Abstract

People with more (relative to less) appearance focused self-concept are more likely to engage in disordered eating behaviours over time. Yet, overlooked is whether this relationship occurs at the within-person level and over the course of a day. My thesis addressed these two gaps in knowledge. I examined the psychometric properties of a short measure of appearance focused self-concept for use in experience sampling research. I also examined links with daily disordered eating. Participants were 47 female university students. They completed questionnaires seven times a day for 14 days. Results showed that the measure of appearance focused self-concept was both valid and reliable. Also, greater appearance focused self-concept at the start of the day and increases in appearance focused self-concept over the course of the day were each associated with same-day and next-day disordered eating. These findings indicate that the relation between appearance focused self-concept and disordered eating is ergodic.
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Appearance focused self-concept predicts disordered eating behaviour:
An experience sampling study

Existing research on disordered eating behaviours has shown that having an appearance focused self-concept increases an individual's propensity to engage in disordered eating behaviours such as binge eating. However, there are currently two limitations within the current research. Firstly, theory suggests that within-person increases in appearance focused self-concept increases disordered eating, but most of the research on appearance focused self-concept and disordered eating behaviours has used a between-person approach, rather than a within-person approach. Secondly, the within-person link between appearance focused self-concept and disordered eating likely occurs over a short timescale. Yet, in longitudinal research, large gaps of time are often used when measuring appearance focused self-concept and disordered eating over time, such as months or years. In my thesis research, I addressed these two limitations. More specifically, I examined the relation between appearance focused self-concept and disordered eating at the within-person level, over the course of a day, and between days.

Appearance focused self-concept and disordered eating

The self-concept refers to an individual's cognitive framework encompassing their self-perception and personal identity (Rosenberg, 1979). It comprises a collection of beliefs pertaining to various aspects of one's life, including but not limited to interpersonal relationships, education, career, physical health, appearance, and financial status. The domains of the self-concept may vary among individuals. For instance, an individual's self-concept might incorporate different domains such as being a teacher, a mother, a sister, hailing from Italy, and having a penchant for reading. As well, the different domains vary in terms of their perceived importance for self-definition and self-worth.
Of note, individuals are motivated to bolster their self-worth in domains that are perceived as more important relative to other domains (Crocker & Wolfe, 2001). For example, individuals who place high importance on financial success believe that having a lot of money is very important. Thus, they will often seek out different ways to make more money compared to those who place little importance on financial success. This would be considered as having a financially focused self-concept (for a review, see Tabri & Wohl, 2021). As such, success or failure in domains that are perceived to be more important than others have a significant influence on self-definition and thus the evaluation of self-worth.

Critically, people may develop mental and physical health problems when they place overriding importance on a single domain in their self-concept (Tabri, Wohl, Eddy, & Thomas, 2017; Veale 2002; Yung & Tabri, 2022). For example, in the Transdiagnostic Cognitive-Behavioural Theory of Eating Disorders (Fairburn, Cooper, & Shafran, 2003), the extent to which people have an appearance focused self-concept (i.e., overvaluing the importance of appearance for self-definition and self-worth) is the core psychopathology underlying disordered eating in anorexia nervosa and bulimia nervosa. Individuals with an appearance focused self-concept engage in maladaptive weight-control strategies to alter their appearance, such as restricted eating, fasting, purging (e.g., vomiting), and excessive exercising. The way appearance focused self-concept maintains disordered eating is complex. More specifically, individuals with an appearance focused self-concept initially engage in strict dieting to limit their food intake as a means to influence their body shape and weight. Their severe limiting of food intake then leads them to feel physiologically hungry after which they engage in binge eating (i.e., the consumption of an excessive amount of food in a short period of time coupled with a feeling of loss of control). Following a binge eating episode, some individuals may engage in
compensatory purging behaviours, such as vomiting and laxative misuse as well, to try to get rid of the food they consumed. Critically, their engagement in these disordered eating behaviours reinforces the overriding importance they place on appearance in the self-concept.

Findings from existing longitudinal research support the Cognitive Behavioural Theory model of eating disorders (Fairburn et al., 2003; Tabri et al., 2015). For example, Fairburn et al. (2003) showed that women diagnosed with bulimia nervosa with higher (relative to lower) appearance focused self-concept reported an increase in binge eating episodes over a 15-month period. Tabri et al. (2015) showed that women diagnosed with bulimia nervosa or anorexia nervosa who had a higher (relative to lower) appearance focused self-concept on a given week were more likely to engage in maladaptive weight-control strategies (e.g., restrictive eating) on the following week over a period of five years. Tabri et al. (2015) also observed that engagement in non-compensatory weight-control behaviours on a given week was associated with greater appearance focused self-concept on the following week over a period of five years. Together, the findings of Fairburn et al. (2003) and Tabri et al. (2015) indicate that an appearance focused self-concept maintains disordered eating among women with anorexia nervosa or bulimia nervosa.

As well, a growing body of research indicates that having an appearance focused self-concept may be a risk factor for disordered eating (Sharpe et al., 2018; Stice et al., 2002; Sonneville et al. 2015). For example, in a sample of overweight adolescent girls, those higher in appearance focused self-concept engaged in weekly binge eating two years later compared to those lower in appearance focused self-concept (Sonneville et al. 2015). Likewise, in a sample of high school girls between the ages of 13 to 17 years old, those who reported greater levels of appearance focused self-concept reported more binge eating over a period of 20 months (Stice et al., 2002). Also, in a more recent study, Sharpe et al. (2018) showed that adolescent females who
had a higher appearance focused self-concept engaged in more binge eating over the course of the 15-year follow-up period compared to adolescent females with a lower appearance focused self-concept (Sharpe et al., 2018). These findings are consistent with prior research on women with anorexia nervosa or bulimia nervosa.

In sum, the existing evidence indicates that appearance focused self-concept maintains disordered eating among women with anorexia nervosa or bulimia nervosa and is a risk factor for disordered eating in non-clinical community samples of adolescent girls.

**Appearance focused self-concept, disordered eating, level of analysis, and timing**

In the prior section of my thesis, I reviewed the existing longitudinal research on appearance focused self-concept and disordered eating. The findings from these studies provide support for the role of appearance focused self-concept as a risk and maintenance factor of disordered eating. Herein, I describe why these findings may not provide a robust examination of the role of appearance focused self-concept in disordered eating for at least two reasons. The first reason has to do with the level of analysis. There are two levels of analysis: the between-person level and the within-person level. In psychological research, the between-person and within-person levels of analysis represent distinct approaches used to study phenomena and understand human behaviour (Hamaker, 2012). These levels of analysis offer different perspectives and insights into the factors that influence individual differences and variations in psychological processes.

Researchers who adopt a between-person level of analysis investigate differences and similarities between individuals. They are interested in studying variables and relationships at the group level, looking at how characteristics or behaviours differ across different people. Researchers analyze data collected from multiple individuals, and statistical analyses are
conducted to explore associations, correlations, and group-level patterns. The objective of the between-person level of analysis is to identify general trends, broad patterns, and average effects that hold true across individuals. The goal is to uncover universal principles and laws that can explain individual differences (Hamaker, 2012).

In contrast, researchers who adopt a within-person level of analysis investigate variability and fluctuations within individuals over time. They are interested in studying psychological processes and behaviours within an individual, focusing on understanding how individuals change, respond, or fluctuate in different situations or contexts. Researchers collect repeated measures or longitudinal data from the same individuals, often employing diary studies, ecological momentary assessments, or intensive longitudinal designs. The objective of the within-person level of analysis is to capture intra-individual variability, temporal dynamics, and individual-specific processes. The goal is to examine how factors such as momentary experiences, situational contexts, or short-term fluctuations influence an individual’s thoughts, emotions, behaviours, and psychological states (Hamaker, 2012).

Critically, Hamaker (2012) underscored that general principles established at the between-person level do not invariably hold true when investigating the same relationship at the within-person level. A pertinent illustration offered by Hamaker pertains to the association between typing speed and the proportion of typographical errors. At the between-person level, the empirical evidence indicates a negative correlation—individuals who type faster tend to make fewer mistakes. However, as elucidated by Hamaker (2012), at the within-person level, an individual’s faster typing speed is consistently accompanied by an increased frequency of errors, indicating a positive correlation. This example demonstrates that the patterns observed at the between-person level may not invariably manifest in a similar manner at the within-person level.
The concept of finding the same relationship between two measures at the between-person and within-person levels of analysis is called ergodicity. Thus, if differences at the within-person level can be correctly inferred from differences at the between-person level, the process is said to be ergodic. As shown by Fisher et al. (2018), when ergodicity is not achieved (i.e., when research findings differ between the within-person and between-person levels of analysis), this can be problematic. In a study that examined six separate studies with repeated measures designs, Fisher and colleagues found that variance around the expected value was significantly greater within an individual, compared to the variance around the expected value between individuals. This indicates that if ergodicity is not achieved, inferences made at the between-person level to the within-person level may lead to the overestimation of the findings at the population level (Fisher et al., 2018).

Currently, most of the research on appearance focused self-concept and disordered eating uses between-person analyses. For example, the disordered eating behaviours of participants who scored high on appearance focused self-concept are compared to the disordered eating behaviours of participants who scored low on appearance focused self-concept. However, in treatment settings, psychological processes are often explored within persons over time. When people study psychological processes, such as maintaining mechanisms in psychopathology research, it is largely centered on within-person relationships. For example, when an individual is undergoing treatment for a mental health condition, the treatment is tailored to fit that specific individual’s needs. In the case of disordered eating, a therapist focuses on the individual’s current level of appearance focused self-concept in comparison to their prior levels of appearance focused self-concept. Thus, it is relative to their own levels of appearance focused self-concept. If psychologists only relied on between-person research, this would mean that they
are focusing on the individual’s current level of appearance focused self-concept in relation to the overall level of appearance focused self-concept in the general population. Although between-person processes are important in understanding risk (e.g., people who score higher are more at risk than people who score lower), they seldom can be applied to the within-person level unless otherwise shown to be virtually the same relationship.

Applied to the context of appearance focused self-concept and disordered eating, most prior longitudinal research has examined their link at the between-person level. That is, prior research examined whether people who scored higher on appearance focused self-concept reported an increase in disordered eating compared to people who scored lower on appearance focused self-concept (Fairburn, Stice et al., 2003; Sharp et al., 2018; Stice et al., 2002; Sonneville et al. 2015). Accordingly, findings from these and other similar longitudinal studies shed light on the distribution of appearance focused self-concept and disordered eating as well as their correlation in the population by averaging across many individuals (i.e., the between-person level).

To my knowledge the study by Tabri et al. (2015) is the only study that examined the link between appearance focused self-concept and disordered eating at the within-person level. They examined how appearance focused self-concept on a given week was associated with disordered eating on the following week over a period of five years among women diagnosed with anorexia nervosa or bulimia nervosa. Critically, however, Tabri et al. (2015) used a longitudinal retrospective research design in which participants reported their extent of appearance focused self-concept and engagement in disordered eating retrospectively every six to 12 months. More specifically, at each follow-up interview, participants reported on their appearance focused self-concept and disordered eating during the current week and during each of the preceding weeks.
since the last interview based on their recollection. As such, although Tabri et al.’s (2015) study examined appearance focused self-concept and disordered eating over time, their findings may be limited because of recall bias. That said, the findings of Tabri et al. (2015) are consistent with findings from prior longitudinal studies that examined the link between appearance focused self-concept and disordered eating using a between-persons approach. Thus, there is preliminary evidence from the existing longitudinal studies indicating that the relationship between appearance focused self-concept and disordered eating may be observed at both the between-person and within-person levels.

Although not directly stated in the Transdiagnostic Cognitive-Behavioural Theory of Eating Disorders, appearance focused self-concept and disordered eating are likely connected at the within-person level. That is, an increase in appearance focused self-concept (relative to one’s own typical or prior level) propels subsequent engagement in disordered eating. The notion of a within-person temporal relationship between appearance focused self-concept and disordered eating is consistent with the major goal of cognitive-behavioural therapy for eating disorders—the reduction of within-person levels of appearance focused self-concept (Fairburn, 2008).

The second reason for why existing longitudinal research does not provide a robust test of the role of appearance focused self-concept in disordered eating is that there is often a large gap of time between assessments of appearance focused self-concept and disordered eating in prior research. More specifically, the timing of assessments in prior longitudinal research spanned long periods of time (e.g., months and years). For instance, in research conducted by Stice et al. (2002), they examined appearance focused self-concept as a predictor of disordered eating, participants completed surveys three times with a 10-month interval between assessments (i.e., baseline, 10 months after baseline, and 20 months after baseline). Similarly, Fairburn and
colleagues (2003) examined appearance focused self-concept as a predictor of change in disordered eating over a 15-month period. Another relatively more recent study by Sharpe and colleagues (2018) examined appearance focused self-concept in relation to disordered eating 15 years later. Although findings from the extant longitudinal research are informative, the timing of assessments precludes them from being a rigorous test of the more proximal temporal relationship between appearance focused self-concept and disordered eating postulated in the Transdiagnostic Cognitive-Behavioural Theory of eating disorders. The reason is that appearance focused self-concept is theorized to propel engagement in disordered eating in the short term (e.g., over the course of a day; Fairburn, 2008).

To my knowledge, only Tabri et al. (2015) examined the within-person week-to-week association between appearance focused self-concept and disordered eating over a period of five years. However, Tabri et al.’s (2015) findings are limited due to their use of a retrospective research design. To my knowledge, there exists no research that has examined whether within-person increases in appearance focused self-concept prospectively predict subsequent increases in disordered eating over the short-term, such as over the course of a day or days.

Taken together, it is unknown whether appearance focused self-concept propels engagement in disordered eating in the short term, and whether within-person increases in appearance focused self-concept prospectively predict subsequent disordered eating. To address these gaps in the literature, an experience sampling approach was used. Using experience sampling methodology, one can test the temporal relationship between appearance focused self-concept and disordered eating over short periods of time at the within-person level, such as over the course of a day. As well, within-person increases in appearance focused self-concept over the course of a day can be examined in relation to engagement in same-day disordered eating and
subsequent next-day disordered eating. Such a study would provide a more rigorous test of the link between appearance focused self-concept and disordered eating described in the Transdiagnostic Cognitive-Behavioural Theory of Eating Disorders. To that end, a preliminary step of my thesis research was to validate a short measure of appearance focused self-concept for use in experience sampling research. Because no such measure exists, my proposed research addressed this gap in the literature.

**The measurement of appearance focused self-concept**

Existing research on appearance focused self-concept and disordered eating have used at least three different questionnaires to measure appearance focused self-concept: the Shape and Weight Based Self-Esteem (SAWBS; Geller et al., 1997) Inventory, two items from the Eating Disorder Examination Questionnaire (EDEQ; Fairburn & Beglin, 1994), and the Beliefs About Appearance Scale (BAAS; Spangler & Stice, 2001).

The SAWBS inventory is a one-item measure for appearance focused self-concept (Geller et al., 1997). Participants are required to rank a series of life domains in order of importance to self-worth. Participants are then asked to separate a circle into pieces, where the larger the piece, the greater the perceived importance the life domain is to the individual’s self-worth. The final score for the SAWBS is the angle of the shape and weight portion of each participant’s circle. The SAWBS was found to have concurrent, predictive, and discriminant validity when tested in a sample of 84 women (Geller et al., 1997). Concurrent validity was tested by comparing SAWBS scores to participant’s scores on the Eating Disorders Inventory (EDI) and the Health Information Questionnaire (HIQ). SAWBS scores were found to be positively correlated with scores on the EDI and the HIQ. Predictive validity was tested by examining participants who were listed as being probable or possible eating disorder cases
(based on their scores on the HIQ). These probable cases scored significantly higher on eating disorder symptomology compared to the rest of the sample. Furthermore, a t-test that compared SAWBS scores from probable participants to the SAWBS scores of the rest of the sample was statistically significant, indicating that participants in the probable eating disorder group had higher SAWBS scores. Lastly, discriminant validity was tested by comparing SAWBS scores to the tendency to respond in a socially desirable manner, socioeconomic status, and BMI. SAWBS scores were not related to any of these measures (Geller et al., 1997). However, one caveat of the SAWBS is that internal consistency reliability cannot be examined as it is only a one-item measure. Furthermore, the SAWBS score pertains to participants general importance of appearance to the self only, and not the importance of appearance for success in other life domains (e.g., interpersonal relationships).

The two items commonly used to measure appearance focused self-concept from the EDEQ (Fairburn & Beglin, 1994) are “On how many over the past 28 days has your weight influenced how you think about (judge) yourself as a person?” and “On how many over the past 28 days has your shape influenced how you think about (judge) yourself as a person?” Participants respond to each item using a response scale with endpoints Not at all (0) and Markedly (6). Scores on the two items are averaged and so reflect the extent appearance is linked to self-evaluation and self-worth over the past 28 days. The average of the two items was found to have concurrent validity. Concurrent validity was examined by comparing EDEQ scores to scores on the Eating Disorder Examination (EDE; interview format). EDEQ scores were found to be highly correlated with scores on the EDE (Fairburn & Beglin, 1994). Other research has shown that the average of the two items was associated with more eating disorder psychopathology, general psychological distress, and body dissatisfaction in a large community.
sample of women (Mond & Hay, 2011). In terms of predictive validity, the average of the two items was found to differentiate between psychiatric patients with and without eating disorders. For example, psychiatric patients with a higher score on the average of the two items were more likely to have Binge Eating Disorder (Goldschmidt et al. 2010). However, like the SAWBS, the two items of the EDEQ only measure the influence of appearance on evaluation of self-worth, and not to other life domains, such as interpersonal relationships.

Lastly, the BAAS (Spangler & Stice, 2001) is also a tool used to measure appearance focused self-concept. The BAAS is a 20-item questionnaire that measures the importance of appearance for success in four different life domains: interpersonal relationships, achievement, self-views, and feelings (Spangler & Stice, 2001). The 20 BAAS items were shown to reflect a single underlying factor of appearance focused self-concept (Spangler & Stice, 2001). More recent psychometric analyses of the BAAS have shown that it has a bifactor structure (Tabri, Palmer, & Wohl, in prep.). That is, one general factor underlies responses to all 20 items as well as four sub factors that explain residual variance in the observed items due to item domain (i.e., interpersonal, achievement, self-views, and feelings) that is unexplained by the general factor. As such, the extant psychometric evidence suggests that the 20 BAAS items reflect a single construct of appearance focused self-concept. The 20-item BAAS was found to have a high internal consistency in various samples of individuals (college students, adolescent females, and college females; Spangler & Stice, 2001).

In terms of validity, Spangler and Stice (2001) showed that the 20-item BAAS has concurrent, predictive, and discriminant validity. Concurrent validity was examined by conducting correlation analyses between the BAAS and several related measures (thin-ideal internalization, body dissatisfaction, dieting, and eating disorder symptoms. Spangler and Stice
(2001) also showed that the BAAS was positively correlated with each of these four measures. Spangler and Stice examined the predictive validity of the BAAS by showing that it predicted eating disorder symptomology, and when statistically controlling for known risk factors of eating disorders (e.g., dietary restraint, body dissatisfaction). Lastly, discriminant validity was examined by testing correlations between the BAAS and BMI. The BAAS was found to be uncorrelated with BMI, thus confirming discriminant validity (also see Tabri & Palmer, 2020). Furthermore, Tabri and Palmer (2020) showed that people with higher BAAS scores have an attentional bias for words that describe attractiveness (e.g., thin) – not words that describe general appearance (e.g., physique) or stigmatized appearance (e.g., fat).

In recent research, Yung and Tabri (2022) used four items from the BAAS as a short measure of appearance focused self-concept. The four items were shown to load on a single factor in a cross-sectional study. Research has also shown that the average of the four items was internally consistent and positively correlated with measures of disordered eating in community samples (Tabri, Yung, & Elliott, 2022; Yung & Tabri, 2022). Furthermore, in unpublished psychometric longitudinal research, the 4-item BAAS has been shown to have temporal measurement invariance over a 4-month period among university women (Tabri, 2023). That is, the 4-item BAAS carries the same meaning over time. As such, there is evidence that the BAAS has good psychometric properties.

In sum, although there is evidence that the SWABS and two items from the EDEQ are valid tools to measure appearance focused self-concept, it is not possible to assess their internal consistency reliability (a minimum of three items are needed). In contrast, the 4-item BAAS has excellent internal consistency reliability as well as psychometrics properties that clearly make it a superior measure of appearance focused self-concept.
The present research

I used four items from the BAAS (Spangler & Stice, 2001) as a short measure of appearance focused self-concept for use in experience sampling research. These four items have been shown to load on a single factor in cross-sectional research (Yung & Tabri, 2022). As well, unpublished longitudinal research has shown that these four items have at least partial temporal measurement invariance (Tabri, 2023). My current research study extended existing research on the 4-item BAAS by examining its psychometric properties in the context of experience sampling.

Participants completed the 4-item BAAS six times per day (two hours apart between 9am and 7pm) for 14 days. They also completed a seventh end-of-day survey in which they only reported on their disordered eating for that day. Thus, with this research design, I had the following three aims:

Aim 1.1: Examine the factor structure and internal consistency of the 4-item BAAS at the between- and within-person levels using multi-level confirmatory factor analysis.

Aim 1.2: Examine the extent of the variance in the 4-item BAAS that is due to within-person variation as opposed to between-person variation.

Aim 2: Examine the extent of within-person change in the 4-item BAAS over the course of a day.

Aim 3.1: Examine whether increased within-person appearance focused self-concept over the course of a day is associated with same-day engagement in disordered eating.

Aim 3.2: Examine whether increased within-person appearance focused self-concept over the course of a day is associated with next-day engagement in disordered eating.
Method

Participants, procedure, and measures

Participants were 47 female students recruited through the Carleton University Experiment Sign-up system, SONA. The sample ranged in age from 18 to 43 years old ($M = 22.45$, $SD = 5.55$). Participants Body Mass Index (BMI) ranged from 12.44 to 51.37 ($M = 25.51$, $SD = 6.80$). The self-identified ethnicity of the sample was White (34.0%), Black (12.8%), East Asian (8.5%), South Asian (12.8%), Latin American (2.1%), Middle Eastern (12.8%), multi-racial (8.5%), and Other (6.4%). Only 2.1% indicated “prefer not to answer.”

I elected to focus on university women because they are a population in which the prevalence of disordered eating and eating disorders is elevated relative to the general population (Fitzsimmons-Craft et al., 2019). Another eligibility criterion was having consistent access to the Internet via a smartphone. See the notice of recruitment in Appendix A.

After reading the recruitment notice, eligible students interested in participating in the study read and provided informed consent (see Appendix B). After providing informed consent, participants completed an intake survey (see Appendix C). The intake survey took approximately 35 minutes to complete and included the 4-item BAAS and several other measures that were included for other research projects that are unrelated to my thesis research. That is, my current research only focused on the data obtained via experience sampling.

At the end of the intake survey, participants began the experience sampling portion of the research starting on the first Monday following the completion of the intake survey. They were contacted via email every two hours between 9am and 7pm where they completed a short questionnaire that included the short 4-item BAAS as well as other measures not analyzed as part of my thesis research. For the four BAAS items, participants were instructed to “Please indicate
the extent to which you currently agree with each of the following statements. At this very moment…” They were then presented with the four items from the BAAS: “…how I feel about myself is largely based on my appearance”, “…my mood is influenced by how I look”, “…people will think less of me if I don’t look my best”, and “…the opportunities that are available to me depend on how I look.” Participants indicated the degree of agreement with each item using a 5-point scale with endpoints 1 (Not at all) and 5 (Extremely). Responses were averaged at each assessment with higher scores indicating a higher appearance focused self-concept.

Participants also completed an end-of-day assessment wherein they reported on their engagement in disordered eating for that day. In my thesis, I examined restrictive eating and binge eating. There were questionnaires that assessed other disordered eating behaviours (driven exercise and purging) that were not analyzed as part of my thesis research. For restrictive eating, I adapted five items used to measure restrictive eating from the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994). For each item, the opening statement was “Earlier today, did you...” and the items were “…deliberately try to limit the amount of food you ate to influence your shape or weight (whether or not you succeeded)?”, “...go for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?”, “…try to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?”, “…try to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?”, and “…have a definite desire to have an empty stomach with the aim of influencing your shape or weight?”. Participants responded with one of the following options:
“None of the time”, “A few times”, “Less than half of the time”, “Half of the time”, “More than half of the time”, or “Almost all of the time”.

I also adapted two questions from the EDE-Q to measure the number of times participants engaged in binge eating. The first question was “Earlier today, how many times did you eat what other people would regard as an unusually large amount of food (given the circumstances).” Participants responded “None,” “1 time,” “2 times,” “3 times,” “4 times,” or “5 or more times.”. If participants responded “None,” then they were not asked the second question. If they responded with any of the other response options, then they were asked the second question about loss of control: “On how many of these times did you have a sense of having lost control over your eating (when eating earlier today)?” The measure of binge eating was a combination of the first and second questions. Participants who indicated “None” for the first question were coded as zero which were combined with participants who responded to the second question.

Participants varied in how many surveys they completed throughout the study. Total participant response rate was calculated for each participant in Qualtrics. Participant response rate ranged from 0% to 98% total responses. The mean response rate was 38.4%. Two participants did not complete any of the experience samples questionnaires and so the analyses were based on the data of 45 participants.

**Sample size determination**

I conducted an *a priori* power analyses for multi-level models predicting same-day and next-day disordered eating. The power analysis was based off the original plan to use the Root Mean Square of Successive Differences (RMSSD) to analyse the data. In the power analysis predicting same-day disordered eating from variability in same-day appearance focused self-
concept across 14 days, I used a standardized regression coefficient of .20 as the effect size. The power analysis involved a Monte Carlo simulation with 10,000 replications. I found that the effect size was powered at 97% with 60 participants. In the power analysis predicting next-day disordered eating from variability in previous-day appearance focused self-concept, I used a slightly attenuated standardized regression coefficient of .15 as the effect size. In the model, I included previous-day disordered eating as a covariate. The Monte Carlo simulation with 10,000 replications showed that the effect size was powered at 80% with 60 participants. As such, I planned to recruit a minimum of 60 participants for the proposed research, however given some time restraints, only 47 participants were recruited.

However, after collecting the data, there was significant intermittent missing data in the measurement of appearance focused self-concept over the course of a day. In fact, there were over 40 distinct patterns of missing data. As such, analyses that would involve RMSDD would exclude a substantial number of data points from the analyses because of missing adjacent measures of appearance focused self-concept. To address this unexpected issue, I decided to change the data analytic approach to one of latent growth curve modelling (see below). Doing so would permit me to use a modern missing data procedure to include participants with missing data in the analyses. Accordingly, I included data from all 47 participants that were recruited during the Winter 2023 and the Summer I 2023 semesters.

Data Analytic Approach

**Aims 1.1 and 1.2: Model fit and variation**

For Aim 1.1, a multi-level confirmatory factor analysis (mCFA; Kline, 2016) was used to examine the fit of the single-factor model of the 4-item BAAS at the between- and within-person levels. I adjudicated model fit using the chi-square test of model fit ($\chi^2$) and approximate fit
indices, including the comparative fit index (CFI) and root mean square error of approximation (RMSEA). Fit is considered excellent when the $\chi^2$ test is not statistically significant, CFI is equal to or more than 0.95, the RMSEA is 0.05 or less with the value of zero in its 90% confidence interval (Kline, 2016).

Because $\chi^2$ is known to be sensitive when sample size is large, small model-data discrepancies may be detected as statistically significant in large samples. When sample size is large and $\chi^2$ is statistically significant, Kline (2016) advised inspecting the residual matrix for residual correlations less than $|.10|$ to diagnose model misfit. If all residuals were less than $|.10|$ and the $\chi^2$ test was statistically significant, then it is likely that the $\chi^2$ test is detecting small model-data discrepancies as statistically significant due to the large sample size. However, if residuals were greater than $|.10|$, I adjusted the model to include them and proceeded with testing the fit of the single-factor model of the 4-item BAAS at the between- and within-person levels. However, when model fit was not good and there were no residual correlations greater than $|.10|$, I used modification indices provided by Mplus to identify residuals for inclusion in the model so as to enhance model fit. With a well-fitting model, I computed McDonald’s Omega for the 4-item BAAS at both the within and between levels to examine internal consistency reliability.

For Aim 1.2, I used the intraclass correlation coefficient (ICC) to examine how much of the variation in the composite 4-item BAAS is due to between-person vs. within-person variance. Higher values indicate more between-person variability relative to within-person variability.

**Aim 2: Characterizing variation in the 4-item BAAS**

For Aim 2, I used a latent growth curve analysis (LGC; Kline, 2016) to characterize within-person change in the composite 4-item BAAS over the course of a day. More specifically,
I examined the shape and rate of intra-individual change over the six assessments of the BAAS (i.e., 9am, 11am, 1pm, 3pm, 5pm, and 7pm) in each day across 14 days per participant. I tested three models. The first model was an intercept-only model in which there is no change. In the second model, I tested a linear model of change. In the third model, I tested a non-linear (quadratic) model of change. If a non-linear model fit the data, then I used a piecewise growth model to decompose the non-linear trajectory into two linear pieces (Kline, 2016). Model fit was adjudicated as in the mCFA. I also compared the different models using chi-square difference tests ($\Delta \chi^2$) to identify the best fitting model. Because I did not use a multilevel analytic approach in the LGC analyses, I statistically controlled for the non-independence of observations due to participants’ repeated measures in these analyses. This was accomplished using the Type = Complex command in Mplus.

**Aim 3: Predictive validity of the 4-item BAAS**

For Aim 3, I extended the LGC analysis from Aim 2 to examine whether the initial level of appearance focused self-concept on a given day and change in appearance focused self-concept in each day were each associated with same-day disordered eating and next-day disordered eating. Analyses for restrictive eating and binge eating were conducted separately and so I estimated four separate models. Two examined same-day and next day restrictive eating and two examine same-day and next-day binge eating. In the next-day models, I added the next day disordered eating variable in the model as an additional dependent variable and regressed it on the previous day disordered eating variable. I also regressed the next-day disordered eating variable on the initial assessment of appearance focused self-concept on a given day and change in appearance focused self-concept over course of the day. Note that I statistically controlled for the non-independence of observations due to participants’ repeated measures in these analyses.
Because restrictive eating was measured with five items, I examined their factor structure using mCFA. More specifically, I examined whether a single factor at the within-level and single factor at the between level provided a good fit to the data. I also examined the internal consistency of the five items at both levels of analysis using McDonald’s omega. The mCFA was conducted as a preliminary analysis prior to testing Aim 3.

**Estimation and missing data**

Analyses were conducted using Mplus version 8.2 (Muthén & Muthén, 1998). I used robust SEs when estimating the statistical significance of parameters (e.g., regression coefficients, factor loadings) to minimize the influence of non-normality on the estimation of the SEs. In all analyses, missing data were assumed to be Missing at Random (MAR; i.e., non-informative missingness) and so Full Information Maximum Likelihood was used to include participants with missing data in the analyses. For Aims 2 and 3, I conducted sensitivity analyses to examine whether the results change when using a Not Missing at Random (NMAR; i.e., informative missingness) model (see Enders, 2011). The NMAR model I examined was Wu and Carroll’s (1988) shared parameter model. In the shared parameter model, the LGC model is augmented with a set of binary missing data indicators at each time point that are regressed onto the growth factors (e.g., intercept and slope) using logistic regression. By regressing the missing data indicator variables on the growth factors, the probability of missingness is predicted by the entire set of repeated measures, which sheds light on whether missingness is dependent on the trajectory of change over the repeated measures. As such, the shared parameter model sheds light on whether the initial level of appearance focused self-concept on a given day and within-person change in appearance focused self-concept over the course a given day (i.e., six time points) were predictive of having missing data.
Results

Aim 1.1 and 1.2: Factor structure and internal consistency of the 4-item BAAS

Although there were 47 participants in total, two did not complete the 4-item BAAS on all measurement occasions. As such, the data of 45 participants were included in the mCFA. The unit of analysis for the mCFA was ‘participants’ for the between-person level and ‘surveys’ for the within-person level. Specifically, the 45 participants completed the 4-item BAAS on at least one measurement occasion over the two-week experience sampling phase of the study. Overall, the 4-item BAAS was completed 1,371 times (out 3,780 total measurement occasions), and these scores were included at the within-level in the mCFA.

The mCFA model that included a single factor at the between-level and a single factor at the within-level did not fit the data because the residual covariance was not positive definite because (at least one of the four BAAS items was highly correlated with another BAAS item). Modification indices indicated that the inclusion of a residual correlation between the item “People will think less of me if I don’t look my best” and the item “The opportunities that are available to me depend on how I look” at the between-level would enhance model fit. After including the residual covariance, the model provided a good fit to the data via the global fit indices, CFI = .99 and RMSEA = .07, but not chi-square, $\chi^2(4) = 32.98, p < .001$. The magnitude of the residual correlation was large, $r = .90$, $z = 24.87, p < .001$. I inspected the residual correlation matrices at the within-level and between-level and there were no residuals greater than |.10|. As such, I deemed the model with the residual correlation as providing a good fit to the data.

The standardized factor loadings for the 4 BAAS items at the between and within levels ranged from .70 to .95. The strong factor loadings indicated that the between-level and within-
level factors were empirically well-defined. In terms of reliability, the 4-item BAAS had excellent internal consistency at the between-level ($\omega = .93$) and within-level ($\omega = .79$). Taken together, the 4-item BAAS has good psychometric properties at the between-person and within-person levels of analysis. As such, I deemed the model with the residual correlation as providing a good fit to the data.

The ICCs among the four BAAS items ranged from .70 to .81. This means that approximately 70% to 81% of the variance in the four BAAS items can be attributed to between-person differences. Conversely, between 19% and 30% of the variance in the 4 BAAS items can be attributed to within-person differences, which is substantial.

**Aim 2: The shape and rate of within-person change in the 4-item BAAS over the course of a day across 14 days**

The unit of analysis for Aim 2 was ‘days’. Specifically, from the 45 participants that completed the 4-item BAAS at least once per day, I was able to include data from 385 days. The number of reports per day ranged from 1 to 6 ($M = 3.56, SD = 1.64$). The intercept-only (no change) model did not provide a good fit to the data, $\chi^2(19) = 43.23, p < .001, CFI = .97, RMSEA = .06 [.04, .08]$. Likewise, the linear model did not provide a good fit to the data, $\chi^2(16) = 33.62, p = .006, CFI = .98, RMSEA = .05 [.03, .08]$. However, the linear model provided a better fit to the data compared to the intercept-only model, $\Delta \chi^2(3) = 10.09, p = .02$. When testing the fit of the non-linear (quadratic) model, the latent variable covariance matrix was not positive definite. Modification indices indicated that adding a residual correlation between appearance focused self-concept at times 3 and 4 would enhance model fit and so may help address the non-positive definite latent variable matrix. After including the residual correlation, the non-linear (quadratic) model provided an excellent fit to the data, $\chi^2(11) = 7.96, p = .72, CFI = 1, RMSEA <
The non-linear (quadratic) model provided a better fit to the data compared to the linear model, Δχ²(5) = 31.84, p < .001.

In the non-linear (quadratic) model, the mean of the linear growth factor was positive, \( b = .06, z = 2.73, p = .006 \), whereas the mean of the quadratic growth factor was negative, \( b = -.01, z = -2.59, p = .01 \). Taken together, this suggests that participants’ within-person change in appearance focused self-concept increased over the course of the day and plateaued in the later part of the day. Visual inspection of the estimated means confirmed the non-linear shape of change in the composite 4-item BAAS (9am = 3.37, 11am = 3.42, 1pm = 3.45, 3pm = 3.46, 5pm = 3.46, and 7pm = 3.44). As such, in the piecewise model, I decompose the non-linear trend into two linear growth factors. The first linear growth factor captured change in appearance focused self-concept from 9am to 3pm whereas the second linear growth factor captured the lack of change from 5pm to 7pm. The piecewise model provided an excellent fit to the data, \( \chi^2(14) = 17.28, p = .24, \text{CFI} = 1, \text{RMSEA} = .03 [.00, .06] \). The mean of the first linear piece was statistically significant, \( b = .03, z = 2.96, p = .02 \). The positive coefficient indicates that participant’s appearance focused self-concept increased by .03 units every two hours from 9am to 3pm. The magnitude of the rate of change was small-to-moderate in size, \( d = .24 \). In contrast, the mean of the second linear piece was not statistically significant, \( b = -.02, z = -.72, p = .47 \), which suggests that appearance focused self-concept did not change from 5pm to 7pm.

**Sensitivity analysis.** There were 61 distinct missing data patterns with varying amounts of intermittent missing data. As such, the piecewise model was estimated again, but with a set of binary missing data indicators at each time point that were regressed onto the intercept and linear slope indexing change from 9am to 3pm using logistic regression. The intercept factor was not related to the missing data indicators. However, the linear slope indexing within-person change
in appearance focused self-concept from 9am to 3pm was associated with a greater likelihood of missing data. Accordingly, participants who reported immediate increases in appearance focused self-concept were more likely to not respond on subsequent assessments when controlling for initial level (i.e., 9am) of appearance focused self-concept. That said, the mean of the intercept and linear slopes from the piecewise model from the NMAR analysis and the MAR-based analysis were virtually similar (see Table 1). As such, although the NMAR analysis is informative, the key findings were not dependent on the missing data approach.

Table 1

Fit statistics for the linear slopes for MAR and NMAR

<table>
<thead>
<tr>
<th>Missing data approach</th>
<th>Missing data indicator for NMAR</th>
<th>9am</th>
<th>11am</th>
<th>1pm</th>
<th>3pm</th>
<th>5pm</th>
<th>7pm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intercept</strong></td>
<td><strong>MAR</strong></td>
<td>3.39**</td>
<td>3.36**</td>
<td>-.05</td>
<td>.02</td>
<td>-.28</td>
<td>.14</td>
</tr>
<tr>
<td><strong>Linear slope</strong></td>
<td>(9am to 3pm)</td>
<td>.03**</td>
<td>.04**</td>
<td>48.48*</td>
<td>81.10**</td>
<td>67.18**</td>
<td>66.16**</td>
</tr>
<tr>
<td><strong>Linear slope</strong></td>
<td>(5pm to 7pm)</td>
<td>-.02</td>
<td>-.02</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Note. MAR = Missing at Random; NMAR = Not Missing at Random. *p < .05; **p < .01.

Aim 3.1: Analysis of appearance focused self-concept over the course of a day and same-day engagement in disordered eating.

The unit of analysis for Aim 3.1 was ‘days’. Specifically, with the inclusion of disordered eating in the analyses, the number of participants included in the analyses increased from 45 to 46. The additional participants did not respond to any of the appearance focused self-concept questionnaires but did not provide responses to the end of day survey assessing disordered eating behaviours. On the 393 days, the number of reports for appearance focused self-concept ranged from 0 to 6 ($M = 3.49$, $SD = 1.70$). Of the 393 days, there were 252 reports of same-day
disordered eating. I decided to include this participant in the analyses for Aims 3.1 and 3.2 because doing so would increase the validity of the results as well as statistical power.

**Restrictive eating.** The mCFA of the five restrictive eating items provided a marginal fit to the data via the global fit indices, but not chi-square, $\chi^2(10) = 32.82, p = .0003$, CFI = .94, RMSEA = .10. Inspection of the residual matrices revealed no residuals greater than |.10| at the between-person and within-person levels. However, modification indices indicated that adding a residual correlation between the item “Earlier today, did you try to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?” and the item “Earlier today, did you try to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?” would improve model fit. Likewise, modification indices indicated that adding a residual correlation between the item “Earlier today, did you deliberately try to limit the amount of food you ate to influence your shape or weight (whether or not you succeeded)?” and the item “Earlier today, did you have a definite desire to have an empty stomach with the aim of influencing your shape or weight?” would improve model fit. I re-analyzed the single-factor model with the two residual correlations and the model provided a better fit to the data, $\chi^2(8) = 15.98, p = .04$, CFI = .98, RMSEA = .06. The magnitude of the residual correlations was large, $r = .98$ and $r = .79, ps < .01$. The standardized factor loadings for the five items at the within-person level were large, ranging from .62 to .87 all $ps < .001$. Likewise, the standardized factor loadings for the five items at the between-person level were large, ranging from .92 to .99 all $ps < .001$. In terms of reliability, the five restrictive eating items had excellent internal consistency at the between-level ($\omega = .99$) and within-level ($\omega = .85$). As such, I deemed the single-factor model at
the within- and between-person levels with two residuals at the between-person level as providing a good fit to the data.

The ICCs among the five restricting items ranged from .68 to .80. This means that approximately 68% to 80% of the variance in the five restricting items can be attributed to between-person differences. Conversely, between 20% and 32% of the variance in the five restricting items can be attributed to within-person differences, which is substantial. The average score for restrictive eating was 2.17 (SD = 1.63), which corresponds to “a few times” on the response scale.

The piecewise model for same-day restrictive eating provided a good fit to the data, \( \chi^2(18) = 25.07, p = .12, \text{CFI} = .99, \text{RMSEA} = .03 [.00, .06] \). The intercept factor of appearance focused self-concept on a given day was associated with more same-day restrictive eating across 386 days, \( B = .88, z = 3.50, p < .001 \). That is, a one-unit increase in appearance focused self-concept on a given day at 9am was associated with .88 units increase in same-day restrictive eating. The magnitude of this effect was large, \( \beta = .53 \). In contrast, the linear slope factor indexing change in appearance focused self-concept from 9am to 3pm on a given day was not associated with same-day restrictive eating frequency, \( B = -.04, z = -.41, p = .68 \).

**Binge eating.** Recall that fit statistics are not provided by Mplus when a dependent variable is a count variable. In terms of descriptives for same-day binge eating, 43.5% did not have a binge eating episode, 13.2% had 1 binge eating episode, 4.1% had 2 binge eating episodes, 1.5% had 3 binge eating episodes, and .50% had four binge eating episodes, and 1.3% had five or more binge eating episodes. Because binge eating frequency was modelled as a count variable, no fit statistics were available. In the piecewise model for same-day binge eating, the intercept factor of appearance focused self-concept on a given day was associated with more
same-day binge eating frequency across 393 days, $B = .25, z = 3.79, p < .001$. That is, a one unit increase in appearance focused self-concept at 9am on a given day was associated with an increase in the same-day binge eating frequency by factor of 1.28, which is a small effect. In addition, the linear slope factor indexing change in appearance focused self-concept from 9am to 3pm on a given day was associated with same-day binge eating frequency, $B = 1.05, z = 2.46, p = .01$. A one unit increase in the rate of change in appearance focused self-concept from 9am to 3pm was associated with an increase in same-day binge eating frequency by factor of 2.86, which is a moderate effect.

**Sensitivity analyses.** There were 114 missing data patterns with varying amounts of intermittent missingness. The piecewise models that included same-day restrictive eating and binge eating frequency were estimated again, but with a set of binary missing data indicators at each time point that were regressed onto the intercept and linear slope factors indexing change from 9am to 3pm using logistic regression. Another binary missing data indicator was included to index missingness for same-day disordered eating that was regressed on the observed same-day disordered eating variable. For restrictive eating, the intercept factor was not consistently related to the missing data indicators whereas the linear slope indexing within-person change in appearance focused self-concept from 9am to 3pm was associated with a greater likelihood of missingness (see Table 2). As well, the same-day restrictive eating scores were not related to missingness. Of note, the mean values for the intercept and slope were similar across the MAR and NMAR analyses. In contrast, the regression of same-day restrictive eating on slope factor indexing change appearance focused self-concept from 9am to 3pm was overestimated in the NMAR analysis compared to the MAR analysis, but both were not statistically significant.
For binge eating, the intercept factor was not related to the missing data indicators whereas the linear slope indexing within-person change in appearance focused self-concept from 9am to 3pm was associated with a greater likelihood of missingness (see Table 3). As well, the same-day binge eating scores were not related to missingness. Of note, the mean values for the intercept and slope were similar across the MAR and NMAR analyses. In contrast, the regression of same-day binge eating on slope factor indexing change appearance focused self-concept form 9am to 3pm was a somewhat larger in the NMAR analysis compared to the MAR analysis, but both were statistically significant.

Taken together, the pattern of results from the NMAR analyses were virtually the same as the pattern of results from the MAR-based analyses.

Table 2

<table>
<thead>
<tr>
<th>Piecewise model showing same-day restrictive eating for MAR and NMAR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Missing data approach</strong></td>
</tr>
<tr>
<td>Piecewise</td>
</tr>
<tr>
<td>Intercept</td>
</tr>
<tr>
<td>Linear slope (9am to 3pm)</td>
</tr>
<tr>
<td>Linear slope (5pm to 7pm)</td>
</tr>
<tr>
<td>Intercept -&gt; same-day restrictive eating</td>
</tr>
<tr>
<td>Linear slope (9am to 3pm) -&gt; same-day restrictive eating</td>
</tr>
<tr>
<td>Same-day restrictive eating</td>
</tr>
</tbody>
</table>

Note. MAR = Missing at Random; NMAR = Not Missing at Random. *p < .05; **p < .01.
Table 3

*Piecewise model showing same-day binge eating for MAR and NMAR*

<table>
<thead>
<tr>
<th>Missing data approach</th>
<th>Piecewise model</th>
<th>Missing data indicator for NMAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAR</td>
<td>NMAR</td>
<td>9am</td>
</tr>
<tr>
<td>Intercept</td>
<td>3.46**</td>
<td>3.30**</td>
</tr>
<tr>
<td>Linear slope (9am to 3pm)</td>
<td>.24**</td>
<td>.06**</td>
</tr>
<tr>
<td>Linear slope (5pm to 7pm)</td>
<td>- .02</td>
<td>- .02</td>
</tr>
<tr>
<td>Intercept - &gt; same-day binge eating</td>
<td>.25**</td>
<td>.25**</td>
</tr>
<tr>
<td>Linear slope (9am to 3pm) - &gt; same-day binge eating</td>
<td>1.05*</td>
<td>2.59**</td>
</tr>
<tr>
<td>Same-day binge eating</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

*Note.* MAR = Missing at Random; NMAR = Not Missing at Random. *p < .05; **p < .01.

Aim 3.2: Analysis of appearance focused self-concept over the course of a day and next-day engagement in disordered eating.

**Restrictive eating.** To examine aim 3.2, I re-estimated the piecewise models in aim 3.1, but included the next-day scores for restrictive eating and binge eating in the models. The next-day score was regressed on both the same-day score. As well, the same-day and next-day scores were regressed on the on the initial level of appearance focused self-concept of a given day (i.e., at 9am) and on the linear slope of change in appearance focused self-concept from 9am to 3pm.

The model provided a good fit to the data, $\chi^2(22) = 30.50$, $p = .10$, CFI = 1, RMSEA = .03 [.00, .06]. The intercept factor of appearance focused self-concept on a given day was associated with same-day restrictive eating across 393 days, $B = .95$, $z = 4.18$, $p < .001$. That is, a one-unit increase in appearance focused self-concept on a given day at 9am was associated with
.95 units increase in same-day restrictive eating. The magnitude of this effect was large, $\beta = .57$. In contrast, the intercept factor of appearance focused self-concept on a given day was not associated with next-day restrictive eating across 393 days, $B = .04$, $z = .95$, $p = .35$. Likewise, the linear change factor in appearance focused self-concept from 9am to 3pm on a given day was not associated with same-day restrictive eating, $B = -.68$, $z = -.39$, $p = .68$, or next-day restrictive eating, $B = -.55$, $z = .79$, $p = .43$. As such, greater appearance focused self-concept on a given day at 9am was only associated with greater same-day restrictive eating.

**Binge eating.** In the piecewise model for same-day and next-day binge eating frequency, the intercept factor for appearance focused self-concept on a given day was associated with same-day binge eating frequency across 393 days, $B = .27$, $z = 3.3$, $p < .001$. A one unit increase in appearance focused self-concept at 9am on a given day was associated with an increase in the same-day binge eating frequency by factor of 1.31, which is a small effect. Likewise, the intercept factor for appearance focused self-concept on a given day was prospectively associated with next-day binge eating frequency across 393 days when controlling for same-day binge eating frequency, $B = .19$, $z = 4.08$, $p < .001$. A one unit increase in appearance focused self-concept at 9am on a given day was associated with an increase in next-day binge eating frequency by factor of 1.21, which is a small effect.

In addition, the linear change factor of appearance focused self-concept on a given day was associated with same-day binge eating frequency, $B = 1.19$, $z = 2.18$, $p = .03$. A one unit increase in the rate of change in appearance focused self-concept from 9am to 3pm was associated with an increase in same-day binge eating frequency by factor of 3.29, which is a moderate effect. Likewise, the linear change factor of appearance focused self-concept was prospectively associated with next-day binge eating frequency when controlling for same-day
binge eating frequency, $B = .73, z = 2.03, p = .04$. A one unit increase in the rate of change in appearance focused self-concept from 9am to 3pm on a given day was associated with an increase in the next-day binge eating frequency by factor of 2.08, which is a small-to-moderate effect.

**Sensitivity analyses.** There were 157 missing data patterns that were indicative of intermittent missingness. The piecewise models that included same-day and next-day disordered eating variables were estimated again, but with a set of binary missing data indicators at each time point that were regressed onto the intercept and linear slope indexing change from 9am to 3pm using logistic regression. I also included two binary missing data indicators, one for same-day disordered eating and the other for next-day disordered eating, which were regressed on the same-day disordered eating and next-day disordered eating variables, respectively. Unexpectedly, the models for restrictive eating and binge eating frequency did not converge and so results are not available.

**Discussion**

Past research has shown that individuals with higher appearance focused self-concept are more likely to engage in disordered eating behaviours, including restrictive eating and binge eating, relative to individuals with a lower appearance focused self-concept. In my thesis research, I extend the literature by examining whether appearance focused self-concept increases over the course of a day and whether the increase in appearance focused self-concept over the course of a day is associated with greater same-day and next-day restrictive eating and binge eating. I examined these associations using an experience sampling methodology in a sample of undergraduate women students. They reported on their appearance focused self-concept six times
over the course of a day every two hours starting at 9am and ending at 7pm for 14 days. Also, at the end of each day, they reported on their restrictive and binge eating behaviours for that day.

Critically, no prior research has examined the link between within-person change in appearance focused self-concept and disordered eating. As such, I examined whether four items from the BAAS that have been used as a measure of appearance focused self-concept in prior between-person research have similar psychometric properties at the within-person level. In doing so, I used mCFA to examine the construct validity and reliability of 4-item appearance focused self-concept measure at both the within- and between-person levels simultaneously. I found that the items had strong factor loadings at the within-person and between-person levels. Also, the four items had good to excellent internal consistency reliability at the within-person and between-person levels. These findings confirmed that the 4-item measure of appearance focused self-concept was both a valid and reliable tool that could be used in experience sampling research. Of note, these findings extend prior psychometric research on the BAAS based on between-person research designs (Spangler & Stice, 2001; Yung & Tabri, 2022).

After establishing that the 4-item measure of appearance focused self-concept has excellent psychometric properties at the within-person level, I examined whether appearance focused self-concept changes over the course of a day. Results indicated that the trajectory of appearance focused self-concept over the course of a day was non-linear. There was, on average across days, a small-to-moderate increase in appearance focused self-concept from 9am to 3pm that plateaued from 3pm to 7pm. This observation is novel and sheds new light on the timescale of appearance focused self-concept. The findings indicate that momentary levels of appearance focused self-concept increase from the morning into the afternoon.
Although not an objective of my thesis research, the increase in appearance focused self-concept between 9am and 3pm may be due to both within-person and between-person sociocultural factors. According to Oyserman and colleagues’ (2012) sociocultural model of the self-concept, the content of people’s self-concept (who one is, who one ideally wants to be, and evaluation of oneself) are shaped, in part, by input from interpersonal relationships and from prevailing societal norms of their cultural milieu. In Western society and culture, there is great emphasis on thinness for women as an attractiveness ideal (e.g., Thompson & Stice, 2001). The extent to which women internalize the thin-ideal may play a role in the growth of appearance focused self-concept over the course of a day such that women with greater thin-ideal internalization have a sharper increase in appearance focused self-concept compared to women with lower thin-ideal internalization. It is also possible that the extent to which women receive messages from family, friends, peers, dating partners, and mass media to lose weight or to be thin over the course of a day may, in turn, increase appearance focused self-concept over the course of a day. Future research can extend my thesis research by examining these possibilities.

Furthermore, in my thesis research, I found that greater (relative lower) appearance focused self-concept at 9am on a given day was moderately associated with more restrictive eating that day. This finding is consistent with the transdiagnostic cognitive-behavioural theory of eating disorders (Fairburn, 2008) in which greater appearance focused self-concept propels engagement in restrictive eating. The finding is also consistent with prior cross-sectional between-person research. For instance, appearance focused self-concept had been shown to be associated with dietary restraint among people with a diagnosed eating disorder (Lampard et al., 2011; Lampard et al., 2013). Likewise, among women high school students, appearance focused self-concept was associated with fasting (Wade & Lowes, 2002). As well, my finding is
consistent with Tabri and colleagues (2015) who found that greater appearance focused self-concept on a given week was associated with more restrictive eating on the following week using a longitudinal retrospective research design. The results from my thesis suggest that the link between appearance focused self-concept and restrictive eating is observed on a briefer timescale, within a day.

Similarly, I found that greater (relative lower) appearance focused self-concept at 9am on a given day was modestly associated with more binge eating that day. However, I also found that greater (relative lower) appearance focused self-concept at 9am on a given day was modestly associated with more binge eating the next day when statistically controlling for binge eating on the previous day. This observation demonstrates a prospective within-person association between appearance focused self-concept and binge eating. The prospective within-person link is consistent with findings from prior research examining between-person differences in appearance focused self-concept as a predictor of binge eating over time in community samples of adolescent girls (Sharpe et al., 2018; Sonneville et al. 2015; Stice et al., 2002).

Another key finding was a greater increase in appearance focused self-concept from 9am to 3pm on a given day was moderately associated with same-day and next day binge eating. These associations were observed above and beyond the initial 9am level of appearance focused self-concept on a given day. These findings are novel and consistent with the transdiagnostic cognitive-behavioural theory of eating disorders (Fairburn, 2008). Although Fairburn (2008) was silent about the level of analysis, he theorized that people who experience an increase in appearance focused self-concept will engage in more disordered eating, including binge eating. The observation that an increase in appearance focused self-concept during a day is linked concurrently and prospectively to more binge eating also fits with the major goal of cognitive-
behavioural therapy for eating disorders—the reduction of within-person levels of appearance focused self-concept (Fairburn, 2008).

A possible reason for why an increase in appearance focused self-concept during the day was linked concurrently and prospectively to more same-day and next-day binge eating, but not restrictive eating, may be partly explained by Heatherton and Baumeister’s (1991) escape theory of binge eating. In their model, Heatherton and Baumeister proposed that people who experience stress due to negative views of the self will try to escape this aversive feeling by engaging in binge eating, which provides them with temporary relief. It is possible that an increase in appearance focused self-concept over the day may be accompanied by an increase in emotional distress due to negative self-views because such people may engage in more social comparisons and body checking over the course of a day. Indeed, Tabri and Palmer (2020) showed that people with higher appearance focused self-concept have an attentional bias for words that describe attractiveness (e.g., thin). As such, as appearance focused self-concept increases over the day, it may be that their attentional bias for stimuli that describe attractiveness also increases thereby cultivating more negative self-views. Future research can extend my thesis research by examining the possible mechanisms by which an increase in appearance focused self-concept over the course of a day propels engagement in binge eating.

Taken together, the findings from my thesis research indicate that the within-person associations between appearance focused self-concept and disordered eating are consistent with findings from between-person research. Accordingly, there is preliminary evidence for ergodicity. This means that we can tentatively assume that the processes observed at the between-person level are also observed at the within-person level.
Limitations

There were several limitations that are noteworthy. Firstly, the sample consisted of university women, specifically first and second year undergraduate students. As such, external validity of the results to male individuals is unknown. In addition, although university women are a vulnerable subpopulation in which the prevalence of disordered eating and eating disorders is elevated relative to the general population (Fitzimmons-Craft et al., 2019), university students tend to be WEIRD (Western, Educated, Industrialized, Rich, and Democratic) individuals. Participants who are WEIRD are unique, and do not reflect the overall population. Lastly, the sample in the current study consisted mainly of younger individuals (mean age of 22.45) and so generalization of the results to older individuals is unknown. As such, future research should try to replicate the results of my thesis in a more demographically diverse, non-student community sample that contains both male and female participants, with a wider age range across the sample.

The second limitation has to do with reactivity to completing the appearance focused self-concept and disordered eating questionnaires. The notion of reactivity in experience sampling studies refers to the potential for any construct under study to change due to repeated assessments. The idea is that participants will pay unusual attention to their internal states and behaviours that are being measured via repeated assessments. That said, although reactivity is a common limitation in experience sampling studies, research that was designed to specifically assess the presence of reactivity in the context of body image showed little or no reactivity effects in community and clinical samples (Heron & Smyth, 2013). Likewise, in a recent re-analysis of experience sampling data examining intentional weight loss, it was shown that the number of assessments completed related to dietary restraint was not related to change in dietary
restraint (Cajita et al., 2023). Thus, given that appearance focused self-concept is conceptually an aspect of body image, reactivity likely had little or no influence on the results. That said, future research should try to rule out the influence of reactivity.

The third limitation of my study was that I may not have enough statistical power for my results to have at least 80%. That said, the between-person sample size in my thesis is consistent with sample sizes used in prior research. For example, Coniglio et al. (2023) only had a sample size of 31 women, however with the number of timepoints they had during a day, their power analysis showed that 30 participants would be sufficient to generate a medium effect size. Another example of small sample size in experience sampling research can be seen in a research study by Goodman and colleagues (2021). They used ecological momentary assessment in their study 2 with a total sample size of 84 participants. Further, of these 84 participants, they only had 41 participants in the experimental group (Goodwin et al., 2021). In a post-hoc power analyses that used Monte Carlo simulation based on 385 days of reports and the effect sizes in my thesis research, I observed over 90% power to detect the change in linear slope for appearance focused self-concept in piecewise growth model as well as over 90% power for the associations in which the intercept and change in appearance focused self-concept predicted same-day and next-day disordered eating. As such, I am confident in the reliability and validity of the results reported in my thesis. That said, the findings reported in my thesis should be treated as preliminary pending replication. Because the findings are the first of their kind in the literature, they can be used to inform a power analysis of replication efforts.

Lastly, the fourth limitation of my study was that there was a large amount of intermittent missing data. Many factors could have played into the fact that there was a lot of missing data. One could be the fact that participants only had 30 minutes to complete each questionnaire
before it expired. Thus, if the participant was busy at the time the survey was sent (e.g., in a meeting or class), it would be easy to miss the survey time. Another factor that could have played into the amount of missing data may be that some participants are not as active on their email accounts as others are, and thus frequently missed the survey notifications. Lastly, the amount of missing data could also be accounted for by individual differences, such as participants having differing work and class schedules (i.e., some may have been busier than others). Of note, however, I conducted sensitivity analyses by examining whether the pattern of results changed when assuming the missing data was not informative (MAR) or informative (NMAR). Similar results were found in both instances, indicating that the nature of the missing data (whether it is treated as non-informative or informative) had little or no influence on the results.

**Conclusion**

The findings indicate that higher initial level of appearance focused self-concept on a given day was linked to more restrictive eating and binge eating on the same day. As well, appearance focused self-concept was shown to increase during the day and this increase was linked to more same-day and next-day binge eating. These findings advance our understanding of the link between appearance focused self-concept and disordered eating and suggest their link may be on a briefer timescale. As well, the findings of the current research are consistent with prior between-person research and so offer support that the association between appearance focused self-concept and disordered eating is likely ergodic.
References


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https://doi.org/10.1037/0278-6133.21.2.131


Appendix A: Notice of Recruitment

**Title:** Evaluating change and stability in sociocultural factors, body image, and disordered eating in women using an experience sampling approach.

**Study description:** In this study, we hope to better understand how beliefs about attractiveness influence the way people value appearance and engage in behaviours to influence the way they look on a daily basis. To examine this research question, the current research involves two phases. In phase 1 of this study, you will be asked to answer a variety of questions regarding personality (e.g., perfectionism), beliefs about appearance and attractiveness, and whether or not you engage in various weight-control activities (e.g., dieting, fasting, exercise). In phase 2, you will be notified to complete a short survey six times a day over fourteen days (two weeks) via email. The notifications to complete the survey during the day will occur every two hours between 9am and 7pm. As well, at the end of each day (at 9pm), you will be asked to complete a seventh short survey about your engagement in weight-control activities (e.g., dieting, exercise) for that specific day. We ask that all participants switch on email notification on their phone so that they can complete each survey promptly. Phase 2 begins on the Monday following the completion of phase 1.

**Eligibility:** All participants must be female students signed up with SONA and have a smartphone to receive course credit for the Winter 2023 term.

To participate in the study, read through the informed consent and consent to participate. Next, you will complete a short intake survey that will take about 30 minutes of your time. Once the intake survey has been completed, phase 2 of the study will begin on the following Monday.

**Benefits/compensation:** You will receive 0.50% course credit as compensation for completing phase 1 of the study. You can receive up to 3.50% course credit (0.25% each day for fourteen days) for completing phase 2 of the study. In addition, we are offering participants who complete at least 90% of the surveys in phase 2 a $20 Amazon.ca gift card.

**Risks:** Although we can anticipate no physical discomfort to you because of your participation in this study, you may, however, experience some distress when thinking about your appearance and engagement in weight-control behaviours. In the event you feel distress, you may choose not to answer specific questions, and you will not be penalized in any way if you do this. Information will also be provided at the end of the survey linking you to appropriate health services at Carleton University and Ottawa.

Your participation, as well as your responses, will be strictly confidential. Only researchers associated with this project will know you participated in the study and know how you responded to the questions asked.
Appendix B: Informed Consent

The purpose of an informed consent is to ensure that you understand the purpose of the study and the nature of your involvement. The informed consent must provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study. This research has been cleared by Carleton University Research Ethics Board-B (CUREB-B Clearance #118254).

Eligibility: All participants must be female students signed up with SONA and have a smartphone to receive course credit for the Winter 2023 term.

Present study: Evaluating change and stability in sociocultural factors, body image, and disordered eating in women using an experience sampling approach.

Research personnel: The following people are involved in this study and may be contacted at any time if you have questions or concerns: Dr. Nassim Tabri (Principal Investigator; nassim.tabri@carleton.ca), Juliana Nicoletta (MA student; juliananicoletta@cmail.carleton.ca), Sarah Enouy (PhD student; sarahenouy@cmail.carleton.ca), and Rose Mosco (undergraduate researcher; rosemosco@cmail.carleton.ca).

Concerns: Should you have any ethical concerns about this research, please contact the Research Ethics Board at Carleton University (ethics@carleton.ca).

Purpose: The purpose of the study is to examine how aspects of your personality (e.g., perfectionism) and beliefs about attractiveness relate to beliefs about your appearance and engagement in weight-control activities (e.g., dieting). Additionally, this study aims to examine how momentary perceptions of pressure to look thinner, lose weight, or be in shape from various people in your life (e.g., friends, family, dating partners) and the media, as well as your momentary beliefs about the positive consequences of having a thin body, affect how much you value appearance as being important to your sense of self and your engagement in weight-control activities.

Task requirements: In phase 1, you will be asked to fill out several questionnaires that assess aspects of your personality (e.g., perfectionism), beliefs about attractiveness (e.g., how you value appearance), as well as questions about your engagement in weight-control activities (e.g., dieting, exercise).

In phase 2, you will be notified to complete a short survey six times a day over 14 days (two weeks). The notifications to complete the survey during the day will occur every two hours between 9am and 7pm via email. As well, at the end of each day of the study (at 9pm), you will be asked to complete a short seventh survey about your engagement in weight-control activities (e.g., dieting, exercise) for that specific day. We ask that all participants switch on email notification on their phone so that they can complete each survey promptly.

Benefits/compensation: For your participation in phase 1 of the study, we are offering 0.50% course credit as compensation. For your participation in phase 2, we are offering up to 3.50%
course credit (0.25% each day for fourteen days). In addition, we are offering participants who complete at least 90% of the surveys in phase 2 a $20 Amazon.ca gift card.

Duration and Locale: Participants will be recruited to join the study through SONA. The entire study will be administered online using Qualtrics. The survey in phase 1 should take approximately 20 minutes to complete. In phase 2, each assessment should take approximately 2-3 minutes to complete. An email will be sent to you that includes a link to complete the questionnaires.

Potential risk/discomfort: There are no physical risks involved in this study. Some individuals might feel uncomfortable when asked to reflect on aspects of their personality, pressures to change their body appearance, or when reflecting on their appearance and weight-control activities. If you feel any discomfort or distress, you may choose not to answer specific questions, and you will not be penalized in any way if you do this.

Right to withdraw: Your participation in this study is entirely voluntary. At any point during the study, you have the right to not complete certain questions, or to withdraw without penalty. If you withdraw, you have the right to request that your data be deleted. If you would like to withdraw your data, please email the Research Assistant (RA) Juliana Nicoletta (juliananicoletta@email.carleton.ca) and provide them with your SONA ID number. The RA will then delete your data and the email you sent. You will have until the end of the study to request that your data be deleted. However, once the study is complete, your identifying information will not be associated with your data. As such, the researchers will have no way of identifying your responses and will be unable to delete them. We anticipate the study to be completed in July 2023. If you would like to withdraw from the study and NOT have your data deleted, then please email the RA to let them know you are withdrawing from the study. The RA will then ask you if you wish to have your existing data deleted or included in the study.

Anonymity/Confidentiality: All data collected in this study is confidential. Only researchers associated with this project will have access to your name and contact information. We collect data through the software Qualtrics, which uses servers with multiple layers of security to protect the privacy of the data, including Transport Layer Security (TLS) encryption or HTTPS for all transmitted data, high-end firewall systems, and regular scans and updates to protect against vulnerabilities, and password protected storage.

Data Storage and Sharing: During the study, your contact information will be stored with your responses to the questionnaires. This is needed to compensate you for your participation. Your personal information will be permanently deleted once data collection for the study is complete. We anticipate completing data collection in Spring 2023. That said, there is a minor risk of data breach during data collection when your personal information will be linked to your responses to the questionnaires. By consenting to participate in the current research, you acknowledge and accept this risk.

The anonymized data set (i.e., a data file that does not include your personal information) will be stored on the computers of the researchers and research assistants involved with this project. A copy of the anonymized data set will also be stored electronically and kept indefinitely. As well,
we will upload this anonymized data set to an online data repository called Open Science Framework (https://osf.io/) for research and teaching purposes. Your anonymized data might be shared with others for research purposes and may be published or made publicly available (e.g., in repositories).

**Research Funding:** This research is supported by a Social Sciences and Humanities Research Council of Canada research grant awarded to Dr. Tabri.

By checking this box, you agree to the following terms:
- I agree to participate in the study
- I do not consent to the study
Appendix C:  
Intake Survey

**Demographics Questionnaire**

We require your name, SONA ID and Carleton University email address in order to compensate you. This information will be permanently deleted once you are compensated for your participation.

Contact information

1. Please indicate your name:

2. Please provide your Carleton University email address:

3. Please provide your SONA ID#:

4. Please indicate your age:

5. Please indicate your biological sex:  __Female  _Male  _Intersex

Please complete the following demographic questions:

Please indicate your ethnic identity:

- White (e.g., Caucasian, European descent)
- Black (e.g., African, Caribbean)
- Indigenous (e.g., First Nations, Métis or Inuit)
- East Asian (e.g., Chinese, Korean)
- South Asian (e.g., Indian, Pakistani)
- Latin American (e.g., Mexican, Columbian)
- Middle Eastern (e.g., Syria, Egypt)
- Bi- or multi-ethnic/racial (e.g., White/Black, East Asian/South Asian)
- Other, please specify__________
- Prefer not to answer

6. What is your height in inches:____

7. What is your weight in pounds:__________
Perceived Pressure and Internalization of Appearance Ideals Questionnaire

Please indicate the extent to which you agree or disagree with each statement.

Response options:

<table>
<thead>
<tr>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Somewhat Disagree</th>
<th>4 Neutral</th>
<th>5 Somewhat Agree</th>
<th>6 Agree</th>
<th>7 Strongly Agree</th>
</tr>
</thead>
</table>

Items:
1. It is important for me to look muscular.
2. It is important for me to look good in the clothes I wear.
3. I want my body to look very thin.
4. I think a lot about looking muscular.
5. I think a lot about my appearance.
6. I think a lot about looking thin.
7. I want to be good looking.
8. I want my body to look muscular.
9. I don’t really think much about my appearance.
10. I don’t want my body to look muscular.
11. I want my body to look very lean.
12. It is important to me to be attractive.
13. I think a lot about having very little body fat.
14. I don’t think much about how I look.
15. I would like to have a body that looks very muscular.
16. I feel pressure from family members to look thinner.
17. I feel pressure from family members to improve my appearance.
18. Family members encouraged me to decrease my level of body fat.
19. Family members encourage me to get in better shape.
20. My peers encourage me to get thinner.
21. I feel pressure from my peers to improve my appearance.
22. I feel pressure from my peers to look in better shape.
23. I get pressure from my peers to decrease my level of body fat.
24. Significant others encourage me to get thinner.
25. I feel pressure from significant others to improve my appearance.
26. I feel pressure from significant others to look in better shape.
27. I get pressure from significant others to decrease my level of body fat.
28. I feel pressure from the media to look in better shape.
29. I feel pressure from the media to look thinner.
30. I feel pressure from the media to improve my appearance.
31. I feel pressure from the media to decrease my level of body fat.
Clinical Perfectionism Questionnaire (Fairburn et al., 2003)

This questionnaire concerns perfectionism, which is defined as trying to meet really high standards whether or not you actually succeed in reaching them.

Please respond to each statement in terms of how you have behaved or felt over the past month.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>All the time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Have you pushed yourself really hard to meet your goals?
2. Have you tended to focus on what you have achieved, rather than on what you have not achieved? (R)
3. Have you been told that your standards are too high?
4. Have you felt a failure as a person because you have not succeeded at meeting your goals?
5. Have you been afraid that you might not reach your standards?
6. Have you raised your standards because you thought they were too easy?
7. Have you judged yourself on the basis of your ability to achieve high standards?
8. Have you done just enough to get by? (R)
9. Have you repeatedly checked how well you are doing at meeting your standards (for example, by comparing your performance with that of others)?
10. Do you think that other people would have thought of you as a “perfectionist”?
11. Have you kept trying to meet your standards, even if this has meant that you have missed out on things?
12. Have you avoided any tests of your performance (at meeting your goals) in case you failed?
Global Self-Esteem Questionnaire

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

Response options:

<table>
<thead>
<tr>
<th></th>
<th>1 Strongly Disagree</th>
<th>2 Disagree</th>
<th>3 Somewhat Disagree</th>
<th>4 Neutral</th>
<th>5 Somewhat Agree</th>
<th>6 Agree</th>
<th>7 Strongly Agree</th>
</tr>
</thead>
</table>

Items:
1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I’m a person of worth, at least on an equal plane with others.
8. I wish I could have more respect for myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude toward myself.

Appearance Focused Self-Concept Questionnaire

Please indicate the extent to which you agree with the following statements.

Response options:

<table>
<thead>
<tr>
<th></th>
<th>0 Not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4 Extremely</th>
</tr>
</thead>
</table>

Items:
1. How I feel about myself is largely based on my appearance.
2. My moods are influenced by how I look.
3. People will think less of me if I don’t look my best.
4. The opportunities that are available to me depend upon how I look.
Body Dissatisfaction Questionnaire

Please indicate how strongly you agree or disagree with each statement below.

Response options:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Somewhat Disagree</td>
<td>Neutral</td>
<td>Somewhat Agree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

1. When I think about my body compared to others, I feel dissatisfied
2. I am satisfied with my body compared to other people like me
3. I feel distressed when I look at other people’s bodies
4. When I compare my body to other people, I realize that I am quite satisfied
Eating Disorder Examination Questionnaire

The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please select the appropriate number using the scale below. Remember the questions only refer to the past four weeks (28 days) only. On how many days of the past 28 days…

Response options:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No Days</td>
<td>1-5 Days</td>
<td>6-12 Days</td>
<td>13-15 Days</td>
<td>16-22 Days</td>
<td>23-27 Days</td>
<td>Every Day</td>
</tr>
</tbody>
</table>

Items:

1. Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?
2. Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?
3. Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?
4. Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?
5. Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?
6. Have you had the desire to have a totally flat stomach?
7. Has thinking about food eating or calories made it difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?
8. Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?
9. Have you had a definite fear of losing control over eating?
10. Have you had a definite fear that you might gain weight?
11. Have you felt fat?
12. Have you had a strong desire to lose weight?
13. How many times have you eaten what other people would regards as an unusually large amount of food (given the circumstances)?
14. ...On how many of these times did you have a sense of having lost control over your eating (at the time you were eating?)
15. On how many DAYS have such episodes of overeating occurred (i.e. you have eaten an unusually large amount of food and have had a sense of loss of control at the time)?
16. How many times have you made yourself sick (vomit) as a means of controlling your shape or weight?
17. How many times have you taken laxatives as a means of controlling your shape or weight?
18. How many times have you exercised in a “driven” or “compulsive” way as a means of controlling your weight, shape or amount of fat, or to burn off calories?
19. On how many days have you eaten in secret (i.e. furtively)?...Do not count episodes of binge eating.
20. On what proportion of the times that you have eaten have you felt guilty (felt that you’ve done wrong) because of its effect on your shape or weight?...Do not count episodes of binge eating.
21. How concerned have you been about other people seeing you eat?...Do not count episodes of binge eating.
22. Has your weight influenced how you think about (judge) yourself as a person?
23. Has your shape influenced how you think about (judge) yourself as a person?
24. How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?
25. How dissatisfied have your been with your weight?
26. How dissatisfied have your been with your shape?
27. How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?
28. How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?

End of Phase 1 Message

Thank you for completing Phase 1 of the study!

As a friendly reminder:

Phase 2 of the study will begin on the following Monday. In Phase 2, you will be notified to complete a short survey six times a day over 14 days (two weeks). The notifications to complete the survey during the day will occur every two hours between 9am and 7pm. As well, at the end of each day of the study (at 9pm), you will be asked to complete a short seventh survey about your engagement in weight-control activities (e.g., dieting, exercise) for that specific day.

The notifications to complete the surveys in Phase 2 will be via email. You will receive an email for each survey at your Carleton University email address. The email will come from the Mental Health Addiction Lab by way of Qualtrics.

You will have approximately 30 minutes to complete each survey and so please switch on the email notification on your phone if you have not already done so. The email notification will help you complete each survey before the survey link expires.
Appendix D:
Phase 2 questionnaire

How much pressure do you currently feel to look thinner, lose weight, or be in shape from…

<table>
<thead>
<tr>
<th>No pressure</th>
<th>a little bit of pressure</th>
<th>Some pressure</th>
<th>Quite a bit of pressure</th>
<th>A lot of pressure</th>
<th>High pressure</th>
<th>Extreme Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

…friends
…family members
…romantic partner
…peers
...the media (e.g., TV, magazines)

Please read each of the following items carefully and indicate the number that best reflects your agreement with the following statements:

At this very moment…

I want my body to look very thin.
It is important to me to be attractive.
I want my body to look very lean.
I want my body to have very little body fat.
It is important for me to look good in the clothes I wear.
I want to be good looking.

At this moment, how satisfied are you with your appearance right now?

Extremely Dissatisfied | Somewhat Dissatisfied | Neither Satisfied or Dissatisfied | Somewhat Satisfied | Satisfied | Extremely Satisfied
1 | 2 | 3 | 4 | 5 | 6 | 7

Please indicate the extent to which you currently agree with each of the following statements:

At this very moment…

How I feel about myself is largely based on my appearance.
My moods are influenced by how I look.
People will think less of me if I don’t look my best.
The opportunities that are available to me depend on how I look.

**End of day survey**

<table>
<thead>
<tr>
<th></th>
<th>None of the time</th>
<th>A few times</th>
<th>Less than half of the time</th>
<th>Half of the time</th>
<th>More than half of the time</th>
<th>Almost all of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earlier today, did you….</td>
<td></td>
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<tr>
<td>...exercise in a “driven” or “compulsive” way as a means of controlling your weight, shape or amount of fat, or to burn off calories?</td>
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<tr>
<td>....deliberately try to limit the amount of food you ate to influence your shape or weight (whether or not you succeeded)?</td>
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<tr>
<td>...go for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?</td>
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<tr>
<td>...try to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?</td>
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<tr>
<td>...try to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?</td>
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<tr>
<td>...have a definite desire to have an empty stomach with the aim of influencing your shape or weight?</td>
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</tbody>
</table>
Purging Behaviours

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>1 time</th>
<th>2 times</th>
<th>3 times</th>
<th>4 times</th>
<th>5 or more times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earlier today, how many times did you...</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>...make yourself sick (vomit) as a means of controlling your shape or weight?</td>
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<tr>
<td>...take laxatives as a means of controlling your shape or weight?</td>
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<tr>
<td>….use diet teas or cleansing teas to lose weight?</td>
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<tr>
<td>….use diuretics in order to lose weight?</td>
<td></td>
<td></td>
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</tbody>
</table>

Binge eating

...eat what other people would regard as an unusually large amount of food (given the circumstances)

0 – None
1 – 1 time
2 – 2 times
3 – 3 times
4 – 4 times
5 – 5 or more times

[if response is (any option other than 0) then show them the following question]

On how many of these times did you have a sense of having lost control over your eating (when eating earlier today)?

0 – None
1 – 1 time
2 – 2 times
3 – 3 times
4 – 4 times
5 – 5 or more times
Appendix E: Debriefing

Thank you for participating in this study! This post-survey information is provided to inform you of the exact nature of the study you just participated in.

What is the aim of the study you completed?
People who overvalue the importance of their appearance may engage in certain behaviours (e.g., dieting, exercise) to influence their body shape and weight. Past Research has also shown that women who perceive pressure to have a thin body and who buy into the idea that having a thin body is associated with positive outcomes (e.g., admiration from others, attractiveness, romantic success) are more likely to overvalue their appearance as a core aspect of their self-definition. Such people have been shown to engage in weight control behaviours, like dieting, exercising, or restricting food intake. This prior work has examined these associations over long periods of time (i.e., months and years). In the current research, we measured similar variables, but on a daily basis. We will examine whether certain aspects of personality (e.g., perfectionism), and beliefs about attractiveness influence the extent to which people overvalue their appearance and engage in weight-control activities on a day-to-day basis, and whether daily variation in appearance overvaluation is linked to engaging in weight-control activities on the same day.

Where can I learn more?
See the following link for more information on the role of overvaluation of appearance in eating disorders: https://www.psychologytoday.com/ca/blog/eating-disorders-the-facts/202108/body-image-in-eating-disorders

Is there anything I can do if I found this study to be emotionally upsetting?
Yes. If you feel any distress or anxiety after participating in this study, please feel free to use any of the following resources:

1. Health and Counselling Services: To book an appointment contact the main clinic by calling (613) 520-6674 or presenting in person to 2600 Carleton Technology and Training Building. Same day counselling is available Monday to Friday from 11AM to 4PM. For more information please see https://carleton.ca/health/

2. Good2Talk 1-866-925-5454: Good2Talk is a free, confidential helpline providing professional counselling and information and referrals for mental health, addictions and well-being to post-secondary students in Ontario, 24/7/36 https://good2talk.ca/

3. Empower Me: Undergraduate students have access to free counselling services in the community through Empower Me, either in person, by telephone, video-counselling or e-counselling. This free service is accessible 24/7, 365 days per year. Call 1-844-741-6389 (toll free) to make an appointment with a counsellor in the community. Here is more information https://students.carleton.ca/services/empower-me-counselling-services/
4. The Walk-In Counselling Clinic (off-campus community resource): The walk-in Counselling Clinic have offices in various locations across Ottawa and the greater Champlain region that are open 7 days a week. Individuals will be assisted, with no appointment, on a first-come, first-serve basis during the Walk-in Counselling Clinic hours. The Walk-in Counselling Clinic offers services in many languages and is free and confidential. More information can be found at: https://walkincounselling.com/

5. Ottawa Distress Centre – 24/7 – distress line, 613-238-3311. Text is available at 343-306-5550 and the crisis line is 613-722-6914 or 1-866-996-0991

What if I have questions later?
If you have any questions or comments about this research, then please feel free to contact Dr. Nassim Tabri: nassim.tabri@carleton.ca.

Should you have any ethical concerns about this research, then please contact the Research Ethics Board at Carleton University (ethics@carleton.ca).

Thank you for participating in this study! Your assistance will help us with our future research studies. We greatly appreciate your participation, but we ask that you refrain from discussing this study with potential participants as their responses may be influenced if they are privy to the purpose of the study.

This research is supported by a Social Sciences and Humanities Research Council of Canada research grant awarded to Dr. Tabri.

This research has been cleared by Carleton University Research Ethics Board-B (CUREB-B Clearance #118254).