

**Kindness Begins with Yourself:  
The Role of Self-Compassion in Adolescent Body  
Satisfaction and Eating Pathology**

by

**Rachelle Rose Ferera Pullmer**

M.A., Simon Fraser University, 2015

B.A. (Hons.), McGill University, 2012

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# Approval

**Name:** **Rachelle Rose Ferera Pullmer**

**Degree:** **Doctor of Philosophy**

**Title:** **Kindness Begins with Yourself: The Role of Self-Compassion in Adolescent Body Satisfaction and Eating Pathology**

**Examining Committee:** **Chair:** Robert Ley  
Associate Professor

**Shannon Zaitsoff**  
Senior Supervisor  
Associate Professor

**Alexander Chapman**  
Supervisor  
Professor

**Jennifer Coelho**  
Supervisor  
Clinical Assistant Professor  
Department of Psychiatry  
University of British Columbia

**Brent McFerran**  
Internal Examiner  
Associate Professor  
Beedie School of Business

**Allison C. Kelly**  
External Examiner  
Assistant Professor  
Department of Psychology  
University of Waterloo

**Date Defended/Approved:** May 4, 2018

## Ethics Statement

The author, whose name appears on the title page of this work, has obtained, for the research described in this work, either:

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## Abstract

A wealth of evidence indicates that self-compassion is linked to positive psychological outcomes; however, little is known about the role of self-compassion in adolescent eating pathology. The primary purpose of this research was to investigate the relationships between self-compassion, psychological distress, body satisfaction, and eating pathology in high school students (Study One, community sample,  $n = 238$ ; 43.7% male) and female adolescent patients with eating disorders (Study Two, clinical sample,  $n = 58$ ). All participants completed the Self-Compassion Scale (SCS), Hopkins Symptom Checklist (SCL-5), Body Areas Satisfaction Scale (BASS), and Eating Disorder Examination Questionnaire - Adolescent Version (EDE-Q) at baseline. The community sample completed the SCL-5, BASS, and EDE-Q four months later. In both studies, self-compassion predicted body satisfaction and/or eating pathology through psychological distress. In comparison to females in the community sample, self-compassion was higher in males and lower in female patients with eating disorders. Altogether, results underscore how self-compassion may be an important factor to target in fostering a positive body image and preventing disordered eating in adolescents.

**Keywords:** body satisfaction, eating pathology, psychological distress, self-compassion, adolescents, longitudinal

*To my Nona, who taught us to enjoy every precious moment on this earth.  
You will always be my inspiration.*

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# Chapter 1.

## Introduction

Eating disorders affect adolescents' social, emotional, cognitive, and physiological developmental processes in a detrimental manner (Quine, 2012). Given that body dissatisfaction and disordered eating behaviours typically develop in adolescence (American Psychiatric Association, 2013) and are strongly linked with numerous psychiatric disorders (Ferreiro, Wichstrom, Seoane, & Senra, 2014; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011), early prevention is crucial. To date, only two prevention programs have produced medium effect sizes with respect to eating disorder onset (Stice, Becker, & Yokum, 2013). In order to maximize the public health impact of prevention efforts, it is imperative to uncover transdiagnostic factors that can foster resilience and yield large and persistent reductions in body dissatisfaction and eating pathology.

One promising factor that appears to have widespread implications for a multitude of mental health problems is self-compassion, which prospectively predicts improved psychological outcomes and health behaviours across the lifespan (Bluth & Eisenlohr-Moul, 2017; Marsh, Chan, & MacBeth, 2017; Neff, 2009; Rahimi-Ardabili, Reynolds, Vartanian, McLeod, & Zwar, 2017; Zessin, Dickhauser, & Garbade, 2015). Self-compassion is defined by three interacting components demonstrated during times of suffering and failure: (1) adopting an attitude of self-kindness rather than judgment, (2) viewing pain as a common human experience rather than as isolating, and (3) being mindful of one's inadequacies as opposed to ruminating on painful thoughts or experiences (Neff, 2003a). Given that self-compassion is a malleable construct that has robust associations with health-related outcomes, it may protect against the risk of eating disorders and related psychopathology (Braun, Park, & Gorin, 2016).

While the adult literature on self-compassion, body satisfaction, and eating pathology is growing at an exponential pace (Braun et al., 2016), only a small handful of studies have explored the role of self-compassion over time (Kelly, Carter, & Borairi, 2013a; Kelly & Tasca, 2016). Consequently, the temporal process by which self-compassion impacts body satisfaction and eating pathology is not yet understood. Given that adolescence is a crucial identity-forming period of life when body dissatisfaction and eating pathology become highly prevalent (American Psychiatric Association, 2013; Neumark-Sztainer et al., 2006; Swanson et al., 2011),

it is essential to examine the role of self-compassion during this time. Although three studies in adolescents provide preliminary evidence for a negative link between self-compassion and body image (Mosewich, Kowalski, Sabiston, Sedgwick, & Tracy, 2011; Rodgers et al., 2017; Rodgers et al., 2018), no research exists on the relation between self-compassion and eating pathology.

## 1.1. The Construct of Self-Compassion

Compassion for others turned inward is the essence of self-compassion, which is operationally defined by three key factors that interact to produce a self-compassionate mindset. Each continuous factor is portrayed on positive and negative poles that exemplify compassionate and uncompassionate responses in the face of failure: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification (Neff, 2003a). *Self-kindness* involves treating oneself in a gentle and supportive manner. Rather than engaging in harsh self-criticism, people higher on this component of self-compassion may be more likely to accept their flaws and mistakes in a *nonjudgmental* manner. *Common humanity* entails acknowledging that imperfection, failure, and suffering are an inherent part of the human condition. People higher on this component will be more likely to view themselves as connected with others and less likely to feel *isolated* when considering personal shortcomings. Finally, *mindfulness* involves the ability to acknowledge distressing experiences without rumination. A mindful person may be more likely to hold difficult thoughts and emotions in objective awareness and less likely to *over-identify* with them or push them away.

While the various components of self-compassion can be viewed as conceptually distinct, it is important to note that they mutually influence one another (Neff & Dahm, 2015). Take the example of a highly motivated treatment-seeking patient with anorexia nervosa - binge-eating/purging type, a disorder characterized by immense body dissatisfaction, an intense fear of weight gain, and dietary restraint coupled with recurrent binge eating or purging behaviour (American Psychiatric Association, 2013). Following a binge-purge episode, the patient may feel as though they have “failed” treatment. Being aware of the notion that “failure” is an inherent part of being human (e.g., “It is normal to have a slip”) reduces feelings of isolation from others (e.g., “I am not alone in this”) and increases mindfulness (e.g., “I see where the slip happened”). Practicing self-kindness (e.g., “It is okay to have a slip”) can induce less self-judgment (e.g., “No one is perfect”) and increase feelings of common humanity (e.g., “Other people are struggling with this too”). As exemplified, the components of self-compassion

represent a dynamic system, which together constitute a singular capability that can enable people to respond effectively to distress and disappointment.

As with self-esteem, a wealth of research demonstrates that self-compassion strongly predicts various indicators of wellbeing (Leary, Tate, Adams, Allen & Hancock, 2007; Macbeth & Gumley, 2012; Marsh et al., 2017; Sirois, Kitner, & Hirsch, 2015). Despite the moderate correlation between self-compassion and self-esteem, there are key differences that warrant discussion (Neff & Vonk, 2009). First, self-esteem can be contingent on external factors and may shift depending on life circumstances, whereas self-compassion is more stable because it is not evaluation-based (Crocker & Park, 2004; Neff & Vonk, 2009). Second, while self-esteem is associated with many benefits, it has been linked with numerous maladaptive qualities, including narcissism, inflated positive beliefs about oneself, and defensiveness in the face of failure (Baumeister, Bushman & Campbell, 2000; Crocker & Park, 2004; Neff & Vonk, 2009). An accumulating body of evidence indicates that people experience more positive thoughts and behaviours if they approach suffering with self-kindness, mindful awareness, and a sense of common humanity (Neff & Dahm, 2015). Given experimental research in adults and adolescents demonstrating that self-compassion can be induced momentarily, increased in the short-term, and maintained in the long-term, it is fundamental construct to investigate as a positive predictor of resilience across the developmental spectrum (Bluth & Eisenlohr-Moul, 2017; Leary et al., 2007; Neff & Germer, 2013; Rahimi-Ardabili et al., 2017).

## **1.2. Self-Compassion and Body Image**

A recent systematic review provides preliminary support for the theory that self-compassion may protect against the development of a maladaptive body image and eating pathology in adults (Braun et al., 2016). Accumulating evidence in clinical and non-clinical samples of adult females demonstrates the direct effects of self-compassion interventions on increasing body satisfaction (Albertson, Neff, & Dill-Shackleford, 2015; Seekis, Bradley, & Duffey, 2017; Toole & Craighead, 2016). Research employing ecological momentary assessment or daily diary methodologies indicates that fluctuations in self-compassion predict fluctuations in maladaptive body image variables in young adult women (Breines, Toole, Tu, & Chen, 2014; Kelly & Stephen, 2016; Thogersen-Ntoumani, Dodos, Chatzisarantis, & Ntoumanis, 2017) and that self-compassion buffers the effect of negative interactions with body-focused others on body image concerns (Kelly et al., 2016). Another notable experimental study demonstrated that women who viewed Instagram images of self-compassion quotes

experienced less body dissatisfaction than women who viewed neutral images (Slater, Varsani, & Diedrichs, 2017).

Cross-sectional research provides corroborating evidence for the above mentioned studies, demonstrating that increased self-compassion reduces the negative association between body-related threats and body appreciation in women (Homan & Tylka, 2015) and helps to explain the relationship between shame and body appreciation (Marta-Simoes, Ferreira, & Mendes, 2016). Additionally, studies in female undergraduate students indicate that higher self-compassion is associated with fewer body image concerns and lower levels of body dissatisfaction as well as greater body appreciation and body image flexibility (i.e., tolerating negative body-related thoughts and pursuing activities in spite of these concerns; Andrew, Tiggemann, & Clark, 2016; Daye, Webb, & Jafari, 2014; Duarte, Ferreira, Trindade, & Pinto-Gouveia, 2015; Kelly, Vimalakanthan, & Miller, 2014a; Liss & Erchull, 2015; Maraldo, Zhou, Dowling, & Vander Wal, 2016; Wasylikiw, MacKinnon & MacLellan, 2012).

With respect to the adolescent literature, a recently conducted experimental study demonstrated the efficacy of a six-week mobile self-compassion intervention on reducing appearance concerns post-intervention and at 6-week follow-up (Rodgers et al., 2018). Findings from two cross-sectional studies indicate that self-compassion is positively associated with body image and physical appearance comparison in females (Mosewich et al., 2011; Rodgers et al., 2017). Furthermore, components of self-compassion (i.e., mindfulness and common humanity) have been found to moderate the relation between self-rated perceived weight status and physical appearance comparison in males (Rodgers et al., 2017). Given that body dissatisfaction increases in adolescence and is an established risk factor for a host of adverse health outcomes (Bucchianeri, Arikian, Hannan, Eisenberg, & Neumark-Sztainer, 2013; Neumark-Sztainer et al., 2006; Stice, Gau, Rohde, & Shaw, 2017), it is a particularly pertinent aspect of body image to investigate in relation to self-compassion.

### **1.3. Self-Compassion and Eating Pathology**

Regarding eating pathology, several experimental studies in female undergraduate students demonstrate that higher levels of self-compassion are linked with decreased disordered eating (e.g., dietary restraint) and increased intuitive eating (i.e., eating guided by physiological hunger) both within- and between-persons (Breines et al., 2014; Kelly et al., 2016; Kelly & Stephen, 2016). A particularly influential experimental study demonstrated that state-

induced self-compassion is linked with reductions in distress and binge eating among highly restrictive eaters (Adams & Leary, 2007). Interestingly, a recently conducted longitudinal study found that self-compassion buffered the effect of weight and shape concerns on eating pathology in the first two years of college (Stutts & Blomquist, 2018). Cross-sectional research in young adult women provides further support that self-compassion is negatively linked with overall eating pathology (Geller, Srikameswaran, & Zelichowska, 2015; Tylka, Russel, & Neal, 2015; Webb & Forman, 2013) and positively linked with intuitive and mindful eating (Schoenefeld & Webb, 2013; Taylor, Daiss, & Krietsch, 2015). It has also been found that self-compassion helps buffer the link from body dissatisfaction (Finley-Straus, 2011) and media pressures (Tylka, Russel, & Neal, 2015) to disordered eating behaviours.

Research on adult female patients with eating disorders indicates that increased self-compassion early in treatment may lead to a faster reduction in eating pathology (Gale, Gilbert, Read, & Goss, 2014; Kelly et al., 2013a; Kelly, Carter, Zuroff, & Borairi, 2013b; Kelly & Carter, 2014; Kelly & Carter, 2015). Cross-sectional studies utilizing both community and clinical samples provide additional support for the protective role of self-compassion across groups (Ferreira, Pinto-Gouveia, & Duarte, 2013; Kelly, Vimalakanthan, & Carter, 2014b; Pinto-Gouveia, Ferreira, & Duarte, 2014). Furthermore, research demonstrates that adult female patients with eating disorders have lower levels of self-compassion than adults in the general population (Ferreira et al., 2013; Kelly et al., 2014b).

Altogether, the literature on self-compassion, body image, and eating pathology is primarily limited to cross-sectional studies, and while some studies have included both males and females, the samples are more often comprised of young adult women. While this can make it challenging to ascertain the directionality of observed relationships and generalize the study findings, support exists for the protective role of self-compassion. Given that adolescence is a unique stage of life characterized by relatively rapid changes in developmental processes, it cannot be extrapolated that the relationships between these variables are the same for adolescents as they are for adults. Despite the strong theoretical relevance of self-compassion with respect to body image and eating disorders in adolescence, only three studies described above exist and not one study to date has examined the role of self-compassion in adolescent eating pathology.

Developmental stage theories in conjunction with extant research indicate that self-compassion is highly relevant in adolescence, given that identity formation is a principal

developmental process during this stage of life (Erikson, 1968; Neff & McGehee, 2010). It is also likely that adolescence is the period in which self-compassion is especially needed, as adolescents are constantly evaluating and comparing themselves to others as they attempt to define their identity (Brown & Lohr, 1987; Harter, 1990; Neff & McGehee, 2010). This process can contribute to continuous negative self-evaluations, which are strongly implicated in the development and maintenance of mental health problems (Neff & McGehee, 2010). Indeed, age is positively associated with self-compassion, and lower levels of self-compassion have been found in adolescents when compared to young adults (Neff & McGehee, 2010; Neff & Vonk, 2009).

#### **1.4. Mediating Role of Psychological Distress**

The global impact of eating disorders in youth underscores the necessity of identifying not only protective factors, but also mechanisms of change that can inform targeted interventions (Swanson et al., 2011). While a growing body of literature provides support for the role of self-compassion in body dissatisfaction and eating pathology in adults, little is known about the relationship between these variables in adolescents. Notably, even less is known about the process through which self-compassion exerts its effect.

A recently conducted meta-analysis of 19 studies has established an inverse relationship between self-compassion and psychological distress in adolescents (Marsh et al., 2017). Explanatory models for the development of eating pathology underscore its reciprocal relationship with psychological distress, such that negative affect predicts body dissatisfaction and eating pathology, which can impact depressive symptoms that in turn predict greater increases in eating pathology (Marmorstein, von Ranson, Iacono, & Malone, 2008; Nolen-Hoeksema, Stice, Wade, & Bohon, 2007; Presnell, Bearman, & Stice, 2004; Stice & Bearman, 2001; Stice, Hayward, Cameron, Killen, & Taylor, 2000). Although additional longitudinal studies are required to elucidate the temporal precedence of eating disorder risk factors over time, prospective research provides support for the notion that psychological distress predicts body dissatisfaction and eating pathology in adolescents (Bearman, Presnell, & Stice, 2006; Ferreira et al., 2014; Paxton, Eisenberg, & Neumark-Sztainer, 2006; Rasmus, Anna-Lisa, Mauri, Riittakerttu, & Kaj, 2010; Stice et al., 2017).

To elaborate, Stice and Colleagues (2017) conducted a large-scale study in females indicating that negative affect (which includes assessments of fear/anxiety) was a



transdiagnostic predictor of eating disorders in late adolescence. Relatedly, Ferreiro and colleagues (2014) found that depressed mood predicts eating pathology in early adolescence for males and females. Rasmus and colleagues (2010) provide further corroborating evidence by demonstrating that adolescents who are dieting as a result of psychological distress are at increased risk for developing an eating disorder. Finally, findings from two longitudinal studies indicate that negative affect predicts decreases in body satisfaction in both male and female adolescents (Bearman et al., 2006; Paxton et al., 2006).

Altogether, these studies underscore adolescence as a pivotal period whereby psychological distress may foster the development of eating disorders. Given that depressive and anxiety symptoms are among the most common mental health issues experienced in adolescents (Cummings, Caporino, & Kendall, 2014) and are strongly linked with self-compassion, body dissatisfaction, and eating pathology (Marsh et al., 2017; Stice et al., 2017), they represent an important pathway to consider in determining whether and how self-compassion exerts its effect over time.

## **1.5. Better Science with Sex and Gender**

As mandated by the Canadian Institutes of Health Research (2018), it is imperative that sex and gender are both accounted for in health research. However, not one study described above or below explicitly accounted for both sex and gender in their analyses. Notably, these terms are often used interchangeably and thus incorrectly in the literature. This makes it challenging to ascertain whether study findings are generalizable to sex, gender, or both constructs. Johnson and colleagues (2009) provide concrete recommendations for the incorporation of sex and gender-based analyses in health research. Specifically, they describe how a necessary first step to conducting sex and gender-sensitive research is to begin with analyses aimed at determining whether sex differences exist. Once sex differences are established, studies should begin to explore one layer of gender, such as gender identity, and move onwards from there.

## **1.6. Moderating Role of Sex**

Psychological distress, body dissatisfaction, and disordered eating are more prevalent in biological female than in male adolescents (hereafter referred to as male/female; Beesdo, Knappe, & Pine, 2009; Hankin, Abramson, Moffitt, Silva, McGee, & Angel, 1998; Neumark-Sztainer et al., 2006; Swanson et al., 2011). Despite these differences, eating disorders constitute significant mental health problems for males (American Psychiatric Association, 2013; Darcy, 2011) and correlates of body dissatisfaction and eating pathology are similar for both males and females (Paxton et al., 2006; Santos, Richards, & Bleckley, 2007; Swanson et al., 2011). It is therefore essential to include males in research that may have implications for prevention efforts.

Given the high prevalence of symptomatology among women versus men, it is also important to examine whether the relationships between self-compassion, psychological distress, body satisfaction, and eating pathology vary according to sex. As indicated above, research on moderators of the relationship between self-compassion and wellbeing is limited. To our knowledge, only two cross-sectional studies have investigated whether the role of self-compassion differs for males versus females (Bluth & Blanton, 2015; Bluth, Campo, Futch, & Gaylord, 2016), one of which explicitly specified categorization according to gender (Bluth et al., 2016). While one study found no differences in the association between self-compassion and increased negative affect, another study demonstrated that self-compassion may be more strongly associated with decreased anxiety in self-identified males than in females. Due to conflicting findings, further research is needed to clarify whether the role of self-compassion differs according to sex.

## **1.7. Sex Differences in Self-Compassion**

When considering the significant effect that self-compassion might have on body satisfaction and eating pathology in adolescence, it is also imperative to understand whether levels of self-compassion differ in males versus females. During adolescence, it is posited that females are more self-conscious and self-critical than males, particularly with regard to physical changes (Agam, Tamir, & Golan, 2015; Hyde, Mezulis, & Abramson, 2008; Neumark-Sztainer et al., 2006). Research also indicates that females are more likely to engage in negative self-judgments and appraisals following difficult life events (Hyde et al., 2008; Nolen-Hoeksema & Girgus, 1994). These tendencies appear to counteract key tenets of self-compassion and may

provide theoretical support for the notion that adolescent females have lower levels of self-compassion than males.

A recently conducted meta-analysis revealed that self-compassion is slightly higher for adult males than for females (Yarnell, Staffod, Neff, Reilly, Knox, & Mullarkey, 2015). The nascent literature on adolescents yields somewhat conflicting findings, with the first published study indicating no sex differences (Neff & McGehee, 2010), two studies implicating that differences emerge in older adolescents (i.e., age 14 and above; Bluth & Blanton, 2015; Muris, Meesters, Pierik, & de Kock, 2016) and a more recent study with the largest sample size to date demonstrating that self-compassion is lowest for older self-identified female adolescents when compared to males and younger female adolescents (Bluth et al., 2016). As such, additional studies are needed to elucidate whether male adolescents do indeed have higher levels self-compassion.

## **1.8. Primary Research Objectives**

The main purpose of this research was to investigate the relationships between self-compassion, psychological distress, body satisfaction, and eating pathology in adolescents. To achieve this aim, two studies were conducted. Study One longitudinally examined the indirect effect of self-compassion on body satisfaction and eating pathology through psychological distress in a community sample of male and female adolescents. Study Two further investigated the relationships between these variables in a clinical sample of female adolescents and evaluated whether levels of self-compassion differed between female adolescents with and without eating disorders.

## **Chapter 2.**

### **Study One**

To date, the longitudinal effect of self-compassion on eating pathology has not been studied in youth. Thus, although researchers know that self-compassion may protect against a maladaptive body image and disordered eating behaviours in adult females, little is known about the relationship between these variables in male and female adolescents. As such, research is needed to examine whether self-compassion is indeed linked with body satisfaction and eating pathology and to investigate the process through which self-compassion exerts its effect. Informed by theory and an increasing body of research, Study One sought to fill these primary gaps in the literature at baseline and four months later.

#### **2.1. Hypotheses**

- 1) Self-compassion will be positively associated with body satisfaction and negatively associated with psychological distress and eating pathology in both males and females.
- 2) Changes in psychological distress will mediate the effect of self-compassion on increases in body satisfaction and decreases in core behavioural and cognitive features of eating disorders (i.e., dietary restraint, concerns with eating, and overvaluation of shape and weight).
- 3) Sex will moderate the indirect effect of self-compassion on body satisfaction and eating pathology through changes in psychological distress as well as the direct relationships between these variables.
- 4) Self-compassion will be higher in male than in female adolescents.

## 2.2. Method

### 2.2.1. Participants

Participants were 238 adolescents ( $n = 134$  females,  $n = 104$  males according to assigned sex at birth) between the ages of 13 and 18 ( $M = 16.49$ ,  $SD = 1.23$ ) who completed data collection at both time points. With respect to gender identity, 2.1% ( $n = 5$ ) of assigned females at birth specified a different gender identity (i.e., 0.8% ( $n = 2$ ) self-identified as males, 0.8% ( $n = 2$ ) self-identified as transgender, and 0.4% ( $n = 1$ ) as “other” (i.e., non-binary)). Of the sample, 0.4% ( $n = 1$ ) did not respond. Regarding ethnic-cultural background, 35.7% ( $n = 85$ ) of participants self-identified as Caucasian, 28.6% ( $n = 68$ ) as East Asian, 10.9% ( $n = 26$ ) with more than one ethnic-cultural background, 7.1% ( $n = 17$ ) as South East Asian, 5.5% ( $n = 13$ ) as South Asian, 5.0% ( $n = 12$ ) as “Other”, 5.0% ( $n = 12$ ) as First Nations, Hispanic or African, and 2.1% ( $n = 5$ ) did not respond. The majority of adolescents reported living with their mother and father (67.2%,  $n = 160$ ), 21.0% ( $n = 50$ ) reported living with their mother most of the time, 11.3% ( $n = 27$ ) reported other living situations (e.g., living with their father most of the time, living with both parents part-time, or living with other family members), and 0.42% ( $n = 1$ ) did not respond.

### 2.2.2. Procedure

All procedures were approved by the harmonized review process between Simon Fraser University’s Research Ethics Board (REB) and the University of British Columbia/Children’s and Women’s Health Centre of British Columbia as well as by the Burnaby and Coquitlam school districts. Data were collected as part of a larger study investigating the role of body checking on eating pathology. Participants were recruited from psychology, social studies, planning, and science classes at Burnaby Mountain, Terry Fox, and Port Moody secondary schools. One week before data collection was scheduled to begin, a lecture was conducted for all students in recruited classes on basic research methodology and components of informed consent. A brief overview of the current study was also provided. At the end of the lecture, study-related forms were distributed (i.e., consent forms for adolescents and an introductory letter and information form for student’s parent(s)/guardian(s); Appendix A). All of the students were asked to review the forms with their parent(s)/guardian(s) before deciding whether or not to participate in the study.

Initial data collection at Time one (T1) took place at school during one class period, which lasted between 80 and 120 minutes. Students were notified that Time two (T2) data collection would take place 14-16 weeks later, depending on the availability of participating schools. Teachers were responsible for reminding their students of T2 data collection. On both data collection days, teachers were asked to leave the classroom, and temporary privacy shields were placed on all individual student desks to protect confidentiality. Prior to distributing questionnaire packages, students were given time to review consent forms and ask any remaining questions about the study. Once all of the consent forms were collected, questionnaire packages were distributed to everyone.

All students were asked to complete the questionnaire package cover page indicating whether or not they consented to participate in the study. Students who did not wish to participate were asked to either draw on the questionnaire packages, leave them blank, or work quietly on school-related tasks. Students were taken out of the classroom to a private room on an individual basis over the course of each class period. Study participants (determined by the questionnaire package cover page) had their height and weight measured by a member of the research team, whereas non-consenting students were provided with the opportunity to ask questions about the field of psychology. Measurements were taken in light clothes without shoes and were not disclosed to study participants. Data were checked by research personnel while participants were being measured to determine whether adolescents were engaging in eating disorder behaviours that posed a safety risk (i.e., vomiting/laxative use, > 4 binge eating episodes in the past 28 days, or having a body mass index of < 15.5 and engaging in restrictive eating behaviours). In such cases, as outlined in the consent and parent information forms, the research coordinators notified the designated high school counsellor to further assess safety risk and management.

All participants completed questionnaires assessing socio-demographic variables and self-compassion at T1 as well as measures of psychological distress, body satisfaction, and eating pathology at both time points (Appendix B).<sup>1</sup> Of the 311 participants who completed T1 questionnaires, 238 participants (76.8%) completed T2 questionnaires. There were no

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<sup>1</sup> As part of a larger study, participants also completed questionnaires assessing body checking behaviours, depressive symptoms, obsessive-compulsive symptoms, self-esteem, loneliness, rumination, social comparison, emotion regulation, and physical appearance comparison.

significant differences between participants who completed T2 versus those who did not on any of the main study variables (all  $ps > .26$ ).

### 2.2.3. Measures

**Participant Characteristics.** Participants completed a questionnaire developed for this study to obtain socio-demographic data (i.e., age, sex, gender identity, ethnic-cultural background, and living situation). Given that adolescents with a previous eating disorder diagnosis would potentially present as outliers, participants were also asked if they had ever been diagnosed with an eating disorder, and if so, to list the diagnosis and any past or current treatment.

**Anthropometric measurements.** Weight and height (measured to the nearest 0.1kg/0.1cm) were used to calculate body mass index (BMI; kg/m<sup>2</sup>) at T1 and T2. Weight was measured with digital scales and height was assessed with a cloth tape measure pinned tightly against the wall. To ensure validity and reliability of measurements, the digital scales and tape measures were tested by research personnel prior to use. Using reference values from the World Health Organization, the 50th BMI percentile was computed for every participant (Onis, Onyango, Borghi, Siyam, Nishida, & Siekmann, 2007). Percent median BMI values (%mBMI) were calculated to examine BMI in relation the 50th BMI percentile (i.e., BMI/50th BMI percentile as done in numerous studies; Le Grange, Doyle, Swanson, Ludwig, Glunz, & Kreipe, 2012; Lock, Le Grange, Agras, Moye, Bryson, & Jo, 2010; Madden et al., 2015). Values over 100 indicate a higher than median BMI for age and sex, whereas values under 100 indicate a lower than median BMI for age and sex.

**Self-Compassion.** Trait self-compassion was assessed with the 26-item Self-Compassion Scale (SCS; Neff, 2003b). Responses range from 1 (*almost never*) to 5 (*almost always*) and items are averaged to yield a total score as well as three “positive” subscale scores (i.e., self-kindness, common humanity, and mindfulness) and three “negative” subscale scores (i.e., self-judgment, isolation, and over-identification). Higher scores indicate a more self-compassionate mindset. The SCS has demonstrated excellent psychometric findings in numerous samples, including adolescents (Cunha, Xavier, & Castilho, 2016; Neff, 2003b; Neff & McGehee, 2010; Terry, Leary, & Mehta, 2013). In accordance with the data analytic plan, internal consistency is presented for participants who completed data collection at both time points (Table 1).

**Psychological Distress.** The Hopkins Symptom Checklist (SCL-5; Aasheim, Waldenstrom, Hjelmsstedt, Rasmussen, Pettersson, & Schytt, 2012) is a 5-item self-report questionnaire that assesses symptoms of depression and anxiety. Participants were asked whether they had been bothered by any of the following during the past two weeks: feeling fearful, nervousness or shakiness inside, feeling hopeless about the future, feeling blue, and worrying too much about things. Each item is rated on a 4-point Likert scale ranging from 1 (*not bothered*) to 4 (*very bothered*). Items were averaged to produce a mean score, with higher scores indicating higher psychological distress. In addition to demonstrating excellent psychometric findings in adults, the SCL-5 is widely used in adolescents (Skrove, Romundstad, & Indredavik, 2013).

**Body satisfaction.** Perceived body satisfaction was assessed with the 9-item subscale of the Multidimensional Body-Self Relations Questionnaire (i.e., the Body Areas Satisfaction Scale; BASS; Brown, Cash, & Mikulka, 1990). Participants rated their degree of body satisfaction with specific body parts, weight, height, muscle tone, and appearance on a 5-point Likert scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). Items were averaged to yield a mean score, with higher scores indicating greater satisfaction with bodily features. Strong psychometric findings of the BASS have been demonstrated in adults and adolescents (Cash, 2002; Marco, Perpina, Roncero, & Botella, 2017).

**Eating Pathology.** The Eating Disorder Examination - Questionnaire (EDE-Q) is a 29-item self-report questionnaire, which has been adapted from the original EDE-Q (Fairburn & Beglin, 1994) for use in male and female adolescents (Mond, Hall, Bentley, Harrison, Gratwick-Sarll, & Lewis, 2014). This measure assesses the presence and frequency of eating disorder symptoms over the past 28 days. The EDE-Q also contains four subscales (Dietary Restraint, Eating Concern, Shape Concern, and Weight Concern), which assess dietary restriction to influence shape and weight, preoccupation with food, eating or calories, and overvaluation of shape and weight on a 7-point scale. A mean global score is derived from averaging all subscale items, with higher scores indicating higher levels of eating pathology. Validity of the scale has been established in clinical and non-clinical samples (Berg, Peterson, Frazier, & Crow, 2012) as well as male and female adolescents (Carter, Stewart, & Fairburn, 2001; Mond et al., 2014).



## **2.3. Data Analytic Approach**

### **2.3.1. Preliminary Power Analyses**

To control for type I error, the alpha level for all tests was set at .05. Empirical power was calculated to control for type II error. A minimum of 200 participants were required to obtain a power of .98 with an  $R^2$  of .39 (i.e., to detect a medium effect size with conditional process analyses using percentile-based bootstrapped confidence intervals; Preacher, Rucker, & Hayes, 2007).

### **2.3.2. Data Inspection**

Data were examined for the presence of outliers and normality. Univariate outliers were assessed on main study variables through inspection of Z-scores for each variable (Tabachnik & Fidell, 2013). All cases were deemed appropriate and were retained in analyses. Normality assumptions were satisfied for all variables (i.e., skewness < 2.0, kurtosis < 7.0; Curran, West, & Finch, 1996).

### **2.3.3. Missing Data**

Decisions regarding missing data were based on the proportion of missing data and guidelines provided for the measures (i.e., total and subscale scores were not calculated if  $\geq$  10% of items were missing). Given the low proportion of missing data across all participants and measures at both time points (0.26%), listwise deletion was deemed the most suitable method for all analyses except correlation, where pairwise deletion was utilized (Tabachnik & Fidell, 2013).

### **2.3.4. Primary Analyses**

Descriptive statistics (means, standard deviations, and frequencies) were calculated for anthropometric measurements, disordered eating behaviours, and main study variables. Given that age did not significantly differ between males and females ( $t_{(210)} = -0.56, p = .59$ ), independent samples  $t$ -tests were conducted to identify whether males had higher SCS total and subscale scores. To reduce the risk of Type I error for multiple comparisons, the Bonferroni correction was applied ( $\alpha = .05$  divided by the number of comparisons;  $.05/7 = .007$ ). Levene's

test for equality of variance was conducted and indicated no violations in the assumption of homogeneity of variance. Pearson correlations were computed to investigate associations between main study variables in males and females at both time points.

A moderated mediation model was employed to examine hypotheses 2 and 3, whereby the strength of the relationships between self-compassion, psychological distress, and relevant outcome variables were tested as being conditional on sex (Hayes, 2017). Conditional process analyses were conducted using the PROCESS macro in SPSS (Version 3; Hayes, 2017) to examine the following research questions: 1) Does self-compassion *indirectly* influence changes in body satisfaction and eating pathology through psychological distress? And 2) Does sex *moderate* the relationships between these variables? More specifically, Model 59 (Figure 1) was employed to test whether sex moderates the path from self-compassion to psychological distress (depicted as path *a* in Fig. 1), the path from psychological distress to relevant outcome variables (depicted as path *b* in Fig. 1), the path from self-compassion to relevant outcome variables (depicted as path *c'* in Fig. 1), and/or the indirect effect of self-compassion on relevant outcome variables through psychological distress (depicted as the product of paths *a* and *b* in Fig. 1).

Self-compassion was entered as the independent variable (X) for all analyses. As indicated by Hayes (2017), changes in mediating variables can indicate more robust findings. As such, T2 psychological distress was included as the mediating variable (M) in initial analyses, with T1 psychological distress included as a covariate in models of M and Y to account for change over time (Hayes, 2017; Hayes & Rockwood, 2017). Given the validity of moderated mediation models for cross-sectional mediating variables (Hayes, 2017), T1 psychological distress was included as the mediator if changes in psychological distress were not significant. Dependent variables (Y) in each respective model included body satisfaction and EDE-Q global and subscale scores.

As with changes in psychological distress, dependent variables at T1 were included as covariates in models of M and Y to account for change over time (Hayes, 2017). To minimize sampling error, a bootstrap with  $N = 10,000$  resamples was employed. To reduce the risk of Type I error by accounting for multiple comparisons, interaction terms for paths *a*, *b*, and *c* were considered significant at  $p < .01$ . PROCESS adjusts for heteroscedasticity using an HC3 estimator. Conditional indirect effects, conditional direct effects, and moderated mediation analyses (depicted by the index of moderated mediation) were considered significant when zero

was not contained in the 95% percentile bootstrap confidence interval (PB CI). Upon determining which dependent variables yielded significant findings, alternate conditional process models were examined to consider the reverse direction of effects; that is, whether self-compassion predicted changes in psychological distress through relevant outcome variables. Unstandardized regression coefficients and standard errors were provided by PROCESS.

All of the analyses described above were conducted according to sex at birth. To employ protocol for sex and gender-sensitive research, analyses involving levels of self-compassion and the relationship between self-compassion and main study variables were conducted according to gender and are presented in endnotes. Given that the goal of this study was to compare differences between males and females, participants who did not identify with either one of these categories ( $n = 4$ ) were deleted from gender-based analyses.

## **2.4. Results**

### **2.4.1. Descriptive Findings**

The mean %mBMI was 103% at both time points for males ( $SD_{T1} = 0.16$ ;  $SD_{T2} = 0.17$ ) and 105% and 104% at baseline and follow-up for females ( $SD = 0.19$  at both time points). The majority of the sample (97.5%,  $n = 234$ ) denied ever receiving a formal eating disorder diagnosis. Two females (1.5%) and one male (0.96%) reported a prior diagnosis of bulimia nervosa (BN) and related treatment. One female (0.42%) reported a prior diagnosis of anorexia nervosa (AN), but did not indicate any past or current treatment.

Based on EDE-Q data, 0.10% ( $n = 1$ ) of males and 3% ( $n = 4$ ) of females reported laxative/diuretic use, self-induced vomiting (0% of males; 2.2% ( $n = 3$ ) of females), and diet pill use (0% males; 1.5% ( $n = 2$ ) of females). Of the sample, 7.6% ( $n = 8$ ) of males and 8.2% ( $n = 11$ ) of females reported binge eating episodes in the past 28 days. Frequency of binge eating episodes ranged from 0-32 times at T1 and 0-28 times at T2. Frequency of self-induced vomiting over the past 28 days ranged from 0-42 times at T1 and 0-28 times at T2. Frequency of other compensatory behaviours ranged from 0-28 times at both time points.

## 2.4.2. Comparing Self-Compassion in Male versus Female Adolescents

Means and standard deviations for age and main study variables are in Table 1 (according to sex). At baseline, males were more self-compassionate than females, as indicated by higher SCS total scores ( $t_{233} = 3.00, p < .001; d = 0.39$ ) and lower self-judgment ( $t_{234} = 3.72, p < .001; d = 0.49$ ), isolation ( $t_{232} = 3.33, p = .001; d = 0.43$ ), and over-identification ( $t_{232} = 4.01, p < .001; d = 0.53$ ). Gender-based analyses demonstrated similar findings.<sup>2</sup>

## 2.4.3. Relationship between Self-Compassion, Psychological Distress, Body Satisfaction, and Eating Pathology

For both males (Table 2) and females (Table 3), self-compassion was positively associated with body satisfaction and negatively associated with psychological distress and EDE-Q global and subscale scores at both time points. Gender-based analyses revealed the same pattern of results.<sup>2</sup>

## 2.4.4. The Effect of Psychological Distress for Males and Females

Self-compassion did not indirectly or directly effect changes in EDE-Q Eating Concern subscale scores for males or females. Conditional process analyses for body satisfaction (Model 1), global eating pathology (Model 2), dietary restraint (Model 3), shape concerns (Model 4), and weight concerns (Model 5) are presented below. Gender-based analyses revealed a somewhat different pattern of results.<sup>3</sup>

Conditional process analyses for Model 1 provided evidence that self-compassion influenced body satisfaction through *changes* in psychology distress for females (coefficient = 0.04,  $SE = 0.02$ , 95% CI: 0.00 to 0.09), but not for males (coefficient = 0.01,  $SE = 0.02$ , 95% CI: -0.02 to 0.05). Self-compassion did not appear to predict different magnitudes of change in psychological distress or body satisfaction for males versus females, nor did psychological distress lead to different magnitudes of change in body satisfaction (as indicated by non-significant interaction terms for paths *a*, *b*, and *c'* displayed in Table 4). There was also no evidence that sex moderated the indirect effect of self-compassion (index of moderated mediation = 0.03,  $SE = 0.02$ , 95% CI: -0.01 to 0.08).

Conditional process analyses for Model 2 (Table 5) revealed that self-compassion influenced global eating pathology through *changes* in psychology distress for females

(coefficient = -0.06,  $SE = 0.04$ , 95% CI: -0.14 to -0.01), but not for males (coefficient = -0.01,  $SE = 0.01$ , 95% CI: -0.04 to 0.01). Sex did not appear to moderate the direct relationships between self-compassion, psychological distress, and global eating pathology or the indirect effect of self-compassion (index of moderated mediation = -0.05,  $SE = 0.04$ , 95% CI: -0.14 to 0.00).

With respect to Model 3, no evidence was found for the indirect effect of self-compassion on dietary restraint through *changes* in psychological distress for females (coefficient = -0.02,  $SE = 0.04$ , 95% CI: -0.11 to 0.03) or males (coefficient = 0.00,  $SE = 0.01$ , 95% CI: -0.01 to 0.05). As shown in Table 6, the conditional indirect effect of self-compassion on dietary restraint through T1 psychological distress was significant for females (coefficient = -0.22,  $SE = 0.10$ , 95% CI: -0.45 to -0.04), but not for males (coefficient = -0.09,  $SE = 0.06$ , 95% CI: -0.22 to 0.02). Once again, sex did not moderate the relationships between these variables (index of moderated mediation = -0.12,  $SE = 0.12$ , 95% CI: -0.38 to 0.09).

Conditional process analyses for Model 4 provided marginal evidence of the indirect effect of self-compassion on shape concerns through *changes* in psychological distress for females (coefficient = -0.06,  $SE = 0.04$ , 95% CI: -0.15 to 0.00), but not for males (coefficient = -0.01,  $SE = 0.02$ , 95% CI: -0.05 to 0.02). As shown in Table 7, the conditional indirect effect of self-compassion on shape concerns through T1 psychological distress was significant for females (coefficient = -0.17,  $SE = 0.10$ , 95% CI: -0.38 to -0.00), but not males (coefficient = -0.07,  $SE = 0.08$ , 95% CI: -0.23 to 0.08). Sex was not a significant moderator of direct or indirect effects (index of moderated mediation = -0.10,  $SE = 0.12$ , 95% CI: -0.35 to 0.13).

Finally, conditional process analyses for Model 5 also provided marginal evidence for the indirect effect of self-compassion on weight concerns through *changes* in psychological distress for females (coefficient = -0.06,  $SE = 0.04$ , 95% CI: -0.15 to 0.00), but not for males (coefficient = -0.01,  $SE = 0.02$ , 95% CI: -0.05 to 0.02). As shown in Table 8, the conditional indirect effect of self-compassion on weight concerns through T1 psychological distress was significant for females (coefficient = -0.18,  $SE = 0.10$ , 95% CI: -0.40 to -0.01), but not for males (coefficient = -0.10,  $SE = 0.07$ , 95% CI: -0.25 to 0.03). Sex did not moderate the relationships between these variables (index of moderated mediation = -0.08,  $SE = 0.12$ , 95% CI: -0.34 to 0.15).

Alternate conditional process models revealed no evidence for the reverse direction of effects; that is, self-compassion did not predict changes in psychological distress through body satisfaction, global eating pathology, dietary restraint, shape concerns, or weight concerns.

### 2.4.5. Post-hoc Analyses.

To determine whether the above results might have been impacted by group differences in mediator and outcome variables, independent samples *t*-tests were conducted to test for sex differences on psychological distress, body satisfaction, and global eating pathology at both time points. Levene's test indicated that variances between males and females differed for psychological distress and dietary restraint at both time points (all *ps* < .05). As such, Welch-Satterthwaite *t*-test results were used for comparing means on these variables, whereas pooled *t*-test results were used for all other variables. Altogether, results indicated that males had higher body satisfaction ( $t(234)_{T1} = 4.35, p < .001, d = 0.57$ ;  $t(236)_{T2} = 4.61, p < .001, d = 0.60$ ) and lower psychological distress ( $t(233)_{T1} = 3.44, p < .001, d = 0.45$ ;  $t(235)_{T2} = 5.67, p < .001, d = 0.74$ ) and global eating pathology ( $t(234)_{T1} = 6.19, p < .001, d = 0.79$ ;  $t(228)_{T2} = 6.67, p < .001, d = 0.86$ ).

## 2.5. Discussion

This study is the first longitudinal examination of the role of self-compassion in adolescent body satisfaction and eating pathology. Consistent with hypothesis 1, self-compassion was positively related to body satisfaction and negatively related to eating pathology in both female and male adolescents. In line with hypothesis 2, higher self-compassion protected females against declines in body satisfaction and increases in global eating pathology, dietary restraint, and shape/weight concerns over a 4-month period, and psychological distress mediated the relationships between these variables. Contrary to hypothesis 3, self-compassion did not predict changes in relevant outcome variables through psychological distress for males and sex did not moderate the role of self-compassion. Finally, as proposed in hypothesis 4, males had higher self-compassion than females at baseline.

The results of this study are consistent with previous research indicating that self-compassion protects against a maladaptive body image and eating pathology in adult females (Braun et al., 2016). The findings also extend limited research providing support for the relation between self-compassion and body image in female adolescents (Mosewich et al., 2011; Rodgers et al., 2017, Rodgers et al., 2018). This is the first study to indicate a potential pathway through which self-compassion exerts its effect and is in line with prior research in adolescents demonstrating a strong negative relation between self-compassion and psychological distress (Marsh et al., 2017) as well as the subsequent impact of psychological

distress on body satisfaction and eating pathology (Paxton et al., 2006; Stice et al., 2017). The absence of reverse direction of effects examined through alternate conditional process models provides further support for the directionality of observed relationships.

Although changes in psychological distress mediated the link between self-compassion in relation to body satisfaction and global eating pathology, only T1 psychological distress mediated the link between self-compassion in relation to dietary restraint, shape concerns, and weight concerns. Notably, the indirect effect of self-compassion appeared to explain a lower proportion of variance in dietary restraint. Altogether, it appears that self-compassion may have a stronger link with body satisfaction and global eating pathology through psychological distress. A between-persons trend toward decreased eating pathology over time may have decreased the chances of detecting a more robust link between self-compassion and other eating pathology-related variables. Alternatively, it may be that self-compassion has a more potent effect on concerns with eating for a subset of female adolescents (e.g., those who are at increased risk of developing an eating disorder and/or those who identify more strongly with feminine gender norms).

With respect to sex differences, the results are consistent with previous research indicating that self-compassion is higher in males than in females (Yarnell et al., 2015) and provide support for a growing body of research indicating that differences emerge in adolescence (Bluth et al., 2016). These findings are also in line with research on sex differences in internalizing symptoms, which demonstrate a dramatic increase in female adolescents when compared to males (Beesdo et al., 2009; Hankin et al., 1998; Swanson et al., 2011). Although theories on the development of sex differences in internalizing symptoms are inconclusive, research implicates a complex interplay between various biopsychosocial factors (e.g., genetics, rumination, interpersonal stress; Nolen-Hoeksema & Hilt, 2009). It is possible that decreased self-compassion in female adolescents has a similar multifaceted etiology (Bluth et al., 2016). It may also be the case that sex differences in self-compassion are due, in part, to varied gender-role norms. To elaborate, it is theorized that women are encouraged through socialized norms to be nurturing and sacrifice their own needs for others (Ruble & Martin, 1998). Indeed, research indicates that women exhibit greater compassion for *others* than men (Eisenberg & Lennon, 1983) and it is posited that this emphasis on compassion does not necessarily extend to how women respond towards themselves in times of personal suffering or failure (Yarnell et al., 2015).

Given the strong link between self-compassion and wellbeing, it is somewhat surprising that self-compassion did not have an indirect effect on body satisfaction and eating pathology for males. This lack of replication may be partly accounted for by sex differences in levels of self-compassion, psychological distress, body satisfaction, and eating pathology. It may also be that self-compassion operates through alternate pathways in male adolescents (e.g., pathways that influence muscularity-oriented concerns or behavioural outcomes, such as substance use and aggression; Barry, Loflin, & Doucette, 2015).

Although self-compassion did not directly or indirectly effect body satisfaction and eating pathology for males, sex did not moderate the relationship between these variables. Cross-sectional research in adolescents yields conflicting evidence regarding whether the relationship between self-compassion and internalizing symptoms differs between males and females (Bluth & Blanton, 2015; Bluth et al., 2016). While the current findings indicate that self-compassion may have a more potent effect on body image and eating pathology for female adolescents, further research is needed to provide statistical support for this speculation.

It is important to note that longitudinal gender-based analyses revealed different findings than the sex-based analyses discussed above (i.e., self-compassion did not have an indirect effect on body satisfaction through changes in psychological distress or on shape/weight concerns through T1 psychological distress). This may be due to a variety of factors, which will be discussed below in further detail. With regard to the current study, these results signify an important first step towards examining the differential roles of sex and gender on the influence of self-compassion in adolescent body satisfaction and eating pathology. These findings further underscore the dire need for health researchers to not only correctly specify and account for both sex and gender, but also to conduct more in-depth explorations of these constructs in future investigations of adolescent self-compassion.



## 2.6. Endnotes

<sup>2</sup> Gender-based analyses (with  $n = 4$  participants deleted and  $n = 2$  assigned females at birth identifying as males) demonstrated a similar pattern of findings as sex-based analyses.

As in sex-based analyses, independent samples  $t$ -tests revealed no violations in the homogeneity of variance assumption according to Levene's Test for Equality of Variances. Gender-based analyses similarly indicated that self-identified males had higher SCS total scores ( $t_{(229)} = 2.82, p = .003; d = 0.36$ ) and lower self-judgment ( $t_{(230)} = 3.64, p < .001; d = 0.51$ ), isolation ( $t_{(228)} = 3.26, p = .001; d = 0.43$ ), and over-identification ( $t_{(228)} = 4.02, p < .001; d = 0.54$ ).

Pearson correlation analyses according to gender revealed a similar set of findings to sex-based analyses. For both self-identified males and females, self-compassion was positively associated with body satisfaction and negatively associated with psychological distress at T1 and T2 (all  $ps < .001$ ). Self-compassion was also negatively associated with EDE-Q global and subscale scores at both time points (all  $ps < .05$ ).

<sup>3</sup> Gender-based conditional process analyses revealed a different pattern of findings than sex-based analyses.

In contrast to sex-based analyses, gender-based conditional process analyses did not provide evidence for an indirect effect of self-compassion on body satisfaction through *changes* in psychological distress or on shape/weight concerns through T1 psychological distress.

In accordance with sex-based findings, gender-based conditional process analyses did not provide evidence for an indirect effect of self-compassion on EDE-Q Eating Concern subscale scores. As well, gender-based analyses revealed an indirect effect of self-compassion on global eating pathology through changes in psychological distress ( $n = 226$ ) for self-identified females (coefficient =  $-0.06, SE = 0.04, 95\% CI: -0.14$  to  $-0.00$ ). This effect was not demonstrated for self-identified males (coefficient =  $-0.01, SE = 0.01, 95\% CI: -0.04$  to  $0.01$ ). Interaction terms for paths a, b, and c, were not significant (all  $ps > .17$ ); as such, there was no evidence that gender moderated the direct relationships between self-compassion, changes in psychological distress, and changes in global eating pathology. There was also no evidence that gender moderated the indirect effect of self-compassion (index of moderated mediation =  $-0.05, SE = 0.04, 95\% CI: -0.14$  to  $0.01$ ).

In further accordance with sex-based analyses, the indirect effect of self-compassion on dietary restraint through T1 psychological distress ( $n = 227$ ) was significant for females (coefficient = -0.19,  $SE = 0.10$ , 95% CI: -0.42 to -0.01), but not for males (coefficient = -0.09,  $SE = 0.06$ , 95% CI: -0.22 to 0.01). There was no evidence that gender moderated the direct relationships between these variables (all  $ps > .13$ ) nor was there evidence for moderated mediation (index of moderated mediation = -0.10,  $SE = 0.12$ , 95% CI: -0.35 to 0.12).

**Table 1. Main Study Variables According to Sex**

	Males		Females		Cronbach's alpha	
	T1: <i>M (SD)</i>	T2: <i>M (SD)</i>	T1: <i>M (SD)</i>	T2: <i>M (SD)</i>	T1	T2
Age	16.45 (1.29)	16.75 (1.30)	16.54 (1.19)	16.83 (1.20)		-
Self-Compassion Total	3.16 (0.67)	-	2.89 (0.71)	-	0.93	-
Self-Kindness	2.81 (0.86)	-	2.76 (0.90)	-	0.82	-
Common Humanity	2.92 (1.04)	-	2.88 (0.92)	-	0.78	-
Mindfulness	3.08 (0.93)	-	2.94 (0.89)	-	0.78	-
Self-Judgment	2.62 (1.05)	-	3.11 (0.96)	-	0.86	-
Isolation	2.46 (1.03)	-	2.90 (1.01)	-	0.82	-
Over-Identification	2.71 (0.95)	-	3.22 (0.96)	-	0.78	-
Psychological Distress	1.85 (0.69)	1.71 (0.60)*	2.20 (0.87)	2.21 (0.75)	0.87	0.84
Body Satisfaction	3.59 (0.73)	3.63 (0.71)	3.18 (0.71)	3.20 (0.72)	0.86	0.87
Eating Pathology Global	0.95 (1.00)	0.80 (0.82)*	1.91 (1.40)	1.72 (1.28)*	0.96	0.96
Restraint	0.71 (0.95)	0.56 (0.70)*	1.34 (1.44)	1.14 (1.22)	0.84	0.81
Eating Concern	0.61 (0.82)	0.46 (0.62)*	1.15 (1.22)	1.00 (1.00)	0.76	0.71
Shape Concern	1.32 (1.36)	1.15 (1.22)	2.58 (1.68)	2.32 (1.59)*	0.92	0.93
Weight Concern	0.93 (1.16)	0.84 (1.00)	2.19 (1.75)	2.05 (1.67)	0.90	0.90

*Note.* T1 = Time one; T2 = Time two. Higher mean scores indicate higher total self-compassion, psychological distress, body satisfaction, and eating pathology. \*Values changed from T1 to T2 (all  $ps < .05$ ).

**Table 2. Correlations among Self-Compassion, Psychological Distress, Body Satisfaction, and Eating Pathology for Males**

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
Time One														
1. Self-Compassion	-.58**	.42**	-.36**	-.22*	-.30**	-.37**	-.36**	-.39**	.36**	-.34**	-.24*	-.27**	-.33**	-.31**
2. Psychological Distress		-.47**	.46**	.20*	.38**	.49**	.46**	.68**	-.35**	.47**	.30**	.31**	.45**	.48**
3. Body Satisfaction			-.61**	-.32**	-.44**	-.67**	.63**	-.26**	.77**	-.53**	-.28**	-.36**	-.56**	-.49**
4. Eating Pathology Global				.75**	.83**	.96**	.96**	.20*	-.48**	.80**	.64**	.62**	.75**	.72**
5. Restraint					.53**	.58**	.65**	-.04	-.23*	.54**	.67**	.49**	.43**	.44**
6. Eating Concern						.73**	.75**	.17	-.32**	.67**	.48**	.70**	.61**	.58**
7. Shape Concern							.92**	.24*	-.52**	.77**	.56**	.54**	.76**	.71**
8. Weight Concern								.24*	-.50**	.78**	.57**	.56**	.74**	.75**
Time Two														
9. Psychological Distress									-.34**	.28**	.01	.18	.31**	.34**
10. Body Satisfaction										-.49**	-.29**	-.31**	-.52**	-.45**
11. Eating Pathology Global											.72**	.78**	.96**	.91**
12. Restraint												.53**	.58**	.55**
13. Eating Concern													.69**	.61**
14. Shape Concern														.85**
15. Weight Concern														

Note. \* $p < .05$ . \*\* $p < .01$ .

**Table 3. Correlations among Self-Compassion, Psychological Distress, Body Satisfaction, and Eating Pathology for Females**

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
Time One														
1. Self-Compassion	-.66**	.58**	-.42**	-.18*	-.38**	-.46**	-.42**	-.57**	.54**	-.38**	-.27**	-.30**	-.41**	-.36**
2. Psychological Distress		-.45**	.37**	.10	.34**	.40**	.41**	.69**	-.52**	.41**	.28**	.33**	.42**	.41**
3. Body Satisfaction			-.58**	-.32**	-.47**	-.62**	-.60**	-.38**	-.76**	-.51**	-.33**	-.32**	-.56**	-.52**
4. Eating Pathology Global				.82**	.87**	.96**	.95**	.27**	-.43**	.77**	.61**	.62**	.74**	.77**
5. Restraint					.70**	.68**	.66**	.04	-.21*	.59**	.62**	.49**	.53**	.55**
6. Eating Concern						.76**	.78**	.26**	-.33**	.62**	.53**	.63**	.56**	.59**
7. Shape Concern							.92**	.30**	-.48**	.75**	.53**	.56**	.77**	.76**
8. Weight Concern								.31**	-.44**	.76**	.56**	.59**	.72**	.80**
Time Two														
9. Psychological Distress									-.49**	.37**	.19*	.31**	.41**	.36**
10. Body Satisfaction										-.63**	-.40**	-.50**	-.67**	-.61**
11. Eating Pathology Global											.82**	.88**	.96**	.95**
12. Restraint												.72**	.68**	.69**
13. Eating Concern													.78**	.78**
14. Shape Concern														.91**
15. Weight Concern														

Note. \* $p < .05$ . \*\* $p < .01$ .

**Table 4. Ordinary Least Squares Regression Coefficients for Model 1**

<i>X</i> (Predictor)	<i>M</i> (Changes in Psychological Distress)			<i>Y</i> (Body Satisfaction)		
	Coeff.	<i>SE</i>	<i>p</i>	Coeff.	<i>SE</i>	<i>p</i>
Self-Compassion	0.08	0.57	.81	0.00	0.16	1.00
Sex	0.69	0.31	.03	-0.61	0.43	.89
Self-Compassion X Sex	-0.13	0.10	.18	0.02	0.10	.89
T1 Body Satisfaction	0.02	0.05	.69	0.69	0.05	<.001
T1 Psychological Distress	0.52	0.05	<.001	0.02	0.06	.67
T2 Psychological Distress	-	-	-	-0.14	0.17	.42
T2 Psychological Distress X Sex	-	-	-	-0.03	0.10	.73
	$R^2 = 0.54$			$R^2 = 0.65$		
	$F(5, 225) = 52.55, p < .001$			$F(7, 223) = 60.27, p < .001$		

Note.  $n = 231$ .

**Table 5. Ordinary Least Squares Regression Coefficients for Model 2**

<i>X</i> (Predictor)	<i>M</i> (Changes in Psychological Distress)			<i>Y</i> (Global Eating Pathology)		
	Coeff.	<i>SE</i>	<i>p</i>	Coeff.	<i>SE</i>	<i>p</i>
Self-Compassion	0.08	0.14	.55	-0.05	0.20	.81
Sex	0.73	0.29	.01	-0.46	0.63	.46
Self-Compassion X Sex	-0.14	0.09	.13	0.08	0.13	.61
T1 Global Eating Pathology	-0.04	0.07	.25	0.69	0.05	<.001
T1 Psychological Distress	0.53	0.07	<.001	0.06	0.09	.49
T2 Psychological Distress	-	-	-	-0.07	0.21	.75
T2 Psychological Distress X Sex	-	-	-	-0.19	0.13	.19
	$R^2 = 0.54$			$R^2 = 0.70$		
	$F(5, 226) = 51.37, p < .001$			$F(7, 224) = 55.93, p < .001$		

Note.  $n = 232$ .

**Table 6. Ordinary Least Squares Regression Coefficients for Model 3**

X (Predictor)	M (T1 Psychological Distress)			Y (Dietary Restraint)		
	Coeff.	SE	<i>p</i>	Coeff.	SE	<i>p</i>
Self-Compassion	-0.39	0.19	.04	0.10	0.22	.66
Sex	0.78	0.40	.05	0.21	0.72	.77
Self-Compassion X Sex	-0.20	0.12	.09	-0.08	0.15	.59
T1 Dietary Restraint	0.01	0.04	.80	0.57	0.04	<.001
T1 Psychological Distress	-	-	-	0.04	0.24	.88
T1 Psychological Distress X Sex	-	-	-	0.12	0.16	.47
	$R^2 = 0.43$			$R^2 = 0.54$		
	$F(4, 228) = 44.67, p < .001$			$F(6, 226) = 24.19, p < .001$		

Note. *n* = 233.



**Table 7. Ordinary Least Squares Regression Coefficients for Model 4**

X (Predictor)	M (T1 Psychological Distress)			Y (Shape Concerns)		
	Coeff.	SE	<i>p</i>	Coeff.	SE	<i>p</i>
Self-Compassion	-0.35	0.18	.06	-0.08	0.33	.80
Sex	0.59	0.41	.15	-0.15	0.97	.88
Self-Compassion X Sex	-0.17	0.12	.15	0.06	0.21	.78
T1 Shape Concerns	0.10	0.03	.00	0.69	0.05	<.001
T1 Psychological Distress	-	-	-	0.02	0.32	.95
T1 Psychological Distress X Sex	-	-	-	0.11	0.20	.57
	$R^2 = 0.46$			$R^2 = 0.67$		
	$F(4, 228) = 54.17, p < .001$			$F(6, 226) = 74.74, p < .001$		

Note. *n* = 233.

**Table 8. Ordinary Least Squares Regression Coefficients for Model 5**

X (Predictor)	M (T1 Psychological Distress)			Y (Weight Concerns)		
	Coeff.	SE	<i>p</i>	Coeff.	SE	<i>p</i>
Self-Compassion	-0.37	0.18	.04	0.07	0.26	.79
Sex	0.55	0.41	.18	0.03	0.80	.97
Self-Compassion X Sex	-0.16	0.12	.17	0.02	0.17	.89
T1 Weight Concerns	0.11	0.03	.00	0.72	0.05	<.001
T1 Psychological Distress	-	-	-	0.11	0.30	.71
T1 Psychological Distress X Sex	-	-	-	0.08	0.19	.69
	$R^2 = 0.46$			$R^2 = 0.70$		
	$F(4, 228) = 55.50, p < .001$			$F(6, 226) = 59.42, p < .001$		

Note. *n* = 233.

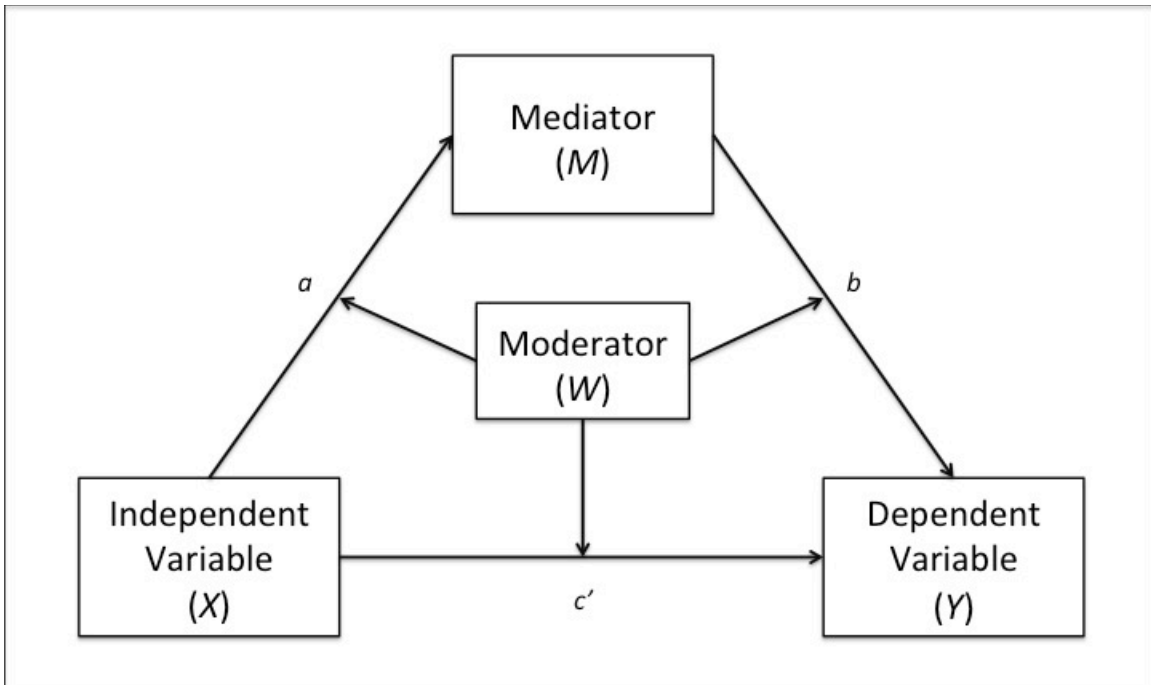


Figure 1. Conceptual Moderated Mediation Model

## **Chapter 3.**

### **Study Two**

While Study One indicated that self-compassion predicts increases in body satisfaction and eating pathology through psychological distress, no research to date exists on self-compassion in adolescents with eating disorders. Although family-based therapy is currently considered the gold standard treatment for adolescents, data suggests that only 40-50% of youth experience full remission and that eating disorder symptoms often persist into adulthood (Rienecke, 2017). As such, there is clearly a need for novel approaches that can be widely disseminated to improve treatment effectiveness. Clinical research in adult females highlights how self-compassion might facilitate the remission of eating disorders over time by directly impacting core cognitive and behavioural features of eating disorders (Gale et al., 2014; Kelly & Carter, 2014; Kelly & Carter, 2015). Altogether, this research provides compelling evidence for investigating the role of self-compassion in treatment-seeking female adolescents. As with research in adults, Study Two aimed to elucidate whether female adolescents with eating disorders have lower levels of self-compassion than females without eating disorders. Study Two further aimed to determine whether the relationships between self-compassion, psychological distress, body satisfaction, and eating pathology found in Study One replicate in a clinical sample of female adolescents.

#### **3.1. Hypotheses**

- 1) Self-compassion will be lower in the clinical sample when compared to female adolescents in the community sample.
- 2) Self-compassion will be positively associated with body satisfaction and negatively associated with psychological distress and eating pathology.
- 3) Psychological distress will mediate the effect of self-compassion on body satisfaction and eating pathology.

## **3.2. Method**

### **3.2.1. Participants**

Participants were 58 female adolescents ( $M = 15.45$ ;  $SD = 1.49$ , range = 12-18) who were receiving specialized eating disorder treatment at the time of participation. Regarding gender, 100% of the sample who reported sex and gender identity ( $n = 57$ ) self-identified with their assigned sex at birth. Data on gender identity was missing for one participant (1.69%). With respect to ethnic-cultural background, 62.1% ( $n = 36$ ) of participants self-identified as Caucasian, 19.0% ( $n = 11$ ) as East Asian, 13.8% ( $n = 8$ ) as more than one ethnic-cultural background, and 5.1% ( $n = 3$ ) as First Nations, Hispanic or South Asian, respectively. The majority of adolescents reported living with their mother and father (69.0%,  $n = 40$ ), 27.6% ( $n = 16$ ) reported living with their mother most of the time, and 3.4% ( $n = 2$ ) reported other living situations.

### **3.2.2. Procedure**

All procedures were approved by the REBs at Simon Fraser University and the University of British Columbia (BC)/Children's and Women's Health Centre of BC. Data were collected as part of a larger study investigating the role of body checking on eating pathology, and parents completed questionnaires as part of an independent validation study. Individuals who were participating in an ongoing prospective study on outcomes in youth with eating disorders were excluded from the current study. All individuals, regardless of sex and gender, were eligible to participate in the current study; however, given that many biological males and transgender youth were participating in the prospective study, few males met inclusion criteria for the current study. Youth were invited to participate if they were at least 10 years of age, proficient in English, and receiving treatment at BC Children's Hospital Provincial Specialized Eating Disorders Program for Children and Adolescents.

Youth who met inclusion criteria were asked by a member of the clinical staff for permission to speak with the research team regarding this study. Subsequently, youth and their parent(s)/guardian(s) met with a research assistant. Given the vulnerable population of minors in treatment, all youth provided assent as opposed to consent. Consent forms and an age-specific assent form (developed for ages 10-13 and ages 14-18, respectively) were then reviewed with and signed by parent(s)/guardian(s) and youth (Appendix C). All participants

completed questionnaires assessing socio-demographic variables, self-compassion, psychological distress, body satisfaction, and eating pathology on paper or via a secure web-based application where data were collected and managed (i.e., Research Electronic Data Capture; Harris, Taylor, Thielke, Payne, Gonzalez, & Conde, 2009). Written assent with accompanying parental consent was obtained for 59 youth; however, one participant did not return their questionnaire package.

### **3.2.3. Measures**

To obtain information on participant characteristics, the following data were extracted from patients' charts: age, eating disorder diagnosis, previous treatment, duration of current treatment modality, and measured height and weight (used to calculate BMI, 50<sup>th</sup> BMI percentile and %mBMI). Participants completed the same questionnaires as the community sample (i.e., the Self-Compassion Scale (SCS; Neff, 2003b), the Hopkins Symptom Checklist (SCL-5; Aasheim et al., 2012), the Body Areas Satisfaction Scale (BASS; Brown et al., 1990), and the Eating Disorders Examination Questionnaire (EDE-Q; Mond et al., 2014); Appendix B).<sup>2</sup> Internal consistency in the clinical sample was demonstrated for the SCS ( $\alpha_{total} = .94$ ;  $\alpha_{subscales} = .72$  to  $.87$ ), SCL-5 ( $\alpha = .83$ ), BASS ( $\alpha = .89$ ) and EDE-Q ( $\alpha_{total} = .96$ ;  $\alpha_{subscales} = .78$  to  $.96$ ).

## **3.3. Data Analytic Approach**

### **3.3.1. Preliminary Power Analyses, Data Inspection, and Missing Data**

A power analysis was conducted using a statistical program called G\*Power to control for type II error ( $\alpha = .05$  as in Study One). A total of 128 participants were required to obtain a power of .80 with a Cohen's  $f$  of .25 using a Multivariate Analysis of Covariance (MANCOVA). As indicated by Fritz and Mackinnon (2007), 78 participants are required to detect a medium effect size with a simple mediation model (i.e., to obtain a power of .80 with an  $R^2$  of .39) and 59 participants are needed to detect a medium to large effect size (i.e., to obtain a power of .80 with an  $R^2$  of .39-.59). Consistent with Study One, total and subscale scores were not calculated if  $\geq 10\%$  of items were missing. Given the low proportion of missing data across

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<sup>2</sup> As part of a larger study, participants also completed questionnaires assessing body checking and obsessive-compulsive symptoms.

participants and measures (0.82%), listwise deletion was employed (aside from in correlation analyses where pairwise deletion was employed).

### 3.3.2. Primary Analyses

Descriptive statistics (means, standard deviations, and frequencies) were calculated for anthropometric measurements, disordered eating behaviours, and main study variables. A one-way MANCOVA was conducted to determine whether the clinical sample had lower self-compassion and body satisfaction and higher global eating pathology and psychological distress than a female comparison group from the community sample at baseline (i.e., biological females who self-identified as females;  $n = 128$ , with complete data available for  $n = 122$  community sample participants ( $M_{\text{age}} = 16.50$ ,  $SD = 1.23$ ) and  $n = 55$  clinical sample participants). Age was included as a covariate given a lower mean age in the clinical sample when compared to females in the community sample,  $t(91) = 6.41$ ,  $p < .001$ . All MANCOVA assumptions were met: there was homogeneity of regression slopes, as assessed by the interaction term between age and group,  $F(4,170) = 1.41$ ,  $p = .23$ . There was also homogeneity of variances and covariances, as indicated by Box's M test,  $p > .001$ . Univariate and multivariate outliers were assessed on predictor and outcome variables through inspection of standardized residuals and Mahalanobis distance values (Tabachnik & Fidell, 2013). All cases were deemed appropriate and were retained in analyses. Residuals were normally distributed, as indicated by visual examination of Q-Q plots.

Pearson correlations ( $\alpha = .05$  as in Study One) were computed to investigate associations between self-compassion, psychological distress, body satisfaction, and EDE-Q Global and subscale scores. Mediation analyses were conducted to determine whether the results from Study One demonstrated a statistical trend in the same direction for the current sample. Simple mediation analyses utilizing Model 4 (Figure 2) in PROCESS were employed to examine whether self-compassion had an indirect effect on body satisfaction and eating pathology through psychological distress and/or directly impacted body satisfaction and eating pathology. As in Study One, a bootstrap with  $N = 10,000$  resamples was used and analyses were considered significant when zero was not contained in the 95% PB CI.

## 3.4. Results

### 3.4.1. Descriptive Findings

Participants had a mean %mBMI of 91.27% ( $SD = 13.60$ ). All participants met Diagnostic and Statistical Manual of Mental Disorders criteria (DSM-5; American Psychiatric Association, 2013) for an eating disorder (70.7%;  $n = 41$  anorexia nervosa-restricting type, 10.3%;  $n = 6$  unspecified feeding or eating disorder, 6.9%;  $n = 4$  anorexia nervosa-binge-eating/purging type, 6.9%;  $n = 4$  bulimia nervosa, 3.4%;  $n = 2$  other specified feeding or eating disorder (symptoms consistent with atypical bulimia nervosa), and 1.7%;  $n = 1$  avoidant/restrictive food intake disorder). With respect to treatment modality at data collection, 46.6% ( $n = 27$ ) were outpatients, 37.9% ( $n = 22$ ) were inpatients, and 15.5% ( $n = 9$ ) were day program patients (mean duration of treatment at data collection = 65.07 days;  $SD = 81.71$ ; range = 0-372). Previous treatment for an eating disorder was reported by 69.0% ( $n = 40$ ) of the sample (e.g., community outpatient treatment, hospitalization, or a prior admission to a specialized inpatient/day treatment program).

The majority of patients (63.8%;  $n = 37$ ) reported engaging in the following compensatory behaviours over the past 28 days: excessive exercise (48.3%,  $n = 28$ ), self-induced vomiting (22.4%,  $n = 13$ ) laxative/diuretic use (13.8%,  $n = 8$ ), and diet pill use (5.2%,  $n = 3$ ). Of the sample, 22.4% ( $n = 13$ ) reported binge eating episodes over the past 28 days. Frequency of binge eating episodes ranged from 0-25 times. Frequency of self-induced vomiting ranged from 0-70 times and frequency of other compensatory behaviours ranged from 0-28 times.

### 3.4.2. Comparisons between the Clinical Sample and Females in the Community Sample

Means and adjusted means for self-compassion, body satisfaction, psychological distress, and eating pathology are presented in Table 9. Results of the one-way MANCOVA (controlling for age) revealed a between-group difference on the combined dependent variables,  $F(4,171) = 13.30$ ,  $p < .001$ , Wilks'  $\Lambda = .76$ , partial  $\eta^2 = .24$ ). Follow-up univariate one-way ANCOVAs with a Bonferroni adjustment ( $p < .0125$ ) were performed. There were differences in the adjusted means for self-compassion ( $F_{1,179} = 24.07$ ,  $p < .001$ , partial  $\eta^2 = .12$ ), body satisfaction ( $F_{1,178} = 33.97$ ,  $p < .001$ , partial  $\eta^2 = .16$ ), psychological distress ( $F_{1,177} = 21.07$ ,  $p <$



.001, partial  $\eta^2 = .11$ ), and eating pathology ( $F_{1,179} = 45.48, p < .001$ , partial  $\eta^2 = .20$ ). Pairwise comparisons revealed that the clinical sample had lower self-compassion (adj  $M$  difference = -0.64, 95% CI: -0.90 to -0.39,  $p < .001$ ) and body satisfaction (adj  $M$  difference = -0.77, 95% CI: -1.02 to -0.51,  $p < .001$ ), as well as higher psychological distress (adj  $M$  difference = 0.67, 95% CI: 0.38 to 0.95,  $p < .001$ ) and eating pathology (adj  $M$  difference = 1.82, 95% CI: 1.29 to 2.36,  $p < .001$ ).

### **3.4.3. The Relation between Self-Compassion, Psychological Distress, Body Satisfaction, and Eating Pathology**

Self-compassion was positively associated with body satisfaction and negatively associated with psychological distress and EDE-Q global and subscale scores (Table 10). Simple mediation analyses indicated that self-compassion had an indirect effect on eating concerns through psychological distress. As can be seen in Table 11, participants who were less self-compassionate were more likely to be psychologically distressed ( $a = -0.57$ ), and participants who were more psychologically distressed were more likely to have concerns with eating ( $b = 0.63$ ). A bootstrap confidence interval for the indirect effect ( $ab = -0.36$ ;  $SE = 0.19$ ) was entirely below zero (-0.79 to -0.04). There was also evidence that self-compassion impacted eating concerns independent of its effect on psychological distress ( $c' = -1.05, p < .001$ ).

Given that the bootstrap confidence intervals encapsulated zero, there was no evidence for the indirect effect of self-compassion on body satisfaction (coefficient = 0.11,  $SE = 0.11$ , 95% CI: -0.06 to 0.36), global eating pathology (coefficient = -.28,  $SE = 0.18$ , CI: -0.71 to 0.01), dietary restraint (coefficient = -0.24,  $SE = 0.23$ , 95% CI: -0.76 to 0.15), shape concern (coefficient = -.30,  $SE = 0.22$ , 95% CI: -0.81 to 0.06) or weight concern (coefficient = -.23,  $SE = 0.22$ , 95% CI: -0.74 to 0.13). However, there was evidence that self-compassion had a direct effect on body satisfaction ( $c' = 0.56, SE = 0.20, p = .01$ ), global eating pathology ( $c' = -1.37, SE = 0.25, p < .001$ ), dietary restraint ( $c' = -1.06, SE = 0.326, p < .001$ ), shape concern ( $c' = -1.63, SE = 0.31, p < .001$ ), and weight concern ( $c' = -1.60, SE = 0.30, p < .001$ ).

## **3.5. Discussion**

Study Two signifies the first empirical examination of the role of self-compassion in adolescents with eating disorders. This study aimed to evaluate whether self-compassion was

lower in a clinical sample of female adolescents when compared to a community sample of female adolescents. Study Two further aimed to examine whether the relationships between self-compassion, psychological distress, body satisfaction, and eating pathology found in Study One replicated in female adolescents with eating disorders. As proposed in hypotheses 1 and 2, the results are consistent with an increasingly abundant literature in adult patients demonstrating a strong link between self-compassion and eating pathology (Braun et al., 2016) as well as studies indicating that young adult females with eating disorders have lower levels of overall self-compassion (Ferreira et al., 2013; Kelly et al., 2014b).

The finding that self-compassion indirectly impacts eating concerns through psychological distress (hypothesis 3) is novel and particularly interesting in light of Study One results. While the indirect effects of self-compassion on body satisfaction and other eating-related variables were not replicated in the current sample, it is possible that this is due to decreased power, and that with increased sample size, more significant trends would be found. Although beyond the scope of the current study, it is also possible that other variables interact with self-compassion to robustly impact body image and eating-related outcomes over the course of treatment. To elaborate, both shame and fear of self-compassion have been implicated as factors contributing to the maintenance of eating disorders in adult patients. From a theoretical standpoint, Goss and Allan (2009) indicate that shame contributes to the maintenance of disordered eating behaviours such as dietary restraint. It is further posited that while self-compassion is the antidote to shame, individuals differ in the extent to which they fear self-compassion, which may impact their ability to build self-compassion and experience improved health outcomes (Gilbert, 2005). Indeed, research demonstrates that higher fear of self-compassion is linked with lower trait self-compassion and increased internalizing symptoms (Gilbert, McEwan, Gibbons, Chotai, Duarte, & Matos, 2012; Gilbert, McEwan, Matos, & Ravis, 2011).

Upon establishing the protective role of self-compassion in adults, an accumulating body of research indicates not only that shame and eating pathology mutually influence one another (Kelly & Tasca, 2016), but also that high fear of self-compassion in conjunction with low trait self-compassion predicts eating pathology and associated shame over time (Kelly et al., 2013b). As such, the adult literature implicates that while self-compassion may be pertinent for eating disorder prevention, considering the additive influence of fear of self-compassion may be especially relevant for clinical populations.

It is important to note that adolescents in the current study presented with different diagnostic classifications and were at various stages of treatment. Although this study did not have an adequate sample size to conduct between group analyses, it is possible that self-compassion has a differential role at varying diagnoses and stages of treatment. Indeed, research in adults indicates that increases in self-compassion early in treatment predict improved patient outcomes (Kelly et al., 2013a) and that patients with anorexia nervosa are less likely to experience increases in self-compassion when compared to patients with bulimia nervosa or other specified feeding or eating disorder (Gale et al., 2014). Thus, while the current study provides preliminary support for the role of self-compassion in female adolescents with eating disorders, longitudinal research is needed to elucidate between-group differences and identify barriers to the development of self-compassion.

**Table 9. Clinical and Community Sample Comparisons on Main Study Variables**

	Clinical Sample		Female Comparison Group	
	<i>M (SD)</i>	<i>M<sub>adj</sub> (SE)</i>	<i>M (SD)</i>	<i>M<sub>adj</sub> (SE)</i>
Self-Compassion Total	2.40 (0.79)	2.29 (0.11)	2.89 (0.71)	2.92 (0.07)
Self-Kindness	2.16 (0.90)	-	2.77 (0.90)	-
Common Humanity	2.46 (1.00)	-	2.92 (0.91)	-
Mindfulness	2.67 (0.75)	-	2.95 (0.87)	-
Self-Judgment	3.84 (1.02)	-	2.82 (1.00)	-
Isolation	3.54 (1.13)	-	2.78 (1.01)	-
Over-Identification	3.50 (0.98)	-	2.98 (0.91)	-
Psychological Distress	2.61 (0.72)	2.78 (0.12)	2.20 (0.87)	2.14 (0.08)
Body Satisfaction	2.51 (0.80)	2.45 (0.10)	3.20 (0.69)	3.22 (0.07)
Eating Pathology Global	3.43 (1.73)	3.64 (0.22)	1.86 (1.35)	1.77 (0.14)
Restraint	2.64 (1.84)	-	1.34 (1.45)	-
Eating Concern	2.80 (1.65)	-	1.16 (1.22)	-
Shape Concern	4.20 (1.96)	-	2.56 (1.67)	-
Weight Concern	3.64 (1.94)	-	2.17 (1.74)	-

*Note.* Higher mean scores indicate higher total self-compassion, psychological distress, body satisfaction, and eating pathology.

**Table 10. Correlations among Main Study Variables in Clinical Sample**

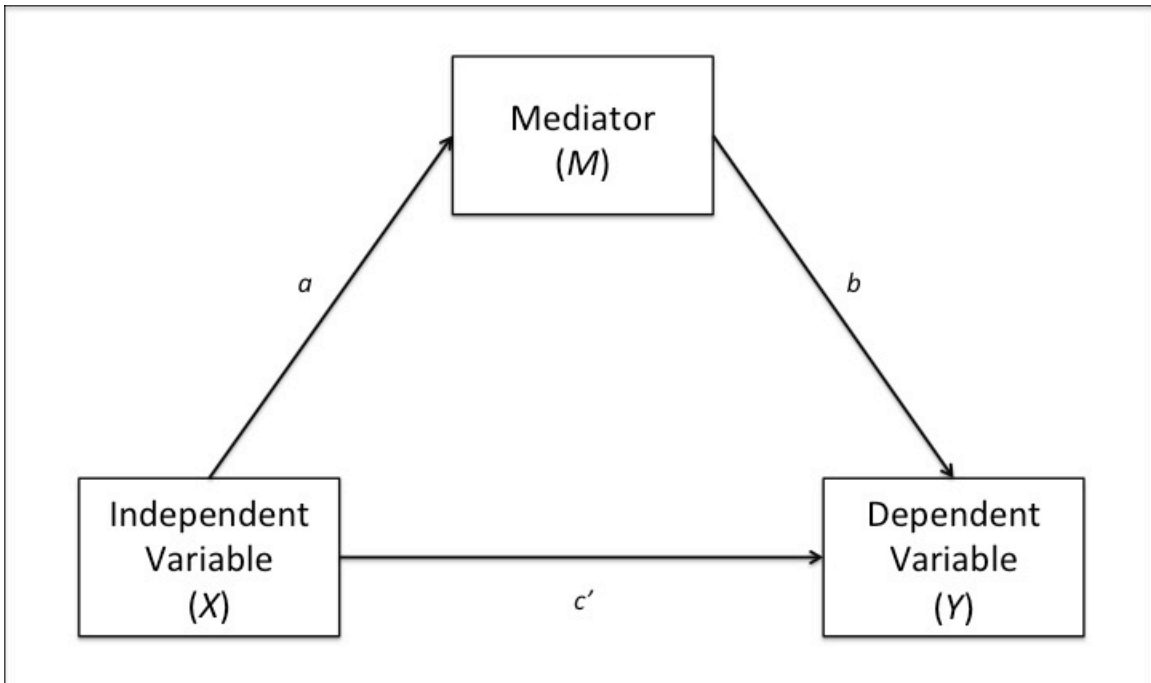
	2.	3.	4.	5.	6.	7.	8.
1. Self-Compassion	-.61	-.68	-.76	-.57	-.69	-.78	-.76
2. Psychological Distress		-.55	.61	.45	.61	.61	.58
3. Body Satisfaction			-.79	-.60	-.68	-.80	-.80
4. Eating Pathology Global				.86	.93	.96	.95
5. Restraint					.82	.70	.76
6. Eating Concern						.86	.81
7. Shape Concern							.94
8. Weight Concern							

*Note.* All correlations significant at the  $p < .001$  level.

**Table 11. Ordinary Least Squares Regression Coefficients for Clinical Sample**

X (Predictor)	M (Psychological Distress)			Y (Eating Concerns)		
	Coeff.	SE	<i>p</i>	Coeff.	SE	<i>p</i>
Self-Compassion	-0.57	0.11	<.001	-1.05	0.27	<.001
Psychological Distress	-	-	-	0.63	0.30	.04
	$R^2 = 0.40$			$R^2 = 0.51$		
	$F(1, 53) = 25.28, p < .001$			$F(2, 52) = 46.45, p < .001$		

Note. *n* = 53.



**Figure 2. Conceptual Mediation Model**

## Chapter 4.

### General Discussion

This research represents an innovative contribution to the adolescent self-compassion literature on multiple fronts. Not only was this the first study to investigate the longitudinal role of self-compassion in body satisfaction and eating pathology while accounting for both sex and gender, but this was also the first empirical examination of self-compassion in adolescents with eating disorders. Self-compassion was linked with higher body satisfaction and lower psychological distress and eating pathology across sex, gender, and samples. When compared to females in the community sample, self-compassion was lowest in female patients with eating disorders and highest in male adolescents. Clearly, self-compassion plays a pertinent role in adolescent body satisfaction and eating pathology, but why? Findings from both studies suggest one possible process that may help answer this question, particularly for female adolescents. Females high in self-compassion were less likely to be psychologically distressed, which in turn led to increased body satisfaction, and decreased global eating pathology, dietary restraint, and shape/weight concerns (see Study One). In female adolescents with eating disorders, increased self-compassion impacted eating concerns through psychological distress (see Study Two). Together, these findings implicate psychological distress as a potential pathway through which self-compassion exerts its effect on outcomes relevant for the development and maintenance of eating disorders.

Given that research on adolescent self-compassion is nascent, this study focused primarily on sex differences in self-compassion and its role in body satisfaction and eating pathology. Despite this focus, recommendations for engaging in sex and gender-sensitive research were employed (Johnson, Greaves, & Repta, 2009), which led to divergent findings. Unlike sex-based analyses, changes in psychological distress did not mediate the relationship between self-compassion and body satisfaction, nor did T1 psychological distress mediate the link between self-compassion and shape/weight concerns. While it was not possible to compare the roles of sex and gender in Study Two (due to limitations in gender diversity), these findings warrant a comprehensive discussion of the differential impact of sex and gender and their potential interaction with other variables.



Just as it cannot be assumed that sex and gender similarly influence health behaviours and outcomes, it cannot be assumed that all members of a given sex or gender group experience health risks in an equitable manner (Johnson et al., 2009). Although the present studies represent a first step in establishing sex differences and examining the differential roles of sex and gender identity with respect to body satisfaction and eating pathology, further research is needed to fully understand the implications of these findings. Given that body image and gender are multidimensional constructs, important next steps include analyzing gender-specific measures of body satisfaction and other layers of gender, such as gender role orientation (i.e., the extent to which one identifies with masculinity and/or femininity as well as societal gender roles; Bem, 1974).

To add another layer of complexity, it may be that the impact of sex and/or gender on self-compassion varies as a function of ethnic-racial group. While findings from one study indicate that gender-role orientation may differ between groups (Abrams, Javier, Maxwell, Belgrave, & Nguyen, 2016), research on the cross-cultural impact of self-compassion in adolescents is limited (Akin and Akin, 2015; Cunha et al., 2016; Jativa & Cerezo, 2014; Zeller, Yuval, Nitzan-Assayag, & Bernstein, 2015). As such, future research would benefit from examining whether the current pattern of results differ according to ethnic-racial background.

A final important consideration is the potential interaction between sex, gender, and age. Recent findings from a meta-analysis indicate that the magnitude of effect between self-compassion and psychological distress weakens with age (i.e., younger adolescents report a stronger association between increased self-compassion and decreased distress; Marsh et al., 2017). Bluth and colleagues (2016) help explain the effect of age by highlighting its interaction with gender. More specifically, they found that self-compassion was associated with decreased anxiety across males and females at 14 years of age and younger. However, self-compassion appeared to exert a stronger protective effect for males in older adolescence. As noted by Marsh and colleagues (2017), dividing adolescence into age-related stages is a challenging and somewhat arbitrary endeavour. Yet, it is possible that the impact of self-compassion on body satisfaction and eating pathology would be more robust across sex and/or gender at a younger age than that of the current samples. Regardless of whether or not this possibility is a reality, research in younger samples would help inform the ideal time to build self-compassion and maximize its protective effects in adolescence.

## 4.1. Limitations and Avenues for Future Research

Although this research addresses significant gaps in the literature, several limitations warrant discussion and point to additional directions for future research. While alternate model analyses in Study One indicated that self-compassion did not indirectly effect psychological distress through body satisfaction and eating pathology, replication of the study findings over three time points would be valuable for fully inferring directionality (Hayes, 2017). Additionally, the cross-sectional design and sample composition in Study Two (i.e., females only) precludes the ability to generalize findings to males and make conclusions regarding directionality of associations.

Another potential limitation arises from the fact that the majority of variables were measured via self-report questionnaires, which are subject to biases. For example, although not included in primary analyses, it is possible that students had difficulty recalling the frequency with which they engaged in disordered eating behaviours. While the measures employed to assess eating pathology (i.e., the EDE-Q) reflect the DSM-5 (American Psychiatric Association, 2013), semi-structured or structured interviews would provide more detailed diagnostic information, particularly for clinical samples.

Finally, it is important to note that the current study examined between-group differences in self-compassion and its role both cross-sectionally and over time. A rapidly growing and stimulating literature in adults demonstrates the within-persons effects of self-compassion in the realms of body image and eating pathology by employing ecological momentary assessment or daily diary methodologies (Kelly & Tasca, 2016; Kelly & Stephen, 2016; Kelly et al., 2016; Thogersen-Ntoumani et al., 2017). In brief summary, research demonstrates that on days when college women are more self-compassionate, they are more likely to practice intuitive eating and are less likely to engage in dietary restraint (Kelly & Stephen, 2016). Additionally, on days when undergraduate women are less self-compassionate, interactions with body-focused peers are linked with a more maladaptive body image, negative affect, and decreased intuitive eating (Kelly et al., 2016). Research in adult females with eating disorders provides further evidence for the utility of examining within-person variance by implicating that increased self-compassion may help break the cyclical relationship between eating pathology and shame within patient trajectories (Kelly & Tasca, 2016).

Altogether, these studies reveal the merit of conceptualizing self-compassion at the within-persons level for adult females with and without eating disorders. Such a conceptualization may be particularly relevant in adolescence, given that youth are constantly comparing themselves to one another as they aim to establish their identities (Harter, 1990). Empirical examinations of within-persons effects therefore highlight a promising avenue for future research in adolescents, particularly when considering whether the effect of within-person variance in self-compassion differs according to sex, gender, age, and ethnic-racial group.

## **4.2. Clinical Implications**

Despite the abovementioned limitations, findings from the present studies have important implications for practice. Recent research demonstrates that interventions are effective in increasing self-compassion, producing positive psychological outcomes, and reducing psychological distress in adults (Barnard & Curry, 2011; Neff & Germer, 2013; Shapira & Mongrain, 2010; Smeets, Neff, Alberts & Peters, 2014) and adolescents (Bluth, Gaylord, Campo, Mullarkey, & Hobbs, 2016; Bluth & Eisenlohr-Moul, 2017; Galla, 2016). Although only one adolescent intervention has been conducted to increase self-compassion and reduce appearance concerns (Rodgers et al., 2018), several studies in adult females demonstrate that self-compassion interventions lead to reductions in body dissatisfaction over time (Albertson et al., 2015; Toole & Craighead, 2016; Seekis et al., 2017). Two of these interventions were conducted over a 1 and 3-week period, respectively, whereby participants were asked to listen to a 20-minute guided self-compassion meditation on a daily basis (e.g., Compassionate Body Scan or Loving Kindness Meditation). In one of these interventions (Albertson et al., 2015), effects were maintained at 3-month follow-up. Another study induced negative body image in female college students who were randomized to various one-time intervention conditions (Seekis et al., 2017). Participants who undertook a 15-minute self-compassion writing task, which was aimed at reframing a negative body image scenario, had higher body appreciation and satisfaction than the control group post-intervention and at 2-week follow-up.

With respect to clinical samples, much of the research focuses on compassion-focused therapy (CFT), which was developed by Gilbert (2005) to help patients overcome self-criticism and shame by cultivating self-compassion and seeking compassion from others. Findings from two studies in adults with eating disorders demonstrate the efficacy of CFT for improving treatment outcomes in transdiagnostic samples (Gale et al., 2014; Kelly, Wisniewski, Martin-Wagar, & Hoffman, 2017). Notably, group-based CFT as an outpatient treatment adjunct for

adults with eating disorders revealed medium to large effects on patients' shame, self-compassion, fears of compassion and self-compassion, and eating pathology (Kelly et al., 2017). Treatment adjuncts aside, recent research demonstrates that both brief and longer-term self-compassion interventions, adapted from CFT, lead to reductions in eating pathology for patients with binge eating disorder (Kelly & Carter, 2015; Pinto-Gouveia et al., 2016). Additionally, momentary self-compassion inductions have been found to reduce distress and binge eating behaviours among restrictive eaters (Adams & Leary, 2007).

Although research from the adult literature is highly informative and provides evidence that self-compassion training can result in improved body image and decreased eating pathology, alternate considerations likely apply for adolescents. The current studies in conjunction with extant literature provide support for the notion that interventions focused on increasing self-compassion and decreasing psychological distress may have an important influence on eating disorder risk factors and treatment over time. By continuing to explicate the role of self-compassion in adolescents with and without eating disorders, we can ultimately develop and implement interventions that effectively cultivate self-compassion and optimize health outcomes across the lifespan.

### **4.3. Conclusion**

The present studies extend limited research on adolescent self-compassion by providing compelling evidence for the role that self-compassion may play in protecting against declines in body satisfaction and increases in eating pathology. Importantly, these studies implicate psychological distress as a pertinent pathway through which self-compassion may exert its effect, particularly in female adolescents. Noting that eating disorders constitute an important public health concern, it is essential for prevention efforts to focus on critical developmental periods. Given that self-compassion is deemed malleable throughout the developmental spectrum, it represents a potentially crucial factor to target in large-scale health initiatives aimed at stemming the tide of elevated body dissatisfaction and eating pathology in youth.

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# Appendix A. Community Sample Forms



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SIMON FRASER UNIVERSITY  
ENGAGING THE WORLD

## **Informed Consent by Participants in a Research Study**

**Title of Study:** Well-Being and Health Behaviours in Adolescents

**Principal Investigators:** Dr. Shannon Zaitsoff [...@sfu.ca], Department of Psychology, Simon Fraser University and Dr. Jennifer Coelho [...@sfu.ca], Department of Psychiatry, University of British Columbia

**Research Coordinators:** Rachelle Pullmer [...@sfu.ca] and Sarah Anderson [...@sfu.ca], Department of Psychology, Simon Fraser University

**Research Personnel:** Four undergraduate students

**Funding Source:** Child and Family Research Institute

**Organizational Permission:** Permission to conduct this study has been obtained from [name of high school was inserted here].

### **Study purpose:**

The purpose of this study is to learn more about the relationships between checking the size, shape or weight of one's body, body dissatisfaction, eating behaviours and well-being in youth.

### **Voluntary participation:**

You are strongly encouraged to discuss your participation in this study with your parent(s)/guardian(s). As a participant in this study, you will be able to withdraw at any time. Refusal to participate or withdrawal/dropout after agreeing to participate will not have a negative effect or consequences on your grades, education or services. If you do not wish to participate in this study, you can read through and/or draw on the study questionnaires or work on your homework.

### **What you will be asked to do:**

You will be asked to fill out a series of questionnaires and to allow the research team to measure your height and weight in a private room. The questionnaires will take approximately 30 minutes to complete and the measurements will take approximately 2-3 minutes to complete. This will occur on [date was inserted here] during one class period, which lasts [the length of the class period was inserted here] minutes. Three and a half to four and a half months later, at the beginning of the class period, you will be asked to fill out another set of questionnaires and have your measurements taken again in a private room. The questionnaires will take approximately 15 minutes to complete and the measurements will take 2-3 minutes to complete. The questionnaires will assess ethnicity, demographic information, general well-being, self-esteem, self-compassion, body checking behaviours, and different types of thinking styles, in order to investigate how these factors are related to body satisfaction and eating behaviours. The study will take place in



[location of study was inserted here] at [student's high school]. Providing this information is voluntary, and you do not have to answer any questions you do not wish to or any questions that make you feel uncomfortable.

### **Is there any way being in this study could be bad for you?**

There are no known physical risks associated with participating in this study. However, there is a chance that you may experience mild distress while having your weight taken. Additionally, some of the questions we will ask may seem sensitive or personal. However, you do not have to complete the measurements or answer any questions that you do not want to.

The principal investigators and research coordinator will be available to assist you with any questions or concerns regarding the study. If you are concerned about your eating behaviours or your thoughts about your body shape or weight, please visit [www.keltyeatingdisorders.ca](http://www.keltyeatingdisorders.ca), a website that contains detailed information on eating disorders and a directory of eating disorder treatment programs in British Columbia.

### **Benefits of the study to the development of new knowledge:**

This study will not directly benefit individual participants. This study may provide information on potential risk factors for the development of eating disorders in adolescents. Collectively, the information gathered from this study may have implications for research on the prevention and treatment of eating disorders.

You will not receive financial compensation for participating in this study. However, the lecture you just attended was developed to supplement the curriculum by providing an introduction and overview to eating disorders and body image.

### **How will your privacy be maintained?**

All documents will be identified by code numbers and will be kept in a locked filing cabinet with restricted access at Simon Fraser University. Computers used to store, organize and analyze responses will be password secured and located on a secure server in a secure location with restricted access. The dataset will be shared between members of the research team via Workspace, a secure server through the University of British Columbia, and de-identified responses to several questionnaires will be linked with data that is being collected at BC Children's hospital to compare the findings from this study to an eating disorder sample. You will not be identified by name in any reports of the completed study. If you decide to withdraw from the study, your data will be destroyed immediately.

Information on your identity will not be released without your consent unless required by the law. At any point in the study, if you reveal that there has been an incident that involves abuse and/or neglect (or that there is a risk of such occurring), please be advised that the researcher must, by law, report this information to the Ministry of Children and Family Development, who may choose to intervene and report the incident to the appropriate authorities. If there is evidence that you are at risk of causing serious bodily harm or death to yourself or another person, your parent(s)/guardian(s) and the high school counselor will be notified. Serious bodily harm may present in many ways; for example, self-harm behaviours or risky eating behaviours are considered serious bodily harm. Risky eating behaviours include vomiting, use of laxatives, excessive exercise, or weekly binge eating episodes (i.e., eating an objectively large amount of





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## Introductory Letter

[Date was inserted here]

Dear Parent(s)/Guardian(s),

Your child is invited to participate in a research study *Well-Being and Health Behaviours in Adolescents* conducted by Dr. Shannon Zaitsoff (R. Psych.) and Dr. Jennifer Coelho (R. Psych.) through the Department of Psychology at Simon Fraser University. [Relevant teacher and district names was inserted here] have granted us permission to conduct this study in your child's school, as it fits with the curriculum for your child's [name of course was inserted here].

The aim of this study is to learn more about the relationships between checking the size, shape and weight of one's body, body dissatisfaction, eating behaviours and well-being in youth. The accompanying **Parent/Guardian Information Form**, is enclosed to provide you with further information about the study details, including procedures, possible risks/benefits, and ethical considerations. You are strongly encouraged to discuss this information with your child as well as their decision regarding whether or not to participate in this study. Please note that your child can decline to participate or withdraw from the study at any time without prejudice.

If you have any questions or concerns about this study, please feel free to contact the research coordinators Rachelle Pullmer [...@sfu.ca] or Sarah Anderson [...@sfu.ca], Dr. Shannon Zaitsoff [...@sfu.ca, (...)], or Dr. Jennifer Coelho [...@sfu.ca, (...)].

Kind Regards,

Shannon Zaitsoff, Ph.D., R. Psych.  
Associate Professor  
Department of Psychology  
Simon Fraser University  
Burnaby, BC

Jennifer Coelho, Ph.D., R. Psych.  
Adjunct Professor  
Department of Psychiatry  
University of British Columbia  
Vancouver, BC



## Parent/Guardian Information Form

**Title of Study:** Well-Being and Health Behaviours in Adolescents

**Principal Investigators:** Dr. Shannon Zaitsoff [...@sfu.ca], Department of Psychology, Simon Fraser University and Dr. Jennifer Coelho [...@sfu.ca], Department of Psychiatry, University of British Columbia

**Research Coordinators:** Rachelle Pullmer [...@sfu.ca] and Sarah Anderson [...@sfu.ca]  
Department of Psychology, Simon Fraser University

**Research Personnel:** Four undergraduate students

**Funding Source:** Child and Family Research Institute

**Organizational Permission:** Permission to conduct this study has been obtained from [name of high school was inserted here].

### Study purpose:

The purpose of this study is to learn more about the relationships between checking the size, shape or weight of one's body, body dissatisfaction, eating behaviours and well-being in youth.

### Voluntary participation:

You are strongly encouraged to discuss your child's participation in this study with your child and your child has been strongly encouraged to discuss their decision regarding whether or not to participate in the study with you. If you do not wish for your child to participate in the study, please discuss this with your child before the study begins. On the day the study is conducted, your child will consent on their own behalf, and will be asked to choose whether or not they wish to participate. As a participant in this study, your child will be able to withdraw at any time without prejudice or penalty. Refusal to participate or withdrawal/dropout after agreeing to participate will not have a negative effect or consequences on your child's grades, education or services. If your child does not wish to participate in this study, they can read through and/or draw on the study questionnaires or work on their homework.

### What your child will be asked to do:

Your child will be asked to fill out a series of questionnaires and to allow the research team to measure his/her height and weight in a private room. The questionnaires will take approximately 30 minutes to complete and the measurements will take approximately 2-3 minutes to complete. This will occur on [date was inserted here] during one class period, which lasts [the length of the class period was inserted here] minutes. Three and a half to four and a half months later, at the beginning of the class period, your child will be asked to fill out another set of questionnaires and have his/her measurements taken again in a private room. The questionnaires will take approximately 15 minutes to complete and the measurements will take 2-3 minutes to complete. The questionnaires will assess ethnicity, demographic information, general well-being, self-esteem, self-compassion, body checking behaviours, and different types of thinking styles, in

order to investigate how these factors are related to body satisfaction and eating behaviours. The study will take place in [location of study was inserted here] at [student's high school]. Providing this information is voluntary, and participants do not have to answer any questions they do not wish to or that make them feel uncomfortable.

**Is there any way being in this study could be bad for your child?**

There are no known physical risks associated with participating in this study. However, although your child will be able to choose whether or not they would like to know his/her weight, there is a risk that he/she may experience mild distress while his/her weight is being measured. Additionally, some of the questions your child will be asked may seem sensitive or personal. However, your child does not have to complete the measurements or answer any questions he/she does not want to.

The principal investigators and research coordinator will be available to assist your child with any questions or concerns regarding the study. If you are concerned about your child's eating behaviours or your child's thoughts about his/her weight, please visit [www.keltyeatingdisorders.ca](http://www.keltyeatingdisorders.ca), a website that contains comprehensive information on eating disorders and a directory of eating disorder treatment programs in British Columbia.

**Benefits of the study to the development of new knowledge:**

This study will not directly benefit individual participants. This study may provide information on potential risk factors for the development of eating disorders in adolescents. Collectively, the information gathered from this study may have implications for research on the prevention and treatment of eating disorders.

Your child will not receive financial compensation for participating in this study. However, your child attended an in-class lecture, presented by the study research coordinators, that was developed to supplement the curriculum by providing an introduction and overview to eating disorders and body image.

**How will your child's privacy be maintained?**

All documents will be identified by code numbers and will be kept in a locked filing cabinet with restricted access at Simon Fraser University. Computers used to store, organize and analyze participant data will be password secured and located on a secure server in a secure location with restricted access. The dataset will be shared between members of the research team via Workspace, a secure server through the University of British Columbia, and de-identified responses to several questionnaires will be linked with data that is being collected at BC Children's hospital to compare the findings from this study to an eating disorder sample. Your child will not be identified by name in any reports of the completed study. If your child withdraws from the study, your child's data will be destroyed immediately.

Information that discloses your child's identity will not be released without consent unless required by the law. At any point in the study, if your child reveals that there has been an incident that involves abuse and/or neglect (or that there is a risk of such occurring), please be advised that the researcher must, by law, report this information to the Ministry of Children and Family Development, who may choose to intervene and report the incident to the appropriate

authorities. If there is evidence that your child is at risk of causing serious bodily harm or death to him/herself or to another person, you and the high school counselor will be notified. Serious bodily harm may present in many ways; for example, self-harm behaviours or risky eating behaviours are considered serious bodily harm. Risky eating behaviours include vomiting, use of laxatives, excessive exercise, or weekly binge eating episodes (i.e., eating an objectively large amount of food compared to what most people would eat in a similar period of time and experiencing a lack of control while eating) over the past month, or being significantly underweight and engaging in restrictive eating behaviours. Therefore, if there is evidence that your child is engaging in any of these behaviours, your child's high school counselor will be notified, and your child's high school counselor will notify you if your child is at imminent risk of harming themselves.

**Study results:**

The main study findings may be published in academic journal articles and presented at academic conferences. Participants will not be personally identifiable in any presentations of the findings. If you have any questions or concerns about the study you can contact the principal investigators, Dr. Shannon Zaitsoff [...@sfu.ca, (...)] and Dr. Jennifer Coelho [...@sfu.ca, (...)] or the research coordinators, Rachelle Pullmer [...@sfu.ca] or Sarah Anderson [...@sfu.ca]. If you wish to obtain the results from this study, please contact Dr. Shannon Zaitsoff or Dr. Jennifer Coelho.

**Who can you contact if you have complaints or concerns about the study?**

If you have any concerns or complaints about your child's rights as a research participant and/or your child's experiences while participating in the study, please contact either (1) Dr. Jeffrey Toward, Director, Office of Research Ethics at Simon Fraser University [...@sfu.ca, (...)] or (2) Research Participant Complaint Line at the University of British Columbia Office of Research Ethics ([RSIL@ors.ubc.ca](mailto:RSIL@ors.ubc.ca), 604-822-8598, Toll Free: 1-877-822-8598).

**Future studies:**

Your child will also be asked to indicate whether they are willing to be contacted to hear about how they can participate in studies in our lab in the future.

## Appendix B. Measures

### Participant Characteristics

*Please tell us about yourself:*

1) What is your age? \_\_\_\_\_ (month/year)

2) What sex were you assigned at birth?

Male

Female

3) What is your current gender identity? (check one)

Male

Female

Transgender

Other identity (please specify) \_\_\_\_\_

4) What is your ethnic-cultural background? (check all that apply):

First Nations

Caucasian/European

Latino/Hispanic

African

South Asian (e.g., India, Pakistan, Sri Lanka)

East Asian (e.g., China, Japan, Korea)

South East Asian (e.g., Philippines, Indonesia, Thailand)

Other (please specify) \_\_\_\_\_

5) Which of these adults do you live with most of the time?

Mother

Grandmother

Part time with each parent

Father

Grandfather

Foster parent(s) or caregiver(s)

Stepfather

Second mother

Living independently

Stepmother

Second father

Other adults (write in the space below, for example, aunt, uncle, mom's boyfriend or girlfriend, dad's boyfriend or girlfriend: please specify)

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Additional Questions for Community Sample

6) Have you ever been diagnosed with an eating disorder (e.g., anorexia nervosa, bulimia nervosa, binge eating disorder or another eating disorder)?

Yes       No

If yes, please list diagnosis:

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If yes, please describe any past treatment:

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If yes, please describe any current treatment:

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## Self-Compassion

### HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

**Almost  
never**  
**1**

**2**

**3**

**4**

**Almost  
always**  
**5**

- \_\_\_\_\_ 1. I'm disapproving and judgmental about my own flaws and inadequacies.
- \_\_\_\_\_ 2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.
- \_\_\_\_\_ 3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
- \_\_\_\_\_ 4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
- \_\_\_\_\_ 5. I try to be loving towards myself when I'm feeling emotional pain.
- \_\_\_\_\_ 6. When I fail at something important to me I become consumed by feelings of inadequacy.
- \_\_\_\_\_ 7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.
- \_\_\_\_\_ 8. When times are really difficult, I tend to be tough on myself.
- \_\_\_\_\_ 9. When something upsets me I try to keep my emotions in balance.
- \_\_\_\_\_ 10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
- \_\_\_\_\_ 11. I'm intolerant and impatient towards those aspects of my personality I don't like.
- \_\_\_\_\_ 12. When I'm going through a very hard time, I give myself the caring and tenderness I need.
- \_\_\_\_\_ 13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.
- \_\_\_\_\_ 14. When something painful happens I try to take a balanced view of the situation.
- \_\_\_\_\_ 15. I try to see my failings as part of the human condition.

- \_\_\_\_\_ 16. When I see aspects of myself that I don't like, I get down on myself.
- \_\_\_\_\_ 17. When I fail at something important to me I try to keep things in perspective.
- \_\_\_\_\_ 18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.
- \_\_\_\_\_ 19. I'm kind to myself when I'm experiencing suffering.
- \_\_\_\_\_ 20. When something upsets me I get carried away with my feelings.
- \_\_\_\_\_ 21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.
- \_\_\_\_\_ 22. When I'm feeling down I try to approach my feelings with curiosity and openness.
- \_\_\_\_\_ 23. I'm tolerant of my own flaws and inadequacies.
- \_\_\_\_\_ 24. When something painful happens I tend to blow the incident out of proportion.
- \_\_\_\_\_ 25. When I fail at something that's important to me, I tend to feel alone in my failure.
- \_\_\_\_\_ 26. I try to be understanding and patient towards those aspects of my personality I don't like.

## Psychological Distress

Have you been bothered by any of the following during the last two weeks?

	Not bothered	A little bothered	Quite bothered	Very bothered
Feeling fearful	1	2	3	4
Nervousness or shakiness inside	1	2	3	4
Feeling hopeless about the future	1	2	3	4
Feeling blue	1	2	3	4
Worrying too much about things	1	2	3	4

## Body Satisfaction

Use this 1 to 5 scale to indicate how dissatisfied or satisfied you are with each of the following areas or aspects of your body:

<b>Very Dissatisfied</b>	<b>= 1</b>
<b>Mostly Dissatisfied</b>	<b>= 2</b>
<b>Neither Satisfied Nor Dissatisfied</b>	<b>= 3</b>
<b>Mostly Satisfied</b>	<b>= 4</b>
<b>Very Satisfied</b>	<b>= 5</b>

1. Face (facial features, complexion) \_\_\_\_\_
2. Hair (colour, thickness, texture) \_\_\_\_\_
3. Lower torso (buttocks, hips, thighs, legs) \_\_\_\_\_
4. Mid torso (waist, stomach) \_\_\_\_\_
5. Upper torso (chest or breasts, shoulders, arms) \_\_\_\_\_
6. Muscle tone \_\_\_\_\_
7. Weight \_\_\_\_\_
8. Height \_\_\_\_\_
9. Overall appearance \_\_\_\_\_

## Eating Pathology

(Please tick <u>one</u> box only to answer each question)	<b>0 days</b>	<b>1-5 days</b>	<b>6-12 days</b>	<b>13-15 days</b>	<b>16-22 days</b>	<b>23-27 days</b>	<b>Everyday</b>
<b>On how many days, out of the past 28 days...</b>							
1. Have you been deliberately <u>trying</u> to limit the amount of food you eat to influence your shape or weight?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
2. Have you gone for long periods of time (8 or more of your waking hours) without eating anything in order to influence your shape or weight?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
3. Have you <u>tried</u> to avoid eating any foods that you like in order to influence your shape or weight?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
4. Have you <u>tried</u> to follow definite rules (like a calorie limit or rules about when, what or how much you should eat) about your eating in order to influence your shape or weight?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
5. Have you eaten in secret? ( <u>not including binges*</u> ) *Binge = eating a very large amount of food in a short time AND feeling like your eating is out of control at the time	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
6. Have you wanted your stomach to be empty?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
7. Have you wanted your stomach to be flat?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
8. Has thinking about food or its calorie content made it more difficult to concentrate on things that you're interested in (like reading or chatting with friends)?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
9. Has thinking about your shape or weight made it more difficult to concentrate on things that you're interested in (like reading or chatting with friends)?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
10. Have you been afraid of losing control over your eating?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
11. Have you had a definite fear that you might gain weight or become fat?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

12. Have you felt fat?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1	2	3	4	5	6
13. Have you had a strong desire to lose weight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	0	1	2	3	4	5	6

<b>In the past 28 days...</b>	
14. Have you eaten a very large amount of food in a short period of time <u>AND</u> felt like your eating was out of control at the time?	<input type="checkbox"/> No <input type="checkbox"/> Yes → How many times have you done this in the past 28 days? _____ times
15. Have you eaten a normal or small amount of food, but still felt like your eating was out of control at the time?	<input type="checkbox"/> No <input type="checkbox"/> Yes → How many times have you done this in the past 28 days? _____ times
16. Have you made yourself sick (vomited) in order to influence your shape or weight?	<input type="checkbox"/> No <input type="checkbox"/> Yes → How many times have you done this in the past 28 days? _____ times
17. Have you taken any medicines that make you go to the bathroom in order to influence your shape or weight?	<input type="checkbox"/> No <input type="checkbox"/> Yes → How many times have you done this in the past 28 days? _____ times
<b>In the past 28 days...</b>	
18. Have you taken any pills in order to influence your shape or weight (such as diet pills or pills that make you urinate or pee)?	<input type="checkbox"/> No <input type="checkbox"/> Yes → How many times have you done this in the past 28 days? _____ times
19. Have you taken a food or dietary supplement (like a weight-loss shake or protein powder) in order to influence your shape or weight?	<input type="checkbox"/> No <input type="checkbox"/> Yes → How many times have you done this in the past 28 days? _____ times

<p>20. Have you exercised in a driven or compulsive way in order to influence your shape or weight?</p>	<p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes → How many times have you done this in the past 28 days? _____ times</p>
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<p><b>In the past 28 days...</b></p> <p>21. After you ate, how often did you feel guilty because of the possible effect on your shape or weight? (<u>not including binges*</u>)</p> <p>*Binge = eating a very large amount of food in a short time AND feeling like your eating is out of control at the time.</p>	<p><input type="checkbox"/> None of the times</p> <p><input type="checkbox"/> A few of the times</p> <p><input type="checkbox"/> Less than half</p> <p><input type="checkbox"/> Half of the times</p> <p><input type="checkbox"/> More than half</p> <p><input type="checkbox"/> Most of the time</p> <p><input type="checkbox"/> Every time</p>
--	--

<b>In the past 28 days...</b>	<b>Not at all</b>	<b>1</b>	<b>Slightly</b>	<b>2</b>	<b>Moderately</b>	<b>3</b>	<b>4</b>	<b>Very much</b>
22. Has your weight influenced how you think about (judge) yourself as a person?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 6
23. Has your shape influenced how you think about (judge) yourself as a person?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 6
24. How much would it upset you if you had to weigh yourself once a week (no more and no less) for the next 4 weeks?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 6
25. How dissatisfied have you felt about your weight?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 6
26. How dissatisfied have you felt about your shape?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 6
27. How concerned have you been about people seeing you eat?	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 6

28. How uncomfortable have you felt seeing your body (like in the mirror, in shop window reflections, while undressing or taking a bath or shower)?	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6
29. How uncomfortable have you felt about others seeing your body (like in communal changing rooms, when swimming or when wearing tight clothes)?	<input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6



# Appendix C. Clinical Sample Forms



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## INFORMED CONSENT FORM: PARENTS/CAREGIVERS

**Title of Study:** Validation of Two Questionnaires of Eating-Related Thoughts and Behaviors

**Principal Investigator:** Jennifer Coelho, Ph.D., Psychologist (UBC Department of Psychiatry)  
Contact Telephone no: [...]

### **Co-Investigators:**

Shannon Zaitsoff, Ph.D., R.Psych (Simon Fraser University, Department of Psychiatry)  
S. Evelyn Stewart, M.D., Director, Pediatric OCD Program, BC Children's Hospital (BCCH);  
Associate Professor, Psychiatry - University of British Columbia (UBC)

### **Purpose:**

We are investigating two questionnaires that assess eating-related thoughts and behaviors. We would like to examine whether these questionnaires provide helpful information about eating-related thoughts and behaviors in youth with eating disorders. You and your child are being invited to take part in our research because he/she is currently in treatment at the BC Children's Hospital Eating Disorders Program. All youth (and their parent/caregiver) who are in treatment at the program, who are proficient in English, and who are not currently participating in a long-term research project in the program, are being invited to participate in this study.

The participation of you and your child in this project is **optional**. Your child's care will not be affected if you choose not to participate in this research study. If you decide not to participate, but your child is interested in participating, you can provide consent for your child.

### **Study Procedures:**

We would like to invite you and your child to complete some questionnaires about eating symptoms, anxiety and distress, and general well-being. We are interested in studying two specific questionnaires: a self-report questionnaire completed by parents to assess eating disorder thoughts and behaviors in their child, and a self-report questionnaire completed by youth to assess body checking behaviors. We will be studying the relationship between the questionnaire completed by parents and youth. We will also study how youth's responses on the questionnaire about body checking relate to their answers on other questionnaires about eating-related thoughts and behaviors, and well-being. We expect that it will take youth around 20-30 minutes to complete the measurements associated with this study, and parents around 10-15 minutes to complete the questionnaires. You will be asked to complete these questionnaires on paper. You and your child can skip over any questions that you do not feel comfortable answering.

We also request permission to access certain demographic and historical information from your child's medical records (i.e., gender, race/ethnicity, age, eating disorder diagnosis, duration of eating disorder, previous treatment for an eating disorder, current weight and height, suggested body weight, and menstrual status and history if applicable). Studies involving humans now routinely collect information on race and ethnic origin as well as other characteristics of individuals because these characteristics may influence how people respond to treatment. Providing information on race or ethnic origin is voluntary.

Data will be entered into an electronic database that is stored on secure servers in the hospital, and password-protected. The hard copies of the questionnaires will be stored in a locked filing cabinet in the Eating Disorders Program. Only the researchers and their trained research assistants will have access to the paper versions of the data. The researchers will send a portion of the electronic data to Dr. Katharine Loeb, at Fairleigh Dickinson University in the USA. To protect the confidentiality of the participants in this research, only de-identified data (i.e., data that does not contain any personally identifying information) will be sent to Dr. Loeb. Data will be stored for at least 5 years, in accordance with UBC policy on the retention of data.

### **Potential Risks:**

The questionnaires that we are studying have been developed to assess eating-related thoughts and behaviors that are routinely reported by parents and youth who are in treatment for an eating disorder. The other questionnaires that we are using have been included in other research projects in youth with eating disorders, and assess similar thoughts and behaviors that are routinely assessed as part of regular clinical care; therefore, it is not expected that you or your child will experience any negative consequences as a direct result of participation in this study. Sometimes, individuals report some mild psychological distress when reflecting on their symptoms or functioning. However, the types of questions asked as part of this research project are similar to the questions that members of the clinical team may have discussed with you and your child during assessment and treatment. If you find that you or your child is distressed as a result of completing the questionnaires, you can speak to a member of the clinical team.

### **Potential Benefits:**

There are no direct benefits to participation in this study. Your participation in this project can help us to improve the tools we use to assess individuals with eating disorders. You may also experience some benefit from participating in the research, as a result of identifying and clarifying your thoughts and feelings about the well-being of you and your child.

### **Honorarium:**

You and your child will not receive any compensation for participation in this research.

### **Confidentiality:**

Your confidentiality will be respected. However, research records and health or other source records identifying you may be inspected in the presence of the Investigator or her designate by representatives of the Research Ethics Boards of BC Children's and Women's Hospital and Simon Fraser University for the purpose of monitoring the research. No information or records that disclose your identity will be published without your consent, nor will any information or records that disclose your identity be removed or released without your consent unless required by law.

You will be assigned a unique study number as a participant in this study. This number will not include any personal information that could identify you or your child (e.g., it will not include Personal Health Number, SIN, or initials, etc.). Only this number will be used on any research-related information collected about you during the course of this study, so that your identity will be kept confidential. Information that contains your identity will remain only with the Principal Investigator and/or designate. The list that matches your name to the unique study number that is used on your research-related information will not be removed or released without your consent unless required by law.

Some of the data that you and your child complete as part of this project will be sent outside of Canada, as part of a collaboration to help us to improve the questionnaires that we are using to assess your child's eating disorder symptoms. Any study-related data sent outside of Canadian borders may increase the risk of disclosure of information because the laws in those countries, [e.g., the Patriot Act in the United States] dealing with protection of information may not be as strict as in Canada. However, all study-related data that might be transferred outside of Canada will be de-identified (this means it will not contain your name or any personal identifying information) before leaving the study site. By signing this consent form, you are consenting to the transfer of your information to organizations located outside of Canada. Specifically, we plan to send demographic information about your child (age, gender, ethnicity, eating disorder diagnosis and duration of illness, and your child's percentage of suggested body weight), along with the responses given by you and your child on a youth and parent version of a questionnaire measuring eating disorder symptoms (Eating Disorders Examination – Questionnaire, youth and parent version) and your responses on a measure of anxiety. This de-identified data will be sent to Dr. Katharine Loeb at Fairleigh Dickinson University, in Teaneck NJ, United States.

Your rights to privacy are legally protected by federal and provincial laws that require safeguards to insure that your privacy is respected. Further details about these laws are available on request to the Principal Investigator.

**Disclosure of Legal Rights:**

By signing this form, you do not give up any of your legal rights and you do not release the study doctor, participating institutions, or anyone else from their legal and professional duties. If you become ill or physically injured as a result of participation in this study, medical treatment will be provided at no additional cost to you. The costs of your medical treatment will be paid by your provincial medical plan.

**Contact for information about the study:**

If you have any questions or need more information about this study, you may contact Dr. Jennifer Coelho at [...].

**Contact for concerns about rights of research participants:**

If you have any complaints about your and your child's rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Information Line in the University of British Columbia Office of Research Services by e-mail at [RSIL@ors.ubc.ca](mailto:RSIL@ors.ubc.ca) or by phone at 604-822-8598 or 1-877-822-8598.

**Withdrawal:**

Your participation is entirely voluntary. You may withdraw from this study at any time, and without giving any reasons for your decision. You or your child can also decline to answer any questions during the course of the study, when completing the questionnaires. If you decide to enter the study and to withdraw any time in the future, there will be no penalty or loss of benefits to you or your child to which you are otherwise entitled, and the future medical care of yourself and/or your child will not be affected. If you or your child decides to withdraw from the study, you will have the option of withdrawing the data that you have provided to the researchers up until the time of your withdrawal. If you indicate to the researchers that you would like to withdraw the data of you and/or your child, it will be destroyed.

**Consent:**

My signature on this consent form means:

- I have read and understood the information in this consent form.
- I have had enough time to think about the information provided.
- I have been able to ask questions and have had satisfactory responses to my questions.
- I am providing consent for my child to participate. I am also providing consent for me to participate, if I choose to take part in this research.
- I understand that all of the information collected will be kept confidential and that the results will only be used for scientific purposes.
- I understand that my participation and the participation of my child, in this study is voluntary.
- I understand that I am completely free at any time to refuse to participate or to withdraw from this study at any time, and that this will not change the quality of care that is received by me or my child.
- I authorize access to my child’s health records as described in this consent form.
- I understand that I am not waiving any of my legal rights as a result of signing this consent form.

The parent(s)/guardian(s)/substitute decision-maker (legally authorized representative) and the investigator are satisfied that the information contained in this consent form was explained to the child/participant to the extent that he/she is able to understand it, that all questions have been answered, and that the child/participant assents to participating in the research.

\_\_\_\_\_  
Printed name of your child

\_\_\_\_\_  
Printed name of Parent/Legal Guardian

I consent for my child to participate (for children 18 or under):

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date (dd-mon-yyyy)





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## **PARTICIPANT ASSENT FORM (Age 10-13 years)**

**Title of Study:** Questionnaires to measure eating disorder thoughts and behaviors

**Principal Investigator:** Jennifer Coelho, Ph.D., Psychologist (UBC Department of Psychiatry)

Contact Telephone no: [...]

### **Co-Investigators:**

Shannon Zaitsoff, Ph.D. (Simon Fraser University, Department of Psychology)

S. Evelyn Stewart, M.D., Director, Pediatric OCD Program, BC Children's Hospital (BCCH);

Associate Professor, Psychiatry – University of British Columbia (UBC)

I am being invited to take part in a research study because I am receiving treatment for an eating disorder at BC Children's Hospital. A research study tries help children like me by better understanding eating disorders. It's up to me if I want to be in this study. No one will make me be part of the study. Even if I agree now to be part of this study, I can change my mind later. No one will be mad at me if I choose not to be part of this study.

### **Why is this research being done?**

When children and teenagers become unwell because of an eating disorder, they often have a hard time with lots of thoughts about their eating disorder. We want to know more about these types of thoughts. We also want to look at whether questionnaires can help us understand thoughts and behaviors in children and teenagers with eating disorders.

### **What will happen in this study?**

If I agree to take part in this research, I agree to fill out some questionnaires about how I feel, and about thoughts and behaviors that some kids with eating disorders may have. One of my parents will also be asked to fill out a questionnaire about my eating, and about how they feel. The researchers will also look at my chart to find out about my eating disorder history and details about me, like my age, height, and weight. It should take about 20-30 minutes for me to complete the questionnaires. I don't have to answer any questions I don't want to.

### **Who is doing this study?**

If I have any questions I have about the study, I can call Dr. Coelho at [...].

### **Can anything bad happen to me?**

The researchers will ask me to fill out questions about my thoughts and behaviours linked with my eating disorder, and my mood. Everyone in the program is asked about these types of thoughts and behaviours, even if they do not take part in this research project. Sometimes, people feel a bit upset thinking about their eating disorder or their mood. If that is the case, I can stop the study and talk to my doctor or nurse, or my parent.

**Could I get better by being in the study?**

This study does not involve new treatments, so we don't expect kids to recover just because of being part of the study. Researchers hope that knowing about my experiences will help staff understand eating disorders better in the future.

**Who will know I'm in the study?**

Only my doctors and treatment team, and the people involved in the study, will know I am in it. When the study is finished, the researchers will write a report about what was learned. This report will not have my name or say that I was in the study. I do not have to tell anyone I was involved in the study if I don't want to.

**Do I have to be in this study?**

I do not have to participate in this study if I don't want to. If I choose to participate, I can stop being in it at any time. The doctors and nurses will take care of me as they have in the past, regardless of whether I am in the study or not.

If I want to participate in this study, I will be asked to sign this form. My parent/guardian will need to sign a consent form before I am enrolled in the study; but I do not have to participate even if they sign the consent form. The researchers will not enroll me into the study unless I agree to do so.

I should take time to read all the information carefully and to talk it over with my family, and if I wish, my doctor, before I decide. I understand that I should feel free to talk to the researchers if anything is not clear. I can choose to be in the study, not be in the study, or take more time to decide. Even if I agree now to be part of the study, I can change my mind later. I can ask the study doctor or researcher any questions I may have at any time during my study participation.

**Who do I contact if I have questions about my rights as a research participant?**

If I have any concerns or complaints about my rights as a research participant and/or my experiences while participating in this study, I should contact the Research Participant Complaint Line in the University of British Columbia Office of Research Ethics by e-mail at [RSIL@ors.ubc.ca](mailto:RSIL@ors.ubc.ca) or by phone at 604-822-8598 (Toll Free: 1-877-822-8598).

**Participant's Assent:**

**By putting my name at the end of this form, it means that I agree to be in the study. It also means I read this form or talked about this study with my mom, dad or guardian. My Mom or Dad (or legal guardian) has to give permission for me to be in this study if I decide I want to. I had the chance to ask questions about participating in this research. I know that I can choose to be in the study and it's OK to then change my mind. If I decide not to be in the study, no one will be upset for saying "No".**

A signed and dated copy of this form will be given to me.

*I agree to participate in this study.*

Name of participant (print)	Signature of Participant	Date (dd-mon-yyyy)



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## **PARTICIPANT ASSENT FORM (Age 14-18 years)**

**Title of Study:** Questionnaires to measure eating disorder thoughts and behaviors

**Principal Investigator:** Jennifer Coelho, Ph.D., Psychologist (UBC Department of Psychiatry)

Contact Telephone no: [...]

**Co-Investigators:**

Shannon Zaitsoff, Ph.D. (Simon Fraser University, Department of Psychology)

S. Evelyn Stewart, M.D., Director, Pediatric OCD Program, BC Children's Hospital (BCCH);  
Associate Professor, Psychiatry – University of British Columbia (UBC)

I am being invited to take part in a research study because I am receiving treatment for an eating disorder at BC Children's Hospital. A research study tries to find better treatments to help teens like me. It's entirely my decision whether I want to be in this study. No one will force me to take part in the study. Even if I agree now to be part of this study, I can change my mind later. That will not affect my treatment in any way.

**Why is this research being done?**

Teens who are treated for an eating disorder often have a hard time with eating disorder thoughts, and with their mood and anxiety. We want to know more about these types of thoughts. We also want to look at whether questionnaires can help us understand thoughts and behaviors in children and teenagers with eating disorders.

**What will happen in this study?**

If I agree to take part in this research, I agree to fill out some questionnaires about my eating disorder thoughts and behaviors, and my mood and how I generally feel. One of my parents will also fill out a questionnaire about my eating disorder thoughts and behaviors, and a questionnaire about how they feel. The researchers will also look at my chart to find out about my eating disorder history and details about me, like my age, height, weight, and family background. It should take about 20-30 minutes to complete the questionnaires. Studies involving humans now routinely collect information on family background (ethnicity) as well as other characteristics of individuals because these characteristics may influence how people respond to treatment. Providing information on my race or ethnic origin is voluntary.

**Who is doing this study?**

If I have any questions about this study, I can call Dr. Coelho at [...].

**Can anything bad happen to me?**

If I decide to participate, I will be asked about thoughts and behaviours associated with eating disorders, mood or anxiety. Everyone in the program is asked about these types of thoughts and behaviours, even if they do not take part in the research. Sometimes, people feel a bit upset thinking



about eating disorder symptoms or goals for the future. I can stop the study at any time and talk to my doctor or my parent.

### **Could I get better by being in the study?**

As this study does not involve new treatments, I won't recover just because of being part of the study. Knowing about my experiences will help the researchers do better to understand eating disorders.

### **Who will know I'm in the study?**

My privacy will be respected. The study team will not tell anybody else I am or have been a part of this study. They will not release any information to anybody else that could be used to identify me, unless they are required to do so by law. For example, researchers are required to report if a participant is believed to be at risk for harming him/herself or others.

In order to protect my privacy, the study team will remove any information that may be used to identify me from any study documents, and instead of my name appearing on them, I will be identified by a specific study code number that applies only to me. Only this code number will be used on any research-related information collected about me for this study, so that my identity as part of the study will be kept completely private. Only Dr. Coelho and her research assistants will have the ability to link this code number with my personal information, and the linking information will be kept in a locked cabinet in Room P3-223 of the BC Children's Hospital under the supervision and control of Dr. Coelho.

Some of the information about me (my age, gender, ethnicity, eating disorder diagnosis and how long I've had my eating disorder, and my suggested body weight, as well the answers given by me and my parents on a questionnaire about my symptoms of an eating disorder), will be sent to another researcher (Dr. Katharine Loeb) at Fairleigh Dickinson University in New Jersey, United States. Any time information is sent outside of Canada, there may be more risk that this information will not be kept private, because of different laws in different countries. To help protect my privacy, all the information sent outside of Canada will be de-identified (this means that it won't contain any personally-identifying information).

### **Do I have to be in this study?**

I do not have to participate in this study if I don't want to. If I choose to participate, I can stop being in it at any time. The doctors and nurses will take care of me as they have in the past, regardless of whether I am in the study or not.

If I want to participate in this study, I will be asked to sign this form. My parent/guardian will need to sign a consent form before I am enrolled in the study; but I do not have to participate even if they sign the consent form. The researchers will not enroll me into the study unless I agree to do so.

I should take time to read all the information carefully and to talk it over with my family, and if I wish, my doctor, before I decide. I understand that I should feel free to talk to the researchers if anything is not clear. I can choose to be in the study, not be in the study, or take more time to decide. Even if I agree now to be part of the study, I can change my mind later. I can ask the study

doctor or researcher any questions I may have at any time during my study participation.

**What will the study cost me?**

All research-related medical care and treatment and any related tests that I will receive during my participation in this study will be provided at no cost to me.

**Participant Assent:**

My signature on this assent form means:

- I have read and understood this adolescent information and assent form.
- I have had enough time to consider the information provided and to ask for advice if necessary.
- I have had the opportunity to ask questions and have had acceptable answers to my questions.
- I understand that all of the information collected will be kept confidential and that the results will only be used for scientific objectives.
- I understand that my participation in this study is voluntary and that I am completely free to refuse to participate or to withdraw from this study at any time without changing the quality of care that I receive.
- I understand that I can continue to ask questions, at any time, regarding my participation in the study.
- I understand that if I put my name at the end of this form, it means that I agree to be in this study.

I will receive a signed copy of this assent form for my own records.

I agree to participate in this study.

\_\_\_\_\_  
Name of participant (print)

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date (dd-mon-yyyy)