pregnancy was one of the most frequently indicated reasons for weight management intervention dropout in a previous trial using a young adult sample (Moe et al., 2017). Given that young adults have a history of low adherence to traditional and some alternative weight management programs, only moderate to highly motivated young adults would pass the screening phase of this study (Gokee-LaRose et al., 2009; Partridge et al., 2015; Wadden & Butryn, 2003). This assessment of motivation aimed to buffer against dropout and poor adherence that might impact the conclusions that could be drawn from this study. The weight management aims of a Small Changes approach are to buffer against weight gain and produce modest weight loss that can be maintained over time, such that individuals with intentions of gaining weight did not fit with the ethos of this approach or aims of this study and were therefore excluded. Related, individuals who within the previous six months lost 10lbs or more were excluded because they had likely already achieved a modest amount of weight loss, such that assessing for further reduction from their new baseline weight would potentially push individuals past a modest 3-5% amount of weight loss, which was previously discussed as not clinically necessary for all people. Criteria parameters regarding BMI were informed by the

EARLY trials, a consortium of young adult weight management studies in the US (Lytle et al., 2014). Last, screening for participation in another weight management program was completed to ensure that any impacts of this current intervention were not confounded by additional structured or commercialized weight management efforts.

2.3.2. Demographics. Demographic characteristics such as age, ethnicity, sex, employment status, education level, income, etc., were collected during the pre-intervention assessment.

2.3.3. Physical measures. Height (in feet and inches) and weight (in lbs) were self-reported at pre-intervention and post-intervention assessment timepoints. The author used these values to calculate BMI with the Centre for Disease Control and Prevention Adult BMI calculator tool during screening. Self-reported heights and weights were converted to meters squared and kilograms, respectively, to calculate BMI for data analysis.

2.3.4. Patient Health Questionnaire [PHQ-8; (Kroenke & Spitzer, 2002)]. Depressive symptoms severity was assessed with the 8-item version of the PHQ. Reflecting on the last two weeks, participants responded to items such as *'Little interest or pleasure in doing things'* on a 4-point scale from *0 – Not at all* to *3 – Nearly every day.* A total score is produced by adding across the items and can range from 0 to 24. A total score greater or equal to 10 is an established and validated cut point for identifying symptoms consistent with a depressive disorder diagnosis [i.e., 88% sensitivity and specificity for Major Depressive Disorder according to DSM-IV criteria; (Kroenke & Spitzer, 2002)]. Categorically, scores between 0-4, 5-9, 10-14, 15-19, and 20-24 represent no, mild, moderate, moderately-severe, and severe depressive symptom severity, respectively. The PHQ is a widely used, valid, and reliable measure for general and clinical populations of various ages and ethnic/racial groups (Kroenke et al., 2009; Kroenke & Spitzer,

2002). Further, the 8-item iteration was used in this study rather than the 9-item version of the PHQ (which includes a suicidal ideation and intention item) as the shorter version is recommended by scale developers for web-based studies (where the questionnaire is filled out as an independent self-report) or when depression is not a primary outcome, such as this study.

2.3.5. Generalized Anxiety Disorder Scale [GAD-7; (Spitzer et al., 2006)]. Symptoms of anxiety were assessed with the 7-item GAD scale. A total score is calculated by summing across the seven items. Reflecting on the last two weeks, items such as '*Feeling nervous, anxious or on edge*' were rated on a 4-point scale from *0 – Not at all* to *3 – Nearly every day.* Total scores can range from 0 to 21, with 0-4, 5-9, 10-14, and 15-21 representing minimal, mild, moderate, and severe anxiety symptom severity, respectively. A cut-point score of 10 or greater accurately identifies those with symptoms consistent with a Generalized Anxiety Disorder diagnosis (89% sensitivity and 82% specificity). The GAD-7 has good psychometrics properties including, but not limited to, internal consistency ($\alpha = .92$), test-retest reliability [intraclass correlation (ICC) = 0.83], procedural validity (ICC = 0.83), and convergent validity [e.g., $r = 0.74$ with the Beck Anxiety Inventory; (Spitzer et al., 2006)]. Further, the GAD-7 has been normed and validated in young adult samples and was thus appropriate for use in this study [e.g., (Bártolo et al., 2017; Byrd-Bredbenner et al., 2021; Lee & Kim, 2019)].

2.3.6. Weight Control Strategies Scale [WCSS; (Pinto et al., 2013)]. The 30-item WCSS has four subscales, including self-monitoring strategies, psychological coping, dietary choices, and physical activity, to assess the use of specific strategies/behaviours believed to contribute to weight management. Items were rated on a Likert scale from *0 - Never* to *4 - Always*; the total score is the average across all the items, with higher scores representing greater use of weight control strategies. Scores on the WCSS can range from 0 to 4. The WCSS was validated in a

sample of weight loss treatment-seeking adults and has demonstrated internal consistency (Cronbach's α = .79 - .89), convergent validity, discriminant validity, and minimal correlation with a measure of socially desirable responding (*r* = -.10 to .09). The WCSS has been used in previous weight gain prevention trials with young adults [e.g., (Browne et al., 2022)].

2.3.7. Self-Compassion Scale [SCS; (Neff, 2003)]. Self-compassion was assessed using the 26-item SCS. The SCS has six subscales, including self-kindness, self-judgement, common humanity, isolation, mindfulness, and overidentification, that tap into the three main components of self-compassion. Regarding moments of difficulty or adversity (i.e., pain and failure), is an individual 1) more inclined to be kind towards or critical of themself; 2) more inclined to view their adversity as something linking them to others or something distancing them from others; and 3) more inclined to be appropriately aware of their challenges/suffering or overly engrossed in their challenges/suffering. Items are rated on a 5-point Likert scale with anchors at *1 – Almost never* and *5 – Almost always.* A higher total score is indicative of a greater level of self-compassion and ranges from 1 to 5. To calculate a SCS total score, items within the overidentification, isolation, and self-judgement subscales are reverse coded before averaging across all 26 items, while subscale scores are simply the mean of the items within that particular subscale without any reverse coding. In this study, the total score was used primarily, but subscale scores were also run for exploratory sake. Internal consistency of the SCS is good, with subscales scores being reported in the range of 0.75 to 0.81 and 0.92 for SCS total scores. The SCS demonstrated convergent and discriminant validity with positive correlations with social connectedness (0.41) and emotional intelligence (0.43) and a negative correlation with self-criticism (-0.65) measures. Additionally, construct and content validity have been established for this scale (Neff, 2003, 2016; Neff et al., 2017). The SCS has been used in a variety of

populations, including university-aged young adults (Azizi et al., 2013; Birkett, 2014; Castilho et al., 2015; Neff, 2003; Neff et al., 2017).

Acceptability. Three questions accessed the acceptability of each module, including '*How satisfied are you with the _____ module?'* on a scale from 0 to 10, '*How likely are you to continue to use the skills you learned from the _____ module*?' from 0 to 100%, and '*How likely are you to recommend the _____ module to someone else*? from 0 to 100%. Open-ended response boxes were included after this set of questions for each module to elicit additional feedback and commentary regarding the treatment materials.

2.4 Intervention Design

The intervention adapted the existing evidence-based Small Changes program for weight management (i.e., preventing weight gain via modest weight loss) for a young adult population. The Small Changes program was altered in at least five ways for this feasibility study. First, the number of modules increased from 13 to 15, with modules for Self-compassion and Liquid or Alcoholic Calories being added. Second, the original 13 modules were tailored to include age-relevant examples and psychoeducational content (See Appendix A for intervention materials). Third, five of the 15 modules were deemed 'required modules'; these required modules were accompanied by a brief podcast to foster engagement and provide additional clarity for these materials. It was estimated that each module should take no more than 20-25 minutes to complete, on average. Fourth, as a self-paced program, participants selected which modules they wanted complete and at what pace over the 12-week intervention period. All participants were provided with the same five required modules (i.e., Introduction, Food as Fuel, Movement, Self-compassion, and Wrap-up) as part of their treatment package and their four 'selected modules' from the remaining ten options that were most relevant and interesting to them to complete. In

this way, this iteration of the Small Changes intervention is more flexible and autonomous than any of its predecessors.

Participants picked their four selected modules during their pre-intervention assessment. The author then sent an individualized treatment booklet (a fillable PDF) including the five required and four selected modules to each participant to work through at their own pace for a period of 12 weeks. An opportunity to set small goals was located at the end of each module; participants aiming for weight loss were encouraged to set two to three goals whereas participants aiming to prevent weight gain were encouraged to set at least one small goal per day. Participants were electronically reminded either by text or email according to participant preference about the study every two weeks. The fifth alteration made to this iteration of the Small Changes program was to include an online community forum in order to provide an opportunity for social support, which can be important for weight management and health behaviour change intervention success (Turner-McGrievy & Tate, 2013). The online community forum gave participants space to share successes, challenges, thoughts of encouragement, etc. This forum was housed within the CORE website (https://thecorelabubc.com) on a password-protected page. The monthly fee to host the community forum was approximately $39.00. An online social networking opportunity has been utilized by other studies targeting weight change among young adults [e.g., (Moe et al., 2017)]. All participants were required to set up a profile during the baseline assessment. Participants who did not wish to use their real names could create a screen name to create posts, comment, and interact with other participants. Visual reminders about accessing podcasts and the community forum were included before or after each required module in participants' individualized treatment packages. The flexibility afforded by this online-delivered, podcast- and community forum-augmented, and self-paced iteration of the

Small Changes intervention was thought to be conducive to the lifestyle of young adults who are likely busy students or young professionals with competing time demands; it was idealized that this flexibility and autonomy would enhance adherence and minimizing dropout. Notably, this study took place during the unprecedented and unpredictable COVID-19 pandemic, such that online and individual delivery of modules was deemed the safest and most ethical format to evaluate this tailored version of the Small Changes program among young adults. Thus, unlike previous iterations of Small Changes [e.g., (Lutes et al., 2020; Lutes, Damschroder, et al., 2017)], no face-to-face contact (virtual or otherwise) or phone contact took place between participants and the researcher. A completely self-guided program was thought to be the most cost-effective and scalable in the future, such that contact between participant and researcher was limited to bi-monthly electronic reminders, which fits will retention recommendations by Moe et al. (2017).

2.5 Procedure

Recruitment. Eligible participants were recruited in three possible ways. First, this opportunity to participate in research was shared on the Center for Obesity and Well-being Research Excellence's (CORE) website and social media pages, including Twitter and Instagram, from Feb 21, 2022 to March 9, 2022. Posts on Instagram were "boosted" such that the research team paid a fee ($260.00 total for three different posts) to have the study recruitment materials promoted to a specified target audience (i.e., ages 18-29 years living in Kelowna, West Kelowna, and the Okanagan). Second, posters including a Q.R. code were posted around the UBCO campus for interested students to complete the screening questionnaire from Feb 28, 2022 to March 9, 2022. Posters were also shared with UBCO faculty teaching during the Winter 2

semester of the 2021-22 academic year, asking them to share the research opportunity on their Canvas course pages.

Compensation. At both assessment time points, participants had the chance to win one of five $50.00 gift cards to their choice of either Save On Foods, the UBC bookstore, or Amazon. An additional incentive was added for the post-intervention assessment timepoint, due to a lower than expected initial response rate (i.e., ~25%). To encourage a greater response rate, participants were notified that they would earn a $10 gift card to their choice of Save On Foods, the UBC bookstore, or Amazon if they completed the post-intervention assessment. This second incentive was in addition to their chance to win a $50 gift card for this time point, as previously noted.

Assessments. Screening, pre-intervention, and post-intervention questionnaires, including the measures described previously, were completed via Qualtrics survey software (Qualtrics, Provo, UT). See Table 2 for measure administration schedule.

Table 2. *Measure schedule. X indicates that the measure was administered at the specified time point.*

Measure	Pre-intervention Assessment	Post-intervention Assessment	Reference
Demographic Questions	x		Thesis author
Height	x	x	
Weight	x	x	
Generalized Anxiety Disorder Scale 7	x	x	(Spitzer et al., 2006)
Patient Health Questionnaire 8	x	x	(Kroenke & Spitzer, 2002)
Weight Control Strategies Scale	x	x	(Pinto et al., 2013)
Self-Compassion Scale	x	x	(Neff, 2003)
Acceptability Questions		x	Thesis author

Resources. Screening responses were monitored near daily to identify anyone endorsing a severe level of binge eating. Anyone who indicated five or more binges in a week was sent

mental health resources, including recommendations for self-help books and eating disorder websites, as well as notice of local, free, and accessible psychological services. At the conclusion of the post-intervention assessment, participants were directed to the UBCO Walk-in Well-Being Clinic, and other local and provincial mental health resources, given the high prevalence of symptoms of anxiety and depression assessed at baseline.

Chapter 3: Results

3.1 Sample Characteristics

3.1.1 Screened Sample.

After duplicate responses were removed, 123 unique individuals screened themselves for this study. The screened sample had a mean age of 22.29 years (*SD* = 3.12), mean BMI of 27.76kg/m^2 (*SD* = 6.22, range 19.39 – 50.50), mean self-reported weight of 172.67lbs (*SD* = 47.00), and the sample was majority female (87.00%). The average level of interest in participating in the study was rated 7.85 out of 10.00 (*SD* = 1.80, range 3.00 – 10.00), while the average level of commitment to all study elements was rated 8.07 out of 10.00 (*SD* = 1.61, range 4.00 – 10.00); thus, the screened sample appeared to be moderately to highly motivated, on average. The top three reasons an individual was excluded at this stage of the study were, weight loss greater than 10lbs in the prior six months (*n* = 14), goals to gain weight (*n* = 9), and a severe level of binge eating (*n* = 8). Lack of commitment was one of the most uncommon reasons for exclusion (*n* = 2). Of the those screened, 82.93% (*n* = 102) preferred to be contacted by email, 21.14% (*n* = 20) by text message, and <1% (*n* = 1) by telephone for invitation to the pre-intervention assessment, bi-monthly engagement reminders, and invitation to the post-intervention assessment. The reader is directed to Figure 1 below for further details regarding the reasons for exclusion at this stage.

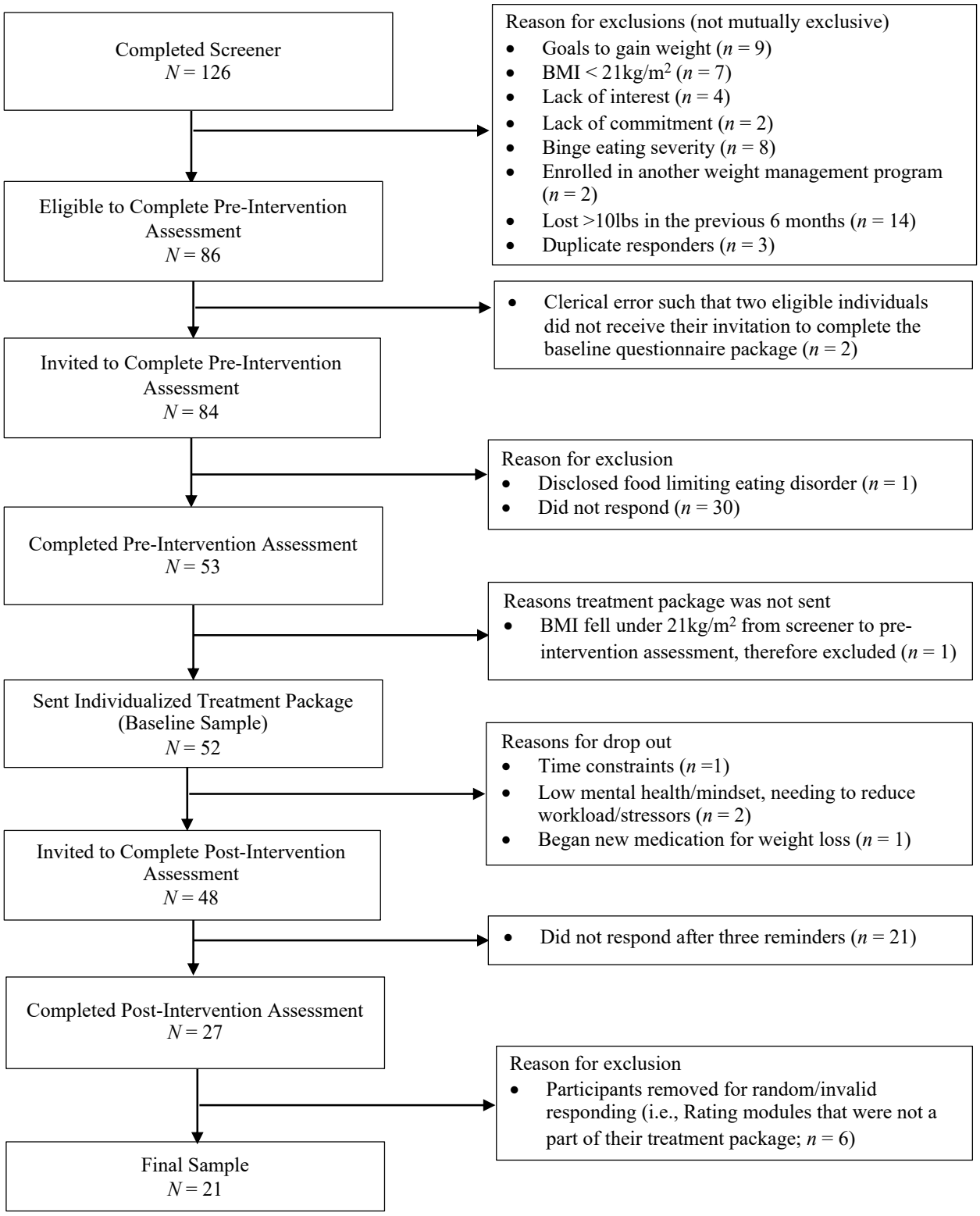

Figure 1. *Participant flowchart.*

3.1.2 Baseline Sample.

Fifty-two eligible participants completed the baseline assessment questionnaire package and were each sent their individualized treatment package, including the five required modules and their four self-selected modules. The sample at baseline had a mean age of 22.25 years (*SD* = 2.75; range 18.00 - 27.00). The sample was a mixed community (23.08%, *n* = 12) and student (76.92%, *n* = 40) sample. In terms of education, the baseline sample had an average of 15.93 years of formal education (*SD* = 2.28; range 12.00 - 23.00 years). In terms of sex, a majority of the baseline sample reported being female (86.50%, *n* = 45), while the remaining were intersex (3.80%, *n* = 2) or male (9.60%, *n* = 5). Average self-reported weight was 177.21lbs, *SD* = 43.46, range 110.00 – 286.00lbs (80.38kgs, *SD* = 19.71, range 49.90 – 129.73kgs), while mean BMI was 29.08kg/m^2 (*SD* = 5.52; range 21.09 – 43.77). In terms of psychological variables, mean severity of anxiety and depression symptoms were greater than established clinical cut-points (i.e., >10.00). Additionally, just under two-thirds of the baseline sample had more than mild anxiety symptom severity (57.69%) and more than mild depression symptom severity (59.62%). At baseline, 11 participants endorsed taking medication for their depressive symptoms, and ten participants endorsed taking medication for their anxiety symptoms; see Table 3 for a summary of medications consumed by the sample. In this study, over half (61.54%) of the participants admitted to taking at least one medication or supplement at baseline. A summary of mean level of self-compassion and weight control strategies total and subscale scores at baseline can be read in Table 4.

Table 3. *Summary of medications and vitamins/supplements reported during baseline assessment.*

Reason	Medication (*n*)	
	Baseline Sample, *N* = 52	**Final Sample, *N* = 21**
Birth Control	Mirena (1), Kyleena (1), Lolo (1), Visanne (1) Yasmin (1), Alysena (1), Tricira Lo (1), Unspecified (9)	Unspecified (3), Alysena (1), Lolo (1)
Depression	Effexor (1), Escitalopram (3), Sertraline (2), Pristiq (1), Bupropion (1), Mirtazapine (1), Fluoxetine (2)	Escitalopram (1), Sertraline (2), Mirtazapine (1), Pristiq (1)
Anxiety	Paxil (1), Mirtazapine (1), Fluoxetine (1), Escitalopram (3), Sertraline (1), Seroquel (1), Pristiq (1), Bupropion (1)	Escitalopram (1), Seroquel (1), Sertraline (1), Mirtazapine (1), Pristiq (1)
Attention Deficit Hyperactivity Disorder (ADHD)	Vyvanse (1), Adderall XR (2), Dextro-amphetamine (1)	Dextro-amphetamine (1), Adderall XR (1)
Obsessive Compulsive Disorder (OCD)	Auro-Escitalopram (1), Pristiq (1), Fluoxetine (1)	Pristiq (1)
Hypothyroidism	Synthroid (1)	Synthroid (1)
Joint issues/pain	Hyaluronic acid (1), Vimovo (1)	
Addison's Disease	Cortef (1), Florinef (1)	Cortef (1), Florinef (1)
Seizure disorder	Lamotrigine (2)	Lamotrigine (1)
Gender affirming care/medical transition	Estradiol (1), Spironolactone (1)	
Acid Reflux	Mylan-Pantoprazole Magnesium (1), Esomeprazole (1)	Mylan-Pantoprazole Magnesium (1), Esomeprazole (1)
Seasonal allergies	Cetirizine (1), Loratadine (2)	
Sleep	Nortriptyline (1)	Nortriptyline (1)
Acne	Biacna (1)	
Headaches	Nortriptyline (1), Ibuprofen (1)	Nortriptyline (1)
Benign prolactinoma	Bromocriptine (1)	Bromocriptine (1)
General health or nutritional deficiencies	Multivitamin (3), Fish oil/Omega3 (2), Iron (4), B-12 vitamin (1)	Iron (3)
NA/None	*n* = 20	*n* = 9

3.1.3 Those Screened versus Those Enrolled

Independent samples t-tests were conducted to assess if those in the screening sample differed from those in the baseline sample. These two groups did not significantly differ in terms of age, $t(121) = 0.16$, $p = .88$, 95% CI [-1.04, 1.22] or weight, $t(121) = -0.30$, $p = .77$, 95% CI [-20.24, 14.96]. A chi-square test revealed no significant difference between these two groups in terms of sex (likelihood ratio 6.19, $p = .19$).

Table 4. *Descriptive statistics for psychological variables and weight control strategies for baseline sample (N = 52).*

Variable	*n (%)*	*M (SD)*	Range
Severity of Anxiety Symptoms (GAD-7)		10.75 (5.22)	2.00 – 21.00
Minimal	7 (13.50)		
Mild	15 (28.80)		
Moderate	17 (32.70)		
Severe	13 (25.00)		
Severity of Depression Symptoms (PHQ-8)		11.52 (5.12)	3.00 – 24.00
None	4 (7.70)		
Mild	17 (32.70)		
Moderate	13 (25.00)		
Moderately Severe	15 (28.80)		
Severe	3 (5.80)		
Self-Compassion (SCS)			
Total score		2.64 (0.63)	1.31 – 4.50
Self-kindness subscale		2.57 (0.70)	1.00 – 4.60
Self-judgement subscale		3.76 (0.87)	1.60 – 5.00
Mindfulness subscale		3.02 (0.73)	1.50 – 4.50
Overidentification subscale		3.42 (0.87)	1.50 – 5.00
Common Humanity subscale		2.92 (0.97)	1.00 – 5.00
Isolation subscale		3.38 (0.95)	1.25 – 5.00
Weight Control Strategies (WCSS)			
Total score		1.23 (0.65)	0.27 – 2.93
Dietary Choices subscale		1.15 (0.60)	0.10 – 2.60
Self-monitoring subscale		1.02 (0.78)	0.00 – 3.29
Physical Activity subscale		1.30 (0.71)	0.17 – 3.33
Psychological Coping subscale		1.48 (0.75)	0.00 – 3.29

Abbreviations. GAD-7 = General Anxiety Disorder 7; PHQ-8 = Patient Health Questionnaire 8; SCS = Self-compassion Scale, WCSS = Weight Control Strategies Scale

3.1.4 Final Sample

Twenty-seven participants responded to the post-intervention assessment. Six participants were identified as responding randomly to the post-intervention questionnaires; specifically, these participants provided acceptability ratings and comments for modules that were not a part of their treatment package. Thus, the validity of these responses cannot be guaranteed and, therefore, these participants were excluded from the final sample and all analyses. Random responders did not significantly differ from genuine responders in terms of age, level of interest in the intervention, or level of commitment to the study. Twenty-one participants made up the final sample. Eight out of 21 participants provided only partial responses to the post-intervention

assessment; however, partial responders did not significantly differ from in-full responders in terms of age, sex, BMI, weight, level of interest in the study, level of commitment to the study, severity of anxiety symptoms, severity of depression symptoms, level of self-compassion, or weight control strategies; thus, all 21 participants were considered as one single group.

The final sample (N = 21) had a mean age of 20.90 years (SD = 2.26, range 18.00 - 27.00). In terms of sex, the final sample was majority female (85.70%). Average self-report weight prior to the intervention was 161.38lbs, SD = 41.44, range 111.60 – 286.00lbs (73.20kgs, SD = 18.80, range 50.62 – 129.73kgs), while mean baseline BMI was 27.04kg/m^2 (SD = 5.14; range 21.09 – 39.48). A majority of the sample were students (81.00%, n = 17), while the remaining were community members (i.e., non-students, 19.00%, n = 4). In terms of education, average years of formal education was 15.31 (SD = 2.65; range 12.00 - 23.00). See Table 5, for further demographic details.

Table 5. *Demographic characteristics of pre- and post-intervention samples.*

	Final Sample (N = 21)	**Baseline Sample (N = 52)**
	n (%)	*n (%)*
Employment Status		
Full-time	6 (28.57)	16 (30.77)
Part-time	9 (42.86)	23 (44.23)
Unemployed	6 (28.57)	13 (25.00)
Education Completed		
High school diploma	11 (52.40)	20 (38.50)
Community college certificate/diploma	-	2 (3.80)
Some university	6 (28.60)	13 (25.00)
Bachelor's degree	3 (14.30)	14 (26.90)
Master's degree	1 (4.80)	2 (3.80)
Other	-	1 (1.90)[d]
Student Status		
Full-time UBCO student (4 or more courses/semester)	14 (66.70)	29 (55.80)
Part-time UBCO student (3 or less courses/semester)	1 (4.80)	5 (9.60)
Full-time at another institution	1 (4.80)	2 (3.80)
Part-time at another institution	1 (4.80)	4 (7.70)
Not a student	4 (19.00)	12 (23.10)
Household Income		
Less than $10,000/year	4 (19.00)	6 (11.50)
$10,001 - $20,000	2 (9.50)	3 (5.80)
$20,001 - $40,000	2 (9.50)	7 (13.50)
$40,001 - $60,000	1 (4.80)	4 (7.70)

		Final Sample (*N* = 21)	Baseline Sample (*N* = 52)
		n (%)	*n (%)*
	$60,001 - $80,000	2 (9.50)	7 (13.50)
	$80,001 - $100,000	3 (14.30)	8 (15.40)
	$100,001 - $150,000	3 (14.30)	10 (19.20)
	$150,001 - $200,000	2 (9.50)	3 (5.80)
	Greater than $200,000	2 (9.50)	4 (7.70)
Ethnicity			
	Indigenous (First Nations, Metis, Inuit)	-	2 (3.80)
	Asian	7 (33.30)[a]	14 (26.90)[e]
	White/Caucasian	10 (47.60)	31 (59.60)
	Multiracial	3 (14.3)[b]	4 (7.70)[f]
	Other	1 (4.80)[c]	1 (1.90)[g]
Sex			
	Female	18 (85.70)	45 (86.50)
	Male	2 (9.50)	5 (9.60)
	Intersex	1 (4.8)	2 (3.80)
Parent Status			
	Yes	-	1 (1.90)
	No	21 (100.00)	12 (98.10)

[a] Specified Chinese (*n* = 3), Indian (*n* = 4)
[b] Specified Asian/White (*n* = 1), Eurasian (*n* = 1), and Portuguese Canadian (*n* = 1)
[c] Middle Eastern (*n* = 1)
[d] Post-graduate certificate
[e] Specified Chinese (*n* = 5), East Asian (*n* = 1), Indian (*n* = 6), and Indian/Sir Lankan (*n* = 1)
[f] Asian/White (*n* = 1), Eurasian (*n* = 1), Filipino/White (*n* = 1), and Portuguese Canadian (*n* = 1)
[g] Middle Eastern (*n* = 1)

3.1.5 Completers versus Non-Completers

Independent samples t-tests and chi-square tests were conducted to assess if completers (*n* = 21), defined as those in the final sample, differed from non-completers (*n* = 25), defined as those that were lost to dropout. These two groups did not significantly differ in terms of anxiety symptom severity, depression symptom severity, level of self-compassion, frequency of weight control strategies, sex, status as a community member or student, level of interest in the study, or level of commitment to the study. The groups did significantly differ in terms of age, BMI, and weight such that completers were on average younger and had lower starting weight and BMI than non-completers, see table 6.

Table 6. *Group differences assessed by independent samples t-tests between completers (n = 21) and non-completers (n = 25).*

Variable	Completers *M (SD)*	Non-completers *M (SD)*	*t* (44)	*p*	95% Confidence interval of the difference
Age	20.90 (2.26)	23.16 (2.90)	2.90	**.006**	0.70 – 3.82
BMI, at baseline	27.04 (5.14)	30.77 (5.39)	2.39	**.021**	0.59 – 6.88
Weight (lbs), at baseline	161.38 (41.44)	189.20 (42.43)	2.24	**.030**	2.77 – 52.86

Abbreviations. lbs = pounds

3.2 Primary Research Question

All data analyses were conducted in SPSS, version 28.0 (IBM Corp, 2020). The primary research question for this study asked, what is the feasibility and acceptability of a self-paced, online-delivered, podcast- and community forum-augmented version of the Small Changes intervention for young adults? Descriptive statistics are used to present data on feasibility and acceptability.

3.2.1 Feasibility

Feasibility was assessed in three main ways. Specifically, rate of recruitment, rate of retention (i.e., dropout), and rate of adherence (i.e., completion of modules).

3.2.1.1. Recruitment

Recruitment and screening took 15 days to complete from start to finish. On average, 8.2 individuals were screened per day, of which 5.7 individuals were considered eligible to participate in the study per day. Participants were recruited through social media and poster advertising. Recruitment materials can be viewed in Appendix B. First, three paid and targeted Instagram advertisements were utilized. The combined cost of promoting these posts to this study's target audience was $260.00. Each post ran for approximately seven days. The number of individuals that saw at least one of these Instagram posts on their feed was 9,298. Individuals

reached were more often women than men (70.00% to 81.70% of the time), more often in the age range of 18 to 24 years rather than the age range of 25 to 34 years (between 64.10% to 74.90% of the time), and 100% of individuals reached were located in the province of British Columbia. These posts were shared 37 times, liked 46 times, saved 27 times, and the screening link included in these posts was clicked on 381 times representing 4.10% of feeds/young adults reached on Instagram. For every three ads links clicked on, approximately one screening response was filled out (33.07%). Posts were also shared to Instagram stories by the CORE's account, as well as other willing UBCO-related accounts that were asked to do so through direct messaging from the CORE's Instagram account. Two tweets were sent out on Twitter. Combined, these tweets were seen on 574 feeds and engaged with (i.e., clicked on or expanded) 67 times representing 11.67% of feeds/young adults reached on Twitter. Thus, for approximately every tenth view of the tweet, an individual clicked the link directing them to the screening questionnaire. At least twenty poster advertisements, including two distinct stylistic versions, were hung around the UBCO campus. Posters were emailed to 24 university personnel to share with their networks and/or on their canvas course pages. It appeared that advertising on social media was more impactful than posters on campus when targeting a young adult population, for 89.43% (n = 110) of screening questionnaires were accessed via the survey link included in social media advertising, while only 10.57% (n = 13) of screening responses came from Q.R. codes included on poster advertisements. The cost of recruitment per young adult screened was $2.06; the cost of requirement per young adult in the baseline sample was $5.00.

3.2.1.2. Retention

Retention rate from pre- to post-intervention was calculated with the six random responders removed, thus, the denominator for this calculation was 46 (i.e., 52 minus 6). Retention rate from pre- to post-intervention was 46.65% (i.e., = 21/46*100).

In total, 52 participants completed the pre-intervention questionnaire. Four of those participants withdrew between weeks two to four (see Figure 1). As such, 48 participants were sent a link to complete the post-intervention assessment followed by reminders to complete this assessment timepoint as required. Across the 21 genuine and six random post-intervention responders, seven participants needed no reminders, three participants needed one reminder, two participant needed two reminders, and 15 participants needed three reminders before completing the post-intervention assessment. The remaining 21 participants did not complete this assessment after the three reminders and notification of the additional incentive for this assessment timepoint.

Data collection at the post-intervention assessment timepoint was initially low (25.00%), resulting in the introduction of an additional incentive for completing the post-intervention assessment. Following this addition, 14 more responses were received. Recalling the six participants that were excluded due to random responding on the post-intervention assessment questionnaires, three of these individuals completed the assessment questionnaire prior to the additional incentive, and three completed the assessment questionnaire after the introduction of the additional incentive, which suggests that the additional incentive did not likely play a precipitating role in random responding.

3.2.1.3. Adherence

Overall average adherence was 35.96%. Required modules had a higher rate of adherence than selected modules. Thus, assigning modules to participants produced a higher adherence rate. Among the required modules, adherence rate was greatest for the Introduction module. Among the selected modules, adherence rate was greatest for the social support module. Adherence to Communication and Problem-Solving modules was 0%. The most popular selected modules were Habits, Mindful Eating, and Body Image, while the least popular selected modules were Social Support, Liquid and Alcoholic Calories, and Problem Solving. A summary of the adherence rate data is presented in Table 7.

Table 7. *Adherence rates: numerators represent those that indicated completing the modules, while the denominators represent the number of participants with that module included within their treatment package.*

Module	Baseline Sample (*N* = 46)		Final Sample (*N* = 21)	
	Selected by, *n*	**Portion completed (adherence rate, %)**	**Selected by, *n***	**Portion completed (adherence rate, %)**
Introduction	Required	16/46 (34.78)	Required	16/21 (76.19)
Food as Fuel	Required	10/46 (21.74)	Required	10/21 (47.62)
Movement	Required	11/46 (23.91)	Required	11/21 (52.38)
Self-Compassion	Required	7/46 (15.22)	Required	7/21 (33.33)
Wrap up	Required	7/46 (15.22)	Required	7/21 (33.33)
Habits	36	5/36 (13.89)	16	5/16 (31.25)
Mindful Eating	33	6/33 (18.18)	14	6/14 (42.86)
Body Image	30	4/30 (13.33)	13	4/13 (30.77)
Stress	29	3/29 (10.34)	12	3/12 (25.00)
Thoughts	19	2/19 (10.53)	8	2/8 (25.00)
Sleep	17	2/17 (11.76)	8	2/8 (25.00)
Communication	6	0/6 (0)	5	0/5 (0)
Problem Solving	5	0/5 (0)	3	0/3 (0)
Liquid and Alcoholic Calories	5	1/5 (20.00)	2	1/2 (50.00)
Social Support	4	2/4 (50.00)	3	2/3 (66.67)
Average Adherence				
For required modules		22.17%		48.57%
For selected modules		14.08%		29.66%
Overall		17.26%		35.96%

Note. Adherence rates are calculated based on the assumption that any participant that did not report an answer during the post-intervention questionnaire about module completion did not complete the module in question.

Reasons for not completing modules are presented in Table 8. In summary, it appears that time, lack of motivation, and forgetfulness were frequently reported reasons for not completing a module. Interestingly, some participants did not complete modules as a way to protect themselves from negative feelings or thoughts that they believed the module would cause or trigger for them, as well participants reported their perception that some modules may be too much work or unnecessary.

Table 8. *Reasons for non-adherence.*

Module	Reason (frequency)
Food as Fuel	Perceived as unneeded (1); Time/Seemed like too much work (2); triggering (1)
Movement	Forgot (1); Time/Seemed like too much work (2)
Self-Compassion	Time (1); Seemed like too much work (2); Forgot (1); believed it would bring up negative feelings (2)
Thoughts	Time (3); Forgot (1); Seemed like too much work (1); Low mood (1)
Habits	Time (2); Forgot (1); Seemed like too much work/lost motivation (2); Low mood (1)
Communication	Time (1); Forgot (1); Low mood (1)
Social Support	Forgot (1); Gave up (1); Seemed like too much work (1); Time (1)
Mindful Eating	Time (1); Forgot (1); Seemed like too much work (1)
Body Image	Gave up (1), Forgot (1); Time (1); Seemed like too much work (1)
Stress	Had final exams (1); Gave up (1); Forgot (1); Time (1); Seemed like too much work (1)
Sleep	Forgot (2); Seemed like too much work (1); Time (1)
Problem Solving	Forgot (2); Time (2); Gave up (1); Seemed like too much work (1)
Liquid and Alcoholic Calories	Resistance to info as a university student (1); Forgot (1); Time (1); Gave up (1); Seemed like too much work (1)
Wrap up	Time (2); Forgot (1); Seemed like too much work/lost motivation (2); Gave up (1)

Note. Modules not listed in this table did not receive qualitative comments from participants.

3.2.2 Acceptability

It was hypothesized that young adults would rate this tailored version of the Small Changes intervention as acceptable, based on ratings of their satisfaction with each module, their likelihood of continuing to use what they have learned in that module, and their likelihood of recommending the module to others. Descriptive statistics are used to describe average ratings on these factors, see Table 9. Ratings and comments on the podcast and community forum elements of the intervention are also reported below.

3.2.2.1. Satisfaction ratings

On a ten point scale, participants rated their satisfaction for each module that they indicated completing over the 12 week intervention period. Overall, satisfaction was 8.30 out of 10.00. Of the five required modules, the Food as Fuel module was rated most highly in terms of satisfaction (M = 8.95, SD = 1.59). Regarding the Food as Fuel module one participant said "*I liked the way it centered around reworking your perception of food. It didn't feel as judgey as a lot of food-centric weight loss programs. I really liked it!*". Of all the modules, the Habits module earned the highest satisfaction rating (M = 9.34, SD = 0.85). Regarding the Habits module one participant said it "*was nice to write down what habits I wanted to break and what I wanted to replace the behaviour for!*". Between the two modules that were new to this iteration of the Small Changes intervention, which were the Self-compassion and Liquid and Alcoholic Calories, the former had an average satisfaction rating of 8.67 (SD = 1.51) and the latter had an average satisfaction rating of 10.00 (SD = na; n = 1). Regarding the Self-compassion module one participant said "*I loved this module, especially the letter writing part. It felt refreshing and actually writing the letter was a lot of fun!*". Two modules, Communication and Problem Solving, were not completed by any participants such that satisfaction ratings could,

unfortunately, not be generated for these two modules. When asked, if given the chance would you have liked to complete more than nine modules, a majority of the respondents to this question reported no (76.90%, *n* = 10).

3.2.2.2. Likelihood of continuing to use skill learned

On a 0% to 100% scale, respondents indicated how likely they were about continuing to use the knowledge and skills learned from each module that they completed. Overall likelihood of continuing to use the skill taught was 76.09%. The top three highest rated modules for this acceptability metric were the Habits module, Liquid and Alcoholic Calories module, and Food as Fuel module, while the skills taught within the Sleep, Mindful Eating, and Introduction modules were least likely to be maintained. Again, no data was available for the Communication or Problem-solving module in this regard.

3.2.2.3. Likelihood of recommending module to another person

On a 0% to 100% scale, respondents reported how likely they were about recommending each module to another individual. Overall likelihood of recommending modules to someone else was 74.30%. Participants were most likely to recommend the Liquid and Alcoholic Calories, Habits, and Stress modules. In contrast, participants were least likely to recommend the Sleep, Mindful Eating, and Movement modules. Again, data for this metric was not available for the Communication or Problem-Solving modules.

Table 9. *Acceptability ratings.*

Module	Satisfaction with module (1 to 10 scale)	Likelihood to continue to use skill learned in module (0-100% scale)	Likelihood to recommend module to another person (0-100% scale)	Number of raters
Introduction	7.79 (1.58)	64.57 (27.35)	64.53 (33.09)	*n* = 15
Movement	7.90 (1.96)	69.00 (26.59)	59.42 (30.64)	*n* = 11
Food as Fuel	8.95 (1.59)	82.37 (21.89)	70.11 (29.26)	*n* = 10
Wrap up	8.59 (1.08)	69.34 (18.34)	59.69 (22.05)	*n* = 7
Self-Compassion	8.67 (1.51)	65.55 (32.33)	70.30 (25.18)	*n* = 6
Mindful Eating	7.13 (2.59)	55.70 (34.02)	53.97 (37.65)	*n* = 6

Module	Satisfaction with module (1 to 10 scale)	Likelihood to continue to use skill learned in module (0-100% scale)	Likelihood to recommend module to another person (0-100% scale)	Number of raters
Habits	9.34 (0.85)	93.02 (10.98)	82.16 (19.58)	*n* = 5
Body Image	8.18 (1.33)	79.20 (28.50)	70.35 (31.19)	*n* = 4
Stress	8.93 (1.85)	71.50 (25.72)	77.93 (25.25)	*n* = 3
Sleep	9.00 (1.41)	46.35 (19.73)	47.75 (18.74)	*n* = 2
Thoughts	7.50 (3.54)	65.90 (48.22)	63.75 (51.27)	*n* = 2
Social Support	7.30 (0.42)	75.30 (34.93)	75.65 (34.44)	*n* = 2
Liquid and Alcoholic Calories	10 (-)	85.80 (-)	100.00 (-)	*n* = 1
Communication	-	-	-	*n* = 0
Problem Solving	-	-	-	*n* = 0
Overall Ratings	8.30	76.09	74.30	

3.2.2.4. Podcasts

All five required modules included a podcast; the average duration of these podcasts was 8.50 min (range 5 minutes 43 seconds to 13 minutes and 31 seconds). Average rate of listening across all five podcasts was 58.74%. The most frequently listened to podcast was for the Introduction module (87.50%), while the least frequently listened to podcast was for the wrap up module (38.50%). Thus, it appeared that listening rate started high and tapered down across the 12-week intervention period. Feedback from podcast listeners included statements indicating that podcasts were liked for their brevity, encouragement, tone, and clarity, see Table 10 for further feedback. Of note, of those that reported listening to the podcast no negative feedback was reported suggesting that while the podcasts were not always listened to when they were they were acceptable to young adults in this sample. Feedback about why a participant did not listen to a particular podcast were most frequently related to lack of time and forgetfulness. Uncommon but interesting reasons that podcasts were avoided included sensory issues (*n* = 1), and perception that content would be triggering (*n* = 1) or highlight poor performance (*n* = 1).

Table 10. *Portion of participants that listened to podcasts and their feedback.*

Topic	Number of responders	Listening rate, *n* (%)	Feedback from listeners (*n*)	Reasons for not listening (*n*)
Introduction	*n* = 16	14 (87.50)	Like that it was brief (2); "Liked the voice" (1); "Interesting and clear" (1); "The premise of the iSCALE study was well explained and made weight management sound possible!" (1)	Forgot (1)
Food as Fuel	*n* = 15	9 (60.00)	"Short length, easy to commit to listening to" (1); "Very Insightful" (1)	Time constraints (1); Forgot (1); "Triggering to listen to" (1); Seemed like too much work (1); Seemed unnecessary (1)
Movement	*n* = 15	10 (67.70)	"Short and to the point" (1)	Time constraints (1); "Felt bad about myself and didn't like the reminder of how I was doing badly" (1); Seemed like to much work (1); Do not like podcasts due to sensory issues (1); Seemed unnecessary (1)
Self-Compassion	*n* = 15	6 (40.00)	"Easy listen" (1); "Well spoken" (1)	Time constraints (2); Forgot (2); Seemed like too much work (1); "Felt bad about myself and didn't like the reminder of how I was doing badly" (1)
Wrap up	*n* = 13	5 (38.50)	"It was nice to finish with a podcast since the self-picked modules didn't have any" (1)	Time constraints (2); Forgot (1); Do not like podcasts (1); Seemed like too much work (1); Gave up/Laziness (2); Module appeared self-explanatory without podcast (1)

3.2.2.5. Community Forum

Thirteen participants responded to the question '*Did you use the community forum?'* and five (38.50%) indicated that they had. Based on these five participants responses the community forum had a mean satisfaction rating of 4.88 out of 10 (*SD* = 3.09; range 0.80 to 8.80), a mean likelihood of using a community forum to support their weight management in the future of

40.14% (*SD* = 34.98; range 9.60 to 96.10), and a mean likelihood of recommending to another person to use an online forum to support their weight management journey of 44.14% (*SD* = 34.06; range 12.60 to 92.80). Thus, this optional intervention element was not deemed acceptable to young adults in this sample.

The community forum was intended to provide participants with a resource for social support and connection during the study. Though all participants were instructed to set up a profile for the community forum during the pre-intervention assessment, the community forum had a total of 43 profiles including two administration profiles controlled by the research team; thus, 11 participants did not create a profile for themselves at all during the study period. The forum included 'categories' in which 'topics' were embedded; topics could be liked and replied to. Prior to study start, the author created nine initial categories, including Study Announcements, Questions, Podcasts, Successes, Setbacks, Goals, Compassion & Self-compassion, Module Check-off, and Everything else (a catch all category) to provide some guidance or framework for participants to create topics and engage with one another. Participants were allowed to propose new categories, but none did. Topics were posted under the Module Check-off (6), Setbacks (2), Successes (2), Podcasts (1) and Questions (1) categories, indicating that progress tracking was the most common reason for posting on the community forum. The community forum ended with 13 topics, 12 of which were started/posted by participants and the other one was a welcome message posted by the research team under the Announcements category. Across these 13 topics, 11 likes were indicated, and 10 comments/replies were made. The topic with the most likes and replies was within the setback category. In this way, participants were encouraging of others' setbacks.

Feedback and comments from forum users included liking that they could share their own and read about other's successes and setbacks (n = 1) and that there was unfortunately a noticeable lack of use from many in the study (n = 2). Reasons reported for lack of use were related to difficulty engaging with strangers online (n = 1), the forum was hosted through an unfamiliar platform (n = 1), and that there were no notifications to let participants know when new posts, likes, or replies were made (n = 1). Among those that did not utilize the optional online community forum, reasons for this included not feeling comfortable with this kind of social interaction (n = 2), burden of having to learn a new platform (n = 1), laziness (n = 1), not observing others posting and not wanting to be the one to start a topic (n = 1), did not know or forgot about it (n = 2), or used another form of social support because they felt the forum was too impersonable given the anonymity aspect (n = 1).

3.3. Secondary Research Questions

One of the secondary research questions asked: what is the impact of a self-paced, online-delivered, podcast- and community forum-augmented version of the Small Changes intervention on weight change among young adults? It was hypothesized that on average young adults would demonstrate the prevention of weight gain, and further, 50% of the sample would achieve a modest clinically meaningful amount of weight loss (i.e., ≥3%) across the 12-week intervention period. Paired samples t-tests were conducted to assess for change in weight and BMI from pre- to post-intervention.

Analyses revealed that weight and BMI did not significantly change over the study period such that preventing weight gain was achieved, see Table 11. In terms of weight loss, on average participants lost 1.08kgs, SD = 4.93 (M = 2.38lbs, SD = 10.87) over the 12-week intervention

period. However, only 42.90% (n = 9) of participants lost 3% total body weight or more from pre- to post-intervention.

Table 11. *Change in weight and BMI pre- to post-intervention (N = 21).*

Measure	Pre-intervention *M (SD)*	Post-intervention *M (SD)*	*t* (20)	*p*	Cohen's d	95% Confidence interval for effect size
Weight (in lbs)	161.38 (41.44)	159.00 (41.87)	1.01	.16	0.22	-0.22 – 0.65
Weight (in kgs)	73.20 (18.80)	72.12 (18.99)	1.01	.16	0.22	-0.22 – 0.65
BMI (kgs/m^2)	27.0 (5.14)	26.67 (5.23)	0.91	.19	0.20	-0.24 – 0.63

Abbreviations. BMI = Body Mass Index; lbs = pounds; kgs = kilograms

The other secondary research question for this study sought to explore the impact of the self-paced, online-delivered, podcast- and community forum-augmented version of Small Changes on the psychological outcomes of anxiety, depression, and self-compassion and the frequency of weight control strategies. It was hypothesized that continuous scores on measures of anxiety symptom severity, depression symptom severity, and self-compassion would improve from pre- and post-intervention. First, paired samples t-tests were conducted with continuous scores on the GAD-7 and PHQ-8 to answer this research question. Analyses revealed that symptoms of anxiety and symptoms of depression did not significantly improve from pre- to post-intervention on average, see Table 13. Given that the GAD-7 and PHQ-8 can also be scored categorically, additional chi square analyses were conducted to assess if symptoms of anxiety and symptoms of depression when scored categorically change from pre- to post-intervention. Symptoms of anxiety, when scored categorically, did not significantly differ between pre- and post-intervention. A chi square analysis did reveal that symptoms of depression at pre-intervention did significantly differ from symptoms of depression at post-intervention such that

fewer participants fell into the 'severe' and 'moderately severe' categories and more participants scored in the 'none' or 'moderate' range, see Table 12.

Table 12. *Differences in GAD-7 and PHQ-8 scored categorically pre- to post-intervention (N = 17).*

Variable	Pre-Intervention, *n*	Post-Intervention, *n*	Likelihood ratio	*p*
Severity of Anxiety Symptoms (GAD-7)			6.17 (9)	.821
Minimal	3	2		
Mild	6	7		
Moderate	5	6		
Severe	3	2		
Severity of Depression Symptoms (PHQ-8)			25.32 (9)	.013
None	2	4		
Mild	5	3		
Moderate	4	6		
Moderately Severe	5	4		
Severe	1	0		

Abbreviations. GAD-7 = General Anxiety Disorder 7; PHQ-8 = Patient Health Questionnaire 8

In terms of self-compassion, total scores did not significantly improve from pre- to post-intervention assessments, see Table 13. Further, all six self-compassion subscales were assessed for improvements pre- to post-intervention and none of these subscale scores significantly improved over the intervention period.

In terms of weight control strategies, it was hypothesized that the frequency of weight control strategies would increase pre- to post-intervention. Paired samples t-test were conducted to assess for such improvements. Analyses revealed that weight control strategies significantly increased in frequency from pre- to post-intervention, such that strategies related to dietary choices, self-monitoring, physical activity, and psychological coping significantly improved from baseline to post-intervention, see Table 13.

Table 13. *Change in psychological outcomes and weight control strategies pre- to post-intervention.*

Measure	Pre-intervention *M (SD)*	Post-intervention *M (SD)*	*t* (df)	*p*	Cohen's d	95% Confidence interval for effect size
Anxiety symptoms (GAD7; 0-21*), *N* = 17	10.24 (5.15)	9.59 (3.97)	0.48 (16)	0.32	0.12	-0.36 – 0.59
Depressive symptoms (PHQ-8; 0-24*), *N* = 17	11.23 (5.72)	10.47 (5.73)	0.52 (16)	.30	0.23	-0.35 – 0.60
Self-compassion (SCS; *1-5), *N* = 17	2.71 (0.70)	2.62 (0.65)	0.77 (16)	.23	0.19	-0.30 – 0.66
Self-kindness	2.74 (0.74)	2.58 (0.86)	1.18 (16)	.13	0.29	-0.20 – 0.77
Self-judgement	3.71 (1.03)	3.66 (0.77)	0.28 (16)	.39	0.07	-0.41 – 0.54
Mindfulness	3.24 (0.63)	3.03 (0.91)	1.55 (16)	.07	0.38	-0.12 – 0.86
Overidentification	3.57 (1.00)	3.50 (0.59)	0.38 (16)	.36	0.09	-0.39 – 0.57
Common Humanity	3.22 (1.10)	2.94 (1.11)	1.51 (16)	.07	0.37	-0.13 – 0.85
Isolation	3.56 (1.08)	3.60 (0.74)	-0.18 (16)	.43	-0.05	-0.52 – 0.43
Weight Control Strategies (WCSS; *0-4), *N* = 16	1.44 (0.79)	1.90 (0.71)	-2.90 (15)	**.005**	-0.73	-1.17 – -0.16
Dietary Choices	1.38 (0.69)	1.73 (0.68)	-2.23 (15)	**.021**	-0.58	-1.08 – -0.02
Self-monitoring	1.24 (0.87)	1.82 (0.89)	-2.85 (15)	**.006**	-0.71	-1.25 – -0.15
Physical Activity	1.46 (0.85)	2.02 (0.83)	-3.31 (15)	**.002**	-0.83	-1.39 – -0.25
Psychological Coping	1.69 (0.94)	2.13 (0.77)	-2.21 (15)	**.022**	-0.55	-1.07 – -0.02

Abbreviations. GAD7 = General Anxiety Disorder 7; PHQ-8 = Patient Health Questionnaire 8; SCS = Self-compassion Scale, WCSS = Weight Control Strategies Scale
*Indicates direction of less favorable/more severe scores

Chapter 4: Conclusions

The present study sought to gain insights into the feasibility and acceptability of a self-paced, online-delivered, podcast- and community forum-augmented version of a Small Changes health behaviour change intervention among young adults. Secondarily, this study sought to explore the impact of this kind of intervention on young adults' weight, psychological well-being, and utilization of weight management strategies. The following can be concluded about the tested intervention. First, the intervention was largely acceptable to young adults looking to manage their weight, as overall satisfaction with the intervention modules, likelihood to continue to use lessons learned from the intervention modules, and the likelihood to recommend treatment materials to another person were all favourable for those that were retained across both study assessment timepoints. The optional online community forum, with its present design, was not acceptable to young adults in this sample. Those that were younger and had a lower starting weight and BMI were more likely to be retained; therefore, this intervention is more specifically acceptable to younger young adults (<21 years) with overweight rather than slightly older young adults (>23 years) with obesity. Second, this intervention is somewhat feasible among young adults, a population on a weight gain trajectory, based on the study's recruitment success, and rates of adherence and retention which were both low. Third, the impact of the intervention on improving psychological well-being was limited (i.e., limited to shifts in depression severity categorization), but was impactful in increasing frequency of health behaviours known to control weight. Last, it can be concluded that the intervention can prevent weight gain, on average, among a young adult sample; however, the intervention can only produce a modest clinically meaningfully amount of weight loss among less than half of the sample with its current design.

4.1. Primary Outcomes

4.1.1. Acceptability

Overall, based on the responses from post-intervention assessment completers, treatment modules were rated as satisfactory, endorsed as having taught skills that participants would be likely to upkeep, and included information that participants would be likely to share with others. Acceptability metrics were unavailable for 2 out the 15 modules. It could be postulated that the uncompleted and therefore unrated modules were not acceptable because despite being selected by a portion of participants initially, they were not subsequently completed. Further evaluation is needed before making more than tentative conclusions about this subset of the treatment materials. Considering the literature, ratings of acceptability observed in this study fit within the range reported by researchers working with young adults. One online weight management program for young adults received acceptability ratings between 81% and 97% in terms of helpfulness of treatment materials and a 100% likelihood of recommending the treatment materials to another person, which was slightly higher than those observed in the present study (Napolitano et al., 2013). However, another online weight management program for young women reported satisfaction ratings of treatment content and mode of delivery around 68%, which was lower than those observed in the present study (Hutchesson et al., 2016).

4.1.2. Feasibility

Recruitment for this study was completed in just over two weeks. Greatest recruitment success was achieved through a mix of paid and unpaid online social media advertising. Ease of recruitment was achieved through reaching young adults on platforms that they were already familiar with and were likely using often. Recruitment may have been encumbered, to an extent, but not detrimentally so, by terminology used on recruitment materials. Two instances of

feedback from researchers that were asked to share the recruitment materials with their networks cited hesitation to do so as one of the recruitment posters styles included the terminology of 'weight loss', which was said to possibly be problematic or triggering to some and may run contrary to popular body positivity and healthy at every size movements without enough context about the approach behind the intervention provided on the poster. This feedback indicates that some of the recruitment materials for this study did not adequately convey the healthy lifestyle/behaviour change approach that Small Changes takes to weight management. To reiterate, Small Changes does not take a dieting approach to weight management; however, this message needs to be clarified further on the recruitment posters. A second poster style utilized 'weight management' in its phasing; however, there were nine individuals that indicated goals to gain weight during the study screening questionnaire suggesting that 'weight management' may also be problematic in the sense that it may lack necessary clarity about the goals of the study and intervention aims. While language such as "healthy weight management/loss" or "weight management (i.e., modest weight loss and/or prevent weight gain)" were included in the caption of social media advertising during recruitment this information may not have been clear enough or potentially missed by some individuals. Otherwise, no issues arose while recruiting young adults for this study.

Rate of adherence ranged depending on the module in question. Required modules had a higher average completion/adherence rate than selected modules. These findings suggest that there may have been some elements of external motivation or accountability, that is gained through assigning modules to participants rather than having them choose which modules to complete. While it was believed that the options for autonomy and flexibility would suit young adults' lifestyles, it appeared that greater structure or guidelines produced a greater level of

adherence in this study. This is an interesting point because it may intuitively seem likely that the modules that participants picked based on their own interests, needs, and preferences would more likely be adhered to. However, considering the literature, greater weight loss success has been reported following weight management programs with greater structure compared to self-help programs with greater flexibility and autonomy (Heshka et al., 2003). Taken together, self-selection of modules may be an unnecessary or even unhelpful option in future iterations of the Small Changes intervention among this age group.

The retention rate for this study (46.65%) aligns with published values within this field of research [e.g., (Partridge et al., 2015)]. A 12-week online low-intensity team-based weight loss competition had a similar retention rate of 46.00%, despite motivational elements such as teammate accountability and drive to win a competition (Gokee-LaRose et al., 2012). A two year weight gain prevention trial with university students with an online social networking element alongside classroom teachings had a retention rate greater than 80%; however, participants earned degree credits without having to pay the tuition for the course, while also being compensated up to $400.00 for their participation, which might have been a particularly salient incentive to complete the study in full (Moe et al., 2017). Further, a near perfect retention rate does not guarantee that a treatment program will produce an impact on health behaviour outcomes. For example, a two year cognitive-behavioural intervention aiming to improve physical activity among young adults had a retention rate of 93%, but did not report a significant impact of the program on increasing physical activity behaviours (Calfas et al., 2000). In contrast, the current study with a much lower retention rate did show improvements in strategies to control weight through physical activity.

The total running costs for this study was $1087.00; the average cost of recruitment per participant at pre-intervention was $5.00; and the average cost of incentives per participant was $13.65. Compared to a group-based (10-15 participants per group) iteration of Small Changes with weekly sessions facilitated by two interventionists over 12 weeks, the cost savings of this self-paced online delivered Small Changes intervention without any interventionists is between $2,400.00 and $2,880.00, assuming an hourly wage of $25.00-$30.00 per interventionist. Further, costs saved are those related to parking reimbursement, which is $7.00 per visit multiplied by 12 visits per participant ($4,368.00); costs of interventionist training, which is estimated to be two 8-hour days of training (between $800.00 and $960.00 for two interventionists); and the costs of interventionist's weekly one hour prep time (between $600.00 and $720.00 for two interventionists). Therefore, this lower cost iteration of Small Changes was between $7,081.00 to $7.841.00 cheaper than another group-based in-person version of Small Changes could be, without considering incentives that vary iteration to iteration. This iteration of Small Changes for young adults is substantially more affordable compared to other weight management studies utilizing a young adult sample, such as the CHOICES study that spent $208,000.00 USD on incentives alone for their 2 year study with 441 participants, which is $471.65 USD per participant (Moe et al., 2017).

4.2. Weight and Psychological Outcomes

In terms of secondary weight outcomes, this intervention demonstrated an impact on weight gain prevention, but not in achieving modest weight loss for a majority of the sample. These results indicate that this tailored, but self-paced and driven, iteration of Small Changes for young adults can aid in preventing weight gain, but not yet in producing modest clinically meaningful weight loss for more than half of young adults treated. This finding is partially

consistent with what was hypothesized. Weight outcomes are consistent with a systematic review published examining Small Change weight management approaches among adult samples that concluded that Small Change approaches are effective for weight gain prevention, but not weight loss (Graham et al., 2021). Average mean weight loss in this study was approximately half of what was reported for three month outcomes in another systematic review of Small Change weight management approaches with adult samples (Ciszewski & Lutes, 2019). Though weight loss of 3% or more was not achieved for a majority of the sample, preventing weight gain among a population that is gaining weight faster than any other age group and at a rate faster than previous generations is in and of itself highly impactful. This impact is especially important because when participants were asked about how their weight had changed in the first 18 months of the COVID-19 pandemic 82% reported that their weight had increased; therefore, weight gain prevention was achieved, on average, among a complex and high-risk sample in this study. It is notable still that over 40% of the sample did reach a 3% weight loss, with no direct interventionist contact, which is unlike previous Small Change interventions by this research team.

In terms of secondary psychological outcomes, the results of this study did not indicate a significant improvement among psychological variables for participants pre- to post-intervention, contrary to what was hypothesized. An explanation for this may be that this study was conducted during a period in modern history where the prevalence and severity of psychological distress (e.g., loneliness and stress) had increased significantly (Liu et al., 2020). Further, younger adults were reported to be at greater risk of worsening mental health during the COVID-19 pandemic than older adults (Varma et al., 2021). Within this sample specifically, a high proportion (90%) reported increases in stress and anxiety during the course of the pandemic. Thus, this

intervention may not have been intense enough to significantly impact psychological factors assessed in this study, given participants were contending with unprecedented living conditions at the time of participating in this study. Further, there were no face-to-face (virtual or in-person) contacts with an interventionist or health coach at any point in the intervention, which were included elements in other interventions that were able to improve psychological symptoms with a Small Changes approach (Lutes et al., 2020; Paxman et al., 2011).

Significant changes were observed in the categorization of depression symptom severity; therefore, it is possible that based on the individualized intervention dose some participants did undergo changes in their depression severity, but on average the dose of the intervention, which varied between participants in terms of modules selected and modules completed, was not intense enough to produce a significant improvement in depression severity among a large portion of the sample. Following the intervention, participants did report a significant increase in the number of tools in their weight management toolkit across the domains of dietary choices, self-monitoring, physical activity, and psychological coping strategies. This is a promising result that, if maintained, may support young adult's abilities to further prevent weight gain and achieve modest weight loss through participation in a Small Changes health behaviour change intervention with low running costs and no health provider/clinician/interventionist resources required to deliver.

4.3. Podcasts and Community Forum Elements

Engagement with the community forum was relatively low compared to other elements of this intervention, though it was the only optional element of the intervention. Despite relatively low engagement with the community forum in this study, it may still be an important element to include moving forward, but with a few alterations to its format. Specifically, using a more

familiar platform (e.g., a Facebook group) with notifications (to buffer against forgetfulness) could aid in the useability or acceptability of an online social support forum (Hutchesson et al., 2018). Previous research has indicated that including a Facebook group is advantageous in weight management interventions such that participants with access to a Facebook group reported greater improvements in psychological health variables and more weight loss than groups without an online social networking element (Jane et al., 2018; Napolitano et al., 2013). Further, utilizing a social media platform like Facebook would allow the option of social support to be cost free. Using a free format would have saved at least $117.00 in this study.

Podcasts when listened to were regarded positively by all. Podcasts in this study provided participants with a brief and digestible way to learn the treatment content. Though a few participants avoided the podcasts all together due to their dislike of podcasts in general and audio sensitivities, keeping this intervention element in future iterations of this intervention is likely to be advantageous. For example, including podcasts has been shown to enhance frequency of self-monitoring strategies and frequency of engagement with intervention treatment materials (Turner-McGrievy et al., 2009; Turner-McGrievy & Tate, 2011). Therefore, developing a podcast for each module in this intervention could support weight change and adherence in future evaluations among young adults. Few examinations of interventions including podcasts for weight management have been conducted; specifically, only 4 out of 139 interventions reviewed by Hutchesson et al., (2015) included podcasts. Thus, work evaluating podcasts as an intervention element is needed. Moving forward, expanding the podcast element and comparing treatment groups with and without a podcast element would contribute to the limited evidence available in this regard.

4.4. Limitations

The results of this study should be interpretated in light of the following limitations. The sample was majority female, which may limit the generalizability of study findings, such that this iteration of Small Changes for young adults could unintentionally be optimized according to largely female voices and preferences. The portion of female and male participants in this study is very similar to the proportions observed in other weight loss trials for young adults such as one that used text message and Facebook intervention delivery methods (Napolitano et al., 2013). Recruiting male participants for weight gain prevention research is a common concern; for example, a pilot study for young adult weight gain prevention included only 2% male participants (Gokee-LaRose et al., 2010). Further, efforts to tailor recruitment materials for males have been conducted to address this concern (Crane et al., 2016); thus, a majority female sample is not a limitation exclusive to this study.

Another limitation of this study was that two modules (Communication and Problem Solving) had no acceptability ratings. Thus, the study cannot report how satisfied participants were with these two modules, how likely participants are to continue to use the skills taught in these two modules, or how likely participants are to recommend these two modules to another person, which limits the conclusions that can be drawn regarding this subset of the intervention. Despite the sample being screened for level of interest in and commitment to the study, low motivation, too little time, and forgetfulness appeared to plague participants most in terms of their ability to complete all the modules in their individualized treatment package within the 12-week intervention period. Similar barriers to engagement by young adults in a mobile/online weight management trial have been reported (Hebden et al., 2014).

Last, this study relied on self-report data, without any objective measures such as in-lab weigh-ins or pedometers to track steps or physical activity. Had limitations around in-person research activities and low lab inventory of pedometers not been present during the study design phase objective measures would have liked to be included and will be included in subsequent evaluations of Small Changes for young adults to enhance rigour and robustness.

4.5. Strengths

It is equally important to highlight the study's strengths. First, the study had minimal exclusion criteria such that the included sample was likely representative of young adults. For example, apart from Binge Eating Disorder, the study placed no limits on the mental health status of participants. Further, this sample was diverse and included a mix of students and non-students. Second, the intervention tested involved a novel combination of intervention elements (self-paced, online-delivered, podcast- and community forum-augmented) among a realistic (i.e., minimally filtered) young adult sample. Third, this intervention did not just focus on weight and changes to diet and physical activity but rather took a more holistic approach including topics relevant to psychological well-being such as body image, thoughts, social support, and stress in addition to nutrition and movement behaviour changes. Fourth, this intervention was completely self-directed meaning that there were no interventionists, clinicians, health coaches, etc. meeting with participants as a part of the treatment protocol, yet positive outcomes such as increasing weight control strategies, preventing weight gain, and the beginning of modest weight loss were achieved. Given the self-directed and online nature of this study, costs, space, highly trained personnel, and infrastructure required for delivering the intervention were very low; therefore, this intervention required lower investments that previous iterations of Small Changes yet earned a worthwhile and promising return.

4.6. Future Directions

A qualitative evaluation of this tailored iteration of the Small Changes program for young adults would be advantageous to revise and optimize this intervention for this target population. Follow-up focus groups with completers and non-completers could aim to elucidate reasons for dropout that were not identified in this study and ask participants to comment directly on the acceptability of the assessment measures in order to optimize assessment questionnaire packages in future randomized control trials. Such an investigation is believed to be so warranted that work is already underway to conduct such a follow up study.

Future work may consider integrating information around the implications of weight gain during young adulthood into the treatment materials. Low motivation to prevent weight gain may stem from the perception that it is unnecessary or not a priority during this stage of life. Indeed, research has been conducted to assess beliefs around the need for weight gain prevention during young adulthood [e.g., (Gokee-LaRose et al., 2011)]. Interestingly, 14.80% of young adult men with overweight and 7.00% of young adult women with overweight incorrectly indicated their BMI category (Gokee-LaRose et al., 2011). The men underestimated their BMI category, while the women overestimated their BMI category. These findings can suggest that general weight health knowledge is minimal among a portion of young adults. Therefore, including more psychoeducation at the outset or throughout an intervention about the importance of healthy lifestyle behaviours at all stages of life but during young adulthood in particular may support motivation, engagement, and behaviour change for weight management among this high-risk age group.

Future research could also directly test and compare this iteration of the Small Changes intervention to one or more other iterations of this intervention. For example, one could compare

the impact of self-paced to self-paced plus occasional (i.e., three) check-ins with an interventionist (e.g., a beginning orientation check-in, a mid-point check-in to assess for barriers and challenges, and an end point check-in). The results would yield whether adherence, retention, weight, or psychological variable outcomes would be impacted in a better or worse way and to what magnitude, compared to this current low-cost young adult tailored iteration, without any interaction between participant and researcher beyond bi-monthly reminder emails/texts.

Beyond the consistent required modules, most participants had a unique treatment package according to the modules they selected to complete. The variety in treatment packages can make interpretations of results more complex in future trials. Thus, any future randomized control trials should provide all participants with the same modules to minimize noise in the data and enhance adherence. This could also support the completion of mediation or moderation analyses to delineate intervention mechanisms of change. While Small Changes does not want to become a one-size-fits-all approach truncating the range of flexibility in the intervention dose may be important for future trials utilizing one or more comparison groups.

4.7. Implications

The implications of this study are as follows. This self-paced, online-delivered, podcast- and community-forum augmented version of the Small Changes intervention for weight management among young adults provided feasibility and acceptability data to support future randomized control and implementation trials. Results from this study will inform the development of a focus group interview guide to trim and optimize the intervention for young adults further. The study was a preliminary step in developing a relatively low-cost and easily disseminatable weight management intervention for young adults.

4.8. Conclusions

In summary, this feasibility study has provided rich data on the feasibility and acceptability of a Small Changes health behaviour change intervention for young adults involving a novel combination of intervention elements and modalities (i.e., self-paced, delivered online without contact with an interventionist or health coach, complimentary podcasts for some treatment modules, and an optional online community forum for social support). This first iteration of the Small Changes intervention for young adults was able to prevent weight gain and produce modest weight loss in almost half the sample, and it was able to increase the number of weight control strategies that young adults used to manage their weight. However, rates of adherence and retention were low indicating that further work is needed to tailor Small Changes for young adults.

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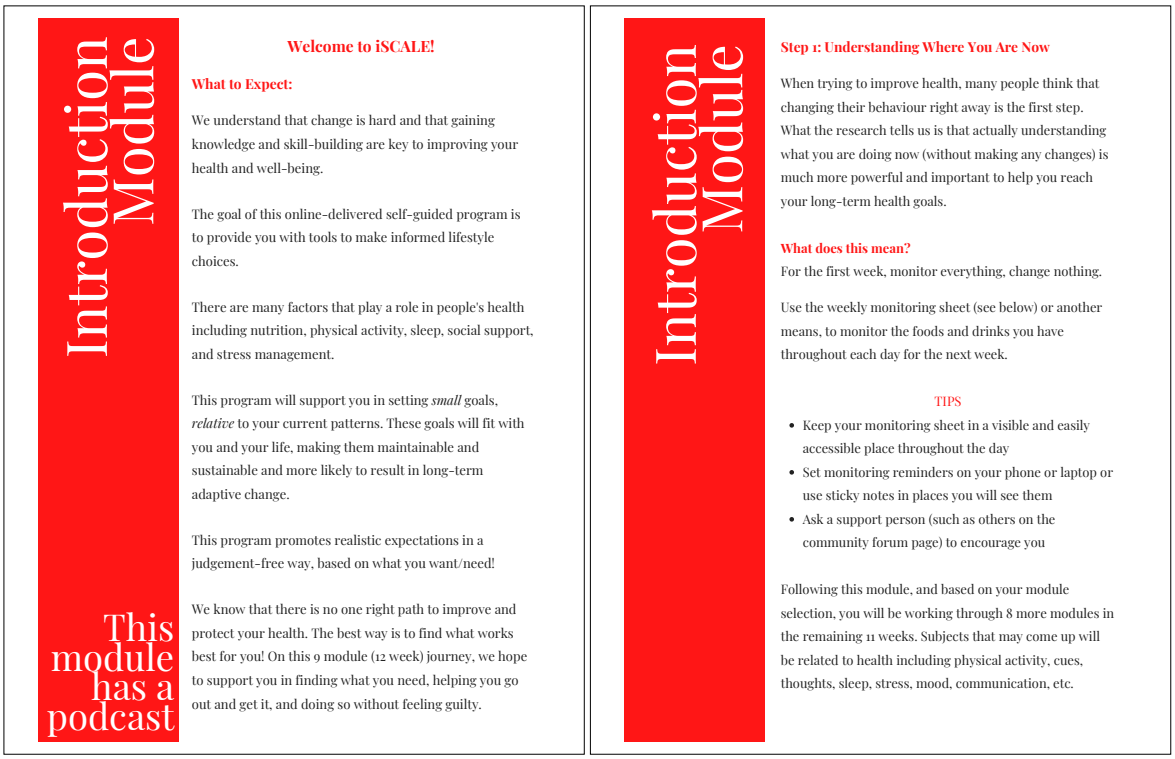
Appendices

Appendix A – Treatment Modules



Introduction Module

This module has a podcast

Welcome to iSCALE!

What to Expect:

We understand that change is hard and that gaining knowledge and skill-building are key to improving your health and well-being.

The goal of this online-delivered self-guided program is to provide you with tools to make informed lifestyle choices.

There are many factors that play a role in people's health including nutrition, physical activity, sleep, social support, and stress management.

This program will support you in setting *small* goals, *relative* to your current patterns. These goals will fit with you and your life, making them maintainable and sustainable and more likely to result in long-term adaptive change.

This program promotes realistic expectations in a judgement-free way, based on what you want/need!

We know that there is no one right path to improve and protect your health. The best way is to find what works best for you! On this 9 module (12 week) journey, we hope to support you in finding what you need, helping you go out and get it, and doing so without feeling guilty.

Introduction Module

Step 1: Understanding Where You Are Now

When trying to improve health, many people think that changing their behaviour right away is the first step. What the research tells us is that actually understanding what you are doing now (without making any changes) is much more powerful and important to help you reach your long-term health goals.

What does this mean?

For the first week, monitor everything, change nothing.

Use the weekly monitoring sheet (see below) or another means, to monitor the foods and drinks you have throughout each day for the next week.

TIPS

- Keep your monitoring sheet in a visible and easily accessible place throughout the day
- Set monitoring reminders on your phone or laptop or use sticky notes in places you will see them
- Ask a support person (such as others on the community forum page) to encourage you

Following this module, and based on your module selection, you will be working through 8 more modules in the remaining 11 weeks. Subjects that may come up will be related to health including physical activity, cues, thoughts, sleep, stress, mood, communication, etc.

Introduction Module

This module has a podcast

Goal Setting

For this week only, the focus is on monitoring everything you eat and drink so that you can determine the starting point for your weight management and health journey.

This week, I plan to record _____ **out of 6** days.

I will be honest and open with my usual behaviours and try not to make any changes yet.

I will reach these goals by (e.g., by using my alarm for reminders, sharing on the community forum, or always carrying my monitoring sheet with me, etc):

1. _____
_____

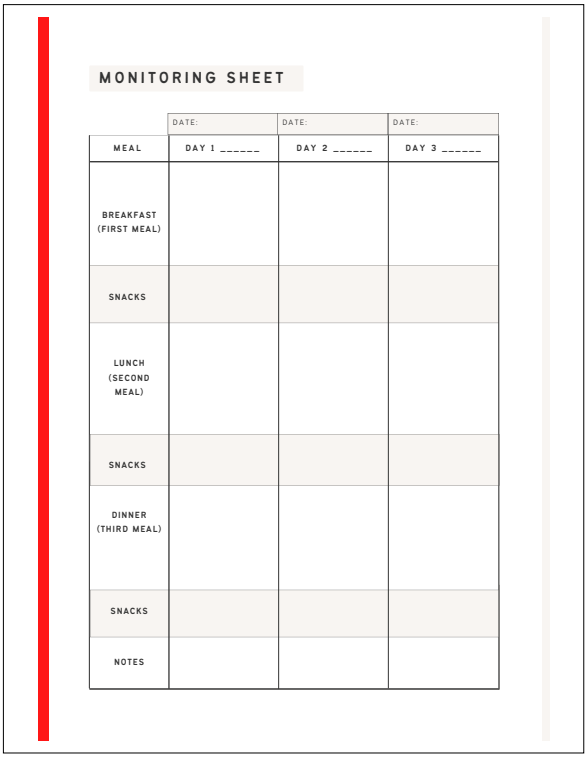
2. _____
_____

3. _____
_____

Now, how confident are you that you can achieve these goals?

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident



MONITORING SHEET

	DATE:	DATE:	DATE:
MEAL	DAY 1 _____	DAY 2 _____	DAY 3 _____
BREAKFAST (FIRST MEAL)			
SNACKS			
LUNCH (SECOND MEAL)			
SNACKS			
DINNER (THIRD MEAL)			
SNACKS			
NOTES			

MONITORING SHEET

MEAL	DATE: DAY 4 _____	DATE: DAY 5 _____	DATE: DAY 6 _____
BREAKFAST (FIRST MEAL)			
SNACKS			
LUNCH (SECOND MEAL)			
SNACKS			
DINNER (THIRD MEAL)			
SNACKS			
NOTES			

Food as Fuel Module

This module has a podcast

It's All About Fuel

This module is all about what you eat and drink and how even making **"SMALL" changes** can make a big impact on your health overall, over time.

You had the last week to practice self-monitoring, now you will use the information you gathered to start making small changes.

Bigger is not always better! If fact, the bigger the goal the harder it is to reach, achieve, and maintain. A consistent small change is much better than a short-term big change. This weight management program aims to teach you that taking small steps is the key to long term success.

In this module:

1. Checking in
2. "QQF" recipe for success
3. Goal setting the "SMALL" way

Food as Fuel Module

1. The check in

Understanding your current eating behaviours based on the self-monitoring record you completed this past week. Answer the following:

My goal was to record _ _ _ _ days.
I recorded _ _ _ _ days.

What was hard about recording? What made it easier?

What eating patterns did you notice? Did anything surprise you?

What are some things you are proud of when looking at your records?

What are some areas you think you would like to see change in?

Know that this program does not believe in perfection, it believes in you and in finding what is most realistic and adaptive for you!

Food as Fuel Module

2. QQF recipe for success

Unlike a traditional "diet program" this program utilizes the *Small Changes approach* and does not expect you to cut out your favourite foods or start eating things that do not appeal to you. In fact, doing either of those things will likely set a person up for failure. This program wants you to consider what you eat from a different lens: from a QUALITY, QUANTITY, or FREQUENCY point of view.

Consider this example: You have a sweet tooth and cookies are your favourite sweet food.
Now ask yourself: "Is this a food I am willing to consider changing or modifying right now?"
Before you answer: Consider the following **QQF** points of views

Q What is the **QUALITY** of the cookies? Are they buttery homemade chocolate chip cookies or high fibre oatmeal cookies? If you were to make a change in quality, it may be switching to the high fibre cookie. *Note changing the quality doesn't always result in a reduction in calories. If your goal also includes weight loss, look at the total calories of that food. *One small change equals approximately 100 calories.*

Q What is the **QUANTITY** of the cookies? You could eat your regular favourite cookies if you were to make a change to the quantity you ate. You might try having two cookies instead of three.

F What is the **FREQUENCY** you eat the cookies? You might love eating your cookies just the way they are and as many as you like. That's ok, you can always make a change to the frequency! If you were to make a change to the frequency, it might be enjoying them a few times a week instead of every day.

Food as Fuel Module

"Non-Negotiables"
Some aspects of your eating are going to be "non-negotiable" right now, that is, you do not wish to make any changes. For example, you may not want to change the way you order/make your daily coffee. No problem! There are many many areas in which someone can make small changes you don't have to deprive yourself of everything to make a difference!

3. Setting SMALL goals

S **SELF-SELECTED**
Your goals should be your own. Choose goals that fit into your life and only change behaviours that you are willing to negotiate at the moment.

M **MEASURABLE**
Develop a concrete way to track your goal. Consider the question: "How will I know when my goal has been met?"

A **ACTION-ORIENTED**
How are you going to achieve your goals? Having an action plan allows you to complete the steps needed to make your goal a reality.

L **LINKED TO YOUR LIFE**
Goals are best achieved if they work within your lifestyle and match your strengths and weaknesses. Are your goals designed to fit you and your everyday life?

L **(TIME) LIMITED**
Change takes time! Set a timeframe that you are willing to stick with while you try out your small change goal, such as 1 Week? 2 Weeks? 3 Weeks?

Food as Fuel Module

Here is an example:
S. It is important to me to make a change to the quality of what I eat. I am willing to start eating more fruit instead of eating a chocolate bar every day.
M. I will meet my goal if I eat two servings of fruit every day.
A. I will achieve my goal by buying some bananas and apples at the store on Monday. I will have an apple with breakfast and a banana with lunch.
L Because I normally eat lunch in my car on the way to my part-time job, it isn't realistic for me to pick something up on the way, so I will leave the bananas and a lunch bar in my car (where I might normally have a chocolate bar).
L. I will try this for the next two weeks and see how it goes

Now you try:

S _____
_____

M _____
_____

A _____
_____

L _____
_____

L _____
_____

Food as Fuel Module

Using the QQF recipe to success

What is one quality change you could make to what you eat and drink?

Q _____
_____
_____

What is one quantity change you could make to what you eat and drink?

Q _____
_____
_____

What is one frequency change you could make to what you eat and drink?

F _____
_____
_____

Our research shows that each small change people make equals about 100 calories and adds up across time. For example, one small change per day could be 700 calories per week, 2400 calories per month, or 36,500 calories per year. However, the focus is on small changes and not calorie counting. Over time small changes can have big impacts. Remember that!

Food as Fuel Module

Combining QQF and SMALL goals

For the next week focus on making up to three small changes in what you eat and drink each day. Using the QQF questions you just learned above set your weight management goals:

Goal 1
What:_ _
How: _
Where:_ _
Who (may help):_ _

Now, how confident are you that you can achieve this goal?*
0 1 2 3 4 5 6 7 8 9 10
Not at all Confident

Goal 2
What: _
How: _
Where:_ _
Who (may help):_ _

Now, how confident are you that you can achieve this goal?*
0 1 2 3 4 5 6 7 8 9 10
Not at all Confident

Goal 3
What:_ _
How: _
Where:_ _
Who (may help):_ _

Now, how confident are you that you can achieve this goal?*
0 1 2 3 4 5 6 7 8 9 10
Not at all Confident

*If less than 8, what would increase your confidence?

Food as Fuel Module

This module has a podcast

Understanding your baseline movement in prep for next week's module

Again, knowing your baseline behaviour is critical before making changes. Use the following table to monitor your movement/physical activity over the next week. For example, record your steps/day, minutes at the gym, minutes stretching, or any other forms/moments of movement in your day.

Day 1
Day 2
Day 3
Day 4
Day 5
Day 6
Day 7

THE CORE

ACCESS PODCASTS AND COMMUNITY FORUM AT:
https://thecorelabubc.com/iscale
Password: iscale1234

QUESTIONS?
Contact Ashley Fowles: afowles@mail.ubc.ca or iscale@ubc.ca

Treatment materials authored by: Lesley Lutes, Ph.D., R.Psych;
Edited by: Ashley Fowles B.A.(Hons);
Additional contributions by: D Well Program and Alex Fountaine B.Sc.(Hons).
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Movement Module

This module has a podcast

The Power of Movement

Two weeks into the program now, it is important to remember that everyone's path to success is unique. The path will likely include frustration, setbacks, challenges, and opportunities for learning, growth, and celebration. This program and process is about learning and enjoying the judgment-free journey.

In this module:
- Checking in
- Gradually increasing activity
- Setting SMALL goals for movement

Checking in on last week's goals:

Goal 1:_ _
How well did you do in achieving this goal?
1 2 3 4 5 6 7 8 9 10
Difficult Easy

Goal 2:_ _
1 2 3 4 5 6 7 8 9 10
Difficult Easy

Goal 3:_ _
1 2 3 4 5 6 7 8 9 10
Difficult Easy

Movement Module

Increasing Physical Activity

This module will explain the power of movement and setting 'SMALL' change goals to increase movement throughout your day. You may have heard that you are supposed to do 30 minutes of physical activity or walk 10,000 steps each day. BUT research actually shows that ANY INCREASE IN MOVEMENT can improve health and aid in weight management. The *key* is to find out which forms of movement or physical activity are going to *realistically fit* into your life.

Moving as little as 15 minutes per day increases quality of life and extends life expectancy by an average of 3 years! However, weight concerns beginning in young adulthood that are left unmanaged can reduce life expectancy by as many as 9 to 13 years.

It does not matter whether you get your activity in all at once or throughout the day. **It all adds up!**

Early for class? Walk for 5 min (approx. 500 steps)
Park a block away from your destination.
Avoid a crowded elevator or escalator, and use the stairs.
Take movement breaks during your work/school day.
Take a break while studying (e.g. take a lap of the library, change locations, fill up your water bottle in a different building)
Dance break: Play your favourite song and move.
So you don't enjoy being on your feet? How about swimming, a bike ride, seated arm exercises or stretches.

Movement can be defined as:

Physical Activity: any body movement that includes activities of daily living.

Exercise: planned, structured, and repetitive; improves and increases physical fitness.

Movement Module

Using the monitoring sheet from the last module, consider your current level of movement, thinking about:
1) What times of day were you more likely to be moving or active?
2) What motivated or motivates you to move?

Brainstorm ways you could move more throughout your daily routine. Especially in ways that you might enjoy.

_ _
_ _
_ _

What are some challenges you might face while trying to increase your activity?

_ _
_ _
_ _

How can you address these challenges?

_ _
_ _
_ _

There is no "gold standard" for physical activity that everyone should strive for each day. It is better to make small changes based on what level you are at today. Any increase in movement will result in improving your overall health and support your weight management efforts. This program endorses an evidence-based SMALL changes approach, so you can pace yourself and do not need to (nor should you) overdo it.

Movement Module

Setting SMALL Goals

Take time, to set up goals for this week. First, **movement**:

My average baseline movement (e.g., steps, minutes of activity) per day is _ _ _ _ _ . I would like to increase my current level of movement by _ _ _ _ _ per day to achieve a daily total of _ _ _ _ steps or movement minutes.

How I will reach this goal:
What: _
When: _
Where: _
How: _
Who (could help?): _

How confident are you that you can achieve this goal?
0 1 2 3 4 5 6 7 8 9 10
Not at all Confident
If less than 8, what can be done to increase your confidence?

Next, **fuel** (food and/or drink) goals. These goal(s) can be new, the same as last week's, or an extension of last week's. This is a weight management program, so you may have goals to prevent weight gain or to lose weight. If weight loss is your goal, you should aim to make 2-3 small changes/day. Each small change should ideally equate to a 100 calorie reduction. Remember QQF here.

Goal 1: _
Goal 2: _
Goal 3: _
On a scale from 1 to 10 how confident are you that you can achieve Goal 1? _ _ _ _ _ Goal 2? _ _ _ _ _ Goal 3? _ _ _ _ _
If any are less than 8, what can be done to increase your confidence?

This module has a podcast

Self-Compassion Module

This module has a podcast

Self-Compassion Module

In this module:

1. Thought experiment
2. What is self-compassion
3. Self-compassion exercise

Take a moment to think about a time in your life when you have been challenged or made a mistake. What are some things you told yourself?

Now think about a time in your life when someone else has been challenged or made a mistake. What are some things you have/would tell them?

Self-Compassion Module

What is Self-Compassion

Compassion refers to concern for others' suffering and a motivation to help alleviate or prevent it. When we turn this sense of compassion towards ourselves, we experience self-compassion. Self-compassion promotes feelings of understanding and warmth which can help reduce self-criticism and shame, facilitate healthy emotion regulation, and promote adaptive behaviour change. Self-compassion is linked with: lower levels of depression, anxiety, stress, perfectionism, and shame. Greater life satisfaction, connectedness with others, well-being, physical health, and self-confidence. Self-compassion can be thought of as an alternative to the stress response system (fight, flight, freeze). Instead of turning the stress response inward, self-compassion provides a response style that is more adaptive.

Fight

Self-criticism vs. Self-kindness

Flight

Isolation vs Common Humanity

Freeze

Rumination vs Mindfulness

Self-Compassion Module

The three components of self-compassion

Let's practice being self-compassionate. Think back to the challenging experience you described at the beginning of this module. How can you reframe your self-talk using the three components of self-compassion.

Self-kindness

Being kind and understanding to one's self. Recognizing that we are deserving of care and concern.

Common Humanity

Recognizing that we are not alone in our mistakes weaknesses, and failures, Mistakes are part of the human experience.

Mindfulness

Being aware of one's emotions and feelings without over-identification or judgment

Self-Compassion Module

Self-Compassion Exercise

Compassionate Letter Writing

For this activity, choose a time in your life that was particularly challenging. Write yourself a letter regarding the event from a compassionate point of view. When you write your letter, try to do the following:

1) Express concern and caring for your experience
2) Be sensitive to any distress you experienced
3) Try to adopt a non-judgmental and non-condemning perspective
4) Be warm and understanding
5) Finish the letter by determining what you need to move forward

To help complete the activity, pick a place and time to complete the activity if you choose not to complete this right now.

When (day and time)?_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
Where?_ _
What will I do?_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
How?_ _
Can anyone help me?_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

This module has a podcast

Thoughts Module

Thoughts: A Key Element of Health

This module is all about helping you to better understand your thoughts – your *real* thoughts – both positive and negative, as thoughts play a significant role in your health and well-being.

In this module:

- Self-talk and thought traps
- Rethinking your thoughts
- Goal setting

Before you begin: Reflect on how things went for you last week.

Self-talk is the internal conversation stream we all have with ourselves. Everyone has an internal voice. While we tend to think and say, 'that thoughts are just thoughts' that does not mean our thoughts are not powerful and impactful. Thoughts directly affect our emotions and behaviours. One of the most impactful forms of our internal voice is negative self-talk. Negative self-talk includes what we call **Thought Traps.**

Thoughts Module

Pictured above are some of the most common thought traps:

1. **Emotional reasoning:** Interpreting how you feel as evidence for the truth of your thoughts. *E.g., I feel anxious, so I know something bad must be coming my way.*
2. **Labelling:** Assigning unhelpful and negative labels to yourself. *E.g., I'm lazy. I'm a loser. I'm uncontrollable.*
3. **Disqualifying the positive:** Discounting the good. *E.g., I'm not really smart, I only got an A on that exam because the professor made it easy.*
4. **All or nothing thinking:** Thinking in black and white. *E.g., I have to do it perfectly or I'm a failure.*
5. **Magnification (Catastrophizing):** Inappropriately building something up into the worst-case scenario. *E.g., I ate more cookies than I wanted to, I'll never succeed in what I try to do, I will never get healthier, and I will die too young.*
6. **Overgeneralizing:** Making conclusions about many things based on a single event. *E.g., you miss the last bus and say 'everything always goes wrong for me'.*
7. **Mental filter:** Picking and choosing what you pay attention to. You might notice all your failures but not notice many of your achievements or successes.
8. **Personalization:** Taking all the blame or responsibility when something goes wrong when many things contributed to something not going right. *E.g., This is all my fault.*
9. **Jumping to conclusions:** You might assume you know what someone else is thinking (known as mind-reading) *E.g., 'I know they don't really like me'* or you might assume what will happen in the future will be negative (known as fortune-telling) *E.g., 'I just know I won't reach my goals'.*
10. **Should or must thinking:** Using phrases with '*I should*' or '*I must*' that create a sense of guilt of failure if you do not.

Knowing these common thought traps and being able to recognize them can help you begin to move away from these negative traps to more healthy and adaptive ways of thinking.

Thoughts Module

To break the vicious cycle of thoughts, here's what you can do:

a) Be mindful of your thoughts and catch negative thoughts when they come up

b) Identify the Thought Trap

c) Answer back with a kinder more real-time thought

Consider the rethinking examples below:

Thought Trap	-->	Kinder, Realistic Thought
All or nothing		**Work towards balance**
'I can never eat dessert again'	-->	'I can use QQF when choosing my dessert'
'I ate that cake, I'll never succeed'	-->	'One slip up isn't the end of the world, I can get back on track'
Excuses		**It's worth a try**
'It's too cold to go for a walk'	-->	'I can at least go for a short walk and can come back if I'm too cold '
Shoulds		**It's my choice**
'I should have eaten fewer chips'	-->	'It was one choice, I can make a different choice next time'
Not as good as		**Everyone's different**
'I'll never be as good as _ _ _ _ and _ _ _ _ '	-->	'It's not a competition or race. People are at different points in their journeys'
Give up		**One step at a time**
'These goals are too hard. I might as well quit now'	-->	'I've learned something about what is hard for me'
'I'll never get it right'	-->	'I will try something different next time'

Thoughts Module

Goal Setting

Food and fuel goals:

Make up to three small food or drink goals. These goals can be new, the same as those set last module, or an extension of a previous goal.

For weight management you should ideally aim to set goals that inlcude 2-3 small changes everyday. Remember a small change is equivalent to 100 calories.

Goal 1 _

Goal 2 _

Goal 3 _

Movement goal:

I would like to *maintain* OR *increase* my current step count/minutes of activity/movement at _ _ _ _ _ per day to achieve a daily step count/minutes of activity/movement of _ _ _ _ total per day.

Thought goals:

What are some negative thought traps that might get in your way of achieving your goals this week?

What are the kinder, realistic thoughts that could break the chain?

Thought trap:	Kinder realistic thought:
1. _____ -->	_____
2. _____ -->	_____

Now how confident are you that you can achieve these above goals?

0 1 2 3 4 5 6 7 8 9 10

Not at all — Confident

Habits Module

Building Better Habits

This module is all about understanding what **cues** either move you towards or pull you away from your goals. By understanding your chains-of-behaviour, you can better identify ways to break negative patterns of behaviour. You will also learn the power of adding new cues into your life and how this can support you in making positive behaviour changes.

In this module:

- Internal and external cues
- Changing problem cues
- Goal setting

Before you begin: Take a few minutes to reflect on the module from last week. What went well and what was challenging?

Knowing Your Cues: Are They Working For Or Against You?

Have you ever sat down in front of the TV with some popcorn and eaten the whole bag before you even realized it? Have you ever left your sneakers in an obvious place to remember to walk?

Internal cues are messages sent *from your body*:

- Feeling full after eating is your body's cue that you are overeating and should stop.

External cues are messages sent *from your environment*:

- Advertisements for fast food
- Eating snacks in front of the TV
- Food vendors in proximity to your home, classes, or job

Habits Module

You Can Learn to Change Problem Cues By:

1. **Avoiding or eliminating them.**
2. **Creating new more positive cues.** This will help you break unhealthy chains or patterns and create more healthy habits.

SITUATION 1:

	Try This Instead!
You skipped a meal, now you are starving. You see a drive-thru on your way home from school.	
You automatically turn into the drive-thru.	You ***choose*** to turn into the drive-thru.
You order your regular meal.	You ***choose*** a small fries instead of a regular fries and/or a diet soda instead of a regular soda.
You eat in your car on your way home.	You either park your car and eat, or you eat when you get home.

SITUATION 2:

	Try This Instead!
You finish your workday and arrive home.	
You automatically go inside and set your bags and keys down	You go inside, set your bags down and see that you've placed sneakers beside the door.
You grab a drink and snack and sit on the sofa.	You put on your runners and go for a walk around the block.
You watch TV all night.	You then go inside and relax for the evening.

Habits Module

Give It a Try!

What is a typical unhealthy pattern you find yourself in?

What are some ways you could break the chain/pattern?

What are some new helpful cues that will help you stop this pattern?

Cue:	Try This Instead!

Habits Module

Goal Setting

Food and Fuel Goals:

Make up to three small food or drink goals.
These goals can be new, the same as those set last module, or an extension of previous goals.

If weight loss is a part of your goal, remember that weight loss goals should include 2 to 3 small changes every day. Ideally, one small change should equal a 100-calorie reduction.

Goal 1 _

Goal 2 _

Goal 3 _

Movement Goal:

I would like to *maintain* my level of movement. **OR.** I would like to *increase* my current step count/minutes of activity or movement by _ _ _ _ _ per day to achieve a daily step count/minutes of activity of _ _ _ _ _ total per day.

Cue Goals:

What are some cues you've identified that lead to unhealthy patterns? Can you change the pattern associated with these cues?

	Old Cue	Old Behaviour	New Behaviour/Cue
1.			
2.			
3.			

How confident are you that you can achieve these goals?

0 1 2 3 4 5 6 7 8 9 10

Not at all — Confident

If less than 8, is there anything you can do to increase your confidence?

Communication Module

Communication:
What you say and how you say it matters

This module is all about exploring your relationship with yourself and others. Communicating means sharing thoughts, feelings, wants, and needs with other people. If you don't communicate clearly with others, they are forced to make *assumptions* about how you feel. Most of us know that effective communication is important, but it is often very difficult to achieve.

In this module:

- The bun technique
- Goal setting

Before you begin: Take a few minutes to reflect on the module and goals from last week. What went well and what didn't?

Why is Communication Important?

When people have to guess about how you feel and what you want, they will often misunderstand you and not respond in a way you desire.

When you communicate your needs, thoughts, and feelings to others, you are giving yourself the same respect and dignity you would give to everyone else. While this is often very hard to do, you may be surprised to learn that communicating effectively helps you feel better about yourself, gets you what you want out of life, and gets you more respect from others.

Communication Module

Communication is largely learned.
While genetics preload us, the majority of what we do is learned.

Types of Communication Styles

	⊕	⊖
⊕	**Authentic** (also known as Assertive) • Most productive style • Shows respect for both you and others • Although you may not agree with the other person or want to give up your needs, you understand that it is alright to have different perspectives. • It is how we communicate that makes the difference	**Passive** • Others' needs are more important than your own and as a result, you may change your wants and your beliefs. • You may do this to make the other person happy and to avoid causing a fight. • This type of communication avoids attention or potential conflict.
⊖	**Aggressive** • Your needs are more important than someone else's and as a result you may ask the other person to give up their needs. • You may not even notice the other person's needs. • Yelling, bullying, and threatening are all examples of this type of communication.	**Passive-Aggressive** • Avoids confrontation and speaking up when feeling ignored. • Feeling of resentment gradually builds up. You may communicate your needs indirectly through subtle criticism or by sabotaging another person's actions.

Communication Module

Tips for Optimal Communication

Use "I" statements	Begin with the expression 'I feel' or 'I think.' This makes you responsible for your feelings rather than blaming others
Be specific about your needs, wants, and desires	For example: 'I'd appreciate if you'd walk with me today' instead of 'I'd appreciate it if you'd help me more'
Get to the point	State your message briefly and directly without being sarcastic, judgemental, or angry
Be respectful	Give the other person enough time to reply to your message without pressure
Learn to say "no"	It will help to set limits on demands for your time and energy. It stops you from becoming mad at yourself for doing something you do not want to do and it keeps you from feeling resentful
Avoid saying "I'm sorry" too often	When you apologize for saying no, you give the message that you are "not sure" that your own needs are just as important as other people's needs. This may give others the opportunity to put more pressure on you to do what they want.

Communication Module

Dealing with Criticism

Sometimes people may not support your changes in thinking and behaviour, and may even be negative about the positive changes you are making. This could be because change is hard for some people to accept. They may be comfortable with what is familiar to them, or they fear that your relationship with them may change.

Here are some ways to deal with criticism:

Be assertive: State your message briefly and directly without being sarcastic, judgemental, or angry

Time a time out: You can excuse yourself in some way. This is helpful when you need time to think about how to respond. For example, "I need to check my calendar. I'll get back to you by the end of the week."

Repeat back: When you think that others are not listening to you or don't understand your views, ask a question like "what do you think I am asking for?" or "what do you understand about what I just said?"

Be direct: If you feel like you do not want a long conversation, then answer directly in a neutral manner. Just say "yes" or "no."

The Communication "Bun" Technique

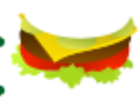
Sometimes coming right out and asking for what we want is not effective. Using the bun technique can help us to explain what we want in a way that is percieved more pleasantly.

Try it out. It might just help you get the support you need.

The Top Bun
Validate past efforts. Be nice!

The Meat & Veggies
Ask for what you want. Be specific.

The Bottom Bun
The rationale. Validate again. Say something nice!



Communication Module

Goal Setting

Food and Fuel Goals:

Make up to three small food or drink goals.

These goals can be new, the same as those set last module, or an extension of previous goals.

If weight loss is a part of your goal, remember that weight loss goals should include 2 to 3 small changes every day. Ideally, one small change should equal a 100-calorie reduction.

Goal 1 _

Goal 2 _

Goal 3 _

Movement Goal:

I would like to *maintain* my current step count/ minutes of activity/movement at _ _ _ _ _ per day.

OR

I would like to *increase* my current step count/ minutes of activity/movement to _ _ _ _ _ per day.

Communication Goals:

Identify one situation/person (or more) with which to try a new improved communication technique with.

Person/Situation	New Communication Technique	Details
1.		
2.		

How confident are you that you can achieve these goals?

0 1 2 3 4 5 6 7 8 9 10

Not at all — Confident

If less than 8, is there anything you can do to increase your confidence?

Social Support Module

Social Support: It's All About Connections

This module is all about the network of people you have available in good and bad times. Social relationships are the number one predictor of health and well-being. Social support can come from friends, family, coworkers, or others around you. There is always room to build more social support sources. Let's help you identify current sources of social support and perhaps build new ones.

In this module:

- The Importance of Social Connections
- Building Social Support
- Goal Setting

Before you begin: Take a few minutes to reflect on the module and your goals from last week. What went well and what didn't?

Why are Connections with Others So Important?

In life, we cannot do everything alone. When it comes to making healthy changes it is no different. Even though you have been making progress on your own. Maintaining and making permanent these positive changes can be bolstered by help from others around you.

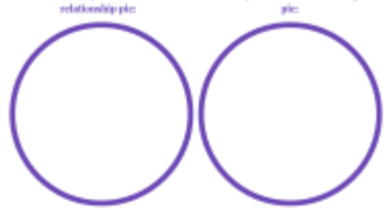
When you have a support network, you have many "arms" to support you. The more reliable "arms" you have, the easier it will be to maintain your behaviour change goals.

An example of a social support network drawn as a 'relationship pie':

Social Support Module

Who is in *your* social support network?

Please draw your CURRENT relationship pie: — Now, your IDEAL relationship pie:



Rate how satisfied you are with each of your current relationships. Can any of them be strengthened or improved? Should any new relationships be sought out?

Types of Social Support That Enrich You

Encouragement: Words from others that keep you going. *For example*, a co-worker or classmate tells you she is impressed by your efforts.

Emotional Support: Positive psychological support to help you reach your goals. *For example*, talking with a friend or siblings when you aren't sure you can keep up your new healthy eating goals.

Problem Solving: When others help you find ways to overcome barriers to change with suggestions or helping to consider new alternatives. *For example*, an exercise partner helps you plan ways to be active during vacation or exam times.

Applied Support: Any type of applied assistance that helps you achieve your goals. *For example*, a family member does the dishes so you can go for a walk.

Look at your current relationship pie to see who might offer any of these types of support.

Social Support Module

Authentic (assertive) communication is key in our relationships and building enriching social supports.

People that have authentic communication styles have more meaningful relationships. And again, we know that social support is the #1 factor of life satisfaction and well-being.

Building Social Support

Building social support is good for you. It's also good for the other people involved – a **win-win** situation! Most people find it's much easier to accomplish a difficult task if they have good company to make the journey more fun and enjoyable. A partner or buddy also helps you to be accountable and can encourage you to meet your goals.

Be flexible	Talk about other options if what you ask for is not accepted. *For example*, if your exercise partner doesn't want to bicycle, ask if they would want to walk instead.
Be specific	Know what you want or need, then ask for it specifically. *For example*, ask for help with the dishes, instead of just help with "the housework."
Ask for it	People in your life may not know what you want or need. Ask for their support. Ask more than once if you need to. Be willing to accept "no" as an answer. Be hopeful that if you ask again, they may say "yes."

Social Support Module

Goal Setting

Food and Fuel Goals:

Make up to three small food or drink goals.

These goals can be new, the same as those set last module, or an extension of previous goals.

If weight loss is a part of your goal, remember that weight loss goals should include 2 to 3 small changes every day. Ideally, one small change should equal a 100-calorie reduction.

Goal 1 _

Goal 2 _

Goal 3 _

Movement Goal:

I would like to *maintain* my level of movement.

OR

I would like to *increase* my current step count/minutes of activity or movement by _ _ _ _ _ per day to achieve a daily step count/minutes of activity of _ _ _ _ _ total per day.

Social Support Goals:

Choose two people (or groups) you can ask for support (either existing or new):

Person/Situation	What will I ask them to do?	When will you ask?
1.		
2.		

How confident are you that you can achieve these goals?

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

If less than 8, is there anything you can do to increase your confidence?

Mindful Eating Module

Eating Mindfully: Truly Tasting

In this module, we will discuss how mindfulness, not just in general, but specifically related to food and eating can help us to be more intentional with the food choices we make. We actually make about 250 food decisions per day. Being more mindful -- nonjudgmentally aware in the present moment -- of these decisions can have a powerful impact on the choices we make and help us thoroughly and truly enjoy the foods that we do eat.

In this module:

- Mindfulness Skills
- Mindful Eating
- Goal Setting

Mindfulness Skills

1. **Observe:**
Observing and accepting emotions, thoughts, events, situations, bodily sensations, and behaviours without judgement. Experience, with awareness, what is happening in the present moment, both inside and outside of yourself.

2. **Describe:**
Describing emotions, thoughts, events, situations, bodily sensations, and behaviours with words. Put a label on what you observe and say it out loud or write it down.

3. **Participate:**
Participating in a task with attention. Fully throw yourself into the activities of the current moment, without separating yourself from what is going on.

Mindful Eating Module

How can mindfulness be practiced?

Anytime, anywhere and doing anything.
The only requirement is to intentionally focus your attention to the present moment, with warm curiosity and acceptance, rather than judgment.

Mindfulness is a skill that can be developed and strengthened but it requires practice!

Compare and Contrast: Learning to be Mindful

Examples of *Mindlessness*:	**Examples of *Mindfulness*:**
While driving, you often don't remember the experience, the roads you took or how you got to your destination, you were likely on autopilot. While reading, you realize that you've been thinking about something else and have no idea what you just read and need to reread it.	While driving, you notice your surroundings using as many senses as you can (i.e., sight, sounds, smells, and touch). While reading, you narrow your attention, reduce distractions, and block out what is going on around you as you focus on the words.

Emotions and Food

More often than not, we eat food for reasons other than just being hungry. For example, we eat food when we are bored, stressed, sad, socializing, celebrating, etc.

Take some time and think about the following questions:

What influences the way you eat? (e.g., Emotions, relationships, activities, celebrations, stress, grief, etc.)

_____

_____

When you feel negative emotions, what are some alternative things you can do to soothe or regulate your emotions instead of eating or avoiding food? Write these down.

_____

_____

_____

Mindful Eating Module

Mindful Eating

Becoming more aware and intentional of your habits with food has a significant impact on your health. It's about having an *in-the-moment* (what and why) awareness of the food and drink you put into your body. It not only involves understanding why you are eating but also observing how food makes you feel and the signals your body sends about taste, satisfaction, and fullness.

Mindful eating takes you away from being on autopilot and puts you in control of your food decisions. It also means you can enjoy your food more because it helps you focus on the food itself while eating rather than a screen, book, or other distraction.

Choose a food that you typically overeat (e.g., chips, nuts cookies, pasta, candy, chocolate). Portion one serving according to the serving size.

1. **Engage your senses:** Place the food in front of you and take a moment to focus on it. What do you enjoy about it? What does it look like? Feel like? Smell like?
2. **Place one piece/bite of food in your mouth:** Start chewing the food. Notice the texture of the food. Notice the different flavours and tastes in the food. Once you have finished chewing, swallow the piece of food.
3. **Pause:** How did the first bite taste. Did you enjoy it?
4. **After one minute, take another piece of food:** Place it in your mouth. Repeat all of the same steps. Chew each bite fully.
5. **Repeat:** Repeat this until you have had the whole serving.
6. **Pause again:** Take a deep breath, and appreciate the food you just had.

Now let's reflect:
What did you learn from this activity? Consider how satisfied and/or full you are compared to the typical way you eat this food.

Mindful Eating Module

Goal Setting

Food/Fuel Goals:

Make up to three small food or drink goals. These goals can be new, the same as those set last module, or an extension of a previous goal.

For weight management, you should ideally aim to set goals that include 2–3 small changes every day. Remember a small change is equivalent to 100 calories.

Goal 1 _

Goal 2 _

Goal 3 _

Movement Goal:

I would like to *maintain* my current step count/ minutes of activity/movement at _ _ _ _ _ per day.

OR

I would like to *increase* my current step count/ minutes of activity/movement to _ _ _ _ _ per day.

Mindful Goals:

1.Choose one mindful eating goal to practice over the next week!

_____

2.What is one thing you've noticed that you do every day that you could practice doing more mindfully?

Activity	What and when will I do it?

How confident are you that you can achieve these goals?

0 1 2 3 4 5 6 7 8 9 10

Not at all — Confident

If low in confidence what can be done to raise this score?

Body Image Module

Body Image: Embracing the Skin You're In!

This module is about celebrating and appreciating the body that you are in. Body image is more than a mental picture of what you look like, it consists of your connection and gratitude to your body. This includes perceptions, beliefs, thoughts, feelings, and actions that pertain to your physical being. Body image is closely linked to health behaviours and can provide clues as to why we may or may not be successful at improving overall health.

In this module:

- Body Acceptance
- Body Appreciation
- Goal Setting

Before you begin: Take a few minutes to reflect on the module last week. Which goals did you meet? If you did not meet a goal what made it challenging to do so?

Reflecting on Your Own Body Image

On a scale from 1 to 10, how confident do ***you*** feel about your body ?

0 1 2 3 4 5 6 7 8 9 10

Not at all — Very Confident

What's the Big Deal?

Poor body image can play a major role in lifestyle changes. It can work against our ability to follow through with lifestyle behaviour goals and result in greater feelings of frustration.

Myth: We must be critical of our bodies to be motivated to change. In fact, the opposite may be true, if you appreciate and acknowledge all that your body does for you every day, you may be more motivated to care for and nourish it with kind words and healthy fuel.

Body Image Module

Whether it is others or ourselves that are talking negatively about our body, the results are the reduced likelihood of using skills and being less successful in lifestyle changes. If we appreciate, accept, and value ourselves, we will be better able to progress toward positive change. Poor body image can lead to an unhealthy relationship with food and engaging in unhealthy lifestyle behaviour.

How We Form Body Image Assumptions

Assumptions and beliefs related to body image often stem from many origins, such as peer pressure, family values, past experiences, cultural expectations, and societal pressures, which can lead to a cycle of negative self-talk.

These messages can lead to mixed feelings and assumptions about our bodies.

How do these factors (e.g., media, family, culture, etc.) influence ***your*** body image?

Body Image Module

Here are some examples of assumptions people have:

Assumption #1: Thin people have it all

Fact 1: Everyone faces their own struggles and challenges no matter how much they weigh.

Fact 2: Poor body image and negative thinking about our shape/size can affect anyone.

Assumption #2: Being overweight means I am not healthy

Fact 1: Although body mass index is used by many health professionals, it is a poor indicator of overall health.

Fact 2: When determining health, factors like health vitals (i.e., blood pressure) and health behaviours (i.e., sedentary time) are more enlightening

Thought Traps

Distortion #1
All-or-Nothing and Either-Or Thinking
"Either I'm an ideal weight, or I'm unhealthy."

Gentle Reframe:
"Maybe I'm not where I want to be, but I am making progress one step at a time"
"I can accept and appreciate myself and still move towards change."

Distortion #2
Unfair to Compare
Focus on what you used to be able to do, instead of what you can do now:
"I am not able to do anything more"

Gentle Reframe:
"It is true I can't do what I used to be able to do, however, I am choosing to be grateful and focus on what my body can do"

Distortion #3
The Blame Game
Thinking that your weight is responsible for everything bad in your life. "If I wasn't this weight, then that wouldn't have happened."

Gentle Reframe:
"Yes, my weight might limit me in some ways, but it is not responsible for every bad thing that has happened to me."

Body Image Module

Cultivating Body Appreciation

Sometimes when we are making changes to our food/drink intake and movement, we can focus a lot on how our body looks. It is important to find appreciation not only for how your body looks, but to be grateful for what your body does for you. You can love and respect and accept what your body is and what it does for you right now, unapologetically.

Take this moment to find three things that you are grateful for, specifically related to your body.

1. _____
2. _____
3. _____

Body-love meditations are available on many mindfulness smartphone apps. Take time this week to practice a body-love meditation. Notice how your feelings about your body change as you engage in these exercises.

A Few Examples of Smartphone Apps:

- Mind Shift
- Head Space
- Smiling Mind
- My Life

Body Image Module

Setting Your Goals

Food and Fuel Goals:

Make up to three small food or drink goals.

These goals can be new, the same as those set last module, or an extension of previous goals.

If weight loss is a part of your goal, remember that weight loss goals should include 1 to 3 small changes every day. Ideally, one small change should equal a 100-calorie reduction.

Goal 1 _____

Goal 2 _____

Goal 3 _____

Movement Goal:

I would like to *maintain* my current step count/ minutes of activity/movement at _____ per day.

OR

I would like to *increase* my current step count/ minutes of activity/movement to _____ per day.

Body Gratitude Goal:

For the next week, I will acknowledge daily that my body provides me with the abilities to (e.g., play the sport or instrument I love, type or write my uni work, get me to the places I need/want to be, allows me to walk my dog, to breath, to see the sunrise, etc.):

1.	3.
2.	4.

How confident are you that you can achieve these goals?

0 1 2 3 4 5 6 7 8 9 10

Not at all — Confident

If less than 8, what you can do to increase your confidence?

Stress Module

Stress: Finding Your Middle Ground

This module is all about recognizing stress before it becomes a problem and finding effective ways to manage life in healthier and more adaptive ways. Stress is the body's response to anything that requires attention or reaction. Everybody experiences stress in their lives. Stress is normal and can be beneficial sometimes (e.g., it can be motivating or improve performance). However, too much stress for an extended period of time (i.e., chronic stress) is not healthy and can actually be quite harmful. Thus, stress management is a skill that can and should be developed to achieve optimal functioning. Becoming more aware of how you react to stress and modifying your reactions can significantly impact your overall health, well-being, and length of life.

In this module:

- Stress management
- Self-care
- Goal setting

Before you begin: Take a few minutes to reflect on how things went for you last week. What went well? What was challenging? What goals did you meet? What goals need to be changed?

1.When do I know that I am stressed? _____

_____

_____

2.How do I respond to daily life stressors? Both helpful and unhelpful ways? _____

_____

_____

Stress Module

3.What areas would I like to work on? _____

_____

_____

Stress-O-Meter

Beneficial Zones:

Low - Physically your body is at normal in terms of heart rate, blood pressure, body temperature. You can easily sleep, digest food, and relax. Psychologically your mind is calm and clear.

Adaptive - Physically your body may be in a state of higher arousal, with some tension in muscles or higher heart rate readying for performance. But your body can easily return to a low-stress state. Psychologically you are more alert, have more energy, and are sharper cognitively, you may feel excited or optimistic and perform more productively.

Harmful Zone:

High- Physically your heart rate and blood pressure are spiked making it hard to relax. If prolonged you may experience digestive problems, chronic pain, insomnia, fatigue, and a weakened immune system. Psychologically your mind is racing with thoughts and ruminating on worries, short-term memory is impaired, you may feel pessimistic, irritable, or snappy.

Stress Module

Knowing what zone of stress you are in can help you learn when you need a break and when you can push through. Check off the symptoms listed below that you are experiencing to help let you know that you are in the high-stress zone and have been for too long. We'll work on getting you out of this harmful zone next.

- Frequent headaches
- Jaw clenching or pain
- Gritting or grinding teeth
- Stuttering or stammering
- Tremors or trembling of hands or lips
- Lightheadedness, faintness, dizziness, weakness, or fatigue
- Unintentional weight gain/loss
- Frequent blushing, sweating
- Cold sweaty hands or feet
- Frequent colds, infections
- Rashes, itching, hives
- Unexplained frequent allergy attacks
- Heartburn, stomach pain, nausea
- Hair loss
- Neck/back pain, muscle spasms
- Constipation/diarrhea
- Difficulty breathing
- Sudden panic attacks
- Chest pain, palpitations, rapid pulse
- Frequent urination
- Diminished sexual desire or performance
- Excessive anxiety, worry, guilt, nervousness
- Excess belching, flatulence
- Increased anger, frustration, hostility, irritability, edginess
- Low mode, frequent or wild mood swings
- Social withdrawal, isolation
- Increased smoking, alcohol, over the counter/other drug use
- Increase/decrease in appetite
- Excessive gambling/impulsive buying
- Insomnia, nightmares
- Difficulty concentrating, racing thoughts
- Trouble learning new information
- Forgetfulness, disorganization, confusion

Life can be very stressful given the ever-growing pressure from school, work, relationships, and money or health concerns, for example. While it might seem easier to ignore stress and just push through it, ignoring high-level chronic stress has significant consequences and risks even at this young adult age such as:

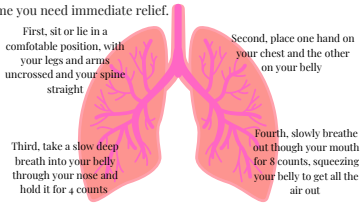
- Depression
- Anxiety
- Suicide
- Early mortality
- Memory, concentration, and learning problems
- Stroke
- Hypertension
- Sleep problems
- Obesity
- Heart disease
- Diabetes
- Sexual dysfunction
- Pain disorders
- Skin conditions (e.g., acne)
- Gastrointestinal issues (e.g., IBS)
- Immune system disturbances

Stress Module

Evidence-Based Strategies to Help Manage Stress

1. Set limits: Learn and practice saying no
2. Set SMALL rather than large unmanageable goals
3. Take charge of your time: prioritize what is important and put only those items into your schedule
4. Be flexible: create a plan A, plan B, plan C, or even plan D
5. Plan ahead: alleviate last-minute time pressure
6. Keep things in perspective: recall thoughts trap talked about in a previous module. Specifically, avoid thinking in all-or-nothing terms.
7. Reach out to people: those around you very likely want to help, if you ask and if they can
8. Engage in physical activity: moving your body once a day, if possible
9. Aim to accept what you cannot change/control, and commit effort to things within your control
10. Use problem solving: the steps are to evaluate your mindset, define the problem, list possible solutions, consider the consequences/outcomes of each, select a solution and take action, then reflect or repeat.

Reduce stress fast in the moment by using **deep breathing**. Try and practice the following breathing technique to use the next time you need immediate relief.



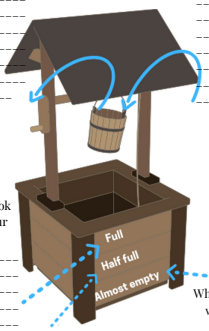
Stress Module

The Well of Self Care

Water/self-care is essential to all life. Think of your coping/self-care in terms of water in a well. Life consists of ongoing stressors commitments, or unexpected events, that take water from your well and decrease your coping abilities. It is critical to understand what takes water out of your well and what self-care strategies you can do to fill it back up.

Things that will take water out of your well: _____

Things that will add water to your well: _____



What does it look like when your well is ***full*** _____

What does it look like when your well is ***half full*** _____

What does it look like when your well is ***almost empty*** _____

Stress Module

Goal Setting

Food and fuel goals:

Make up to three small food or drink goals.
These goals can be new, the same as those set last module, or an extension of a previous goal. For weight management, you should ideally aim to set goals that include 2-3 small changes every day. Remember a small change is equivalent to 100 calories.

Goal 1 _

Goal 2 _

Goal 3 _

Movement goal:

I would like to *maintain* my level of movement.

OR

I would like to *increase* my current step count/minutes of activity or movement by _ _ _ _ _ per day to achieve a daily step count/minutes of activity of _ _ _ _ _ total per day.

Well of self-care goals:

Select at least two activities to fill your self-care well.

Activity	What and when will I do it?
1.	
2.	
3.	

How confident are you that you can achieve these goals?

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

If low in confidence what can be done to raise this score?

Revise goals? Ask for help!

Sleep Module

The Importance of Quality Sleep

This module is all about reiterating the importance of sleep and how to have a better night's sleep, as sleep plays a significant role in overall health. Lack of sleep often also leads to weight gain.

Across time, our sleep needs and patterns change. Many factors such as stress (e.g., from schoolwork or COVID-19), chronic health conditions, hormones, and the sleep environment play a large role in sleep. Increased disruption to our sleep schedule results in lower quantity and quality of sleep. This negatively impacts overall health across time and ultimately impacts life longevity.

Sleep's critical role is to be restorative, it helps your body heal and your mind consolidate memories and learning.

Lower quality sleep is associated with:

- Increased risk for all major chronic diseases including diabetes, heart disease, and stroke
- Increased appetite via increases in ghrelin, the hunger hormone
- Decreased energy and physical activity
- Lower stress management and overall mood

In this module:

- Sleep hygiene
- Sleep restriction
- Goal setting

Before you begin: Take a few mins to reflect on how things went for you last week. What went well and what was challenging?

Sleep Module

Sleep Hygiene

Sleep hygiene refers to sleeping habits that promote optimal sleep including the following:

- Minimize technology use in bed
- Eat regular meals and try not to go to bed hungry
- Avoid caffeine after midday/early afternoon; try decaf and herbal teas instead
- Try to exercise during the day rather than right before bedtime. This will allow you to burn some energy and naturally boost your sleep hormone without keeping you at night.
- Set limits on napping; napping too long or too close to bed can hinder nighttime sleep
- Save your bed for sleep and intimacy, try not to eat in bed, watch TV in bed, read in bed, etc.
- Establish a regular bedtime routine including going to sleep and rising at the same time. Consider a sunrise alarm clock
- Avoid drinking large amounts of fluids before bed
- Notice and record if and how much you use alcohol or other substances as a way to induce sleep

Sleep Module

- Create a good sleep environment. Make your bedroom as dark as possible and comfortably cooler at night. Try using earplugs or a white noise device
- Minimize thinking or planning in bed. If a worry, idea, or something you need to remember pops into your head, jot it down on a notepad by your bed and address it the next day; try to keep your mind as empty as possible
- Utilize breathing exercises that distract your mind from worries and overthinking
- Try not to worry about the time or watch the clock
- If you cannot fall asleep, get up and try again later. Lying awake will only further associate bed with wakefulness

Sleep Restriction

Sleep restriction may seem like a strange technique to improve your sleep. You may be a little more tired initially, but restricting your sleep forces your body back into a regular routine. Your body has an "internal clock" that regulates sleep and wake. By sleeping in or staying up late, or even just alternating your sleep schedule, you may throw off your internal clock. More time in bed does not always mean more rest. Often, spending too much time in bed leads to restlessness and wakefulness. By following a sleep restriction routine, you will be able to reduce the amount of wakeful time in bed and reset your internal clock.

1. Select a bedtime and wake time and stick with it, even on the weekends.
2. Set your bedtime based on time asleep, not time in bed.
3. After you determine your average time asleep, subtract 15 minutes from that. This will make you a little more sleepy and help you to fall asleep a little easier the next day.

Sleep Module

Goal Setting

Food and fuel goals:

Make up to three small food or drink goals. These goals can be new, the same as those set last module, or an extension of a previous goal. For weight management, you should ideally aim to set goals that include 2–3 small changes every day. Remember a small change is equivalent to 100 calories.

Goal 1 _

Goal 2 _

Goal 3 _

Movement goal:

I would like to *maintain* my level of movement. **OR.** I would like to *increase* my current step count/minutes of activity or movement by _ _ _ _ _ per day to achieve a daily step count/minutes of activity of _ _ _ _ _ total per day.

Sleep goals:

Select at least two activities to help improve your sleep hygiene.

Activity	How will I do it?
1.	
2.	

Also, consider what could help you integrate each sleep hygiene activity into your current routine.

How confident are you that you can achieve this goal?

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

Problem Solving Module

Problem Solving: Knowing "Why" and "How" is Critical

This module is all about problem solving. Even with the best laid out plans, problems and challenges will arise. Rather than just focusing on what didn't work, understanding **why** it didn't work is critical to a successful path forward. To do this requires problem solving skills. Problem solving skills are needed across various situations in life such as work, school, family, friends, etc. . Individuals who use problem solving skills in behavioural lifestyle changes are able to make more sustainable changes.

In this module:

- Creating a Balanced Mindset
- Goal Setting

Before you begin: Take a few minutes to reflect on the module and goals from last week. What went well and what didn't?

Problem Solving 101

As you have embarked on your journey of lifestyle changes with the iSCALE program, you may have noticed that certain challenges and obstacles have presented themselves that have made or will make it difficult to maintain your set goals. **You are not alone!**

Some examples of problems you may have or may soon face include:

- Pandemic interruptions- you are no longer able to go to your regular fitness classes or do physical activities with others like friends or family.
- Whether interruptions - it's too cold, too hot, or too rainy to continue walking or doing physical activities outside.
- Work, school, or other responsibilities (e.g., kids, caring for loved ones) may become more demanding such that it becomes more difficult to prepare healthy meals and snacks

Problem Solving Module

Think back to a time during this year or before when you were able to resolve a problem so you could meet your goals.

What worked well with regard to your problem solving?

What made it difficult? _

_ _

_ _

_ _

_ _

Mindset Matters

Your mindset matters, both in how you approach a problem and how you think/feel about yourself. Research has shown that your mindset or attitude affects how you understand and react to problems. A negative mindset makes problem solving almost impossible. Instead, try approaching your problems from a place of caring and self-compassion.

Here are some tips to foster a more balanced mindset:

- Know problems are bound to happen
- Be confident that you can solve problems
- Identify problems when they happen
- Find a balance between emotion and logical reasoning

Before you act, ask yourself:
How am I feeling? Are my emotions too high to problem solve right now? If so, how can I change my emotional state first?

Problem Solving Module

The Steps to Problem Solving

If you are not in the mindset to solve this problem right now, **wait** until you belive you're capable of finding a solution.

Step 0: Assess Your Mindset

- Believe that problems are bound to happen
- Be confident that you can solve problems
- Identify problems when they happen
- Find a balance between emotions and logic

Step 1: Define the Problem

- Learn all available facts and name them in clear, objective language
- Separate facts from assumptions or feelings
- Set realistic goals by breaking the problem into **smaller solvable** parts

Step 2: Find Solutions

- Put off any judgment until later
- Make a list of ideas, any idea is a good idea!
- Brainstorming is welcome. Think bold, think big, think outside of the box

Step 3: Consider the Consequences

- Think about the likelihood that the possible solution will work
- Determine the potential positive and negative effects of each solution
- Compare the choices
- Choose the best solution

Step 4: Take Action

- Develop your plan using SMALL goal setting
- Carry out the solution plan

Step 5: Reflect

- How well did it work? Celebrate if you successfully solved this problem!
- Notice without judgment if you weren't able to solve this problem with this solution. Go back to your list of solutions and try another option for solving this problem
- Were there any consequences you did not expect?
- Could this be a strategy for future problems?

Problem Solving Module

My Steps to Problem Solving

What is the situation/problems?

Step 0: Assess Your Mindset

Step 1: Define the Problem

Step 2: Find Solutions

Step 3: Consider the Consequences

Step 4: Take Action

Step 5: Reflect

Problem Solving Module

Setting Your Goals

Food and Fuel Goals:

Make up to three small food or drink goals.
These goals can be new, the same as those set last module, or an extension of previous goals.

If weight loss is a part of your goal, remember that weight loss goals should include 2 to 3 small changes every day. Ideally, one small change should equal a 100-calorie reduction.

Goal 1 _

Goal 2 _

Goal 3 _

Movement Goal:

I would like to *maintain* my level of movement.

OR

I would like to *increase* my current step count/minutes of activity or movement by _ _ _ _ _ per day to achieve a daily step count/minutes of activity of _ _ _ _ _ total per day.

Problem Solving Goals:

Think about a problem you are currently facing. Pick a time to go through the problem solving steps to manage this challenge.

	Problem	Time	What can help?
1.			
2.			

How confident are you that you can achieve these goals?

0 1 2 3 4 5 6 7 8 9 10

Not at all — Confident

If less than 8, is there anything you can do to increase your confidence?

Liquid or Alcoholic Calories Module

The Drinks Part

This module is all about what you drink both non-alcoholic and alcoholic. Whether your vice is sugary sodas, beer/wine/spirits, or lattes this module will help you consider the purpose of these higher calorie beverages in your life and how you can set SMALL goals around these drink options. From our research we know that for young adults liquid calories can make up to a third of their daily caloric intake. Thus, the opportunity for QQF or SMALL changes is significant for your age group when it comes to liquid-based calories.

Reflect: How did your goals for this past week go? Were you able to achieve your fuel goals, movement goal(s), and other goals? What helped? What got in the way?

In this module:

1. Beverage of choice exercise
2. "QQF" recipe and the "SMALL" way for liquids
3. Goals setting

Exercise

Considering alcohol specifically, what does drinking do for you? (e.g., a coping strategy, helps you relax/decreases anxiety, lets you have fun, opportunity for socializing, emotion regulation, etc).

Liquid or Alcoholic Calories Module

Consider the *non-alcoholic beverage* you drink most often (apart from water), what purpose do it serve for you? (e.g., pleasure, energy, availability/convenience, a reward, etc).

---

2. QQF recipe for success

Recall the previous 'Food as Fuel' module of this program, which introduced the QQF approach. In this module, you will view your liquid calories from a QUALITY, QUANTITY, or FREQUENCY lens. Consider the following example about mixed alcoholic drinks:

Q What is the **QUALITY** of the mixed drinks? Is the mix portion a soda or another sugary liquid or is it water or a real fruit juice? If you were to make a change in quality, it may be switching to water or real juice options.
*Remember changing the quality doesn't always result in a reduction in calories. If your goal also includes weight loss, look at the total calories of that food.

Q What is the **QUANTITY** of mixed drinks? You could drink your regular favourite mixed drink if you were willing to make a change to the quantity you drank. You might try having two-three drinks instead of four-five.

F What is the **FREQUENCY** you drink these mixed drinks? You might love the mixed drinks just the way they are and as many as you like. That's ok, you can always make a change to the frequency! If you were to make a change to the frequency, it might mean enjoying them one day of the weekend rather than every day of the weekend.

What is and is not negotiable right now?

Some of the items you are drinking are not going to be negotiable right now, that is, you do not want to make any changes at present to this item, which is okay! Change needs to happen when you want it to. Consider which of your liquid calories you are and are not willing to make a change to this week.

Liquid or Alcoholic Calories Module

Negotiables, right now	Non-negotiables, right now

Again recall the previous 'Food as Fuel' module of this program, which introduced SMALL goals:

S — SELF-SELECTED
Your goals should be your own.
Choose goals that fit into your life and only change behaviours that you are willing to negotiate.

M — MEASURABLE
Develop a concrete way to track your goal. Consider the question: "How will I know when my goal has been met?"

A — ACTION-ORIENTED
How are you going to achieve your goals? Having an action plan allows you to complete the steps needed to make your goal a reality.

L — LINKED TO YOUR LIFE
Goals are best achieved if they work within your lifestyle and match your strengths and weaknesses. Are your goals designed to fit you and your everyday life?

L — (TIME) LIMITED
Change takes time! Set a timeframe that you are willing to stick with while you try out your small change goal, such as 1 Week? 2 Weeks? 3 Weeks?

Once again, our research shows that each small change people make equals about 100 calories and these add up across time. For example, two small changes per day could be 1400 calories per week, 5600 calories per month, or about 71,000 calories per year. Therefore, over time small changes can have a big impact. However, the focus of the iSCALE program is on small changes and not calorie counting. Day to day the small changes can change for what suits your needs and wants for that day. The small changes approach offers this flexibility.

Liquid or Alcoholic Calories Module

For each of the negotiables, you listed above answer the following QQF questions and/or SMALL questions:

What is one **quality** change you could make to what you drink?

What is one **quantity** change you could make to what you drink?

What is one **frequency** change you could make to what you drink?

S

M

A

L

L

Liquid or Alcoholic Calories Module

Goal Setting

If weight loss is a part of your goal, remember that weight loss goals should include 2 to 3 small changes every day. Ideally, one small change should equal a 100-calorie reduction.

Food and Fuel Goals:
Make up to two small food-specific goals.
These goals can be new, the same as those set last module, or an extension of previous goals.

Goal 1 _____

Goal 2 _____

Movement Goal:
I would like to *maintain* my level of movement.
OR
I would like to *increase* my current step count/minutes of activity or movement by _____ per day to achieve a daily step count/minutes of activity of _____ total per day.

Drink Goals:
Using your answers from the previous page write down up to two liquid-specific goals for this week.

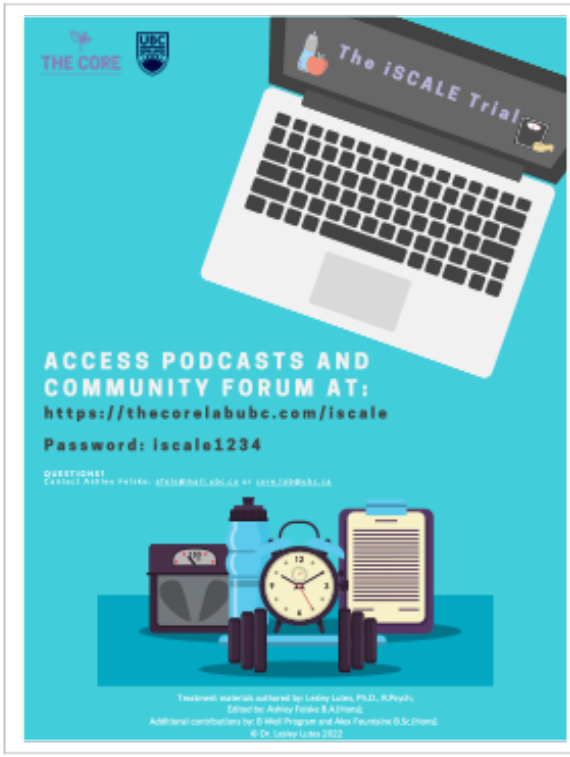
Goal 1 _____

Goal 2 _____

Now, how confident are you that you can achieve these goals?

0 1 2 3 4 5 6 7 8 9 10
Not at all — Confident

If less than 8, what would increase your confidence?



Wrap Up Module

This module has a podcast

Reflecting and Preparing to Move Forward

Congratulations you have reached the finish line of this weight management program! We commend your commitment and effort. While this is the end of this program it is merely the beginning of your life-long health journey. May the tools you've been taught in this program continue to help you moving forward. Now, it is time to reflect on how far you have come in making healthy lifestyle changes.

In this module:

1. Reflecting
2. Looking Ahead
3. Stoplight system
4. Goal Setting

Thinking back to module 1, what were the most important things you wanted to work on, accomplish, or improve?

_____
_____
_____

Recall the strategies that have been most helpful for you:

1. _____
2. _____
3. _____
4. _____
5. _____

What changes are you most proud of? How did you achieve them? _____
_____
_____

Wrap Up Module

2. Looking ahead

What areas would you like to see more or continued growth and change?

1. _____
2. _____
3. _____

What do you need to maintain and sustain SMALL changes in your life? (e.g., ideas, strategies, resources, social supports to ensure success with your weight management in the future)

_____
_____
_____
_____

Expect tough/challenging weeks and plan for them!

There will always be good weeks and bad weeks. In fact, it is important to understand that we all have tough weeks. Even the best plans may not work out, but that doesn't mean you can't continue to move towards your goals. The SMALL Changes approach, as you've discovered, is not an "on" or "off" process. It is a lifestyle of making informed decisions throughout your day. So, on your next tough day remember:

1. Mindset matters. It's important to be kind and gentle and try not to judge yourself
2. Have a backup plan
3. Be flexible
4. Even small changes count and add up over time
5. Decide whether there is a QQF change you can make
6. Don't give up
7. Set realistic goals relative to where you are at the time

Wrap Up Module

3. Stop Light Guide: Know Your Zones

Checking in is learning to reflect on the signs within yourself that tell you if and when you are doing well or not. It is critical to know where you are at now in order to know where you want to go. Remember to think of your core values. What is most meaningful to you in your life? Regularly ask yourself: What are my thoughts? How do they make me feel? Where am I feeling these emotions in my body? What are my behaviours? How am I caring for myself?

Green Zone

You are feeling really good. You are motivated and confident. You are planning or you are already making changes. This could already be resulting in changes such as increased physical activity, improved energy and sleep, decreased blood pressure, and weight loss.

Yellow Zone

Maybe right now you are not feeling as motivated and confident.
You might be struggling to make changes or to keep up with some of the changes. How do you know you are in this zone? Is it decreased step count, changes in nutrition? Lower energy? Higher stress? Relationship/family challenges? Weight? Understand we all spend a lot of time in the yellow zone. Why? Because life is complex and hard. What do you need? Stop, look, and listen. Identify what factors are impacting you right now. Then, recognize and develop a plan. What is reasonable and doable for you right now?

Red Zone

Things are not going well - at all. It is not if but when we get in the red zone. We all get in the red zone. You have reverted back to old patterns/coping styles. Your nutrition and physical activity goals are not being met, likely resulting in weight change/regain. You are lacking confidence and feeling frustrated. You are wondering if you should even bother continuing to try making lifestyle changes. So now what? Press the pause button. Assess where you are at physically, emotionally, and mentally right now. Are you avoiding monitoring or the scale? If so, a great place to start is to monitor where you are, for even two days, to get a sense of where you are at right now. Are you connected to your social supports? If not, reach out! Remember you are important and valuable in this world. You deserve health and well-being.

My Well-being Zones

What do I want to change? I am ready to make SMALL changes.

1. _____
2. _____

What SMALL changes am I considering? What supports can help me make these changes?

1. _____
2. _____

What are the changes that I do not want to make? I will continue to monitor and seek help if needed.

1. _____
2. _____

Wrap Up Module

This module has a podcast

4. Goal Setting

Movement:

My average movement (e.g., steps per day, minutes of activity) per day is _____ . I would like to increase my current level of movement (i.e., steps, mins) by _____ per day to achieve a daily total of _____ steps or movement minutes.

What: _____
When: _____
Where: _____
How: _____
Who (could help?): _____

Now how confident are you that you can achieve this goal?

0 1 2 3 4 5 6 7 8 9 10

Not at all Confident

If less than 8, what can be done to increase your confidence?

Fuel (food/drink):

Goal 1: _____
What: _____
When: _____
Where: _____
How: _____
Who (could help?): _____

Goal 2: _____
What: _____
When: _____
Where: _____
How: _____
Who (could help?): _____

On a scale from 1 to 10 how confident are you that you can achieve:
Goal 1? _____ Goal 2? _____
If either is less than 8, what can be done to increase your confidence?

Appendix B – Recruitment Materials

Posters

Recruiting for Online Weight Management Program

The Center for Obesity and Well-Being Research Excellence (CORE) is recruiting participants for a UBC study, entitled **the iSCALE trial**, evaluating an online weight management program running in 2022.

WHAT'S INVOLVED? You will complete a 9 lessons (3 hours in duration) weight management program online, individually, and at your own pace over 12 weeks. Once before and once after the 12 week program, you will complete an online assessment via Qualtrics survey software, each taking 20-30 min to complete.

WE ARE LOOKING FOR

Young adults (ages 18 to 29) with:

- An estimated BMI ≥ 21 kg/m2
- English literacy
- Internet access

INTERESTED?

Scan this QR code to complete this short screener to determine your eligibility and indicate your interest to participate

https://tinyurl.com/7yh8etw6

QUESTIONS?

Contact Ashley Felske
core.lab@ubc.ca

THE CORE
Center for Obesity and Well-Being Research Excellence

EARN UP TO $100 FOR PARTICIPATING

Giftcards to your choice of:
SaveOn Foods, UBC Bookstore, or Amazon.ca

Social Media Posts

Instagram caption (same for both posts):
The Center for Obesity and Well-Being Research Excellence (CORE) is recruiting participants for a healthy weight management/loss study.

WE ARE LOOKING FOR?
Young adults (ages 18 to 29) with an estimated BMI ≥ 21 kg/m2, English literacy, and internet access within BC; who are willing to dedicate 4 hours over the next 12 weeks to complete a treatment package (3h) and two assessments online (30 min each).

WHAT'S INVOLVED?
You will complete an online-delivered and self-paced weight management program. Once before and once after the program, you will complete an online self-report assessment on Qualtrics survey software. Each survey will ask your height, weight, and current mood and health status. There are questions regarding how the pandemic impacted your diet and exercise habits.

INTERESTED?
Use the link in our bio to complete a short screener to determine your eligibility and indicate your interest to participate You'll have chances to earn up to $100 for participating!! Gift cards to your choice of Save On Foods, UBC Bookstore, or Amazon.ca

Instagram Caption:
The Center for Obesity and Well-Being Research Excellence (CORE) is recruiting participants for a healthy weight management (i.e., modest weight loss and/or prevent weight gain) study.

INTERESTED?
Use the link in our bio to complete a short screener to determine your eligibility and indicate your interest to participate You'll have chances to earn up to $100 for participating!! Gift cards to your choice of Save On Foods, UBC Bookstore, or Amazon.ca

WE ARE LOOKING FOR?
Young adults (ages 18 to 29) with an estimated BMI ≥ 21 kg/m2, English literacy, and internet access within BC; who are willing to dedicate 4 hours over the next 12 weeks to complete a treatment package (3h) and two assessments online (30 min each).

WHAT'S INVOLVED?
You will complete an online-delivered and self-paced weight management program. Once before and once after the program, you will complete an online self-report assessment on Qualtrics survey software. Each survey will ask your height, weight, and current mood and health status. There are questions regarding how the pandemic impacted your diet and exercise habits.