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Body Image Disturbance and Social Networking Site Behaviours

Alicia Marie Berze-Butts
University of Windsor

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Body Image Disturbance and Social Networking Site Behaviours

By

Alicia Berze-Butts

A Thesis
Submitted to the Faculty of Graduate Studies
through the Department of Psychology
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Body Image Disturbance and Social Networking Site Behaviours

by

Alicia Berze-Butts

APPROVED BY:

_____
S. Woodruff
Department of Kinesiology

_____
K. Soucie
Department of Psychology

_____
M. Boroughs, Advisor
Department of Psychology

January 20, 2021

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ABSTRACT

Social Networking Sites (SNSs) are becoming increasingly popular in modern society, with emerging research indicating that appearance focused SNS use in particular is associated with body image concerns. The present study investigated body image disturbance and appearance related SNS behaviours, including engaging in appearance comparisons and self-photo ("selfie") activities. A sample of 358 Canadian university students (259 females and 93 males) aged 17 to 57 years (M = 21.93 years, SD = 5.30 years) completed an online questionnaire consisting of self-report measures assessing body image disturbance, appearance comparison, selfie taking, selfie sharing, selfie investment, and selfie editing. Results indicated that body image disturbance was associated with greater degrees of appearance comparison, selfie investment, and selfie editing, as well as less frequent selfie sharing online. Frequency of selfie taking was not associated with body image disturbance. Further, the link between body image disturbance and selfie editing was found to be partially mediated by appearance comparison. Appearance comparison did not serve a mediational role for the associations between SNS use nor selfie sharing with selfie editing behaviour. Findings from this study revealed notable sex differences, with females reporting significantly higher body image disturbance and greater frequencies of the appearance related SNS behaviours measured. Implications and future research directions are discussed.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

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BODY IMAGE AND SOCIAL NETWORKING SITES

LIST OF TABLES

ix

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Body image disturbance is a multifaceted construct that refers to a disturbance in the way that an aspect of one's appearance is experienced and consists of perceptual (inaccurate estimation of body size or parts), cognitive/affective (appearance investment and appearance dissatisfaction), and behavioural (actions engaged in related to appearance) components (Cash & Pruzinsky, 2002). Elevated body image disturbance is often indicative of several appearance-related psychiatric disorders, such as eating disorders (anorexia nervosa, bulimia nervosa, binge eating disorder) and body dysmorphic disorder (Cash & Smolak, 2011; Fairburn, 2008; Phillips, 2009). Although body image related disorders vary in their presentation, their common features include a high degree of appearance investment, significant psychological distress, impaired psychosocial functioning, and an excessive concern, preoccupation, and dissatisfaction with one's body and appearance (Cash & Smolak, 2011; Mitchison, Crino, & Hay, 2013). Those with body image disturbance disorders engage in subsequent coping behaviours designed to examine, improve, or hide perceived appearance anomalies to alleviate the distress related to their appraisal of their appearance. These include frequent body-checking and avoidance, camouflaging, excessive reassurance seeking, and engaging in appearance comparisons with others (Mitchison et al., 2013; Phillips, 2009).

Past research has demonstrated a strong link between body image disturbance and appearance comparison behaviours (Myers & Crowther, 2009). Social comparison theory, which posits that social comparisons are automatic processes that serve self-

1

evaluative functions in individuals, has often been utilized to explain the tendency to engage in appearance comparisons with others (Festinger, 1954).

Researchers have theorized that social comparison behaviours involving appearance may be encouraged by the increased accessibility to appearance-based content and multiple comparison targets that social networking sites (SNSs) provide (Perloff, 2014). Past research has indicated that appearance-related SNS use, such as viewing photos of others, comparing one's appearance to others, and sharing personal photos of oneself, is associated with appearance dissatisfaction and factors associated with higher eating disorder risk (Cohen & Blaszcynski, 2015; Holland & Tiggemann, 2016; Meier & Gray, 2014). Researchers have suggested that the public and interactive nature of SNSs may also put additional appearance pressures on those with appearance dissatisfaction to engage in self-photo editing behaviours (Guest, 2016).

The present study aimed to examine the associations between SNS use, attitudinal body image disturbance, and appearance-related behaviours engaged in while using SNSs, including appearance comparisons, self-photo sharing, and self-photo editing. Specifically, the current study was designed to examine the strength of the associations between appearance satisfaction and these SNSs behaviours, as well as comparing these online behaviours among individuals with high and low severities of body image disturbance. Additionally, this study aimed to investigate the potential mediating role that appearance comparison may serve regarding self-photo editing behaviour. Key empirical and theoretical literature regarding body image disturbance, appearance-related disorders, and the effects of SNSs on those with body image disturbance will be reviewed, followed by a description of the study.

2

CHAPTER 2

REVIEW OF THE LITERATURE

Body Image Disturbance

Body image disturbance is a multidimensional construct that refers to a disturbance in the way that one experiences an aspect of his or her physical appearance, and typically involves persistent dissatisfaction, preoccupation, distress, and maladaptive attitudes and behaviours (Cash et al., 2004; Cash & Smolak, 2011). The term "normative discontent" was used in early research to describe the phenomenon that the majority of females in the general population experience appearance dissatisfaction to some extent, especially regarding their weight (Rodin, Silberstein, & Streigel-Moore, 1984). Later research indicated that males are also perceived to experience "normative discontent" regarding body image concerns (Tantleff-Dunn, Barnes, & Larose, 2011). However, body image disturbance differs from general appearance dissatisfaction, in that it involves persistent concern and debilitating distress regarding one's appearance, which in turn has significant effects on psychosocial functioning (Kearney-Cooke & Tieger, 2015; Phillips, 2009). Body image disturbance is often a result of a perceived discrepancy between one's own appearance and an idealized body shape or size in which one aspires to emulate (Cash & Smolak, 2011; Grogan, 2016). The focus of the disturbance can be global, involving the body as a whole, or specific, involving particular aspects of appearance, such as weight and figure, or certain body sites. Body image disturbance is conceptualized as having perceptual, attitudinal (cognitive/affective) and behavioural components (Banfield & McCabe, 2002; Cash & Pruzinsky, 2002; Cash & Smolak, 2011). These various expressions of body image disturbance often occur together and

appear to influence one another (Fitzsimmons-Craft et al., 2015; Fitzsimmons-Craft et al., 2012; Grabe, Ward, & Hyde, 2008).

The perceptual component of body image disturbance involves an individual experiencing an inaccurate estimation of an aspect of his/her appearance, such as his/her weight, body size, and/or body shape (Banfield & McCabe, 2002; Cash & Pruzinsky, 2002). He/she may perceive their body as being fatter than it actually is, and/or may perceive specific body parts (e.g., one's nose) as being distorted or too small or large. Others are typically not able to perceive the "defect" and the distortion occurs only in the experience of the individual with the body image disturbance (Cash & Smolak, 2011; Phillips, 2009). Depending on the severity of body image disturbance, individuals may or may not possess insight that their perceptions of their appearance are distorted. A lower level of insight into one's perceptual distortions regarding appearance is associated with a higher severity of symptoms and a poorer prognosis for recovery for those with body image related disorders (Cash & Smolak, 2011).

The attitudinal (affective/cognitive) component of body image disturbance focuses on the thoughts, beliefs, and evaluations that an individual has about his/her physical appearance, or the appearance of others (Banfield & McCabe, 2002; Cash & Pruzinsky, 2002; Cash & Smolak, 2011; Grogan, 2016). The attitudinal component of body image is conceptualized as being divided into two sub-components: body image evaluation and body image investment (Cash, 2005; Cash, Melnyk, & Hrabosky, 2004; Cash & Smolak, 2011). The evaluative component of attitudinal body image refers to the degree of satisfaction or dissatisfaction one experiences regarding his or her physical appearance (e.g., the size or shape of one's body; Cash et al., 2004). Body dissatisfaction

4

refers to the concern and general feelings of displeasure regarding an aspect of one's appearance (Grogan, 2016; Stice & Shaw, 2002). The investment component of attitudinal body image is defined as the extent that one assigns significance to his/her physical appearance, reflected in the time and energy (cognitive, emotional, and behavioural) that one spends on monitoring, improving, and modifying his/her appearance (Cash, 2005; Cash et al., 2004). Appearance investment is conceptualized as being further divided into two forms: motivational salience (behavioural) and self-evaluative salience (cognitive). Motivation salience refers to the significance one places on engaging in behaviours that are intended to improve or manage appearance attractiveness. Self-evaluative salience refers to the degree to which physical appearance determines an individual's self-concept and self-worth (Cash, 2005; Cash et al., 2004).

Individuals with a high degree of body image disturbance evaluate their own body negatively, particularly in reference to the aspired appearance ideal, and they feel very dissatisfied and shameful towards their appearance as a result. They may also feel fearful that their appearance will be scrutinized by others. Those with an elevated degree of body image disturbance are also highly invested in their appearance, in which they overvalue appearance in their sense of self-worth. The focus of the disturbance can be global, involving the body as a whole, or specific, involving particular aspects of appearance, such as weight, figure, or certain body sites (Cash, 2011; Grogan, 2016; Tiggemann, 2011). These individuals are highly motivated to strive for the socially valued appearance ideal which is likely unattainable to achieve. As a result, those with elevated body image disturbance experience negative affect and become extremely preoccupied with their appearance, and often engage in maladaptive appearance-related behaviours that are

designed to monitor, enhance, or hide a disliked body part or aspect of their appearance (Cash, 2011; Phillips, 2009; Vossbeck-Elsebusch et al., 2015).

The behavioural component of body image disturbance relates to the extent to which individuals engage in specific behavioural manifestations of body image, such as efforts to monitor or modify one's appearance, and/or avoid situations in which they might be criticized or judged for their appearance (Banfield & McCabe, 2002; Cash, 2011; Grogan, 2016; Tiggemann, 2011). Common behaviours exhibited by those with a high degree of body image disturbance include body checking and body avoidance (Phillips, 2009; Vossbeck-Elsebusch et al., 2015). These behaviours are often motivated by the desire to alleviate aversive emotional states experienced due to appearance dissatisfaction. Body checking refers to the frequent assessment of appearance and involves selective attention to a disliked aspect of one's body (such as body size, body shape, weight, or particular body parts). These body checking behaviours may be exhibited in forms such as repeatedly looking at mirrors and other reflective surfaces, obsessive weighing, measuring body parts of concern, pinching or touching body parts, and evaluating the tightness of clothes (Fairburn, 2008; Menzel, Krawczyk, & Thompson, 2011). Body avoidance refers to a variety of behaviours that are aimed at avoiding seeing the disliked aspect of one's appearance. These behaviours may take various forms, such as covering up mirrors, refusing to look at one's reflection, avoiding being photographed, refusing to be weighed, and camouflaging aspects of appearance (e.g., with clothing, accessories, or make-up; Fairburn, 2008; Menzel et al., 2011). Other behaviours commonly exhibited by those with a high degree of body image disturbance include comparing one's own appearance to the appearance of others and excessively

6

seeking reassurance from others that one's appearance is acceptable (Cash & Smolak, 2011; Mitchison et al., 2013; Phillips, 2009). These behaviours may result in an individual putting increased importance on their body part of concern, and may contribute to maintaining maladaptive attitudes about one's appearance (Cash & Smolak, 2011; Fairburn, Cooper, & Shafran, 2003; Legenbauer et al., 2017; Phillips, 2009; Vossbeck-Elsebusch et al., 2015).

Past research has demonstrated a consistent association with body image disturbance and adverse psychological consequences. Elevated body image disturbance has been linked to depressive symptoms (Blashill & Wilhelm, 2014; Rosenström et al., 2013), anxiety (Aderka et al., 2014), impaired self-esteem (Davison & McCabe, 2006), post-traumatic stress symptoms (Scheffers et al., 2017), and impaired social and sexual functioning (Phillips, 2009). Body image disturbance has also been associated with compromised physical health and overall quality of life (Austin et al., 2017; Fiske, Fallon, Blissmer, & Redding, 2014; Phillips. 2009) and obesity (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006). Body image disturbance has also been linked to disordered eating (Amaral & Ferreira, 2017; Hartmann et al., 2015; Lewer et al., 2016; Yiu et al., 2017), and body dysmorphic concerns (Hartmann et al., 2015; Kollei et al., 2012), underscoring its role as a risk factor for the development of appearance-related pathological disorders.

Body Image Disturbance: Psychopathology

Body image disturbance exists on a continuum, ranging from minimum to extreme degrees of severity (Callaghan, Lopez, Wong, Northcross, & Anderson, 2011; Cash et al., 2004; Cash & Smolak, 2011). Individuals with less severe manifestations of

body image disturbance experience a minimal impact on their daily functioning. Those with highly elevated degrees of body image disturbance experience substantial emotional distress and psychosocial impairment related to their appearance (Callaghan et al., 2012; Cash et al., 2004). An extreme level of body image disturbance is often indicative of several appearance-related psychiatric disorders, such as eating disorders (anorexia nervosa, bulimia nervosa, binge eating disorder) and body dysmorphic disorder (Callaghan et al., 2011; Cash & Smolak, 2011; Hrabosky et al., 2009; Mitchison et al., 2013). Although body image related disorders vary in their presentation, their common features include an excessive concern and dissatisfaction with one's body and appearance, a high degree of appearance investment, impaired psychosocial functioning, and maladaptive coping behaviours intended to relieve appearance distress (Cash & Smolak, 2011; Mitchison et al., 2013). A description of each of these disorders will be outlined in the following section.

Feeding and Eating Disorders

The *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM–5; American Psychiatric Association [APA], 2013) describes three formal eating disorders: (1) anorexia nervosa, (2) binge eating disorder; and, (3) bulimia nervosa.

  Anorexia Nervosa. Anorexia nervosa (AN) is a disorder characterized by persistent behaviours that interfere with weight gain through restricting energy intake. Two types of AN are distinguished in the DSM-5 (APA, 2013): the restricting type and the binge eating/purging type. The restricting type limits their caloric intake through extreme dieting, fasting, and/or excessive exercise, with no binging or purging of food. The majority of patients with AN with the binge eating/purging type who binge also

purge afterwards. These behaviours can include self-induced vomiting or the misuse of laxatives, diuretics, or enemas. Some individuals with the binge-purging type of AN do not engage in binge eating behaviours but do engage in purging behaviours after consuming small amounts of food (APA, 2013; Levine & Smolak, 2006). The severity of AN is primarily determined by the sufferer's current body mass index (BMI) for adults, with specifiers ranging from mild (BMI ≥ 17 kg/m^2) to extreme (BMI < 15 kg/m^2; APA, 2013).

A fundamental symptom of AN is a disturbed mental representation of one's body weight or shape, with sufferers believing that they are overweight or that particular body sites have too much fat, such as the abdomen, buttocks, and thighs (APA, 2013; Zipfel, Giel, Bulik, Hay, & Schmidt, 2015). According to past research, individuals with AN significantly overestimate the size of their bodies compared to those without an eating disorder (Gardner & Brown, 2014; Moelbert et al., 2017; Zipfel et al., 2015). However, those with AN typically have an extremely low body weight, which is less than what is considered minimally normal for their age, sex, developmental trajectory, and physical health (APA, 2013; Gardner & Brown, 2014).

Individuals with AN are highly invested in their appearance, in that the ability to obtain and/or maintain a low body weight is central to their sense of self-worth. Self-esteem is highly dependent on their ability to maintain a low body weight and a thin body shape, and they may develop obsessive thoughts about the thin ideal (APA, 2013; Duarte, Ferreira, & Pinto-Gouvela, 2016). Individuals with AN experience an intense and persistent fear of gaining weight or body fat, and become preoccupied with thoughts about eating, shape, and weight. This fear is typically not pacified by weight loss (Zipfel

et al. 2014). Studies found that those with AN report a higher drive for thinness, as well as a lower desired ideal weight than healthy controls. Research has also consistently found that individuals with AN have a higher degree of body dissatisfaction and concern regarding their weight and shape than those without an eating disorder (Moscone et al. 2017; Zipfel et al. 2014). The discrepancy they perceive between their own body and the thin ideal in which they aspire to leads those with AN to feel negatively towards their bodies (Duarte et al., 2016; Moscone et al. 2017).

Due to the high degree of appearance dissatisfaction that individuals with AN experience, they increasingly engage in maladaptive coping behaviours. Along with behaviours designed to promote weight loss, they may frequently engage in activities intended to evaluate their shape, size, or weight, such as body-focused checking behaviour and avoidance of activities that will draw attention to their bodies (Legenbauer et al., 2017; Shafran, Fairburn, Robinson, & Lask, 2004; Vossbeck-Elsebusch et al., 2015). Body checking behaviours include excessive mirror-checking, frequent weighing, pinching of fat, obsessive or ritualistic measuring of body parts, constant body comparisons with others, and assessing the tightness of clothes or accessories (Fairburn, 2008; Menzel et al., 2011). Individuals with AN may also engage in body avoidance behaviours, such as avoiding and/or covering mirrors or other reflective surfaces. Many of those with eating disorders alternate between checking and avoiding behaviours or they may engage in both behaviours concurrently (Shafran et al., 2004). Body checking and body avoidance behaviours have been found to be strongly associated with eating disorder symptoms and appearance dissatisfaction among males and females across the weight spectrum and may have a role in perpetuating eating disorder pathology (Walker,

10

White, & Srinivasan, 2018). Females with eating disorders may also camouflage their shape with oversized clothing and avoid situations where their body may be exposed. They may also avoid looking at photographs of themselves, and/or refrain from weighing themselves. They may also avoid eating out in public or situations where they may be tempted by food (APA, 2013; Levine & Smolak, 2006). AN tends to occur primarily in females, with an estimated 10:1 female to male ratio (APA, 2013). The estimated prevalence rate is 0.4% among females, with onset usually occurring during adolescence or early adulthood (APA, 2013).

Bulimia Nervosa. Bulimia nervosa (BN) is a disorder characterized by recurrent and frequent episodes of binge eating, followed by compensatory purging behaviours in an effort to avoid weight gain (APA, 2013). Like those with AN, individuals with BN exhibit a cognitive bias towards overestimating their body size and weight and experience an intense fear of gaining weight (APA, 2013; Duarte et al., 2016; Moelbert et al., 2017). Those with BN also experience excessive preoccupations and concerns regarding their eating, body shape, and/or weight, which unduly influences their self-worth (Duarte et al., 2016). Those with this disorder also experience a significantly high degree of appearance dissatisfaction. Individuals with BN also engage in maladaptive coping behaviours, such as body checking and body avoiding, and experience similar levels of distress as those with AN (Levine & Smolak, 2006). When mirror-checking, individuals with AN and BN have been shown to have an attentional bias towards the body parts that they are least satisfied with (Duarte et al., 2016; Moelbert et al., 2017). However, unlike individuals with AN, those with BN are typically an average weight or overweight. The severity of BN is based on the average number of episodes of compensatory behaviour

11

engaged in per week, ranging from mild (1-3 episodes) to extreme (14 or more episodes; APA, 2013).

When engaging in binge eating behaviours, individuals with BN will eat a significantly large amount of food in a short period of time, more than what is typically regarded as normal. Those with BN typically feel a sense of loss of control over the volume and quality of food consumed during a binge-episode, being unable to refrain from eating once they start. They may engage in these periods of excessive eating when not physically hungry, and to the point of being uncomfortably full. After such binges, individuals with BN feel shame, guilt, and negative emotions regarding their body (Crowther & Williams, 2011).

To avoid weight gain, those with BN subsequently engage in purging behaviours. Self-induced vomiting is the most commonly used method to compensate for binge eating. Other compensatory behaviours include fasting, excessive exercise, and abuse of laxatives, diuretics, or enemas. Binge/purge episodes may be triggered by factors including environmental or interpersonal stress, dietary restraint, boredom, or negative feelings related to one's body, body shape, and food. While effective at alleviating distress in the short-term, this coping behaviour may have long term repercussions, such as contributing to negative self-evaluation and body dysphoria (APA, 2013; Crowther & Williams, 2011; Duarte et al., 2016; Levine & Smolak, 2006). The typical onset of BN is in adolescence or early adulthood. BN is much more common in females, with an approximate 10:1 female ratio. The prevalence rates among females is estimated to be 1%-1.5% (APA, 2013).

Binge-Eating Disorder. Although more limited, research provides evidence that body image disturbance also occurs among those with binge eating disorder, or BED, particularly regarding overvaluation of weight and shape and a higher drive for thinness (Lewer, Bauer, Hartmann, & Vocks, 2017). Similar to individuals with BN, those with BED engage in frequent and recurrent episodes of binge eating in which sufferers experience a lack of control over their eating. However, unlike those with BN, those with BED do not engage in any compensatory behaviours after these binge episodes. Individuals with BED feel ashamed, disgusted, embarrassed, and guilty after engaging in their binge eating habits. They usually engage in binge eating in secrecy or avoid eating with others to avoid judgment regarding their food intake (APA, 2013; Lewer et al., 2017).

Research has indicated that individuals with BED experience elevated body dissatisfaction, as well as body-related checking and avoidance behavior similar to other eating disorders (Duarte et al, 2016; Lewer et al., 2016). However, unlike those with AN or BN, those with BED rate their own body size realistically, and are often overweight or obese. Those with AN and BN also exhibit significantly higher levels of eating restraint compared to those with BED (Duarte et al., 2016). Obesity is common among those with BED (Grucza, Przybeck, & Cloninger, 2007). Individuals who are obese with BED experience greater body image disturbance (e.g., higher degree of drive for thinness and greater overvaluation of weight and shape) than those who are obese without BED (Lewer et al., 2016).

Although BED is slightly more common among females than males, the sex ratio is much less skewed. The estimated prevalence rate among males is 0.8% and 1.6%

13

among females in the United States (APA, 2013). The lifetime prevalence rate of BED in various upper-middle- and high-income countries, such as Mexico, France, New Zealand, and the United States, is estimated to be approximately 2% (Kessler et al., 2013).

Body Dysmorphic Disorder

Body dysmorphic disorder, or BDD, is a psychiatric disorder that is characterized by a markedly high degree of body image disturbance (APA, 2013; Phillips, 2009). Individuals with BDD are excessively preoccupied with one or more perceived defects or flaws in their appearance that are not observable by others, or when observable by others, are considered very slight (Phillips, 2009). Those with BDD also report a high degree of appearance dissatisfaction and are highly invested in their appearance, considering it central to their self-worth. However, compared to other body image related disorders that focus on body weight, such as AN or BN, appearance concerns among those with BDD are centered around a particular body site (Hrabosky et al., 2009; Phillips, 2009; Rosen & Ramirez, 1998).

BDD is considered an obsessive-compulsive spectrum disorder (OCD) according to the DSM-5, and both disorders are often characterized by obsessions and repetitive compulsive behaviours (APA, 2013; Phillips, et al., 2007). However, for those with BDD these preoccupations focus on physical appearance, with sufferers believing that they are exceptionally unattractive or are deformed and disfigured in some way (Phillips, 2009; Phillips et al., 2007). Relative to individuals with OCD, those with BDD also have less insight into the irrationality of their preoccupations, as they are sometimes the only ones who can perceive their "defects" in appearance (Phillips et al., 2007). The most frequently reported body parts of concern among BDD patients are the skin, hair, and

14

nose (Phillips, McElroy, Keck, Pope, & Hudson, 1994; Phillips, Menard, Fay, & Weisberg, 2005). However, the preoccupation can include any part of the body, and it is typical to be concerned with multiple areas at once, or for these concerns to change over time from one body part to another (Phillips, 2009; Phillips, McElroy, Keck Jr, Pope Jr, & Hudson, 1993). Muscle Dysphoria is a specific form of BDD predominately exhibited in males, in which individuals have a strong drive for muscularity, which results in an excessive preoccupation with the size and appearance of their muscles (Phillips, 2009; Pope et al., 2005).

The appearance-related thoughts characteristic of BDD are distressing and intrusive, occupying on average 3-8 hours a day for most individuals suffering from this disorder (Phillips, 2009). To alleviate the distress associated with these preoccupations, those with BDD often engage in ritualistic and time-consuming behaviours in an attempt to examine, improve, or hide their perceived "defect." Similar to OCD, BDD patients describe these compulsions as difficult to resist or control (Phillips, 2009). These BDD compulsions can include repetitive behaviours such as mirror checking, excessive grooming, camouflaging the body parts that are of concern, skin picking, excessive reassurance seeking, and engaging in appearance comparisons with others (Phillips, 2009). For those with BDD, the preoccupations and resulting compulsions that revolve around appearance cause significant impairment in daily functioning, and those with this disorder often have poor mental and physical health (Phillips, 2000; Phillips, Menard, Fay, & Pagano, 2005). BDD usually begins in adolescence, and typically follows a debilitating and chronic trajectory throughout one's lifetime unless treated (Phillips, Menard, Fay, & Weisberg, 2005).

15

Although BDD is a significantly debilitating and relatively common disorder, it is arguably understudied by researchers and often misdiagnosed by clinicians (Phillips, 2009). BDD is estimated to occur among 1.7% to 2.4% of the general population, or roughly 1 in every 50 people (Buhlmann et al., 2010; Koran et al, 2008; Rief et al., 2006). A recent systematic review indicates that BDD is slightly higher among females than males, by a ratio of 1.27 (Veale, Gledhill, Christodoulou, & Hodsoll, 2016). Studies from university populations have yielded even higher sub-clinical prevalence rates ranging from 2.2% to 13% (Boroughs, Krawczyk, & Thompson, 2010; Buhlmann & Winter, 2011; Phillips, 2009). Approximately one-third of individuals diagnosed with BDD also experience an eating disorder, such as AN or BN (Ruffolo, Phillips, Menard, Fay, & Weisberg, 2006).

BDD Compulsions

Mirror-gazing. A common compulsion among those with BDD is frequent mirror-checking and gazing, with approximately 87% engaging in this behaviour (Phillips, 2009; Veale & Riley, 2001; Windheim, Veale, & Anson, 2011). The remaining BDD population tends to avoid mirrors or other reflective surfaces completely to reduce the distress from seeing their own image, often covering up or removing them (Phillips, 2009; Veale & Riley, 2001). Although mirrors are most often used, BDD sufferers will also frequently check their appearance in any reflective surface available, which can include car mirrors, shop windows, cutlery, or monitor screens of cell phones or other electronic devices (Phillips, 2009; Veale & Riley, 2001). Those with BDD may also check their appearance through videos and photographs, especially since these media

16

have become increasingly accessible due to the advent of smartphones (Phillips, 2009; Silver & Farrants, 2016).

Excessive grooming and skin-picking. Appearance dissatisfaction often leads those with BDD to other time-consuming compulsive behaviours in order to change or hide how they look. Approximately 70% of BDD sufferers engage in excessive grooming behaviours, which can include brushing, cutting, or removing their hair, applying and reapplying makeup, or washing their face excessively (Phillips, 2009; Phillips et al., 2005). Approximately 38% of BDD patients also engage in skin-picking in an attempt to "fix" their complexion and deal with perceived blemishes, although this can further contribute to skin issues by creating lesions and scars (Grant, Menard, & Phillips, 2006; Phillips, 2009).

Camouflaging. Those with BDD often engage in camouflaging behaviours in an attempt "to minimize or conceal a perceived flaw so that it is less visible and noticeable to others" (Phillips, 2009, p. 77). Camouflaging behaviours occur in approximately 91% of BDD patients and can take many forms, including the use of clothing, make-up, hair, hats, wigs, or body posture to hide the body area(s) for which they feel insecure (Phillips, 2009).

Cosmetic surgery. A strong desire to modify one's appearance leads to as many as 76% of BDD patients to seek out surgery, dermatological treatments, and other cosmetic procedures if it is available to them in order to "fix" their perceived flaws (Crerand, Phillips, Menard, & Fay, 2005). Research has shown that for the majority of those with BDD, cosmetic treatment(s) rarely result in the positive outcomes hoped for, with BDD symptoms that often remain unimproved or even worsening (Crerand,

17

Franklin, & Sarwer, 2006; Crerand et al., 2005; Phillips et al., 2001). Although BDD sufferers may temporarily feel relief after such procedures, their appearance concerns often return and may even gravitate towards another part of the body (Crerand et al., 2005; Veale, 2000). This dissatisfaction can sometimes lead to BDD patients seeking out even more surgical and cosmetic procedures (Phillips, 2009). It is typical for BDD patients to repeatedly seek out multiple forms of cosmetic and surgical interventions in their never-ending quest to improve their perceived appearance flaws. This pattern of repeated cosmetic interventions tends to contribute to an increasing sense of dissatisfaction with one's appearance and further fuels a deleterious cycle (Phillips, 2009).

Excessive reassurance seeking. Many of those with BDD excessively seek reassurance from others in order to palliate their appearance concerns, seeking validation that they look acceptable and their supposed defect is not as bad as they think (Phillips, 2009). However, BDD sufferers are rarely responsive to positive feedback regarding their appearance. Those with BDD are highly concerned about how others perceive how they look. In instances when others actually condone or agree with their body image concerns, they can experience serious distress and depression (Phillips, 2009).

Appearance comparisons. One of the most common behaviours among BDD sufferers is comparing their own appearance to the appearance of others, with approximately 94% engaging in this compulsion (Lambrou, Veale, & Wilson, 2012; Phillips, 2009; Phillips et al., 2005). Research has shown that BDD patients are more likely to engage in appearance comparisons more frequently relative to the general population (Anson, Veale, & Miles, 2015). These comparisons may occur in various

18

contexts, such as public and social situations, or through media images and photographs of others (Anson et al., 2015). Those with BDD tend to focus on their particular body part(s) of concern when comparing their appearance to that of others. This differs from those in the general population, who are more likely to make general appearance comparisons (Anson et al., 2015). Those with BDD most frequently engage in upward appearance comparisons, in which they compare their own appearance to attractive individuals who they perceive as being closer to an ideal. BDD suffers also tend to rate themselves as markedly less attractive than their comparison targets (Anson et al., 2015; Phillips, 2009). BDD patients often report feeling more distressed and dissatisfied with their appearance after engaging in appearance comparisons with others relative to healthy controls (Anson et al., 2015; Lambrou et al., 2012; Phillips, 2009). This behaviour reinforces a selective attention towards their own perceived shortcomings in appearance, and further contributes to their distorted body image and the belief that other people are more attractive than themselves (Anson et al., 2015; Phillips, 2009).

Social Comparison Theory

Social Comparison Theory (Festinger, 1954) provides a theoretical framework to explain comparison behaviours among individuals and groups. This theory postulates that people have a basic drive to engage in self-evaluations by comparing their own personal attributes to those of "like" others (Festinger, 1954). The social information obtained from such interactions establishes a benchmark by which individuals can make accurate evaluations of themselves across a variety of dimensions (e.g., intelligence, wealth, appearance, etc.), especially in the absence of non-social or objective standards. Consequently, this automatic process engenders awareness of favourable or unfavourable

discrepancies between oneself and the object of comparison (Festinger, 1954; Taylor & Lobel, 1989). Upward comparisons occur when an individual compares themselves with a target perceived as superior in some quality or feature of reference and has been posited to be motivated by a desire for self-improvement (Gruder, 1971; Helgeson & Mickelson, 1995; Wheeler & Miyake, 1992) and may assist in self-enhancement (Wills, 1981).

However, in situations where the idealized standard is believed to be personally unachievable, upward comparisons can result in a deleterious impact and feelings of failure. In contrast, downward comparisons serve self-enhancement purposes and involve appraising oneself against another deemed inferior in the particular attribute under consideration (Latané, 1996; Wills, 1981). Comparisons are more likely to be made with others who are perceived as similar to oneself in a fundamental domain (e.g., age, sex, status, etc.) and are, therefore, considered more relevant targets of reference. Further, the frequency and impact of such comparisons may be greater for individuals who place more significance and self-relevance on the particular dimension under comparison (Festinger, 1954). For those with elevated body image disturbance, appearance is considered extremely important and central to self-esteem (Cash & Smolak, 2011; Phillips, 2009). As stated previously, those with elevated body image disturbance have a bias to make upwards appearance comparisons rather than downward comparisons and are likely to compare themselves to others who embody an attractiveness ideal (Anson et al., 2015; Cash & Smolak, 2011; Phillips, 2009).

Social comparison theory and body image. Research on social comparison theory has expanded to body image, suggesting that individuals determine their own level of physical attractiveness based on how they compare to the appearance of others. There

20

is a significant association between greater levels of body dissatisfaction and the tendency to engage in appearance-based social comparisons (Cattarin, Thompson, Thomas, & Williams, 2000; Fisher, Dunn, & Thompson, 2002; Heinberg & Thompson, 1992; Myers & Crowther, 2009). Extensive research has shown that engaging in upward appearance comparisons in particular contributes to the development and maintenance of appearance dissatisfaction (Bailey & Ricciardelli, 2010; Leahey, Crowther, & Mickelson, 2007; Myers & Crowther, 2009).

When an individual relates their own appearance to someone whom they perceive to be more attractive than themselves or closer to the standard beauty ideal, it draws attention to, and increases awareness of, the appearance discrepancies between themselves and the target of reference. This leads to negative evaluations of one's own body and elevated negative affect (Myers & Crowther, 2009). Conversely, downward appearance comparison occurs when individuals compare themselves to others that they consider less attractive than themselves and has been considered a protective factor for positive body image (Lew, Mann, Myers, Taylor, & Bower, 2007). Those with body image disturbances, including individuals with eating disorders and BDD, engage in upward appearance comparisons more frequently than those in the general population (Arigo, Schumacher, & Martin, 2014; Anson et al., 2015; Leahey et al., 2007). Longitudinal studies have identified that engaging in appearance comparisons is a risk factor for the development of disordered eating (e.g., Rodgers, McLean, & Paxton, 2015; van den Berg, Thompson, Obremski-Brandon, & Coovert, 2002).

Social Comparisons through Media and Body Image

It has been well-established in past research that exposure to traditional media, such as magazines and television, has a detrimental effect on body satisfaction, especially for those who have a high tendency to make upward appearance comparisons and have a high degree of body image investment (Ip & Jarry, 2008; Grabe, Ward, & Hyde, 2008; Levine & Murnen, 2009). Experimental studies have provided evidence that appearance comparison processes mediate the relationship between body dissatisfaction and conventional media exposure (Bessenoff, 2006; Tiggemann & McGill, 2004; Tiggemann & Polivy, 2010). Exposure to appearance-related media content in particular has been found to be associated with body dissatisfaction, rather than exposure to general media content overall (Levine & Murnen, 2009; Tiggemann, 2005). Traditional media typically portrays images of attractive models and celebrities who are often digitally altered and heavily edited using photoshopping technology to reflect enhanced western beauty ideals and present the most socially appealing image possible (Guest, 2016; Reaves, Bush Hitchon, Park, & Woong Yun, 2004). Researchers argue that exposure to these idealized images creates an unrealistic expectation for attractiveness standards, which inevitability leads to more extreme upward appearance comparisons (Guest, 2016; Richins, 1991). Subjective attractiveness in general society likely follows a normally distributed pattern. That is, among the average population there are likely very few extremely attractive or extremely unattractive people, with most individuals falling within an average range of attractiveness (Swami, Furnham, Georgiades, & Pang, 2007). Comparing oneself to an idealized and unrepresentative standard of beauty often results in subsequent increases in

22

body dissatisfaction and investment in physical appearance (Guest, 2016; Levine & Murnen, 2009).

Research has suggested that those who have pre-existing body image disturbances, such as a distorted body image, eating disorder pathology, or elevated BDD symptomatology, may be especially vulnerable to the effect of media influence on body image concerns (Groesz, Levine, & Murnen, 2002; Perloff, 2014; Roberts & Good, 2010). For example, Anson et al. (2015) found that BDD patients self-reported engaging in more frequent appearance comparisons relative to controls in a variety of contexts, such as in public and social situations, when looking at magazines, when watching television or movies, or when using the Internet. These appearance comparison tendencies were also positively correlated with body dissatisfaction among BDD participants (Anson et al., 2015). However, the various contexts in which appearance comparisons can occur were presented in a composite manner in the measure used in this study, and thus the relative contributions of each media source could not be determined from the data. Therefore, the relationship between BDD symptomatology and appearance comparisons through media and internet use remain unexplored in the literature.

Tripartite Influence Model of Body Image

The tripartite influence model of body image postulates that three different sociocultural influences have a direct negative effect on body image, consisting of family, peers, and the media (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). This effect is theorized to be mediated by the degree to which one internalizes the culturally endorsed beauty ideal and the tendency to engage in appearance comparisons (Rodgers et al., 2015; Thompson et al., 1999). Individuals are often exposed to images of others on

23

various sources of media, which are portrayed in an idealized fashion according to social standards and are likely to be seen as unattainable. Attention is drawn to the discrepancy between the media ideal and one's own physical appearance when individuals compare themselves to these idealized images. This subsequently leads to an increase in body dissatisfaction and desire to improve one's appearance (Thompson et al., 1999). According to this theory, SNSs may have a particularly negative influence on body image, as it serves as a prevalent source of media and peer influence (Rodger et al., 2015). Additionally, SNSs may provide an easily accessible platform to engage in appearance comparisons with others, and users of these sites are more likely to be exposed to a multitude of images portraying the standard beauty ideal endorsed by peers (Guest, 2016, Perloff, 2014).

Social Networking Sites

Boyd and Ellison (2007, pg. 211) defined SNSs as "web-based services that allow individuals to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system." Research has linked SNS use to body dissatisfaction (e.g., Holland & Tiggemann, 2014; Mabe, Forney, & Keel, 2017; Tiggemann & Slater, 2014). Appearance-based activities while on these sites, such as engaging in appearance comparisons and self-photo related behaviours, may influence body dissatisfaction in particular (Cohen, Newton-John, & Slater, 2017; Meier & Gray, 2014). SNSs may create a unique environment of appearance pressures on users, especially those who have pre-existing body image disturbances (Perloff, 2014).

24

Considering SNSs have become increasingly prevalent in contemporary society (Boyd & Ellison, 2007), it is important to examine how individuals with a high degree of body image disturbance, such as those with eating disorders or BDD, may interact with, and be affected by use of, this more recent form of media. Due to its interactive and public nature, SNSs may have different effects on those with a high degree of body image disturbance, compared to traditional media (Perloff, 2014; Tiggemann & Slater, 2014). Unlike magazines and television, users of SNSs are both creators and consumers of content produced through this platform. Although different SNSs may vary in their presentation and purpose, all feature options to create and customize personal profiles, upload content such as photographs, and make publicly viewable connections with other users through "friending" or "following" their accounts. SNSs also allow users to peruse posts and photos shared by multiple other individuals who also use these sites, creating more accessible and virtually limitless opportunities to engage in social comparisons with friends and unknown others, as well as with celebrities, athletes, and models. Considering that most people tend to use SNSs to primarily interact with peers (Hew, 2011), who may be perceived as more relevant targets of reference, comparisons made through this medium may be especially influential (Festinger, 1954; Guest, 2016; Perloff, 2014).

Social comparisons with peers on SNSs can be either upward or downward. Users of SNSs can gain instant feedback on their publicly shared posts through comments, "shares", and "likes," which provides social cues for what is considered desirable and acceptable among one's immediate online social network. These cues provide individuals with a basis to evaluate themselves and others. Therefore, users are often motivated to present themselves in an idealized way on SNSs to seek social approval (Guest, 2016;

25

Manago et al., 2008; Zhao et al., 2008). Thus, users of SNSs may be exposed to actual and perceived appearance pressures that may contribute to body dissatisfaction (Guest, 2016).

Additionally, due to the ubiquity of technology SNSs have become increasing more accessible and popular in recent years, especially among adolescents and young adults (Boyd & Ellison, 2007). For example, Internet usage among Canadians increased from 36% in 1998 (Statistics Canada, 1999) to nearly 83% in 2012 (Statistics Canada, 2012). Facebook, one of the most commonly used SNSs, rose from approximately 100 million users in 2008 to 2.26 billion users in 2018 (Ortiz-Ospina, 2019). Adolescents and young adults in particular report engaging in Internet and SNS use most frequently (Lenhart, 2015; Ortiz-Ospina, 2019; Pew Research Center, 2018). This is relevant considering that the onset of BDD is typically during adolescence and studies have found that prevalence rates for this disorder are notably higher among university students than in the general population (Phillips, 2009). The onset of eating disorders, such as AN and BN, also occurs during adolescence and early adulthood (APA, 2013). Approximately 88% of those aged 18-29 years report using some form of SNSs online or on their cellphone (Pew Research Center, 2018). This age group is more likely to use numerous different SNS platforms (on average four; Pew Research Center, 2018) and to use them on a regular basis. Facebook is the most popular SNS (Pew Research Center, 2018) and allows users to customize their personal profile with personal information and a profile picture, as well as to add "friends" to their online social network. Facebook users can post content such as images, videos, status updates, and other links which one finds interesting. Facebook users can also peruse and react to content shared by others in their

26

immediate social network on one's newsfeed, as well as search for and follow other users, celebrities, or pages and online groups.

Younger age groups in particular report more frequent SNS use, with over 80% of young adults aged 18-24 using SNSs daily (Pew Research Center, 2018). Specifically, 78% of 18-29-year-olds report using Snapchat daily (Pew Research Center, 2018), which allows users to share images and videos with friends that are deleted automatically after several seconds. Approximately 68% of adults aged 18-29 years also report using Instagram (Pew Research Center, 2018), which enables users to share photos and videos with other users and to amass followers who have the option to subscribe to their personal accounts. Instagram users can also subscribe to the accounts of other people, including friends, unknown strangers, and celebrities, which enables them to view and react to their photos and videos. Twitter is also used daily by approximately 45% of adults aged 18-29 years old (Pew Research Center, 2018). Twitter allows registered members to broadcast photos and short posts called "tweets," as well as follow other users to view their shared content.

Social Networking Sites and Body Image

Prior research has shown that SNS usage is associated with body image concerns and appearance dissatisfaction among young people (Eckler, Kalyango, & Paasch, 2017; Holland & Tiggemann, 2016; Mabe et al., 2017; Meier & Gray, 2014). For example, among pre-teenage and adolescent females in Australia (Tiggemann & Slater, 2013; Tiggemann & Slater, 2014) and the United States (Meier & Gray, 2014), those who were Facebook users reported more body image concerns (i.e., drive for thinness, internalization of the thin ideal, body surveillance) and body dissatisfaction than those

27

who were non-users. Importantly, results from longitudinal studies imply a causal relationship between usage of SNSs and body image disturbances over time. For example, frequent SNS use among Dutch adolescents was found to be associated with increased body dissatisfaction for males and females over an eighteen-month period (de Vries, Peter, de Graaf, & Nikken, 2016). Additionally, more frequent use of SNSs was also found to be associated with increases in appearance investment among adolescents, which was, in turn, related to a greater desire to undergo cosmetic surgery (de Vries, Peter, Nikken, de Graaf, 2014). Further, Smith, Hames, and Joiner (2013) reported that maladaptive Facebook usage, which they defined as the tendency to engage in appearance comparisons and seek negative social feedback, predicted increases in body dissatisfaction and greater bulimic symptoms four weeks later among female university students.

However, there have been some contradictory results regarding the association between body image and general SNS use. Rutledge, Gillmar, and Gillen (2013) found no relationship between overall Facebook usage and self-evaluations of appearance among male and female college students. Further, those who reported spending less time on Facebook were more concerned about their appearance (Rutledge et al., 2013). Similarly, Ferguson, Munoz, Garza, and Galindo (2014) found that overall SNS use did not predict body dissatisfaction in a sample of adolescent females six months after baseline. However, the authors found that SNS use had a potential indirect effect on body dissatisfaction through one's tendency to engage in competition with peers (Ferguson et al., 2014). Additionally, Moran (2017) found no significant relationship between overall time spent on SNSs with negative body image or social comparisons. However, there was

28

a significant relationship between poor body image and belonging to more than three SNSs (Moran, 2017).

Appearance-related SNSs activities. A possible explanation for these discrepant findings discussed above is that the particular behaviours engaged in while on SNSs may account for the detrimental outcomes regarding body image concerns, rather than SNS use in general. Meier and Gray (2014) found that time spent engaging in appearance-based activities while using Facebook (i.e., posting and sharing personal photos, viewing photos of others) was associated with weight dissatisfaction, drive for thinness, and thin ideal internalization, rather than overall Facebook use itself. Similarly, Cohen et al. (2017) found that appearance-focused SNS activities on Facebook and Instagram, but not general SNS use, was positively associated with thin-ideal internalization, body surveillance, and drive for thinness among Australian females aged 18-29 years old. Further, an experimental study by Fardouly, Diedrichs, Vartanian, and Halliwell (2015) revealed that after ten minutes of browsing their Facebook account, young British females who had a high tendency to make appearance comparisons reported increased dissatisfaction with their face, hair, and skin, and a greater desire to change these features. However, Facebook exposure itself did not have a direct effect on body dissatisfaction, although females did report a poorer mood after viewing their SNS accounts (Fardouly et al., 2015).

Perloff's model of SNS influence on body image. Perloff (2014) proposed a cyclic model describing the influence of SNSs on body image that serves to strengthen and exacerbate appearance concerns among vulnerable individuals. Individuals with pre-existing body image disturbances, such as those with eating disorders, are more likely to

29

engage with appearance-focused SNSs content and activities, such as viewing photos of others and posting images of themselves online. These behaviours are motivated by a need to seek particular gratifications such as reassurance and validation regarding physical attractiveness and to alleviate appearance-related distress. As a result, they will be driven to use SNSs more frequently. Exposure to idealized images of multiple other users results in various psychological processes becoming activated, such as appearance-related comparisons, transportation (i.e., becoming immersed in comparison target's narrative, world, or viewpoint), identification (i.e., the extent that one identifies with comparison target, and other's world is seen as realistic), and online normative influences (i.e. perceptions of peers' normative concerns). This increased SNS use leads to increased body dissatisfaction and negative emotional reactions, and a feedback loop occurs. These individuals are motivated to use SNSs even more in an attempt to ameliorate these resulting increases in body dissatisfaction and appearance-related distress, seeking further validation regarding their appearance. As this cycle continues, these individuals will be increasingly more likely to use SNSs. Repeatedly looking at pictures of others and engaging in appearance comparisons while on these sites results in further rumination about appearance and body parts of concern (Perloff, 2014).

Appearance Comparisons and SNS

Research has provided evidence that those who have a strong desire to compare their own appearance to the appearance of others may be especially vulnerable to the detrimental effects of SNS use on body image concerns. Cohen and Blaszczynski (2015) found that among female undergraduate students, the tendency to engage in appearance comparisons significantly predicted an increase in body dissatisfaction for those who

30

used Facebook. A study involving adolescents in Singapore found that comparing one's own appearance with that of friends on SNSs was associated with body dissatisfaction, a stronger desire to be thin among females, and a stronger desire to be muscular among males (Ho, Lee, & Liao, 2016). Further, the tendency to engage in appearance-based comparisons was found to serve a mediating role in the relationship between more frequent Facebook usage and body image concerns among Australian females aged 10-18 years (Tiggemann & Miller, 2010; Tiggemann & Slater, 2013; Tiggemann & Slater, 2014) and female university students in the Australia and the United States (Fardouly & Vartanian, 2015; Kim & Park, 2016). Likewise, appearance comparison tendency was also found to mediate the association between viewing images of others on Instagram and increased body dissatisfaction and poorer mood among university students in Australia and the United States (Brown & Tiggemann, 2016; Hendrickse, Arpan, Clayton, & Ridgway, 2017).

A study using Ecological Momentary Assessment (EMA) found that appearance comparisons were made more frequently through SNSs than through traditional forms of media, such as television, magazines, and billboards (Fardouly, Pinkus, & Vartanian, 2017). EMA is an assessment method that involves repeatedly obtaining information regarding participants' current behaviours and experiences during real time in their everyday natural environments (Shiffman, Stone, & Hufford, 2008). Upward appearance comparisons were most frequently reported for SNSs and were found to result in lower appearance satisfaction and a poorer mood than upwards comparisons made in-person (Fardouly et al., 2017). Further, participants who compared their appearance to others on SNSs reported larger appearance discrepancies between themselves and the object of

31

comparison, relative to comparisons made in-person. The authors, therefore, suggested that individuals may make more extreme upward appearance comparisons with peers on SNSs than when interacting with others in everyday life (Fardouly et al., 2017). Stronger and more frequent upward comparisons may be more likely through SNSs, as users tend to be strongly motivated by self-presentation, selectively choosing to only post images that portray themselves most favourably (Manago et al., 2008; Zhao et al., 2008).

Experimental studies provided evidence that engaging in upward comparisons while on SNSs is associated with body image concerns. Results from a study by Brown & Tiggemann (2016) showed that participants who were exposed to images of attractive peers and celebrities reported a more negative mood and poorer body image than those who viewed travel images. In a study by Haferkamp and Krämer (2011), male and female participants were shown four photographs of unknown same-sex SNS users that were considered either attractive or unattractive. Those who were exposed to photos of physically attractive users reported more body dissatisfaction and a more negative emotional state than those who looked at pictures of unattractive peers (Haferkamp & Krämer, 2011). Similarly, Kim and Park (2016) found that female university students who were exposed to images of other females on a Facebook newsfeed reported higher body dissatisfaction after viewing photographs of physically attractive females compared to those who were exposed to photographs of unattractive peers. Further, the results indicate that those who were likely to engage in appearance-based comparisons, and consider physical appearance as being significantly important in their lives, may be more susceptible to the effects of photographs on one's newsfeed when using SNSs (Kim & Park, 2016).

32

Self-photo Sharing on SNSs

Along with viewing pictures posted of others, SNSs allow users to contribute to the environment of social comparisons by sharing their own personal photos online. Photo-sharing is a key functionality of SNSs such as Facebook and Twitter, while others like Instagram and Snapchat are primarily photo-based in nature. The opportunity to take photos has become ubiquitous and prevalently accessible since cameras have become widely integrated with mobile communication devices, such as smartphones (Stefanone, Lackaff, & Rosen, 2011). Consequently, there has been a rising popularity in the posting of self-photos, or "selfies" on SNSs in recent years. "Selfie" is defined as "a photograph that one has taken of oneself, typically with a smartphone or webcam and uploaded to a social media website" (Petri, 2013, para. 1). A "usie" refers to "a group selfie, where someone takes a picture of themselves with other people in the shot" (Shontell, 2014, para. 1). Reflecting this trend, Oxford Dictionary deemed "Selfie" word of the year in 2013 (Petri, 2013). It is estimated that over a million selfies are uploaded to various SNSs every day, and that selfies account for approximately 30% of the photos taken by those 18-29 years old (Bourne, 2015).

Editing of Self-photos on SNSs

Along with the prevalent trend of posting self-photos, there has been increased popularity and accessibility of "selfie-editing" apps in recent years, which provides users with the opportunity to engage in a virtual makeover for better online presentation of the self. Users can use filters and edit photographs of themselves, similar to the photoshopping software used in traditional media to create an idealized and perhaps unrealistic image of models and celebrities. There are some basic editing options readily

33

available when you upload a photo on many SNS apps, such as filters which allow users options to brighten, darken, change the colour saturation and contrast, as well as offering a variety of textures, tones, and special effects to add to a picture. Additionally, a plethora of additional free and paid self-photo editing apps have become increasing prevalent and accessible to the everyday user. For example, Facetune, Photowonder, and VisageLab are just a few of the countless apps available for download which advertise that users can smooth and hide blemishes on their skin, make themselves look thinner, apply make-up virtually, smooth wrinkles, whiten teeth, and even reshape and redefine various areas of the face and body. For example, one can alter the shape, width, length, or position of his or her chin, nose, lips, eyes, or any other feature of their face to the finest detail. The degree of modifications to one's appearance an individual can make through these types of apps is virtually endless.

Research regarding the frequency of self-photo editing behaviour is somewhat limited. A recent study by Cohen, Newton-John, and Slater (2018) found that 53% of Australian adolescent females reported posting selfies at least once every two weeks, of which 62% engaged in basic editing behaviours regularly (e.g., by adding a filter). Approximately 19% reported editing their photos extensively, for example by removing blemishes or making themselves skinnier (Cohen et al., 2018). Chae (2017) found that South Korean females reported engaging in self-photo editing behaviour rarely to sometimes ($M = 2.51$, $SD = 1.20$; 2 = "*rarely,*" 3 = "*sometimes*"). Similarly, Kim and Chock (2016) found that male and female adults in the United States also reported editing their self-photos rarely to sometimes ($M = 2.65$, $SD = 1.54$; 2 = "*rarely,*" 3 = "*sometimes*").

The emergence of self-photo editing behaviours is unsurprising, considering that impression management is a significant motivator in forming SNS profiles and users are driven to present themselves in socially desirable ways (Manago et al., 2008). Some researchers have suggested that self-photo editing is likely to be a product of appearance comparison processes on SNSs (Chae, 2017). The public and interactive nature of SNSs may put additional pressure on users to modify their self-photos to closer represent cultural and peer standards of beauty. Individuals can assess the positive and negative feedback others receive on their self-photos posted on SNSs, through the number of "likes" or comments on a photo, which is treated as a benchmark of peer validation of attractiveness (Chua & Chang, 2015; Guest, 2016). Individuals may be motivated to edit their self-photos by a desire to elicit positive feedback from peers and to avoid negative appearance evaluations (Chua & Chang, 2015). In addition, the widespread prevalence of self-photo editing behaviour may result in many SNS users unknowingly comparing themselves to images of their peers that are photoshopped and digitally modified to represent an unattainable ideal (Guest, 2016; Kleemans, Daalmans, Carbaat, & Anschütz, 2018). Consequently, users are more likely to make stronger upward appearance comparisons more often when exposed to SNSs. In turn, engaging in these upward comparisons may result in more appearance insecurity, which subsequently leads to the individual engaging in personal self-photo editing to compensate (Chae, 2017; Guest, 2016).

Research has provided evidence that exposure to these edited idealized images on SNSs has a detrimental effect, especially for those who tend to make social comparisons (de Vries, Möller, Wieringa, Eigenraam, & Hamelink, 2018; Fardouly & Holland, 2018;

35

Kleemans et al., 2018). A study in the Netherlands found that male and female university students who had high appearance comparison tendencies reported a significantly increased negative affect after viewing various images of unknown peers on Instagram that were edited with filters, compared to those who viewed the same untouched original images (de Vries et al., 2018). Likewise, Fardouly and Holland (2018) found that 18-25-year-old American females reported more body image concerns after viewing images of other females that were edited using filters and photoshopping software on SNSs. An experimental study showed that adolescent females who were exposed to edited self-photos of other users on Instagram reported significantly higher body dissatisfaction relative to those who viewed the unaltered versions of the photos (Kleemans et al., 2018). This effect was significantly stronger for females with a greater tendency to engage in appearance comparisons (Kleemans et al., 2018). Further, although participants were usually able to detect if general filters and effects were used, they were not very accurate at detecting if there was reshaping of features and bodies and perceived the manipulated images as realistic (Kleemans et al., 2018).

Those with body image concerns may be motivated to post self-photos to seek validation regarding their appearance from peers (Guest, 2016; Perloff, 2014). However, those high in body image disturbance may be more concerned about posting their self-photos and, therefore, may put more time and effort into editing their self-photos before sharing (Guest, 2016). Stefanone, Lackaff and Rosen (2011) found that participants who placed more importance on other people's evaluations of how one looks and who had a larger social support network reported sharing significantly more photographs of themselves online (Stefanone et al., 2011). Additionally, a study examining 18-29-year-

old females in Australia found that those who reported being more invested in the self-photos they post on SNSs had higher body dissatisfaction (Cohen et al., 2018). Further, McLean, Paxton, Wertheim, and Masters (2015) found that adolescent females who regularly shared self-photos on SNSs reported more appearance dissatisfaction, internalization of the thin ideal, and dietary restraint compared to non-sharers. Additionally, those who spent more time and effort manipulating their self-photos before sharing and who reported more investment in their photos were found to have higher levels of body dissatisfaction (McLean et al., 2015).

Self-Photo Editing and Appearance Comparisons

Although social comparison theory (Festinger, 1954) and Perloff's (2014) model of SNS influence on body image provide some theoretical support that appearance comparisons may contribute to increased self-photo editing behaviour, empirical research examining the potential psychological mechanisms involved in self-photo editing behaviour is limited. Utilizing a social comparison theory framework, Chae (2017) conducted a longitudinal study using an online survey that examined self-photo editing behaviour among South Korean females. Findings revealed that the association between the frequency of SNS use and frequency of self-photo editing behaviour was mediated by appearance comparisons with friends. The association between frequency of self-photo taking and self-photo editing was also mediated by appearance comparisons with friends. However, Chae (2017) failed to find a significant mediational role of appearance comparisons regarding the association between appearance satisfaction and frequency of self-photo editing.

37

An arguable limitation of Chae's (2017) study that may account for this non-significant finding is that the measure of appearance satisfaction used was limited to facial features. As previously discussed, the focus of body image concerns can vary, including weight, body size, and the shape of body parts other than those on the face. Therefore, a measure that better operationalizes the full range of potential features that can be a source of appearance dissatisfaction would be beneficial when investigating the potential mediational role of appearance comparisons regarding the association between appearance satisfaction and self-photo editing. Additionally, Chae (2017) used a general measure of appearance comparison tendencies, rather than a measure that assessed appearance comparison behaviours in the specific context of SNSs. Another limitation of Chae's (2017) study is that the measure of SNS usage was quite heterogenous, including sites such as Facebook, Instagram, and Twitter, two SNS platforms popular in Korea (Band and Kakao story), as well as sites with minimal appearance-based content (i.e., LinkedIn, blogs, online communities). Further, it is unknown if findings from Chae's (2017) study are generalizable to different sexes and cultures, as the sample consisted exclusively of South Korean females in their 20's and 30's. Another recent study provided evidence that sex does indeed play a significant role regarding appearance comparisons and self-photo editing behaviours. Fox and Vendemia (2016) investigated self-photo editing behaviour among males and females (ages 18-40 years) in the United States. They found that females engaged in self-photo editing more frequently, and that this association between sex and self-photo editing was mediated by appearance comparisons. However, research has yet to investigate the potential mediating role of

38

appearance comparisons regarding the association between SNSs use and self-photo editing with taking sex into account.

The Present Research

The present study was designed to further contribute to the limited research conducted on the association between attitudinal body image disturbance and behaviours engaged in while using SNSs. Specifically, the purpose of the present research was to determine the strength of the associations between appearance satisfaction and the frequency of appearance comparisons and various self-photo related activities on SNSs. Past research has demonstrated that those with low appearance satisfaction and those who have a strong tendency to engage in appearance comparisons may be especially susceptible to experience detrimental effects from SNS use (e.g., Cohen & Blaszczynski, 2015; Fardouly et al., 2015; Fardouly & Vartanian, 2015; Kim & Park. 2016; Smith et al., 2013). SNSs may provide an easily accessible platform to engage in appearance comparisons and may foster an environment that exacerbates appearance dissatisfaction and subsequent maladaptive coping behaviours (Perloff, 2014). This study was also designed to elucidate how individuals with more severe manifestations of body image disturbance, indicative of a possible appearance-related psychological disorder, may differ from the general population regarding their appearance-related SNSs behaviour. Additionally, this study was designed to expand on recent research investigating the potential mediating role that appearance comparisons may serve regarding self-photo editing behaviour.

Research Aims and Hypotheses

Accordingly, the overarching aim of the present research was to examine the association between body image disturbance and various appearance-related SNSs behaviours. This was done by examining the strength of the associations between appearance satisfaction and these behaviours, as well as comparing these behaviours among those with different severities of body image disturbance. Related to this, the current study also intended to investigate factors that contribute to self-photo editing behaviour. The specific aims and associated hypotheses of the study are delineated below.

Aim 1. The first aim of the present study was to confirm previous research findings that appearance satisfaction is associated with appearance-related SNS behaviours, and to assess the strength of these associations. Previous research has established that engaging in appearance comparisons and photo-related activities while using SNSs is associated with appearance satisfaction, rather than general SNSs itself (Cohen and Blaszczynsk, 2015; Cohen et al., 2017; Fardouly et al., 2015; Meier & Gray, 2014). Thus, relative to individuals who reported a higher degree of body satisfaction, I expected that individuals who reported a lower degree of appearance satisfaction would engage in appearance comparisons more frequently, as well as take and share self-photos less often. Additionally, I expected those who were less satisfied with their appearance to be more concerned and preoccupied with their self-photos that they do post and would, therefore, also modify their photos to a greater extent before sharing.

Hypothesis 1a. Individuals who reported a lower degree of appearance satisfaction were predicted to report engaging in appearance comparisons more

40

frequently while using SNSs than those who reported a higher degree of appearance satisfaction.

Hypothesis 1b. Individuals who reported a lower degree of appearance satisfaction were predicted to report engaging in upward appearance comparisons more frequently in general, and to report feeling worse after such comparisons, than those who reported a higher degree of appearance satisfaction.

Hypothesis 2. Individuals who reported a lower degree of appearance satisfaction were predicted to report taking and posting self-photos less frequently then those with a higher degree of appearance satisfaction.

Hypothesis 3. Individuals who reported a lower degree of appearance satisfaction were predicted to report being more invested in their self-photos, and were predicted to report engaging in self-photo editing behaviours more frequently than those with a higher degree of appearance satisfaction.

Aim 2. The second overarching aim was to investigate if those who rated in the highest severity of body image disturbance, in the range indicative of probable psychopathology, would also follow this pattern regarding appearance-related SNSs behaviour. A measure commonly used as a screening tool for diagnosing appearance-related psychological disorders was used to divide participants into a high severity body image disturbance group (high BID) and a low severity body image disturbance group (low BID). I expected that individuals with more severe manifestations of body image disturbance would engage in appearance comparisons more frequently while using SNSs and take and share self-photos less often. Additionally, I expected that those with more severe manifestations of body image disturbance would be more concerned and

41

preoccupied with their self-photos that they do post and will, therefore, also modify their self-photos more frequently before sharing.

Hypothesis 4a. Individuals in the high BID group were predicted to report engaging in appearance comparisons more frequently while using SNSs than those in the low BID group

Hypothesis 4b. Individuals in the high BID group were predicted to report engaging in upward appearance comparisons more frequently in general, and report feeling worse after such comparisons, than those in the low BID group.

Hypothesis 5. Individuals in the high BID group were predicted to report taking and posting self-photos less frequently than those in the low BID group.

Hypothesis 6. Individuals in the high BID group were predicted to report being more invested in their self-photos and to report engaging in self-photo editing behaviours more frequently than those in the low BID group.

Aim 3. The third aim of the present research was to investigate the potential mediating role that engaging in appearance comparisons with others on SNSs may play regarding self-photo editing behaviour. Specifically, appearance comparison was proposed as a mediator of the associations between SNSs use and photo-editing, photo-sharing and photo-editing, as well as appearance satisfaction and photo-editing. Past literature has demonstrated that appearance comparisons mediates the association between SNSs use and photo-taking with self-photo editing behaviour (Chae, 2017). However, the only study conducted thus far testing this model lacked a global measure of appearance satisfaction (Chae, 2017), and did not account for likely sex effects (Fox & Vendemia, 2016). Thus, the current study aimed to confirm and expand on Chae's (2017)

findings by accounting for the influence of sex. It was expected that females would engage in appearance comparisons more frequently, which would lead to more frequent self-photo editing. This association was hypothesized to be mediated by appearance comparisons. Given a significant effect, sex was controlled for while conducting the subsequent mediational analyses (see Table 1). Additionally, the present research intended to extend Chae's (2017) findings by including a widely used, validated, and reliable global measure of appearance satisfaction, which reflects the broad array of appearance areas that one can be concerned with, to examine whether appearance comparison mediates the association between appearance satisfaction and self-photo editing.

Hypothesis 7. Females were predicted to report more self-photo editing behaviour, and this association was predicted to be mediated by appearance comparison. After controlling for sex:

*Hypothesis 8. A*ppearance comparison was predicted to mediate the association between frequency of SNSs use and the frequency of self-photo editing behaviour.

Hypothesis 9. Appearance comparison was predicted to mediate the association between self-photo sharing frequency and the frequency of self-photo editing behaviour.

Hypothesis 10. Appearance comparison was predicted to mediate the association between appearance satisfaction and the frequency of self-photo editing behaviour.
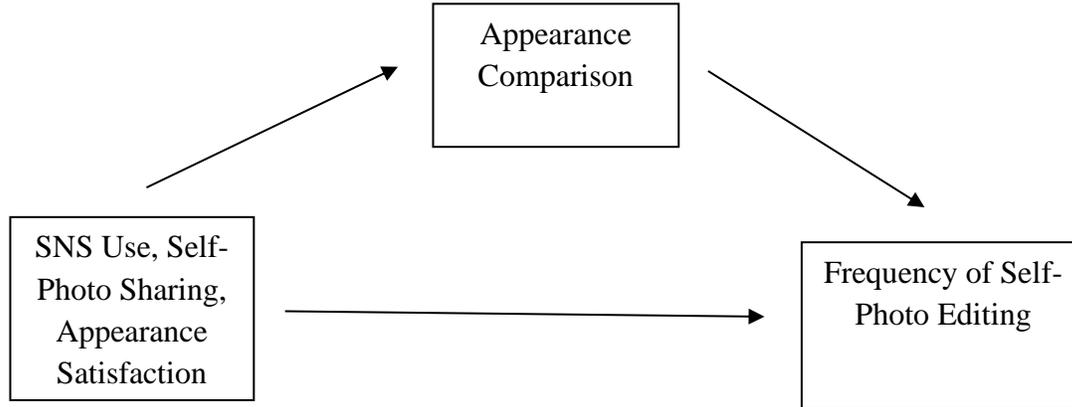
Figure 1. Proposed mediation model for the association between frequency of SNS use, self-photo sharing frequency, and appearance satisfaction with frequency of self-photo editing, controlling for sex.

CHAPTER 3

METHOD

Participants

A total of 525 adults participated in the study and were recruited through a Psychology Department Participant Pool, as well as an advertisement disseminated through campus flyers and a mass email to undergraduate and graduate students at a mid-size university in Southwestern Ontario. For the current study, participants were required to be above the age of 17. Participants recruited through the participant pool were compensated with course credit, and those recruited via the advertisement were compensated with a one in three chance to win a $50 gift card. The methodology for the present study was approved by the university's Research Ethics Board and participants were treated in accordance with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.

Of the original 525 participants responses that were collected, 21 cases were removed because the participants indicated a desire for their data to be withdrawn from the study following completion of the questionnaires. An additional 146 participant responses were removed from the final dataset because of invalid responding. This included 84 participants who failed four validity checks, 31 who failed three validity checks, 22 who failed two validity checks, and nine who failed one validity check. The final sample size was 358 participants.

Table 1 shows demographic information for participants' sex and ethnicity. Participants ranged in age from 17 to 57 years ($M = 21.93$ years, $SD = 5.30$ years). Chi-square tests conducted between the categorical variables of ethnicity and sex indicated

that there was an equal distribution of ethnicity across sex among the participants, X^2 (4, $N = 358$) = 5.98, $p = .20$. Of the 358 participants, 44 were recruited through the participant pool and 314 were recruited through the advertisement disseminated via mass email and campus flyers. Of those participants, 78 were in first year, 86 were in second year, 98 were in third year, 62 were in fourth year, and 31 were in fifth year or above.

The participants in the current study reported spending, on average, over two and a half hours a day on various SNSs, such as Facebook, Instagram, Snapchat, and Twitter. Nearly all, almost 99%, of participants reported engaging in at least some SNSs use daily. Photo-based platforms, such as Instagram and Snapchat, were the most popular SNSs reported.

Table 1

Frequency of Demographic Information as Reported by Participants (N=358)

Demographic	Frequency	Percent of Total Sample
Sex		
Male	93	26.1
Female	259	72.8
Other	4	1.1
Not Specified	2	0.6
Ethnicity		
Caucasian/White	230	64.2
South Asian	42	11.7
Arab	23	6.4
Black	21	5.9
Chinese	12	3.4
Latin American	13	3.6
Southeast Asian	8	2.2
Filipino	6	1.7
West Asian	3	0.8
Japanese	1	0.3
Other	17	4.7

Measures

Background Information. This measure included items regarding demographic information including sex, age, ethnicity, and current program of study (Appendix A).

General SNS Use. Participants were asked about the various SNSs they use and the average amount of time spent on these sites a day (Appendix B). This measure was developed by the researcher for the purpose of the current study.

Specific SNS Activity (Santarossa and Woodruff, 2017). To assess the specific activities engaged in while using SNSs, participants were presented with the statement, "While on social networking sites, I usually spend a lot of time…." followed by 6 items that describe common activities that were applicable to a variety of SNSs, including Facebook, Instagram, and Twitter. Sample items include "looking at photos on others' profiles," and "posting text-based comments on my profile." Items are measured on a 5-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). This measurement was originally developed by Meier and Gray (2014), and then amended by Santarossa and Woodruff (2017; Appendix C).

Body Image Disturbance Questionnaire (BIDQ; Cash, Phillips, Santos, & Hrabosky, 2004). The BIDQ is a 7-item self-report questionnaire commonly used as a clinical screening tool for diagnosing psychopathology related to body image disturbance, such as BDD. The BIDQ measured the degree of body image disturbance experienced by participants, including body dissatisfaction and dysphoria. This scale assesses the degree of preoccupation with appearance-related concerns and resulting emotional distress and impairment in functioning (Cash et al., 2004). A sample item includes, "Are you concerned about the appearance of some part(s) of your body which

48

you consider especially unattractive?" Items are rated on a 5-point Likert scale ranging from 1 (*Not at all concerned*) to 5 *(Extremely concerned)*. The overall score for this measure is calculated from the mean of the 7 items, with higher scores indicating a greater degree of overall body image disturbance (Cash et al., 2004). The BIDQ was modified from the Body Dysmorphic Disorder Questionnaire (Dufresne, Phillips, Vittorio, & Wilkel, 2001). The BIDQ has been validated among a college sample and has demonstrated excellent internal consistency and test-retest reliability (Cash & Grasso, 2005; Cash et al., 2004). The Cronbach alpha for the current study was .90.

There is no standard cut-off score currently suggested for the BIDQ to determine probable pathology, such as eating disorders and BDD. However, in Cash et al.'s (2004) original study, mean BIDQ scores of 2.76 or above were considered two standard deviations from the mean among males ($M = 1.58$, $SD = .59$), and mean BIDQ scores of 3.15 or above were considered two standards deviations from the mean among females ($M = 1.81$, $SD = .67$). Additionally, Hartmann et al. (2015) found that a clinical sample of AN patients ($N= 24$) obtained a mean score of $M = 3.49$ ($SD =0.92$) on the BIDQ, and a sample of BDD patients ($N = 23$) obtained a mean score of $M =3.21$ ($SD = 0.66$) on the BIDQ. Therefore, for the purpose of the current analysis, individuals scored a mean score of 3.21 or above ($N = 48$) on the BIDQ were categorized into the "high severity body image disturbance (BID)" group, while those who obtained a mean score of 3.20 or lower on the BIDQ ($N =310$) were categorized into the "low severity body image disturbance (BID)" group (Appendix D).

Multidimensional Body-Self Relations Questionnaire (MBSRQ; Brown, Cash, & Milulka, 1990). The MBSRQ is a widely used self-report inventory that

assesses personal attitudes regarding body image. This measurement and its subscales have been validated on adult samples and has established norms for males and females. Previous research has also demonstrated the MSBRQ to have strong psychometric properties, such as established internal consistency and test-retest reliability.

The Multidimensional Body-Self Relations Questionnaire-Appearance Evaluation Subscale (MBSRQ-AES) is a 7-item measure that assesses personal appearance satisfaction and evaluation. Sample items include, "I like my looks just the way they are," and "Most people would consider me good looking." Items are measured on a 5-point Likert scale ranging from 1 (*Definitely Disagree*) to 5 (*Definitely Agree*). The overall score for this measure is calculated from the mean of the 7 items, with higher scores indicating a greater degree of satisfaction with one's appearance. The Cronbach alpha for the current study was .71.

The Multidimensional Body-Self Relations Questionnaire- Body Areas Satisfaction Subscale (MBSRQ-BASS) is a 9-item measure that assesses personal satisfaction with various aspects and areas of the body. Sample items include the face, hair, weight, muscle tone, and overall appearance. Items are presented on a 5-point Likert scale ranging from 1 (*Very Dissatisfied*) to 5 (*Very Satisfied*). The overall score for this measure is calculated from the mean of the 7 items, with higher scores indicating a greater degree of body satisfaction. The Cronbach alpha for the current study was .85 (Appendix E).

Body Comparison Scale (BCS; Fisher, Dunn, & Thompson, 2002). The BCS is a 25-item self-report measure that assesses how often participants engage in appearance comparisons with same-sex others. Twenty items asked participants to rate

50

their frequency of comparing specific aspects of the body (e.g., nose, lips, and waist), while five items reflect more general ratings of the body as a whole (e.g., overall body and overall shape of the body). Items were measured on a 5-point Likert scale ranging from 1 (*Never*) to 5 (*Always*). The overall score for this measure is calculated from the mean of the 25 items, with higher scores indicating a greater tendency to engage in appearance comparisons (Fisher et al., 2002). For the purposes of the current study, the wording in the original instructions was slightly modified to specify "when using social networking sites online or on your smartphone." Previous studies that have used this measurement reported Cronbach alphas ranging from .73 to .92, indicating adequate to good internal consistency (McCreary & Saucier, 2009; O'Brien et al., 2009). The Cronbach alpha for the current study was .94 (Appendix F).

Physical Appearance Comparison Scale-3rd Edition (PACS-3; Schaefer & Thompson, 2018). The PACS-3 is a 27-item self-report measure that assesses how often participants engage in appearance comparisons relating to weight, shape, muscularity, and overall appearance with proximal (e.g., peers/individuals encountered in everyday life) and distal (e.g., models and celebrities) others in a variety of contexts. Sample items include "when out in public" or "when watching a movie." Items were rated on a 5-point Likert scale ranging from "*Never*" to "*Almost Always*." Participants were also asked how they believe they look in relation to the comparison target, with 5 Likert-scale items ranging from "*Much Better*" to "*Much Worse*." Participants were then asked to indicate how they feel after making such comparisons, with 5-point Likert scale ranging from "*Very Positive*" to "*Very Negative*." When studied among a male and female college sample, the PACS-3 was found to have good reliability and convergent validity, as well

51

as good to excellent internal consistency and test-retest reliability (Schaefer &

Thompson, 2018. The Cronbach alpha for the current study was .93 (Appendix G).

Photo Activity Measure (McLean et al., 2015). The Photo Activity Measure

consists of two items which assess the frequency that participants typically take self-

photos, or selfies, which only include themselves, as well as photos they take of

themselves that include others. Items are presented on a Likert scale of 1 (*less than once

a month*) to 8 (*more than twice a day*). The overall score for this measure is calculated

from the mean of the 2 items, with higher scores indicating more frequent self-photo

taking. Previous studies that have used this measurement reported Cronbach alphas of

0.86 and 0.81, indicating good internal consistency (Cohen et al., 2018; McLean et al.,

2015). This measurement was also found to have excellent test-retest reliability (McLean

et al., 2015). The Cronbach alpha for the current study was .70 (Appendix H).

Self-photo sharing frequency (McLean et al., 2015). The frequency that

participants typically share self-photos, or selfies, of themselves on SNSs was measured

with two-items. The items include "Do you post photos of yourself online or share them

through services like 'Snapchat' or 'Instagram'?" and "Do you avoid putting photos of

yourself on social media?" (reverse scored). The items are presented on a Likert scale of

1 (*never)* to 5 (*always*). The overall score for this measure is calculated from the mean of

the 2 items, with higher scores indicating a higher frequency of posting self-photos

online. This measurement was shown to have excellent test-retest reliability in the

original study for which it was developed (McLean et al, 2015). The Cronbach alpha for

the current study was .64 (Appendix I).

Photo Manipulation Scale (McLean et al., 2015). The Photo Manipulation Scale consists of 8-items which measure the degree of digital modification and editing an individual typically engages in before posting self-photos on SNSs. Sample items include, "Use a filter to change the overall look of the photo," "Edit to hide blemishes like pimples," and "Make specific parts of your body look larger or look smaller." Items are measured on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). The overall score for this measure is calculated from the mean of the 8 items, with higher scores indicating a greater frequency of engaging in self-photo editing behaviour. This scale was found to have good internal consistency, with a Cronbach's alpha of 0.85, and good test-retest reliability (McLean et al., 2015). The Cronbach alpha for the current study was .84 (Appendix J).

Photo Investment Scale (McLean et al., 2015). The Photo Investment Scale is an 8-item self-report measure that assesses the degree of investment and effort participants spend choosing photos of themselves to share on SNSs and how much concern they have about how such posts will be perceived by others. Sample items include, "It's easy to choose the photo/It's hard to choose the photo," and "I worry about whether anyone with "Like" my photos/ I don't care whether anyone with "Like" my photos." Each item is anchored with two options, scored on a scale of 0 to 100. The overall score for this measure is calculated from the mean of the 8 items, with higher scores indicating a greater degree of photo investment. This scale was found to have good internal consistency in past research, with a Cronbach's alpha of 0.85, and excellent test-retest reliability (McLean et al., 2015). The Cronbach alpha for the current study was .83 (Appendix K).

Validity Checks. In order to determine whether participants were dedicating their full attention to the questionnaires, four validity check questions were randomly interspersed within the measures. A sample question includes, "If you are paying attention please choose response 3."

Procedure

Participants were invited to complete an online study on SNS use and body image via an online link, titled "Body Image and Social Networking Site Behaviour." Data were collected between May and September of 2019. The survey was comprised solely of self-report measures. Interested participants were directed to a secure website (Qualtrics), where they could complete the survey confidentially. Participants were able to complete the measures from any computer that had access to the Internet. However, they were given instructions to complete the study in a quiet environment with minimal distractions, and to complete the entire survey in one sitting.

After reading and approving an electronic consent form, participants were asked to complete the Background Information Questionnaire and questions regarding their SNS use. Participants then completed the remaining questionnaires, which were presented in a randomized order. Participants who reported taking self-photos at least occasionally (as indicated by a score of 2 or higher on the Photo Activity Measure) were given the questionnaires assessing their degree of photo investment and manipulation for these photos. After completing the study, participants were presented with a written debriefing, as well as a message thanking them for their participation. Participants from the University of Windsor participant pool were provided course credit, and participants

54

recruited by the advertisement were given the opportunity to input their name into a draw to win one of three \$50 gift cards.

CHAPTER 4

RESULTS

Approach to Data Analysis

The study's research aims were addressed using a combination of correlational analyses, Mann-Whitney U-tests, and mediated multiple linear regression analyses. All analyses were conducted using the IBM Statistical Package for Social Science (SPSS) version 24.0 for Windows. After screening the data for missing values, the data were screened to ensure the assumptions of correlation and regression analyses were satisfied. Mann-Whitney U tests were used to determine whether there were significant differences between males and females among the study variables. A series of Spearman Rank correlational analyses were used to test whether appearance satisfaction was associated with the tendency to engage in appearance comparisons, self-photo taking, self-photo sharing, self-photo editing, and self-photo investment behaviours on SNSs (Hypotheses 1-3). Then, a series of Mann-Whitney U tests were conducted to compare participants who reported particularly elevated mean BIDQ scores ($BIDQ \geq 3.21$) with the rest of the participants (Hypothesis 4-6). Hayes' (2013) PROCESS macro for SPSS version 2.16.3 then was used to test the mediational role of appearance comparisons regarding the relationships between frequency of SNS use, self-photo sharing, and appearance satisfaction with self-photo editing (Hypotheses 7-10). The unstandardized regression coefficients were reported for all mediation analyses.

Preliminary Data Analyses

Missing Data. Missing data were analysed using Missing Value Analysis (MVA) in SPSS version 24.0 for Windows. Overall, there was a very small amount of missing data as there was only 2% of total data missing across all participants and variables and no patterns of missing data emerged. The MVA indicated that all variables had some level of missingness, ranging from 0.6% to 1.7%. At the participant level, 3.4% of cases had some missing data, but there were no patterns of missing cases. Little's MCAR test, which tests the null hypothesis that the data is *Missing Completely At Random* (MCAR), was non-significant, which indicated that the data was missing completely at random, χ^2 $(481, N = 358) = 509.50.19, p = .178$. Due to the small amount of missing data, and because the data were missing completely at random, the maximum likelihood technique was used to impute missing values.

Covariates. Research has indicated that females engage in appearance comparisons more frequently than males, and that comparisons among females are more closely related to body dissatisfaction (Jones, 2004; Myers & Crowther, 2009). Past studies have also shown that females engage in self-photo behaviour more frequently than males (Fox & Vendemia, 2016). Additionally, different age groups typically spend varying amounts of time using SNSs (Pew Research Center, 2018). Therefore, age and sex were examined as covariates when conducting the correlational analyses to test the hypotheses. Mann-Whitney U-tests were conducted to examine group differences between males and females among the study variables.

Assumptions. The assumptions of correlation were first assessed, which include multivariate normality, linearity, and the absence of outliers (Tabachnick & Fidell, 2007).

Univariate outliers were assessed by examining standard values outside of +/-3.29 on all variables. Four outliers/outlying values were identified on the SNS use variable, which were winsorized and brought within 3 standard deviations of the mean. The assumption of normality was assessed after the aforementioned scores had been winsorized. Shapiro-Wilk tests revealed that almost all variables were non-normally distributed ($p < .05$), with the exception of the BASS Scale ($p = 0.088$). For the assumption of linearity, scatter plots of predictor and outcome variables were examined. The associations between the correlated variables had monotonic relationships but were not always linear. Due to non-normality and linearity in some of the variables and the ordinal nature of the Likert-scale data, partial Spearman's Rank correlations were conducted for appearance satisfaction and the variables of appearance comparison, self-photo taking frequency, self-photo sharing frequency, photo investment, and photo manipulation.

The remaining assumptions pertained to the regression analyses and, therefore, were tested while the regression analyses were conducted. First, the assumption that the errors were independent and followed a normal distribution with constant variance was assessed. Examination of the histograms of the standardized and studentized residuals revealed a normally distributed curve. Cook's Distance values were analyzed for each regression to assess for influential observations, and no influential data points were found. Inflation factor (VIF) values were within acceptable limits (i.e., tolerance > .1 and VIF < 10). Correlations between predictor variables were all below the recommended threshold of |.90| (refer to Table 6; Cohen, Cohen, West, & Aiken, 2003), also suggesting the absence of multicollinearity. The Durbin-Watson value was 1.919, which was within the acceptable range (i.e., between 1.5 and 2.5), suggesting the assumption of

57

independence of errors observation was met. For the assumption of linearity, a plot of residuals versus predicted values, as well as scatter plots of predictor and outcome variables, were examined. Finally, examination of plots of standardized residuals by standardized predicted values showed that the assumption of homoscedasticity was violated for the regression analysis. Therefore, the regression was conducted using bootstrapping (at 10, 000 samples) because this technique does not assume that data are homoscedastic.

Descriptives. Table 2 shows the means and standard deviations for all variables included in the analyses. Participants were also asked to report on their frequency of SNS usage. Participants reported spending an average of 161.64 minutes (SD = 155.13, Range = 0-661) in total across all SNSs each day. Approximately half of the participants (49.4%) stated that they spend at least two hours each day on SNSs, and an additional 29.1% reported spending three to four hours each day on these sites. Table 3 shows the means and ranges of time (in minutes) that participants reported using various SNSs sites each day. Almost all participants reported using some sort of SNS daily (98.6%). Instagram was the most frequently used SNS, with 86.3% of participants who reported using the site at least once daily. This was followed by Snapchat (76%), Facebook (65.4%), and Twitter (44.1%). Another 17.9% of participants reported using other sites daily, such as Pinterest, Tumblir, Reddit, and YouTube.

Participants on average reported engaging in appearance comparisons occasionally while using SNSs (BCS; M = 2.66, SD = 0.85, 3 = "*sometimes*"), as well as in other various contexts in everyday life (PACS-3; M = 2.69, SD =0.97, 3 = "*sometimes*"). On average, participants indicated perceiving themselves as the same or

58

worse as their comparison targets (PACS-3: Direction; $M = 3.68$, $SD = 0.63$; 3 = "*the same*", 4 = "*worse*"), and feeling neutral or negative emotions following these comparisons (PACS-3: Feeling; $M = 3.51$, $SD = 0.68$; 3 = *"neutral,"* 4 = *"negative"*).

Participants reported their overall frequency of taking self-photos as once a month to once every two weeks on average, with 40.8% of participants reported taking "selfies" (photos with just themselves included) at least once in every 2-week period, and 43% of participants reported taking "usies" (photos including themselves and others) at least once per week. Almost two-thirds (62.8%) of participants reported being regular self-photo sharers, indicating that they share photos of themselves online at least "sometimes" or more. Participants on average reported engaging in self-photo editing behaviours very rarely ($M = 1.70$, $SD = 0.77$; 1 = "*never,*" 2 = "*rarely*"). Participants on average reported being somewhat invested in the self-photos that they post on SNSs ($M = 62.96$, $SD = 19.55$; 0 = lowest degree of investment, 100 = highest degree of investment).

Table 2

Descriptive Statistics of All Study Variables (N = 358)

Variable	*M*	*SD*	Range	
			Min	Max
Body Image Disturbance (BIDQ)	2.14	0.87	1	5
AES	2.94	0.45	1	5
BASS	3.15	0.77	1	5
SNS Activity				
Posting pictures on my profile	1.94	1.03	1	5
Posting text-based comments on my profile	1.97	1.08	1	5
Looking at my own profile	2.50	1.25	1	5
Looking at photos on others' profiles	3.89	0.94	1	5
Looking at posts on others' profiles	3.89	0.95	1	5
Leaving posts or comments on others' profiles	2.67	1.20	1	5
BCS	2.66	0.85	1	5
PACS-3	2.69	0.97	1	5
PACS-3: Direction	3.68	0.63	1	5
PACS-3: Feeling	3.51	0.68	1	5
Self-Photo Taking	2.63	1.54	1	8
Self-Photo Sharing	3.06	1.00	1	5
Self-Photo Editing	1.70	0.77	1	5
Self-Photo Investment	62.96	19.55	0	100.00

Note. All variables are measured using Likert-scale items. BIDQ = Body Image Disturbance Questionnaire; AES = Appearance Evaluation Scale; BASS = Body Areas Satisfaction Scale; SNS = Social Networking Site; BCS = Body Comparison Scale; PACS-3 = Physical Appearance Comparison Scale-3rd Edition.

60

Table 3

Daily Social Networking Site Usage in Minutes

Social Networking Site	*M*	*SD*	Range	
			Min	Max
Instagram	59.66	67.80	0	420
Snapchat	40.54	60.16	0	400
Facebook	26.40	52.22	0	480
Twitter	17.68	33.17	0	240
Other	14.48	44.96	0	420
SNS Use Total	161.64	155.13	0	661

61

Sex

As sex was anticipated as a covariate, additional analyses were conducted first to test for group differences in scoring responses between males and females. The means and standard deviations of all study variables for males and females are included in Table 4. Mann-Whitney U tests were used to compare mean differences between males and females among the study variables (see Table 5). Results revealed that there were significant differences between the sexes among all variables. Females reported more frequent SNSs usage ($p = .02$), a lower degree of appearance satisfaction (AES, $p = .03$; BASS, $p = .02$), a higher degree of body image disturbance ($p < .01$), and greater tendencies to engage in appearance comparisons ($p < .01$). Females also reported making upwards appearance comparisons more often than males ($p < .01$) and felt worse after making such comparisons ($p < .01$). Females also reported greater frequencies in taking and sharing self-photos than males ($p < .01$), as well as greater investment and frequency of editing behaviours with their self-photos ($p < .01$). The results from separate correlational analyses for males and females for all study variables are included in Table 7.

Table 4

Descriptive Statistics of All Study Variables by Sex

Variable	Males (*N* = 93)		Females (*N* = 259)	
	M	*SD*	*M*	*SD*
Body Image Disturbance (BIDQ)	1.87	0.92	2.23	0.83
AES	3.01	0.42	2.90	0.46
BASS	3.30	0.86	3.09	0.73
SNS Use Total	137.43	139.25	168.21	144.70
SNS Activity				
Posting pictures on my profile	1.74	0.91	2.00	1.06
Posting text-based comments on my profile	1.93	1.01	1.97	1.06
Looking at my own profile	2.12	1.20	2.64	1.24
Looking at photos on others' profiles	3.58	1.07	4.01	0.86
Looking at posts on others' profiles	3.63	1.12	4.00	0.86
Leaving posts or comments on others' profiles	2.29	1.12	2.81	1.21
BCS	2.29	0.91	2.80	0.78
PACS-3	2.31	0.98	2.82	0.92
PACS-3: Direction	3.40	0.80	3.78	0.52
PACS-3: Feeling	3.17	0.79	3.62	0.61
Self-Photo Taking	2.17	1.33	2.80	1.59
Self-Photo Sharing	2.76	1.00	3.17	0.99
Self-Photo Editing	1.33	0.52	1.82	0.80
Self-Photo Investment	53.18	22.46	65.20	17.36

Note. All variables were measured using Likert-scale items. BIDQ = Body Image Disturbance Questionnaire; AES = Appearance Evaluation Scale; BASS = Body Areas Satisfaction Scale; SNS = Social Networking Site; BCS = Body Comparison Scale; PACS-3 = Physical Appearance Comparison Scale- 3rd Edition.

63

Table 5

Results of Mann-Whitney U Tests Comparing Males (N = 93) to Female Participants (N = 259)

Scale	Group	Median	Interquartile Range	U	p
SNS Use Total	Male	95.00	155.26	10086.00	.020*
	Female	130.00	163.00		
BIDQ	Male	1.57	1.14	8493.00	.000**
	Female	2.14	1.29		
AES	Male	3.14	0.57	10216.500	.029*
	Female	2.86	0.71		
BASS	Male	3.33	1.06	10102.00	.021*
	Female	3.11	1.11		
BCS	Male	2.16	1.36	7784.50	.000**
	Female	2.84	1.12		
PACS-3	Male	2.11	1.31	8022.00	.000**
	Female	2.78	1.33		
PACS-3: Direction	Male	3.61	1.00	8278.00	.000**
	Female	3.82	0.61		
PACS-3: Feeling	Male	3.11	0.88	7257.50	.000**
	Female	3.67	0.78		
Photo-Taking	Male	2.00	2.00	9022.00	.000**
	Female	2.50	2.50		
Photo-Sharing	Male	3.00	1.50	9229.00	.001**
	Female	3.50	1.50		
Photo Editing	Male	1.13	2.63	5960.50	.000**
	Female	1.63	1.25		
Photo Investment	Male	50.63	26.25	6805.50	.000**
	Female	66.25	25.63		

Note. All variables were measured using Likert-scale items. BIDQ = Body Image Disturbance Questionnaire; AES = Appearance Evaluation Scale; BASS = Body Areas Satisfaction Scale; SNS = Social Networking Site; BCS = Body Comparison Scale; PACS-3 = Physical Appearance Comparison Scale, 3rd Edition.
**p < .01, *p < .05

Main Data Analyses

Appearance Satisfaction

Hypotheses 1 to 3 were tested using a series of Spearman Rank Correlations between the variables measuring appearance satisfaction (AES and BASS) and various appearance-related SNSs activities, including appearance comparisons while on SNSs (BCS), appearance comparisons during everyday contexts (PACS-3), self-photo taking, self-photo sharing, self-photo investment, and self-photo editing. For each correlational analysis, age and sex were entered as covariates. Age showed weak significant negative correlations with total SNS use, $r_s(358) = -.25$, $p < .001$, self-photo taking, $r_s(358) = -.17$, $p = .001$, and self-photo sharing, $r_s(358) = -.15$, $p = .005$.

As seen in Table 6, Hypotheses 1 to 3 were mostly supported. As predicted, there was a significant negative correlation between appearance evaluation (AES) and appearance comparison tendencies on SNSs (BCS), as well as between body site satisfaction (BASS) and appearance comparison tendencies on SNSs (BCS). Appearance evaluation (AES) was significantly negatively correlated with upward appearance comparisons (PACS-3: Direction), $r_s(344) = -.48$, $p < .001$, and negatively correlated with poor affect after engaging in appearance comparisons (PACS-3: Feeling), $r_s(344) = -.48$, $p<.001$. Similarly, body site satisfaction (BASS) was also significantly negatively correlated with upward appearance comparisons, $r_s(344) = -.57$, $p < .001$, and poor affect after engaging in appearance comparisons, $r_s(344) = -.55$, $p < .001$. There were no significant correlations between appearance evaluation (AES) and photo-taking behaviour, nor body site satisfaction (BASS) and photo-taking behaviour. However,

65

appearance evaluation (AES) and body site satisfaction (BASS) were both significantly positively correlated with self-photo sharing behaviour on SNSs.

The third hypothesis was that those with a lower degree of appearance satisfaction would report being more invested in their self-photos and would report engaging in self-photo editing behaviours more frequently than those who have a higher degree of appearance satisfaction. Of the 358 participants, 24 who reported that they "never" engaged in self-photo sharing online were excluded from these analyses. Consistent with this hypothesis, self-photo investment was significantly negatively correlated with both appearance evaluation (AES) and body site satisfaction (BASS). Frequency of self-photo editing behaviours was also significantly negatively correlated with appearance evaluation and body site satisfaction. Although no predictions were made regarding the frequency of general SNS use and appearance satisfaction given the inconsistent past findings regarding the heterogenous construct, in the current study overall SNSs use showed very weak significant negative correlations with appearance evaluation and body site satisfaction.

Table 6

Spearman's Rank Correlation Table of Main Outcome and Predictor Variables, Controlling for Age and Sex (N = 358)

	1	2	3	4	5	6	7	8	9	10
1. SNS Use Total	1	.140**	-.160**	-.117**	.098	.068	.197**	.181**	.125*	.197**
2. BIDQ		1	-.486**	-.511**	. 447**	.565**	. 028	-.182*	.251**	.464**
3. AES			1	.673**	-.324**	-.348**	.115	.256**	-.225**	-.382**
4. BASS				1	-.415**	-.378**	.064	.239**	-.233**	-.430**
5.BCS					1	.695**	.101	-.037	.372**	.469**
6. PACS-3						1	.039	-.040	.318**	.476**
7. Self-Photo Taking							1	.480**	.195**	.108*
8. Self-Photo Sharing								1	.135*	-.138*
9. Self-Photo Editing									1	.336**
10. Self-Photo Investment										1

Note. All variables were measured using Likert-scale items. BIDQ = Body Image Disturbance Questionnaire; AES = Appearance Evaluation Scale; BASS = Body Areas Satisfaction Scale; SNS = Social Networking Site; BCS = Body Comparison Scale; PACS-3 = Physical Appearance Comparison Scale- 3rd Edition.

*p < .05, **p < .01

Table 7

Spearman's Rank Correlation Table of Main Outcome and Predictor Variables for Males (N = 93) and Females (N = 259)

	1	2	3	4	5	6	7	8	9	10
1. SNS Use Total	1	.034	-.230**	-.086	.145	-.060	.183	.063	.061	.130
2. BIDQ	.151**	1	-.523**	-.524**	.409**	.552**	.064	-.203	.173	.552**
3. AES	-.110**	-.443**	1	.539**	-.278**	-.267**	.078	.333**	-.242*	-.458**
4. BASS	-.098	-.483**	.711**	1	-.341**	-.337**	.071	.273**	-.133	-.490**
5. BCS	.018	.456**	-.316**	-.415**	1	.624**	-.014	-.156	.289**	.428**
6. PACS-3	.056	.536**	-.324**	-.341**	.661**	1	.083	-.070	.257*	.469**
7. Self-Photo Taking	.169**	.031	.140*	.081	.068	-.021	1	.503**	.238	.113
8. Self-Photo Sharing	.198**	-.155*	.237**	.232**	-.069	-.065	.445**	1	.116	-.225*
9. Self-Photo Editing	.087	.244**	-.172**	-.220**	.286**	.239**	.144**	.136*	1	.125
10. Self-Photo Investment	.178**	.435**	-.343**	-.398**	.405**	.400**	.061	-.155*	.297**	1

Note. Males = top part of matrix, black font; Females = bottom part of matrix, red font. All variables were measured using Likert-scale items. BIDQ = Body Image Disturbance Questionnaire; AES = Appearance Evaluation Scale; BASS = Body Areas Satisfaction Scale; SNS = Social Networking Site; BCS = Body Comparison Scale; PACS-3 = Physical Appearance Comparison Scale- 3rd Edition.
*p<.05, **p< .01

Body Image Disturbance Severity

To analyze how those with a higher severity of body image disturbance differed from those with a lower severity of body image disturbance, participants were divided into a "high severity body image disturbance (BID)" group and a "low severity body image disturbance (BID)" group according to BIDQ responses. A cut-off score was derived from mean BIDQ scores collected among past clinical samples of individuals with eating disorders and BDD (Hartmann et al., 2015). Mann-Whitney U tests were conducted to compare mean differences between the two groups for all of the outcome variables, as this test is robust to non-normality and unequal sample sizes. Table 8 shows the results of the Mann-Whitney tests comparing the high severity and low severity body image disturbance groups among the study variables.

As predicted, results from the Mann-Whitney tests indicated that there were significant differences on the average BCS and PACS-3 scores between participants in the high severity BID group compared to those in the low severity BID group ($p < .01$). Participants in the high severity BID group also reported significantly higher scores on the PACS-3: Direction and PACS-3: Feeling variables than those in the low severity BID group, indicating that those with a higher degree of body image disturbance perceived themselves as much less attractive than their comparison targets and felt significantly worse after making such appearance comparisons ($p < .01$). There was no significant difference found between the high severity BID and low severity BID groups regarding self-photo taking behaviour ($p = .75$). However, those in the low severity BID group reported sharing self-photos online more frequently than those in the high severity BID group ($p < .01$). Compared to the low severity BID group, participants in the high

69

severity BID group reported engaging in self-photo editing behaviours more frequently (p

= .02) and reported being significantly more invested in the self-photos that they post

online (p < .01).

Table 8

Results of Mann-Whitney U Tests Comparing Low BID Participants (N = 310) to High BID Participants (N = 48)

Scale	Group	Median	Interquartile Range	U	p
SNS Use Total	Low BID	120.00	150.00	6486.50	.153
	High BID	137.50	181.25		
AES	Low BID	3.00	0.57	4810.00	.000*
	High BID	2.57	0.43		
BASS	Low BID	3.22	1.00	4420.00	.000*
	High BID	2.33	0.97		
BCS	Low BID	2.52	1.20	3420.50	.000*
	High BID	3.44	1.00		
PACS-3	Low BID	2.44	1.33	3222.50	.000*
	High BID	3.78	1.33		
PACS-3: Direction	Low BID	3.67	0.67	2479.00	.000*
	High BID	4.25	0.56		
PACS-3: Feeling	Low BID	3.47	0.84	2251.00	.000*
	High BID	4.25	0.56		
Photo-Taking	Low BID	2.50	2.00	7226.50	.747
	High BID	2.50	3.00		
Photo-Sharing	Low BID	3.50	1.50	5253.50	.001*
	High BID	3.00	1.50		
Photo Editing	Low BID	1.50	1.13	4727.00	.017*
	High BID	1.88	1.47		
Photo Investment	Low BID	60.63	27.50	2952.50	.000*
	High BID	81.88	24.69		

Note. All variables were measured using Likert-scale items. BIDQ = Body Image Disturbance Questionnaire; AES = Appearance Evaluation Scale; BASS = Body Areas Satisfaction Scale; SNS = Social Networking Site; BCS = Body Comparison Scale; PACS-3 = Physical Appearance Comparison Scale- 3rd Edition.
*p < .01

Appearance Comparison as a Mediator for Self-Photo Editing

To investigate the potential mediating role that engaging in appearance comparisons with others on SNSs played regarding self-photo editing behaviour, a series of mediation models were tested using Hayes' (2013) PROCESS macro version 2.16.3 for SPSS. The correlation analyses revealed that SNSs use and self-photo sharing behaviours were not significantly associated with appearance comparisons. Therefore, SNS use and self-photo sharing were not included in the subsequent mediation effect analyses. Consequently, the hypotheses that appearance comparisons serve as a mediator in the relationships between SNS use and self-photo editing and self-photo sharing frequency and self-photo editing were not supported in this study.

Sex. A regression analysis was used to investigate the hypothesis that appearance comparison mediated the association between sex and self-photo editing. As shown in Table 9 and Figure 2, results indicated that sex was a significant predictor of appearance comparison, $B = -.55$, $SE = .10$, $p < .01$ (a path, $R^2 = .26$), and that appearance comparison was a significant predictor of self-photo editing, $B = .49$, $SE = .10$, $p < .01$. These results supported the mediational hypothesis. Sex remained to be a significant predictor of self-photo editing after controlling for the mediator, appearance comparison, $B = .30$, $SE = .09$, $p < .01$, consistent with partial mediation. Approximately 16% of the variance in self-photo editing was accounted for by the predictors ($R^2 = .16$). The indirect effect was analyzed using the PROCESS macro Version 2.16.3 (Hayes, 2013), applying a percentile bootstrap estimation approach with 10,000 samples. These results indicated that the indirect coefficient was significant, $B = .14$, $SE = .04$, 95% $CI = -.07$, .23.

Table 9

Effect of Sex on Self-Photo Editing as Mediated by Appearance Comparisons

	b	*SE*	*t*	*95% CI*
Outcome: Body Comparison Scale				
Sex (a)	.49**	.10	4.89	.29, .68
Outcome: Self-Photo Editing				
Sex (c′)	.30**	.09	3.33	.12, .48
BCS (b)	.28**	.05	5.90	.19, .38
Total Effect (c)	.44**	.09	4.80	.26, .62
Indirect Effect (ab)	.14	.04	--	.07, .23

Note. BCS = Body Comparison Scale
p < .05, **p* < .01
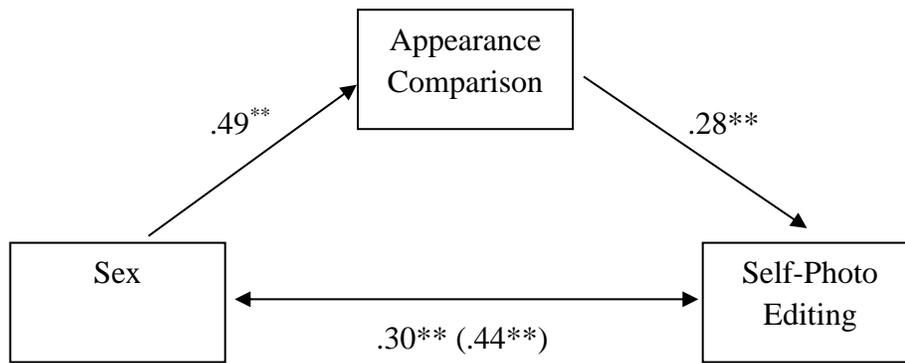
Figure 2. Mediation model for the effect of sex on frequency of self-photo editing behaviour via appearance comparison tendencies.
Note. *p* < .05, **p* < .01

Appearance Satisfaction. A regression analysis was used to investigate the hypothesis that appearance comparison mediated the association between appearance evaluation and self-photo editing, incorporating sex into the model. As shown in Table 10 and Figure 3, results indicated that appearance evaluation was a significant predictor of appearance comparison, $B = -.55$, $SE = .10$, $p < .01$ (*a* path, $R^2 = .15$), and that appearance comparison was a significant predictor of self-photo editing, $B = .24$, $SE = .05$, $p < .01$. These results supported the mediational hypothesis. Appearance evaluation remained to be a significant predictor of self-photo editing after controlling for the mediator, appearance comparison, $B = .433$, $SE = .322$, $p < .05$, consistent with partial mediation. Approximately 17% of the variance in self-photo editing was accounted for by the predictors ($R^2 = .17$). The indirect effect was analyzed using the PROCESS macro Version 2.16.3 (Hayes, 2013), applying a percentile bootstrap estimation approach with 10,000 samples. These results indicated the indirect coefficient was significant, $B = -.13$, $SE = .04$, 95% $CI = -.22$, -.07.

Table 10

Effect of Appearance Evaluation on Self-Photo Editing as Mediated by Appearance Comparisons, controlling for Sex

	b	*SE*	*t*	*95% CI*
Outcome: Body Comparison Scale				
Appearance Evaluation (*a*)	-.55**	.10	-5.77	-.74, -.37
Sex	.42**	.10	4.43	.24, .61
Outcome: Self-Photo Editing				
Appearance Evaluation (*c'*)	-.24**	.09	-2.66	-.42, -.06
BCS (*b*)	.24**	.05	4.87	.15, .34
Sex	.29**	.09	3.27	.12, .46
Total Effect (c)	-.38**	.09	-4.19	-.55, -.20
Indirect Effect (ab)	-.13	.04	--	-.22, -.07

*Note.* BCS = Body Comparison Scale
*p < .05 **p < .01
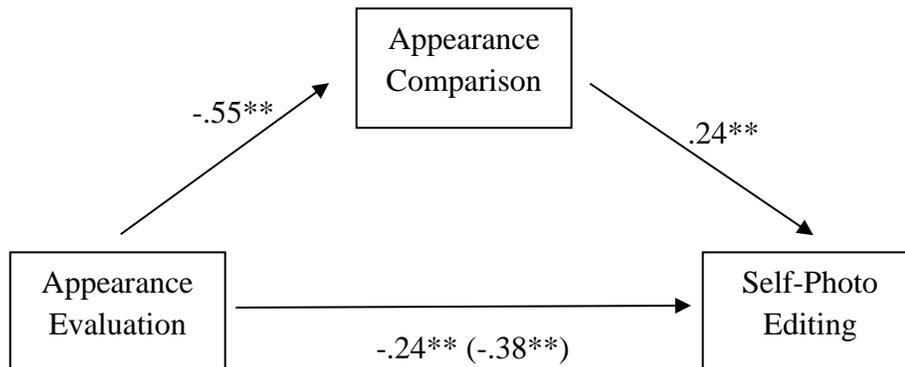
Figure 3. Mediation model for the effect of appearance evaluation on frequency of self-photo editing behaviour via appearance comparison tendencies, controlling for sex.
Note. *p < .05, **p < .01

75

A regression analysis was used to investigate the hypothesis that appearance comparison mediated the association between body site satisfaction and self-photo editing, incorporating sex into the model. As shown in Table 11 and Figure 4, results indicated that body site satisfaction was a significant predictor of appearance comparison, $B = -.45$, $SE = .05$, $p < .01$ (a path, $R^2 = .23$), and that appearance comparison was a significant predictor of self-photo editing, $B = .22$, $SE = .05$, $p < .01$. These results supported the mediational hypothesis. Body site satisfaction remained to be a significant predictor of self-photo editing after controlling for the mediator, appearance comparison, $B = -.27$, $SE = .05$, $p < .01$, consistent with partial mediation. Approximately 18% of the variance in self-photo editing was accounted for by the predictors ($R^2 = .18$). The indirect effect was analyzed using the PROCESS macro Version 2.16.3 (Hayes, 2013), applying a percentile bootstrap estimation approach with 10000 samples. These results indicated the indirect coefficient was significant, $B = -.10$, $SE = .03$, 95% $CI = -.16$, $-.05$.

Table 11

Effect of Body Site Satisfaction on Self-Photo Editing as Mediated by Appearance Comparisons, controlling for Sex

	b	SE	t	95% CI
Outcome: Body Comparison Scale				
Body Site Satisfaction (*a*)	-.45**	.05	-8.25	-.56, -.34
Sex	.40**	.09	4.32	.22, .58
Outcome: Self-Photo Editing				
Body Site Satisfaction (*c'*)	-.17**	.06	-2.94	-.28, -.06
BCS (*b*)	.22**	.05	4.22	.12, .32
Sex	.30**	.09	3.34	.12, .47
Total Effect (c)	-.27**	.05	-5.02	-.37, -.16
Indirect Effect (ab)	-.10	.03	--	-.16, -.05

*Note.* BCS = Body Comparison Scale
*p < .05, **p < .01
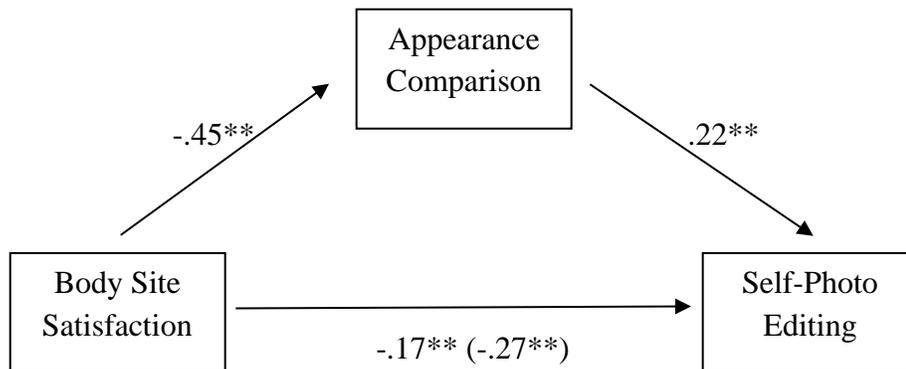
Figure 4. Mediation model for the effect of body site satisfaction on frequency of self-photo editing behaviour via appearance comparison tendencies, controlling for sex. Note. *p < .05, **p < .01

CHAPTER 5

DISCUSSION

The purpose of the present study was to contribute to an understudied area of scholarship regarding the association between body image disturbance and various aspects of SNS use. The tendency to engage in appearance comparisons and self-photo behaviours were analyzed, including the frequency of self-photo taking, sharing and editing behaviours, as well as the degree of investment individuals put into these photos. A second aim of the study was to examine whether these appearance-related SNSs behaviours would significantly differ among participants who had particularly severe manifestations of body image disturbance, in a range that indicates potential pathology.

Sex Differences

Findings from this study revealed significant differences among the responses between males and females in the current sample. Females reported significantly higher severities of body image disturbance than males, as well as significantly lower degrees of appearance satisfaction (i.e., positive appearance evaluation and body site satisfaction). Females also reported using SNSs more frequently than males. Females were also found to be more likely to engage in appearance comparisons with others while online and in other various daily contexts than males. Females were also more likely to rate themselves as less attractive than their comparison targets, and to feel a stronger negative affect after such comparisons than males. Females reported engaging in self-photo taking and self-photo sharing more frequently than males. Females were also more likely to manipulate and edit their self-photos and reported being more invested in the self-photos that they post on SNSs.

78

This was consistent with past research that has found that females were generally more susceptible to body dissatisfaction than men. Past studies have indicated that females engage in appearance comparisons more frequently than males, and that comparisons among females are more closely related to body dissatisfaction (Jones, 2004; Myers & Crowther, 2009). Research has indicated that the majority of the population experiences at least some degree of body image concerns and appearance dissatisfaction, or what has been termed as "normative discontent" (Rodin, Silberstein, & Streigel-Moore, 1984; Tantleff-Dunn, Barnes, & Larose, 2011). However, this phenomenon is especially prevalent among females, and some specific stereotypes still are considered more normative and are more widely held for females than males, such as concerns about weight, fat, and calorie restriction (Cash & Smolak, 2011). While research on BDD has yielded samples with roughly even populations among males and females, the vast majority of those with eating disorders, such as AN and BN, tend to be female (APA, 2013). The current results were also consistent with past studies that found that females were more likely than men to take self-photos, engage in self-photo editing behaviours, and to share their self-photos online (Dhir, Pallesen, Torsheim, & Andreassen, 2016). Fox and & Vendemia, (2016) found that females tended to put considerably more time and effort into presenting socially desirable images of their appearance online by engaging in self-photo editing and self-photo posting behaviours more frequently compared to males. Females also reported engaging in body comparisons more frequently and feeling more negatively towards their appearance after such comparisons than men (Fox & Vendemia, 2016). Findings from the current research provided further support that females may be especially susceptible to the negative effect

79

of making upward social comparisons due to the appearance-related societal pressures that they are exposed to, which may be compounded by the public disclosure of feedback on SNSs regarding one's appearance through comments and "likes" on their self-photos posted (Fox & Vendemia, 2016).

Appearance Comparisons

Consistent with the present hypotheses and past research, results indicated that those who were more dissatisfied with their appearance engaged in appearance comparisons with others while on SNSs more frequently than those with less appearance dissatisfaction. Further, participants who had greater degrees of appearance dissatisfaction also reported engaging in more upward comparisons (i.e., comparisons in which the target of comparison is perceived as more attractive than oneself) and feeling worse after comparing themselves to others than those with lesser degrees of appearance dissatisfaction. Likewise, participants who were rated as having severe manifestations of body image disturbance also reported engaging in appearance comparisons while online more often than those with less severe degrees of body image disturbance. Those with highly elevated degrees of body image disturbance reported engaging in upward appearance comparisons significantly more often than those lower in body image disturbance, and also rated experiencing a significantly higher degree of negative emotions after making these comparisons.

These findings further contributed to previous research that has demonstrated that those who have a high tendency to engage in appearance comparisons may be especially susceptible to the detrimental effects of SNS use on body image concerns. For example, the tendency to engage in appearance comparisons was found to significantly predict an

80

increase in body dissatisfaction among female undergraduate students who were

Facebook users (Cohen & Blaszczynski, 2015), and appearance comparison behaviours

on SNSs was linked with body dissatisfaction among male and female adolescents in

Singapore (Ho, Lee, & Liao, 2016). The detrimental effect of exposure to attractive peers

and edited self-photos of others while using SNSs such as Instagram on body

dissatisfaction has been found to be stronger for females who a have a higher social

comparison tendency (Kleemans et al., 2018; Kim & Park, 2016).

The current findings also supported past research that has found that engaging in

upward appearance comparisons behaviours in particular while using SNSs has a

negative impact on body image. Upward comparisons behaviours while using various

SNSs have been found to be more common and result in more appearance dissatisfaction

and a poorer mood than appearance comparisons made in-person among females

(Fardouly et al, 2017). Numerous experimental studies have found that engaging in

upward appearance while using SNSs is associated with poor body image, body

dissatisfaction, and a poorer emotional state among males and females (Brown &

Tiggeman, 2016; Haferkamp & Krämer, 2011; Kim & Park, 2016). The current findings

provided evidence that those with a high degree of body image disturbance, indicative of

a probable psychological disorder, are more likely to make appearance comparisons

while using SNSs, and that these comparisons are likely to be upwards in nature.

In the current study, the researcher assessed appearance comparison tendencies on

SNSs, as well as appearance comparison tendencies in general everyday contexts.

However, it should be noted that the measurement of upward appearance comparisons

and resulting negative affect was not specific to SNS behaviour. Therefore, it cannot be

determined for certain whether these upward appearance comparisons tendencies and resulting effects were directly applicable to SNS use. Previous research has shown that individuals with a high degree of body image disturbance, including individuals with eating disorders and BDD, tend to generally engage in upward appearance comparisons more frequently in a variety of contexts than those in the general population (Arigo et al., 2014; Anson et al., 2015; Leahey et al., 2007). Therefore, it seems likely that those with an elevated degree of body image disturbance would be prone to making upward comparisons while using SNSs as well.

Self-photo Activity

In line with a previous study by McLean et al. (2015), the results of this study confirmed that self-photo taking and self-photo sharing behaviours were common practices among SNS users. In the current study, 40.8% of participants reported taking "selfies" at least once every 2-week period, and 43% of participants reported taking "usies" at least once per week. Almost two-thirds (62.8%) of participants reported being regular self-photo sharers, indicating that they share photos of themselves online at least "sometimes" or more. This was less than the frequency of self-photo sharing found by Mclean et al. (2015), who found that 50.5% of participants took "selfies" at least once per 2-week period, 49.5% of participants took "usies" at least once per week, and 73.3% of participants indicated that they were regular self-photo sharers. Cohen, Newton-John, and Slater (2018) found that 53% of adolescent females reported posting selfies at least once every two weeks. However, these samples both consisted of all young adolescent females, which could account for this discrepancy (McLean et al., 2015; Newton-John, &

82

Slater, 2018). The current study consisted of both male and female adults, and among this sample females shared significantly more photos of themselves online than males.

Consistent with predictions, participants that were less satisfied with their appearance shared self-photos significantly less often than those with greater appearance satisfaction. Likewise, participants who were rated as having more severe manifestations of body image disturbance reported sharing self-photos less often than those with less severe manifestations. However, contrary to the present hypotheses, there were no significant differences found in the frequency of self-photo taking behaviours among participants with varying degrees of appearance satisfaction and severities of body image disturbance. Overall, these results suggested that those who experience a high severity of body image disturbance take self-photos just as often as those with a low degree of body image disturbance. However, those with elevated body image disturbance are less likely to share these self-photos with others online compared to those with less body image disturbance.

These findings differed from an Australian study that indicated that adolescent females who shared self-photos on SNSs reported a greater degree of body dissatisfaction and eating concerns (i.e., overvaluation of shape and weight, dietary restraint, internalization of thin ideal) than those who did not share self-photos online (McLean et al., 2015). Another study found a positive association between self-photo sharing on SNSs and restrained eating, which was mediated by self-objectification and commentary received by others regarding one's appearance (Niu et al., 2019). However, similar to the current results, other studies have found that self-photo posting on SNSs was associated with greater body satisfaction (Cohen, Newton-John, & Slater, 2018; Ridgeway &

83

Clayton, 2016). One explanation for these discrepant findings is that other mediating factors could have an effect on the relationship between self-photo posting and body image disturbance. Self-photos often get positive reinforcement, such as comments and "likes," which could contribute to increasing one's personal appearance satisfaction and self-esteem. Wang et al. (2018) found that posting self-photos had a significant positive correlation to self-esteem among Chinese females. Furthermore, positive feedback and body satisfaction were found to mediate the association between self-photo posting and self-esteem (Wang et al., 2018). This suggests that those individuals who are seeking reassurance regarding their appearance post self-photos online in order to receive positive social reinforcement.

It is possible that because those with the highest elevations of body image disturbance are especially fearful of negative evaluation from others, they may avoid posting photos of themselves altogether on SNSs. However, in doing so, they may lack the opportunity to receive positive feedback on their self-photos, which prevents them from challenging their negative beliefs regarding their personal appearance. Therefore, it is possible that other factors, such as the degree of positive feedback obtained on photos or fear of negative social evaluation, may potentially play contributing or mediating roles to how self-photo posting behaviour relates to those who experience body image disturbance. Additionally, considering the heterogenous nature of the BIDQ measure, it was difficult to determine if those with a particular type of body image disorder (i.e., AN, BN, BED, and BDD) would behave differently regarding their self-photo taking and sharing behaviour.

Self-Photo Editing

Results from the current study indicated that self-photo editing was not a commonplace occurrence, with only 8.4% of participants reporting that they engaged in these editing behaviours at least "sometimes" or more. However, it should be noted that the items in the self-photo editing measure did not include any items that addressed activities such as using general filters or changing the background of photos, as the current research aimed to examine self-photo editing behaviours that were specifically related to appearance modification (e.g., hide blemishes, make body parts look larger/smaller). Regardless, results from the current study differed from a recent study by Cohen, Newton-John, and Slater (2018) which found that approximately 19% of adolescent females reported editing their photos extensively, for example by removing blemishes or making themselves skinnier (Cohen et al., 2018). This discrepancy may be in part due to sex differences, given in the present sample 10.2% of females reported engaging in such self-photo editing behaviours, at least "sometimes," while only 2.5% males reported the same. It could also be possible that adolescent females tend to engage in more self-photo editing behaviours than the adults included in the present sample, who had a mean age of $M = 21.94$ ($SD = 5.31$). Adolescence is a particularly sensitive developmental period when individuals are formulating their self-identity and body image (Ricciardelli & McCabe, 2011; Wertheim & Paxton, 2011). Therefore, adolescents may be more sensitive to feedback from peers during this time and may be more likely to use SNSs to seek reassurance and approval from their peers regarding their appearance than adults. This may result in them editing their self-photos more frequently in order to receive social validation.

85

The present study examined the association between body image disturbance and the frequency of engaging in self-photo behaviours posted online. Results provided support for the hypothesis that individuals who rated higher in appearance dissatisfaction would report engaging in self-photo editing activities more frequently than those more satisfied with their appearance. Likewise, participants who were rated as having severe manifestations of body image disturbance reported editing their self-photos more frequently before sharing them on SNSs than those with less severe manifestations of body image disturbance. However, given the overall relatively low frequency of self-photo editing in the current sample, these results should be interpreted with caution.

The current findings were consistent with previous research by McLean et al. (2015) who found that participants who edited their self-photos more frequently before sharing them on SNSs reported more body-related and eating concerns. Alternatively, results from another recent study suggested that the use of self-photo editing applications can actually reduce the negative effect of SNSs use on the body satisfaction of young females and can play a protective factor to maintain SNS users' positive feelings towards their bodies (Lee & Lee, 2019). Lee and Lee (2019) found that among Korean females, self-photo editing behaviours served a moderating role in the associations between internalization of the thin ideal, media pressure, and body dissatisfaction. The researchers argued that exposure to edited photos of others tends to have a negative effect on SNS users because those individuals perceive a substantial discrepancy between their own physical appearance and the idealized images of others presented on these sites. They suggested that this discrepancy is reduced when individuals edit and enhance their own self-photos prior to sharing them online. This also results in reducing the editor's anxiety

86

over how the self-photo will be perceived and relieves their pressure to have an idealized appearance. The researchers argued that self-photo editing may lead to increased body/appearance satisfaction when the individual perceives a small degree of discrepancy between their actual and ideal self (Lee & Lee, 2019).

However, those with a high degree of body image disturbance, outside of the "normative discontent" (Rodin et al.,1984; Tantleff-Dunn et al., 2011) observed in the general population, may not be capable of seeing these potential positive effects of self-photo editing behaviours. An extreme level of body image disturbance is often indicative of a number of appearance-related psychiatric disorders, such as eating disorders (AN, BN) and BDD (Fairburn, 2008; Phillips, 2009). Individuals with this degree of elevated body image disturbance typically have a cognitive bias and a distorted mental representation regarding an aspect of their appearance, which results in them having a predisposition to evaluate their appearance negatively (Cash & Smolak, 2011). Those with body image disturbance disorders are more likely to engage in upward comparisons more frequently compared to the rest of the population and tend to evaluate the appearance of others as more favourably than their own (Arigo et al., 2014; Anson et al., 2015; Leahey et al., 2007). When one compares their own appearance to someone who they perceive to be more attractive than themselves or closer to the standard beauty ideal, it increases awareness of the appearance discrepancies between themselves and the target of reference. Therefore, those with highly elevated degrees of body image disturbance may also tend to evaluate their personally edited self-photos more critically than the edited self-photos of others. Thus, they may not be able to resolve the discrepancy between their actual self-image, the idealized images of themselves, and the idealized

images of others that are created through self-photo editing, which would likely lead to further appearance dissatisfaction among this population.

Self-Photo Investment

The current study also investigated the association between body image disturbance and the degree of investment and concern participants have regarding the self-photos that they post on SNSs. Results supported the prediction that individuals with a higher degree of appearance dissatisfaction would report being more invested in the photos that they share online than those more satisfied with their appearance. Participants with more severe manifestations of body image disturbance also reported being significantly more invested in their posted self-photos than those who reported a less severe degree of body image disturbance.

These findings are consistent with previous research that has found that greater investment in self-photos shared online among females was associated with body dissatisfaction, over evaluation of shape and weight, and BN symptoms (Cohen, Newton-John, & Slater, 2018; McLean et al., 2015). Similarly, Mabe et al. (2014) found an association between disordered eating and endorsing a greater importance on receiving comments on one's photos on Facebook among females. Furthermore, greater self-photo editing and investment were found to be associated with body dissatisfaction among Australian males and females (Cohen et al., 2018; Lonergan et al., 2019). Overall, these results supported the idea that self-photo investment and self-photo editing may contribute to a cyclic process that serves to maintain one's appearance dissatisfaction (Long, 2019; Perloff, 2014).

88

Those with body image disturbance disorders are also known to experience significant social anxiety and will often seek reassurance from others regarding their physical appearance (Cash & Smolak, 2011; Mitchison et al., 2013; Phillips, 2009). Those with elevated body image disturbance also have a high degree of body image investment, in which they typically put a substantial amount of importance on their appearance when determining their self-worth. In turn, they spend a substantial amount of time and energy on their appearance (Cash, 2011; Tiggemann, 2011). Thus, it is a logical extrapolation to deduce that those high in body image disturbance would also be highly invested in the self-photos that they share on SNSs, where they are portraying their appearance to their peers for potential scrutiny in a public domain. Those with high body image disturbance, therefore, would express much concern regarding how their self-photos are perceived by others, and as a result spend much more time and energy on editing, preparing, and selecting a self-photo before posting on SNSs.

Mediating Role of Appearance Comparisons

The final aim of the current study was to examine the potential mediating role that engaging in appearance comparisons with others on SNSs served regarding the frequency of self-photo editing behaviour. It was hypothesized that appearance comparisons would mediate the association between sex and self-photo editing behaviour, with females reporting higher frequencies of editing. Once the influence of sex was accounted for, it was also predicted that appearance comparisons would mediate the associations between frequency of SNSs use, frequency of self-photo sharing, appearance satisfaction and self-photo editing behaviour. The results provided support for the hypothesis in that appearance comparisons partially mediated the relationship between sex and frequency of

self-photo editing behaviour, with females being more likely to report engaging in appearance comparisons and subsequent self-photo editing. After controlling for the influence of sex, appearance comparisons also partially mediated the association between appearance satisfaction and self-photo editing behaviour.

The current results regarding sex were consistent with Fox and Vendemia's (2016) findings, in which higher appearance comparisons tendencies mediated the relationship between sex and self-photos editing behaviours, with females reporting engaging in self-photo editing behaviours more frequently. As predicted, the current results were inconsistent with Chae's (2017) findings that indicated that appearance comparisons did not mediate the association between appearance satisfaction and self-photo editing. The discrepancy in the current findings may be due to the differences in measures used to assess appearance satisfaction. As discussed previously, the measurement used in Chae's (2017) study was limited to facial appearance satisfaction, while the current study used a global measure of appearance satisfaction. By encompassing a wider range of potential sources of appearance concern, the current measure may have more accurately captured the construct of overall appearance satisfaction, resulting in stronger associations with appearance comparisons and self-photo editing behaviour.

However, contrary to the researcher's predictions, the tendency to engage in appearance comparisons was not found to mediate the association between frequency of SNSs use and self-photo editing, nor the association between frequency of self-photo sharing on SNSs and self-photo editing activity. In the current findings, SNSs use and self-photo sharing behaviour were not significantly associated with the frequency of

90

engaging in appearance comparisons with others. This differed from Chae's (2017) results, which found that appearance comparisons mediated the association between frequency of SNS use and self-photo editing behaviour, as well as the association between frequency of self-photo taking and self-photo editing. Research has indicated that appearance-related SNS use, rather than SNS use in general, is associated with appearance comparison behaviours and body image disturbance (Cohen & Blaszcynski, 2015; Cohen et al., 2017; Fardouly et al., 2015; Holland & Tiggemann, 2016; Meier & Gray, 2014). Therefore, the current study's assessment of general SNS use may have been too broad and heterogenous in nature. It was unclear why self-photo sharing behaviour was not associated with appearance comparisons in the current study. It was possible that self-photo sharing has become so commonplace that most individuals share some form of self-photos regardless of how often they engage in appearance comparisons with others. Another possibility is that participants underreported the degree that they shared self-photos online, due to inaccurate recall or impression management influences.

The current findings also provided further support for the tripartite influence model of body image, which proposes that the influence of sociocultural factors, such as media, has a direct negative influence on body image. This association is theorized to be mediated by the tendency to engage in appearance comparisons and the internalization of the societal beauty ideal. Exposure to images of peers on SNSs, which are often presented as favourably as possible, may be perceived as unattainable to individuals with high degrees of body image disturbance. This results in those individuals being more aware and attentive to the discrepancy between their own appearance and the ideal. This, in turn, leads to increased appearance dissatisfaction and increased motivation to improve

one's appearance (Rodgers et al., 2015; Thompson et al., 1999), as was evident in the greater frequency of self-photo editing behaviours and greater degree of self-photo investment reported by those higher in body image disturbance in the current study.

Implications

Findings from this study have some significant implications for addressing body image concerns related to SNSs use. Considering that exposure to edited self-photos of others on SNSs has negative effects on the body image of users, some researchers have recommended that it may be beneficial to add disclaimers to photos on sites such as Instagram which state the possibility that images may have been retouched or manipulated (Kleemans et al., 2018). For example, Vendemia and DeAndrea, (2018) found that the greater degree that female participants perceived self-photos showing full-body image of peers as being edited, the less likely they were to internalize the thin ideal of attractiveness. The authors suggested that awareness that self-photos have been edited reduces the value individuals may place on those idealized depictions (Vendemia & DeAndres, 2018). However, other studies have indicated that adding disclaimers to edited photos on SNSs may have little effect, or actually contribute to increased appearance dissatisfaction. For example, Fardouly and Holland (2018) found that adding disclaimer content to images on Instagram that were edited to closer portray appearance ideals had no impact on the body image satisfaction and mood of the female participants. Additionally, a recent study by Tiggemann and Zinoviev (2019) found that female university students who were exposed to unaltered self-photos of others on Instagram with hashtags indicating that no filters were used on the image (e.g., #nofilter) reported greater appearance dissatisfaction than those who were exposed to the same unaltered

photos without hashtags. Therefore, this suggests that adding some type of verbal commentary to online pictures indicating whether or not photo modification has occurred may be ineffective in alleviating the effect of exposure to edited self-photos of others on SNSs, and in some cases may potentially exacerbate appearance concerns.

Recent research has provided evidence that focusing on implementing SNS literacy programs may be beneficial to addressing the detrimental effects of SNS use on body image. A pilot study conducted by McLean, Wertheim, Masters, and Paxton (2017) found some promising results regarding the efficacy of SNS literacy programs among adolescent females, which focused on topics such as interacting with digitally modified self-photos on SNS, reducing appearance comparisons, and reducing focus on physical appearance when engaging in SNS interactions. Participants who received this intervention reported improvements in body esteem, less dietary restraint, and greater media literacy (e.g., skepticism about the authenticity of altered photos) than those who did not complete the program (McLean et al., 2017). It would be beneficial for future research to continue to focus on the development of SNS literacy programs and study the efficacy of such programs as a protective factor against influences that contribute to body image disturbance among various populations. For example, future studies could utilize longitudinal methods to analyze the impact of SNS literacy programs on young people as they progress throughout adolescence.

Adolescence is a particularly sensitive period regarding the development of one's body image (Ricciardelli & McCabe, 2011; Wertheim & Paxton, 2011), during which one may be especially vulnerable to online social feedback from peers. Therefore, it may be valuable to target pre-adolescent age groups for SNS literacy interventions in an effort

93

to buffer against the potential harmful influences of exposure to appearance related SNS content. SNS literacy programs could be implemented using online platforms, which may provide greater accessibility for many individuals. Alternatively, it may be beneficial to offer these interventions in extant school settings (e.g., in the form of an after-school program) so that students from poor and lower income households, who may lack regular or reliable internet access, can also have the opportunity to participate in such programs. Adolescents involved in SNS literacy programs could be presented with educational material incorporating current research and information regarding the effect of SNS use on body image. During periodic sessions, an online moderator could encourage the students to engage in self-reflection activities among a small group. Students could discuss and analyze the emotions, perceptions, and reactions they experience as a result of their SNS use. Moderators implementing these programs may also find it beneficial to teach cognitive-behavioural therapy techniques and skills to address factors involved with creating and maintaining maladaptive belief systems regarding one's body image. Exposing individuals to SNS literacy programs at a young age could potentially help reduce the possibility of them developing an appearance related disorder later in life.

Strengths, Limitations, and Future Directions

One limitation of the current study that is common among research examining SNS behaviour was the reliance on online self-report measures to assess the perceptions and behaviours of participants. For example, past research has indicated that individuals find it difficult to estimate their frequency of SNS use retrospectively (Pempek et al., 2009), which may lead to inaccurate reporting. There were also some limitations regarding the use of online measures that should be noted. Although the instructions

indicated that participants should complete the study in a quiet room where they would be undisturbed, it could not be ensured that they completed the study in a conducive environment that lacked distractions. Additionally, with the exception of the attention checks included when administrating the study, the researcher could not determine for certain whether participants were responding truthfully and thoughtfully, or that they fully understood each question. As aforementioned, a considerable number of responses ($N = 148$) were excluded from the sample due to participants failing to pass attention checks.

Second, the measurement used to assess body image disturbance in the current study, the BIDQ, was a heterogenous construct of general body image disturbance and, therefore, it was not possible to diagnose or differentiate between the different appearance-related disorders. For example, a diagnosis of BDD requires that the individual is highly concerned with a "flaw" or "defect" in their appearance that others are unable to observe. An individual with potential BDD would need to be visually examined to determine whether their appearance concerns meet this criterion. For eating disorders, the physical appearance of potential sufferers' also needs to be examined before confirming a diagnosis. For example, to meet diagnosis criteria for AN, individuals must have a body mass substantially lower than the general population and that is considered unhealthy. This is important to differentiate in future research examining body image disturbance and SNS behaviours, as individuals with various body image related disorders may exhibit different behaviours when engaging with SNSs.

For future research, SNS behaviours and its impacts should be studied using clinical populations, where official diagnoses can be determined. In the future, it would

95

be beneficial to study specific disorders, such as BDD, to better determine how sufferers may be particularly impacted by SNS use. Although those with BDD and eating disorders (i.e., AN, BN) are all characterized by a markedly high degree of body image disturbance and share some similar features, such as a distorted body image and an excessive preoccupation with one's appearance, individuals with these disorders may exhibit different behavioural outcomes when using these sites. For example, given the obsessive-compulsive nature of BDD, those suffering from this disorder may potentially develop compulsions regarding appearance-related SNS behaviour, similar to the compulsive behaviour engaged in during everyday contexts. Considering that those with BDD have a strong urge to fix disliked aspects of their appearance, even to the point of seeking surgery (Phillips, 2009), it is likely that they would regularly engage in self-photo editing. Some individuals with BDD could also possibly be motivated to post heavily edited self-photos on SNSs to appease a strong desire to engage in excessive reassurance seeking from others regarding one's appearance. It would also be beneficial for future research to focus on behavioural interventions for potentially problematic SNSs use among those with diagnosed body image disturbance disorders.

Third, as noted earlier, measurements were included for appearance comparison behaviours on SNSs as well as in general daily life. However, the measurement for upward comparisons and resulting degree of negative affect was not specific to SNSs behaviour, but rather reflected the participants' general appearance comparison tendencies in various contexts. Future research would benefit from the development and validation of a measurement that specifically measures upward appearance comparison behaviours and resulting emotional affect when using SNSs.

96

Fourthly, the demographic characteristics of the sample may impact the external validity of the results, limiting the generalizability of the findings to other populations. More specifically, the majority of participants in the current study were Caucasian university students from Southern Ontario, Canada. Therefore, results potentially may not replicate in community samples, in other age groups, in other regions, or in all ethnic/cultural groups. Additionally, although there was a substantial number of females in the current study, there was a much smaller number of male participants included, which could have affected statistical power and created a vulnerability to type II error regarding the analyses between the two sexes.

These limitations withstanding, this current study also had several notable strengths. The current research expanded on past research in the area of body image and SNS use, integrating different components of SNS use and relating it to body image disturbance. This was the first study to examine the association between body image disturbance, using a previously well-validated measure, and SNS behaviours among a Canadian university population. The current research also benefited from including an appearance comparison measure that specifically assessed these behaviours in the specific context of SNSs, rather than a measure of general appearance comparison tendencies seen in most other literature on the subject. This study, to the author's knowledge, was the first to establish a mediational role of appearance comparisons between appearance satisfaction and self-photo editing behaviours on SNSs. The current study also benefited from including male participants in the study, as much of the past research on body image and SNS behaviours has been largely focused on females.

Conclusions

Overall, findings from this study suggested a pattern whereas individuals with a high degree of body image disturbance and appearance dissatisfaction engage in particular appearance-related SNSs behaviours, more often than those that are more satisfied with their appearance, such as comparing one's appearance to that of others and editing self-photos that they share online. This pattern was consistent with Perloff's (2014) proposed cyclic model regarding how SNS use may compound appearance concerns among those with body image issues. Those with pre-existing body image disturbance appear to be motivated by the desire and widely accessible opportunity to compare one's appearance with the appearance of others while using these sites. Engaging in appearance comparisons results in individuals with high body image disturbance to rate themselves as less attractive than their comparison targets (i.e., upward comparisons), and to feel negatively about their own appearance. This, in turn, leads to more appearance dissatisfaction and results in a cyclic feedback loop, whereas the vulnerable individual is motivated even more to use SNSs to engage in appearance comparisons further (Perloff, 2014). Those with elevated body image disturbance then become highly concerned with how their self-photos that they share online will be perceived by others, which leads them to engage in self-photo editing behaviour more frequently. This pattern was especially prevalent for females in the current results. Furthermore, this study provided a novel finding in that after controlling for the influence of sex, appearance comparisons on SNSs was found to serve a mediating role between appearance satisfaction and the frequency of self-photo editing behaviour. Considering the detrimental influence SNSs appear to have on those with elevated body image

98

disturbance, it is important that future research focuses on intervention methods, such as SNS literacy programs. Additionally, future research would benefit from exploring how those with specific appearance-related disorders (e.g., BDD) may interact with, and be affected by use of, this more recent form of media.

99

REFERENCES

Aderka, I. M., Gutner, C. A., Lazarov, A., Hermesh, H., Hofmann, S. G., & Marom, S. (2014). Body image in social anxiety disorder, obsessive–compulsive disorder, and panic disorder. *Body Image*, *11*(1), 51-56. https://doi.org/10.1016/j.bodyim.2013.09.002

Amaral, A. C. S., & Ferreira, M. E. C. (2017). Body dissatisfaction and associated factors among Brazilian adolescents: A longitudinal study. *Body Image*, *22*, 32-38. https://doi.org/10.1016/j.bodyim.2017.04.006

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

Anson, M., Veale, D., & Miles, S. (2015). Appearance comparisons in individuals with body dysmorphic disorder and controls. *Body Image, 15*, 132-140. https://doi.org/10.1016/j.bodyim.2015.08.003

Arigo, D., Schumacher, L., & Martin, L. M. (2014). Upward appearance comparison and the development of eating pathology in college women. *International Journal of Eating Disorders*, *47*(5), 467-470. https://doi.org/10.1002/eat.22240

Austin, J. L., Serier, K. N., Sarafin, R. E., & Smith, J. E. (2017). Body dissatisfaction predicts poor behavioral weight loss treatment adherence in overweight Mexican American women. *Body Image*, *23*, 155-161. https://doi.org/10.1016/j.bodyim.2017.08.002

Bailey, S.D., & Ricciardelli, L.A. (2010). Social comparisons, appearance related comments, contingent self-esteem and their relationships with body dissatisfaction and eating disturbance among women. *Eating Behaviors, 11*, 107-112. https://doi.org/10.1016/j.eatbeh.2009.12.001

Banfield, S., & McCabe, M. (2002). An evaluation of the construct of body image. *Adolescence*, *37*(146), 373–393.

Bessenoff, G.R. (2006). Can the media affect us? Social comparison, self-discrepancy, and the thin ideal. *Psychology of Women Quarterly, 30*, 239-251. https://doi.org/10.1111/j.1471-6402.2006.00292

Blashill, A. J., & Wilhelm, S. (2014). Body image distortions, weight, and depression in adolescent boys: Longitudinal trajectories into adulthood. *Psychology of Men and Masculinity*, *15*(4), 445. https://doi.org/10.1037/a0034618

Boroughs, M. S., Krawczyk, R., & Thompson, J. K. (2010). Body dysmorphic disorder among diverse racial/ethnic and sexual orientation groups: Prevalence estimates and associated factors. *Sex Roles*, *63*, 725-737. https://doi.org/10.1007/s11199-010-9831-1

Bourne, L. (2015, August 19). *New infographic shows that over a million selfies are taken every day.* Stylecaster. http://stylecaster.com/beauty/selfies-infographic/

Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, *13*(1), 210-230. https://doi.org/10.1111/j.1083-6101.2007. 00393.x

Brown, T.A., Cash, T.F., & Mikulka, P.J. (1990). Attitudinal body image assessment: Factor analysis of the Body Self-Relations Questionnaire. *Journal of Personality Assessment, 55,* 135-144. https://doi.org/10.1207/s15327752jpa5501&2_13

Brown, Z., & Tiggemann, M. (2016). Attractive celebrity and peer images on Instagram: Effect on women's mood and body image. *Body Image, 19,* 37-43. https://doi.org/10.1016/j.bodyim.2016.08.007

Buhlmann, U., Glaesmer, H., Mewes, R., Fama, J. M., Wilhelm, S., Brähler, E., & Rief, W. (2010). Updates on the prevalence of body dysmorphic disorder: A population-based survey. *Psychiatry Research*, *178*, 171-175. https://doi.org/10.1016/j.psychres.2009.05.002

Buhlmann, U., & Winter, A. (2011). Perceived ugliness: An update on treatment-relevant aspects of body dysmorphic disorder. *Current Psychiatry Reports*, *13*, 283-288. https://doi.org/10.1007/s11920-011-0203-5

Callaghan, G. M., Duenas, J. A., Nadeau, S. E., Darrow, S. M., Van der Merwe, J., & Misko, J. (2012). An empirical model of body image disturbance using behavioral principles found in Functional Analytic Psychotherapy and Acceptance and Commitment Therapy. *International Journal of Behavioral Consultation and Therapy*, *7*(2-3), 16. https://doi.org/10.1037/h0100932

Callaghan, G. M., Lopez, A., Wong, L., Northcross, J., & Anderson, K. R. (2011). Predicting consideration of cosmetic surgery in a college population: A continuum of body image disturbance and the importance of coping strategies. *Body Image*, *8*(3), 267-274. https://doi.org/10.1016/j.bodyim.2011.04.002

Cash, T. F. (2005). The influence of sociocultural factors on body image: Searching for constructs. *Clinical Psychology: Science and Practice*, *12*(4), 438-442. https://doi.org/10.1093/clipsy.bpi055

Cash, T. F. (2011). Cognitive-behavioral perspectives on body image. In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (pp. 39–47). The Guilford Press.

Cash, T. F., & Grasso, K. (2005). The norms and stability of new measures of the multidimensional body image construct. *Body Image*, *2*(2), 199-203. https://doi.org/10.1016/j.bodyim.2005.03.007

Cash, T. F., Melnyk, S. E., & Hrabosky, J. I. (2004). The assessment of body image investment: An extensive revision of the Appearance Schemas Inventory. *International Journal of Eating Disorders*, *35*(3), 305-316. https://doi.org/10.1002/eat.10264

Cash, T. F., Phillips, K. A., Santos, M. T., & Hrabosky, J. I. (2004). Measuring "negative body image": Validation of the Body Image Disturbance Questionnaire in a nonclinical population. *Body Image*, *1*(4), 363-372. https://doi.org/10.1016/j.bodyim.2004.10.001

Cash, T. F., & Pruzinsky, T. (Eds.). (2002). Body image: A handbook of theory, research, and clinical practice. Guilford Press.

Cash, T. F., & Smolak, L. (Eds.). (2011). *Body image: A handbook of science, practice, and prevention*. Guilford Press.

Cattarin, J. A., Thompson, J. K., Thomas, C., & Williams, R. (2000). Body image, mood, and televised images of attractiveness: The role of social comparison. *Journal of Social and Clinical Psychology*, *19*, 220-239. https://doi.org/10.1521/jscp.2000.19.2.220

Chae, J. (2017). Virtual makeover: Selfie-taking and social media use increase selfie-editing frequency through social comparison. *Computers in Human Behavior*, *66*, 370-376. https://doi.org/10.1016/j.chb.2016.10.007

Chua, T. H. H., & Chang, L. (2016). Follow me and like my beautiful selfies: Singapore teenage girls' engagement in self-presentation and peer comparison on social media. *Computers in Human Behavior*, *55*, 190-197. https://doi.org/10.1016/j.chb.2015.09.011

Cohen, R., & Blaszczynski, A. (2015). Comparative effects of Facebook and conventional media on body image dissatisfaction. *Journal of Eating Disorders*, *3*, 23. https://doi.org/10.1186/s40337-015-0061-3

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Multiple regression/correlation analysis for the behavioural sciences*. (E. Riegert, Ed.) (3rd ed.). Lawrence Erlbaum Associates, Inc.

Cohen, R., Newton-John, T., & Slater, A. (2017). The relationship between Facebook and Instagram appearance-focused activities and body image concerns in young women. *Body Image*, *23*, 183-187. https://doi.org/10.1016/j.bodyim.2017.10.002

Cohen, R., Newton-John, T., & Slater, A. (2018). 'Selfie'-objectification: The role of selfies in self-objectification and disordered eating in young women. *Computers in Human Behavior*, *79*, 68-74. https://doi.org/10.1016/j.chb.2017.10.027

Crerand, C. E., Franklin, M. E., & Sarwer, D. B. (2006). Body dysmorphic disorder and cosmetic surgery. *Plastic and Reconstructive Surgery*, *118*, 167-180. https://doi.org/10.1097/01.prs.0000242500.28431.24

Crerand, C. E., Phillips, K. A., Menard, W., & Fay, C. (2005). Nonpsychiatric medical treatment of body dysmorphic disorder. *Psychosomatics*, *46*, 549-555. https://doi.org/10.1176/appi.psy.46.6.549

Crowther, J. H., & Williams, N. M. (2011). Body image and bulimia nervosa. In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (pp. 288–295). Guilford

Davison, T. E., & McCabe, M. P. (2006). Adolescent body image and psychosocial functioning. *The Journal of Social Psychology*, *146*(1), 15-30. https://doi.org/10.3200/SOCP.146.1.15-30

de Vries, D. A., Möller, A. M., Wieringa, M. S., Eigenraam, A. W., & Hamelink, K. (2018). Social comparison as the thief of joy: Emotional consequences of viewing strangers' Instagram posts. *Media Psychology*, *21*, 222-245. https://doi.org/10.1080/15213269.2016.1267647

de Vries, D. A., Peter, J., de Graaf, H., & Nikken, P. (2016). Adolescents' social network site use, peer appearance-related feedback, and body dissatisfaction: Testing a mediation model. *Journal of Youth and Adolescence*, *45*, 211-224. https://doi.org/10.1007/s10964-015-0266-4

105

de Vries, D. A., Peter, J., Nikken, P., & de Graaf, H. (2014). The effect of social network site use on appearance investment and desire for cosmetic surgery among adolescent boys and girls. *Sex Roles*, *71*, 283-295. https://doi.org/10.1007/s11199-014-0412-6

Dhir, A., Pallesen, S., Torsheim, T., & Andreassen, C. S. (2016). Do age and gender differences exist in selfie-related behaviours? *Computers in Human Behavior*, *63*, 549-555. https://doi.org/10.1016/j.chb.2016.05.053

Duarte, C., Ferreira, C., & Pinto-Gouveia, J. (2016). At the core of eating disorders: Overvaluation, social rank, self-criticism and shame in anorexia, bulimia and binge eating disorder. *Comprehensive Psychiatry*, *66*, 123-131. https://doi.org/10.1016/j.comppsych.2016.01.003

Dufresne Jr, R. G., Phillips, K. A., Vittorio, C. C., & Wilkel, C. S. (2001). A screening questionnaire for body dysmorphic disorder in a cosmetic dermatologic surgery practice. *Dermatologic Surgery*, *27*(5), 457-462. https://doi.org/10.1046/j.1524-4725.2001.00190.x

Eckler, P., Kalyango, Y., & Paasch, E. (2017). Facebook use and negative body image among US college women. *Women and Health*, *57*, 249-267. https://doi.org/10.1080/03630242.2016.1159268

Fairburn, C.G. (2008) *Eating disorders: The transdiagnostic view and the cognitive behavioral theory.* In: Fairburn CG, editor. Cognitive Behavior Therapy and Eating Disorders. The Guildford Press https://doi.org/10.1177/001872675400700202

106

Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). Cognitive behaviour therapy for eating

　　disorders: A "transdiagnostic" theory and treatment. *Behaviour Research and*

　　Therapy, *41*(5), 509-528. https://doi.org/10.1016/S0005-7967(02)00088-8

Fardouly, J., Diedrichs, P. C., Vartanian, L. R., & Halliwell, E. (2015). Social

　　comparisons on social media: The impact of Facebook on young women's body

　　image concerns and mood. *Body Image*, *13*, 38-45.

　　https://doi.org/10.1016/j.bodyim.2014.12.002

Fardouly, J., & Holland, E. (2018). Social media is not real life: The effect of attaching

　　disclaimer-type labels to idealized social media images on women's body image

　　and mood. *New Media & Society,* 146144481877108.

　　https://doi.org/10.1177/1461444818771083.

Fardouly, J., Pinkus, R. T., & Vartanian, L. R. (2017). The impact of appearance

　　comparisons made through social media, traditional media, and in person in

　　women's everyday lives. *Body Image*, *20*, 31-39.

　　https://doi.org/10.1016/j.bodyim.2016.11.002

Fardouly, J., & Vartanian, L. R. (2015). Negative comparisons about one's appearance

　　mediate the relationship between Facebook usage and body image concerns. *Body*

　　Image, *12*, 82-88. https://doi.org/10.1016/j.bodyim.2014.10.004

Ferguson, C. J., Muñoz, M. E., Garza, A., & Galindo, M. (2014). Concurrent and

　　prospective analyses of peer, television and social media influences on body

　　dissatisfaction, eating disorder symptoms and life satisfaction in adolescent

　　girls. *Journal of Youth and Adolescence*, *43*, 1-14. https://doi.org/10.1007/s10964-

　　012-9898-9

Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, *7*, 117-
140.

Fisher, E., Dunn, M., & Thompsom, J. K. (2002). Social comparison and body image: An
investigation of body comparison processes using multidimensional
scaling. *Journal of Social and Clinical Psychology*, *21*, 566-579.
https://doi.org/10.1521/jscp.21.5.566.22618

Fiske, L., Fallon, E. A., Blissmer, B., & Redding, C. A. (2014). Prevalence of body
dissatisfaction among United States adults: Review and recommendations for
future research. *Eating Behaviors*, *15*(3), 357-365.
https://doi.org/10.1016/j.eatbeh.2014.04.010

Fitzsimmons-Craft, E. E., Bardone-Cone, A. M., Wonderlich, S. A., Crosby, R. D.,
Engel, S. G., & Bulik, C. M. (2015). The relationships among social comparisons,
body surveillance, and body dissatisfaction in the natural environment. *Behavior
Therapy*, *46*(2), 257-271. https://doi.org/10.1016/j.beth.2014.09.006

Fitzsimmons-Craft, E. E., Harney, M. B., Koehler, L. G., Danzi, L. E., Riddell, M. K., &
Bardone-Cone, A. M. (2012). Explaining the relation between thin ideal
internalization and body dissatisfaction among college women: The roles of social
comparison and body surveillance. *Body Image*, *9*(1), 43-49.
https://doi.org/10.1016/j.bodyim.2011.09.002

Fox, J., & Vendemia, M. A. (2016). Selective self-presentation and social comparison
through photographs on social networking sites. *Cyberpsychology, Behavior, and
Social Networking*, *19*(10), 593-600. https://doi.org/10.1089/cyber.2016.0248

Gardner, R. M., & Brown, D. L. (2014). Body size estimation in anorexia nervosa: A brief review of findings from 2003 through 2013. *Psychiatry Research*, *219*(3), 407-410. https://doi.org/10.1016/j.psychres.2014.06.029

Grabe, S., Ward, L. M., & Hyde, J. S. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin*, *134*, 460. https://doi.org/10.1037/0033-2909.134.3.460

Grant, J. E., Menard, W., & Phillips, K. A. (2006). Pathological skin picking in individuals with body dysmorphic disorder. *General Hospital Psychiatry*, *28*, 487-493. https://doi.org/10.1016/j.genhosppsych.2006.08.009

Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders*, *31*, 1-16. https://doi.org/10.1002/eat.10005

Grogan, S. (2016). *Body image: Understanding body dissatisfaction in men, women and children*. Routledge.

Grucza, R. A., Przybeck, T. R., & Cloninger, C. R. (2007). Prevalence and correlates of binge eating disorder in a community sample. *Comprehensive Psychiatry*, *48*(2), 124-131. https://doi.org/10.1016/j.comppsych.2006.08.002

Gruder, C. L. (1971). Determinants of social comparison choices. *Journal of Experimental Social Psychology*, *7*, 473-489. https://doi.org/10.1016/0022-1031(71)90010-2

Guest, E. (2016). Photo editing: Enhancing social media images to reflect appearance ideals. *Journal of Aesthetic Nursing*, *5*, 444-446. https://doi.org/10.12968/joan.2016.5.9.444

Haferkamp, N., & Krämer, N. C. (2011). Social comparison 2.0: Examining the effects of online profiles on social-networking sites. *Cyberpsychology, Behavior, and Social Networking*, *14*, 309-314. https://doi.org/10.1089/cyber.2010.0120

Hartmann, A. S., Thomas, J. J., Greenberg, J. L., Elliott, C. M., Matheny, N. L., & Wilhelm, S. (2015). Anorexia nervosa and body dysmorphic disorder: A comparison of body image concerns and explicit and implicit attractiveness beliefs. *Body Image*, *14*, 77-84. https://doi.org/10.1016/j.bodyim.2015.03.013

Hayes, A. F. (2013). Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach. (K. David & T. Little, Eds.). Guilford Press.

Heinberg, L. J., & Thompson, J. K. (1992). Social comparison: Gender, target importance ratings, and relation to body image disturbance. *Journal of Social Behavior and Personality*, *7*(2), 335.

Helgeson, V. S., & Mickelson, K. D. (1995). Motives for social comparison. *Personality and Social Psychology Bulletin*, *21*(11), 1200-1209.

Hendrickse, J., Arpan, L. M., Clayton, R. B., & Ridgway, J. L. (2017). Instagram and college women's body image: Investigating the roles of appearance-related comparisons and intrasexual competition. *Computers in Human Behavior*, *74*, 92-100. https://doi.org/10.1016/j.chb.2017.04.027

Hew, K. F. (2011). Students' and teachers' use of Facebook. *Computers in Human Behavior*, *27*, 662-676. https://doi.org/10.1016/j.chb.2010.11.020

Ho, S. S., Lee, E. W., & Liao, Y. (2016). Social network sites, friends, and celebrities: The roles of social comparison and celebrity involvement in adolescents' body image dissatisfaction. *Social Media Society, 2*, 205630511666421. https://doi.org/10.1177/2056305116664216

Holland, G., & Tiggemann, M. (2016). A systematic review of the impact of the use of social networking sites on body image and disordered eating outcomes. *Body Image*, *17*, 100-110. https://doi.org/10.1016/j.bodyim.2016.02.008

Hrabosky, J. I., Cash, T. F., Veale, D., Neziroglu, F., Soll, E. A., Garner, D. M., ... & Phillips, K. A. (2009). Multidimensional body image comparisons among patients with eating disorders, body dysmorphic disorder, and clinical controls: A multisite study. *Body Image*, *6*, 155-163. https://doi.org/10.1016/j.bodyim.2009.03.001

Ip, K., & Jarry, J. L. (2008). Investment in body image for self-definition results in greater vulnerability to the thin media than does investment in appearance management. *Body Image*, *5*(1), 59-69. https://doi.org/10.1016/j.bodyim.2007.08.002

Jones, D. C. (2004). Body image among adolescent girls and boys: A longitudinal study. *Developmental Psychology*, *40*, 823. https://doi.org/10.1037/0012-1649.40.5.823

Kessler, R. C., Berglund, P. A., Chiu, W. T., Deitz, A. C., Hudson, J. I., Shahly, V., ... & Bruffaerts, R. (2013). The prevalence and correlates of binge eating disorder in the World Health Organization World Mental Health Surveys. *Biological Psychiatry*, *73*(9), 904-914.

Kim, M., & Park, W. (2016). Who is at risk on Facebook? The effects of Facebook news feed photographs on female college students' appearance satisfaction. *The Social Science Journal*, *53*, 427-434. https://doi.org/10.1016/j.soscij.2016.08.007

Kleemans, M., Daalmans, S., Carbaat, I., & Anschütz, D. (2018). Picture perfect: The direct effect of manipulated Instagram photos on body image in adolescent girls. *Media Psychology*, *21*, 93-110. https://doi.org/10.1080/15213269.2016.1257392

Kollei, I., Brunhoeber, S., Rauh, E., de Zwaan, M., & Martin, A. (2012). Body image, emotions and thought control strategies in body dysmorphic disorder compared to eating disorders and healthy controls. *Journal of Psychosomatic Research*, *72*(4), 321-327. https://doi.org/10.1016/j.jpsychores.2011.12.002

Koran, L. M., Abujaoude, E., Large, M. D., & Serpe, R. T. (2008). The prevalence of body dysmorphic disorder in the United States adult population. *CNS Spectrums*, *13*, 316-322. https://doi.org/10.1017/S1092852900016436

Lambrou, C., Veale, D., & Wilson, G. (2012). Appearance concerns comparisons among persons with body dysmorphic disorder and nonclinical controls with and without aesthetic training. *Body Image*, *9*, 86-92. https://doi.org/10.1016/j.bodyim.2011.08.001

Latanè, B. (1996). Dynamic social impact: The creation of culture by communication. *Journal of Communication, 46*, 13-25. https://doi.org/10.1111/j.1460-2466.1996.tb01501.x

Leahey, T. M., Crowther, J. H., & Mickelson, K. D. (2007). The frequency, nature, and effects of naturally occurring appearance-focused social comparisons. *Behavior Therapy*, *38*, 132-143. https://doi.org/10.1016.j.beth.2006.06.004

Lee, M., & Lee, H.-H. (2019). Can virtual makeovers using photo editing applications moderate negative media influences on SNS users' body satisfaction? *Canadian Journal of Behavioural Science, 51*(4), 231-238. https://doi.org/10.1037/cbs0000133

Legenbauer, T., Martin, F., Blaschke, A., Schwenzfeier, A., Blechert, J., & Schnicker, K. (2017). Two sides of the same coin? A new instrument to assess body checking and avoidance behaviors in eating disorders. *Body Image*, *21*, 39-46. https://doi.org/10.1016/j.bodyim.2017.02.004

Lenhart, A. (2015, April 9). *Teens, social media & technology overview*. Pew Research Center. https://www.pewresearch.org/internet/2015/04/09/teens-social-media-technology-2015/

Levine, M. P., & Murnen, S. K. (2009). "Everybody knows that mass media are/are not [pick one] a cause of eating disorders": A critical review of evidence for a causal link between media, negative body image, and disordered eating in females. *Journal of Social and Clinical Psychology*, *28*, 9-42. https://doi.org/10.1521/jscp.2009.28.1.9

113

Levine, M. P., & Smolak, L. (2006). *The prevention of eating problems and eating disorders: Theory, research, and practice*. Lawrence Erlbaum Associates, Inc.

Lew, A. M., Mann, T., Myers, H., Taylor, S., & Bower, J. (2007). Thin-ideal media and women's body dissatisfaction: Prevention using downward social comparisons on non-appearance dimensions. *Sex Roles, 57*, 543-556. https://doi.org/10.1007/s11199-007-9274-5

Lewer, M., Bauer, A., Hartmann, A. S., & Vocks, S. (2017). Different facets of body image disturbance in binge eating disorder: A review. *Nutrients*, *9*(12), 1294. https://doi.org/10.3390/nu9121294

Lewer, M., Nasrawi, N., Schroeder, D., & Vocks, S. (2016). Body image disturbance in binge eating disorder: a comparison of obese patients with and without binge eating disorder regarding the cognitive, behavioral and perceptual component of body image. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *21*(1), 115-125. https://doi.org/10.1007/s40519-015-0200-5

Lonergan, A. R., Bussey, K., Mond, J., Brown, O., Giffiths, S., Muray, S. B., & Mitchison, D. (2019). Me, my selfie, and I: The relationship between editing and posting selfies and body dissatisfaction in men and women. *Body Image*, *28*, 39-43. https://doi.org/10.1016/j.bodyim.2018.12.001

Long, A. (2019). *# NoFilter: Examining the Relationship Among Online Photo Manipulation and Mental Health Variables of African American Women* [Doctoral dissertation, University of Houston]. Published ETD Collection. https://uh-ir.tdl.org/bitstream/handle/10657/4486/LONG-DISSERTATION-2019.pdf?sequence=1]

Mabe, A. G., Forney, K. J., & Keel, P. K. (2014). Do you "like" my photo? Facebook use maintains eating disorder risk. *International Journal of Eating Disorders, 47*, 516–523. https://doi.org/10.1002/eat.22254

Manago, A. M., Graham, M. B., Greenfield, P. M., & Salimkhan, G. (2008). Self-presentation and gender on MySpace. *Journal of Applied Developmental Psychology*, *29*, 446-458. https://doi.org/10.1016/j.appdev.2008.07.001

McCreary, D. R., & Saucier, D. M. (2009). Drive for muscularity, body comparison, and social physique anxiety in men and women. *Body Image*, *6*, 24-30. https://doi.org/10.1016/j.bodyim.2008.09.002

McLean, S. A., Paxton, S. J., Wertheim, E. H., & Masters, J. (2015). Photoshopping the selfie: Self photo editing and photo investment are associated with body dissatisfaction in adolescent girls. *International Journal of Eating Disorders*, *48*, 1132-1140. https://doi.org/10.1002/eat.22449

McLean, S. A., Wertheim, E. H., Masters, J., & Paxton, S. J. (2017). A pilot evaluation of a social media literacy intervention to reduce risk factors for eating disorders. *International Journal of Eating Disorders*, *50*(7), 847-851. https://doi.org/10.1002/eat.22708

Meier, E. P., & Gray, J. (2014). Facebook photo activity associated with body image disturbance in adolescent girls. *Cyberpsychology, Behavior and Social Networking, 17*, 199–206. https://doi.org/10.1089/cyber.2013.0305

Menzel, J. E., Krawczyk, R., & Thompson, J. K. (2011). Attitudinal Assessment of Body Image for Adolescents and Adults. In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (p. 154–169). Guilford Press.

Mitchison, D., Crino, R., & Hay, P. (2013). The presence, predictive utility, and clinical significance of body dysmorphic symptoms in women with eating disorders. *Journal of eating disorders*, *1*(1), 20. https://doi.org/10.1186/2050-2974-1-20

Moelbert, S. C., Klein, L., Thaler, A., Mohler, B. J., Brozzo, C., Martus, P., ... & Giel, K. E. (2017). Depictive and metric body size estimation in anorexia nervosa and bulimia nervosa: a systematic review and meta-analysis. *Clinical Psychology Review*, *57*, 21-31. https://doi.org/10.1016/j.cpr.2017.08.005

Moran, B. (2017). *Self-compassion, body image dissatisfaction, and negative social comparisons in adolescents utilizing social networking sites* [Doctoral dissertation, Philadelphia College of Osteopathic Medicine]. PCOM Psychology Dissertations. http://digitalcommons.pcom.edu/psychology_dissertations/408

Moscone, A. L., Amorim, M. A., Le Scanff, C., & Leconte, P. (2017). A model-driven approach to studying dissociations between body size mental representations in anorexia nervosa. *Body Image*, *20*, 40-48. https://doi.org/10.1016/j.bodyim.2016.11.003

Myers, T. A., & Crowther, J. H. (2009). Social comparison as a predictor of body dissatisfaction: A meta-analytic review. *Journal of Abnormal Psychology*, *118*, 683. https://doi.org/10.1037/a0016763

Neumark-Sztainer, D., Paxton, S. J., Hannan, P. J., Haines, J., & Story, M. (2006). Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. *Journal of Adolescent Health*, *39*(2), 244-251. https://doi.org/10.1016/j.jadohealth.2005.12.001

Niu, G., Sun, L., Liu, Q., Chai, H., Sun, X., & Zhou, Z. (2019). Selfie-posting and young adult women's restrained Eating: The role of commentary on appearance and self-Objectification. *Sex Roles*, 1-9. https://doi.org/10.1037/cbs0000133

O'Brien, K. S., Caputi, P., Minto, R., Peoples, G., Hooper, C., Kell, S., & Sawley, E. (2009). Upward and downward physical appearance comparisons: Development of scales and examination of predictive qualities. *Body Image*, *6*, 201-206. https://doi.org/10.1016/j.bodyim.2009.03.003

Ortiz-Ospina, E. (2019, September 18). *The rise of social media.* Our World in Data. https://ourworldindata. org/rise-of-social-media.

Pempek, T. A., Yermolayeva, Y. A., & Calvert, S. L. (2009). College students' social networking experiences on Facebook. *Journal of Applied Developmental Psychology, 30*, 227–238. https://doi.org/10.1016/j.appdev.2008.12.010

Perloff, R. M. (2014). Social media effects on young women's body image concerns: Theoretical perspectives and an agenda for research. *Sex Roles*, *71*, 363-377. https://doi.org/10.1007/s11199-014-0384-6

Petri, A. (2019, April 06). *A brief history of the selfie, the Oxford Dictionaries' word of the year.* Washington Post. https://www.washingtonpost.com/blogs/compost/wp/2013/11/19/a-brief-history-of-the-selfie-the-oxford-dictionaries-word-of-the-year/

Pew Research Center (2018). *Social Media Use in 2018.* Pew Research. http://www.pewinternet.org/2018/03/01/social-media-use-in-2018po

Phillips, K. A. (2000). Quality of life for patients with body dysmorphic disorder. *The Journal of Nervous and Mental Disease*, *188*, 170-175. https://doi.org/10.1097/00005053-200003000-00007

Phillips, K. A. (2009). *Understanding body dysmorphic disorder*. Oxford University Press.

Phillips, K. A., McElroy, S. L., Keck Jr, P. E., Pope Jr, H. G., & Hudson, J. I. (1993). Body dysmorphic disorder: 30 cases of imagined ugliness. *The American Journal of Psychiatry*, *150*, 302-308.

Phillips, K. A., McElroy, S. L., Keck, P. E., Hudson, J. I., & Pope, H. G. (1994). A comparison of delusional and nondelusional body dysmorphic disorder in 100 cases. *Psychopharmacology Bulletin*, *30*(2), 179-186.

Phillips, K. A., Menard, W., Fay, C., & Pagano, M. E. (2005). Psychosocial functioning and quality of life in body dysmorphic disorder. *Comprehensive Psychiatry*, *46*, 254-260. https://doi.org/10.1016/j.comppsych.2004.10.004

Phillips, K. A., Menard, W., Fay, C., & Weisberg, R. (2005). Demographic
characteristics, phenomenology, comorbidity, and family history in 200
individuals with body dysmorphic disorder. *Psychosomatics*, *46*, 317-325.
https://doi.org/10.1176/appi.psy.46.4.317

Pope, C. G., Pope, H. G., Menard, W., Fay, C., Olivardia, R., & Phillips, K. A. (2005).
Clinical features of muscle dysmorphia among males with body dysmorphic
disorder. *Body Image*, *2*, 395-400. https://doi.org/10.1016/j.bodyim.2005.09.001

Reaves, S., Bush Hitchon, J., Park, S. Y., & Woong Yun, G. (2004). If looks could kill:
Digital manipulation of fashion models. *Journal of Mass Media Ethics*, *19*, 56-71.
https://doi.org/10.1207/s15327728jmme1901_5

Ricciardelli, L.A., & McCabe, M.P. (2011). Body image development in adolescent boys.
In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice,
and prevention* (pp. 85–92). The Guilford Press.

Richins, M. L. (1991). Social comparison and the idealized images of
advertising. *Journal of Consumer Research*, *18*, 71-83.
https://doi.org/10.1086/209242

Rief, W., Buhlmann, U., Wilhelm, S., Borkenhagen, A. D. A., & Brähler, E. (2006). The
prevalence of body dysmorphic disorder: A population-based
survey. *Psychological Medicine*, *36*, 877-885.
https://doi.org/10.1017/S0033291706007264

Roberts, A., & Good, E. (2010). Media images and female body dissatisfaction: The
moderating effects of the Five-Factor traits. *Eating Behaviors*, *11*, 211-216.
https://doi.org/10.1016/j.eatbeh.2010.04.002

Rodin, J., Silberstein, L.R., Striegel-Moore, R.H. *Women and weight: A normative discontent*. In: Sonderegger TB, editor. Nebraska symposium on motivation: Psychology and gender. Lincoln, NE: University of Nebraska Press; 1984. pp. 267–307.

Rodgers, R. F., McLean, S. A., & Paxton, S. J. (2015). Longitudinal relationships among internalization of the media ideal, peer social comparison, and body dissatisfaction: Implications for the tripartite influence model. *Developmental Psychology, 51*, 706–713. https://doi.org/10.1037/dev0000013

Rosen, J. C., & Ramirez, E. (1998). A comparison of eating disorders and body dysmorphic disorder on body image and psychological adjustment. *Journal of Psychosomatic Research*, *44*, 441-449. https://doi.org/10.1016/s0022-3999(97)00269-9

Rosenström, T., Jokela, M., Hintsanen, M., Josefsson, K., Juonala, M., Kivimäki, M., ... & Raitakari, O. T. (2013). Body-image dissatisfaction is strongly associated with chronic dysphoria. *Journal of Affective Disorders*, *150*(2), 253-260. https://doi.org/10.1016/j.jad.2013.04.003

Ruffolo, J.S., Phillips, K. A., Menard, W., Fay, C., & Weisberg, R. B. (2006). Comorbidity of body dysmorphic disorder and eating disorders: severity of psychopathology and body image disturbance. *International Journal of Eating Disorders*, *39*, 11-19. https://doi.org/10.1002/eat.20219

Rutledge, C. M., Gillmor, K. L., & Gillen, M. M. (2013). Does this profile picture make me look fat? Facebook and body image in college students. *Psychology of Popular Media Culture*, *2*, 251. https://doi.org/10.1037/ppm0000011

Santarossa, S., & Woodruff, S. J. (2017). # SocialMedia: Exploring the Relationship of

Social Networking Sites on Body Image, Self-Esteem, and Eating

Disorders. *Social Media+ Society*, *3*(2), 2056305117704407.

Schaefer, L. M., & Thompson, J. K. (2018). The development and validation of the

Physical Appearance Comparison Scale–3 (PACS-3). *Psychological

Assessment*, *30*(10), 1330. https://doi.org/10.1016/j.eatbeh.2014.01.001

Scheffers, M., Van Busschback, J. T., Bosscher, R. J., Aerts, L. C., Wiersma, D., &

Schoevers, R. A., (2017). Body image in patients with mental disorders:

Characteristics, associations with diagnosis and treatment outcome.

Comprehensive Psychiatry, 74, 53-60.

https://doi.org/10.1016/j.comppsych.2017.01.004

Shafran, R., Fairburn, C. G., Robinson, P., & Lask, B. (2004). Body checking and its

avoidance in eating disorders. *International Journal of Eating Disorders*, *35*(1),

93-101. https://doi.org/10.1002/eat.10228

Shiffman, S., Stone, A. A., & Hufford, M. R. (2008). Ecological momentary

assessment. *Annual Review of Clinical Psychology*, *4*, 1-32.

https://doi.org/10.1146/annurev.clinpsy.3.022806.091415

Shontell, A. (2014, January 13). *Selfies are dead, it's all about the 'usie' now*. Business

Insider. https://www.businessinsider.com/selfies-are-dead-its-all-about-the-usie-

now-2014-1#ixzz357QFZkb6

Silver, J., & Farrants, J. (2016). 'I Once Stared at Myself in the Mirror for Eleven Hours.'

Exploring mirror gazing in participants with body dysmorphic disorder. *Journal

of Health Psychology*, *21*, 2647-2657. https://doi.org/10.1177/1359105315581516

121

Smith, A. R., Hames, J. L., & Joiner, T. E. (2013). Status update: Maladaptive Facebook usage predicts increases in body dissatisfaction and bulimic symptoms. *Journal of Affective Disorders*, *149*, 235-240. https://doi.org/10.1016/j.jad.2013.01.032

Statistics Canada. (1999). *Household internet use*. Statistics Canada. https://www.statcan.gc.ca/eng/start

Statistics Canada. (2012). *Canadian internet use survey*. Statistics Canada. https://www.statcan.gc.ca/daily-quotidien/131126/ dq131126d-eng.htm

Stefanone, M. A., Lackaff, D., & Rosen, D. (2011). Contingencies of self-worth and social-networking-site behavior. *Cyberpsychology, Behavior, and Social Networking*, *14*, 41-49. https://doi.org/10.1089/cyber.2010.0049

Stice, E., & Shaw, H. E. (2002). Role of body dissatisfaction in the onset and maintenance of eating pathology: A synthesis of research findings. *Journal of Psychosomatic Research*, *53*(5), 985-993. https://doi.org/10.1016/S0022-3999(02)00488-9

Swami, V., Furnham, A., Georgiades, C., & Pang, L. (2007). Evaluating self and partner physical attractiveness. *Body Image*, *4*, 97-101. https://doi.org/10.1016/j.bodyim.2006.10.003

Tabachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics (5th ed.). Allyn & Bacon.

Tantleff-Dunn, S., Barnes, R. D., & Larose, J. G. (2011). It's not just a "woman thing:" The current state of normative discontent. *Eating Disorders*, *19*(5), 392-402. https://doi.org/10.1080/10640266.2011.609088

Taylor, S. E., & Lobel, M. (1989). Social comparison activity under threat: Downward

evaluation and upward contacts. *Psychological Review, 96*, 569–575.

https://doi.org/10.1037/0033-295X.96.4.569

Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting*

beauty: Theory, Assessment, and Treatment of Body Image Disturbance.

American Psychological Association.

Tiggemann, M. (2005). Television and adolescent body image: The role of program

content and viewing motivation. *Journal of Social and Clinical Psychology*, *24*,

361-381. https://doi.org/10.1521/jscp.24.3.361.65623

Tiggemann, M. (2011). Sociocultural perspectives on human appearance and body image.

In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice,*

and prevention (pp. 12–19). The Guilford Press.

Tiggemann, M., & McGill, B. (2004). The role of social comparison in the effect of

magazine advertisements on women's mood and body dissatisfaction. *Journal of*

Social and Clinical Psychology, *23*, 23-44.

https://doi.org/10.1521/jscp.23.1.23.26991

Tiggemann, M., & Miller, J. (2010). The Internet and adolescent girls' weight satisfaction

and drive for thinness. *Sex Roles*, *63*, 79-90. https://doi.org/10.1007/s11199-010-

9789-z

Tiggemann, M., & Polivy, J. (2010). Upward and downward: Social comparison

processing of thin idealized media images. *Psychology of Women Quarterly*, *34*,

356-364. https://doi.org/10.1111/j.1471-6402.2010.01581.x

Tiggemann, M., & Slater, A. (2013). NetGirls: The Internet, Facebook, and body image concern in adolescent girls. *International Journal of Eating Disorders*, *46*, 630-633. https://doi.org/10.1002/eat.22141

Tiggemann, M., & Slater, A. (2014). NetTweens: The Internet and body image concerns in preteenage girls. *The Journal of Early Adolescence*, *34*, 606-620. https://doi.org/10.1177/0272431613501083

Tiggemann, M., & Zinoviev, K. (2019). The effect of# enhancement-free Instagram images and hashtags on women's body image. *Body Image*, *31*, 131-138. https://doi.org/10.1016/j.bodyim.2019.09.004

Vendemia, M. A., & DeAndrea, D. C. (2018). The effects of viewing thin, sexualized selfies on Instagram: Investigating the role of image source and awareness of photo editing practices. *Body Image*, *27*, 118-127. https://doi.org/10.1016/j.bodyim.2018.08.013

Van Den Berg, P., Thompson, J. K., Obremski-Brandon, K., & Coovert, M. (2002). The tripartite influence model of body image and eating disturbance: A covariance structure modeling investigation testing the mediational role of appearance comparison. *Journal of Psychosomatic Research*, *53*(5), 1007-1020. https://doi.org/10.1016/S0022-3999(02)00499-3

Veale, D. (2000). Outcome of cosmetic surgery and 'DIY' surgery in patients with body dysmorphic disorder. *The Psychiatrist*, *24*, 218-220. https://doi.org/10.1192/pb.24.6.218

Veale, D., Gledhill, L. J., Christodoulou, P., & Hodsoll, J. (2016). Body dysmorphic

disorder in different settings: A systematic review and estimated weighted

prevalence. *Body Image*, *18*, 168-186.

https://doi.org/10.1016/j.bodyim.2016.07.003

Veale, D., & Riley, S. (2001). Mirror, mirror on the wall, who is the ugliest of them all?

The psychopathology of mirror gazing in body dysmorphic disorder. *Behaviour

Research and Therapy*, *39*, 1381-1393. https://doi.org/10.1016/s0005-

7967(00)00102-9

Vossbeck-Elsebusch, A. N., Waldorf, M., Legenbauer, T., Bauer, A., Cordes, M., &

Vocks, S. (2015). Overestimation of body size in eating disorders and its

association to body-related avoidance behavior. *Eating and Weight Disorders-

Studies on Anorexia, Bulimia and Obesity*, *20*(2), 173-178.

https://doi.org/10.1007/s40519-014-0144-1

Walker, D. C., White, E. K., & Srinivasan, V. J. (2018). A meta-analysis of the

relationships between body checking, body image avoidance, body image

dissatisfaction, mood, and disordered eating. *International Journal of Eating

Disorders*, *51*(8), 745-770. https://doi.org/10.1002/eat.22867

Wang, Y., Wang, X., Liu, H., Xie, X., Wang, P., & Lei, L. (2018). Selfie posting and

self-esteem among young adult women: A mediation model of positive feedback

and body satisfaction. *Journal of Health Psychology*, 1359105318787624.

https://doi.org/10.1177/1359105318787624

Wertheim, E.H., & Paxton, S.J. (2011). Body image development in adolescent girls. In

    T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and*

    prevention (pp. 76–84). The Guilford Press.

Wheeler, L., & Miyake, K. (1992). Social comparison in everyday life. *Journal of*

    Personality and Social Psychology, *62*(5), 760.

Wills, T. A. (1981). Downward comparison principles in social

    psychology. *Psychological Bulletin*, *90*, 245. https://doi.org/10.1037//0033-

    2909.90.2.245

Windheim, K., Veale, D., & Anson, M. (2011). Mirror gazing in body dysmorphic

    disorder and healthy controls: Effects of duration of gazing. *Behaviour Research*

    and Therapy, *49*, 555-564. https://doi.org/10.1016/j.brat.2011.05.003

Yiu, A., Murray, S. M., Arlt, J. M., Eneva, K. T., & Chen, E. Y. (2017). The importance

    of body image concerns in overweight and normal weight individuals with binge

    eating disorder. *Body Image*, *22*, 6-12.

    https://doi.org/10.1016/j.bodyim.2017.04.005

Zipfel, S., Giel, K. E., Bulik, C. M., Hay, P., & Schmidt, U. (2015). Anorexia nervosa:

    aetiology, assessment, and treatment. *The Lancet Psychiatry*, *2*(12), 1099-1111.

    https://doi.org/10.1016/S2215-0366(15)00356-9

Zhao, S., Grasmuck, S., & Martin, J. (2008). Identity construction on Facebook: Digital

    empowerment in anchored relationships. *Computers in Human Behavior*, *24*,

    1816-1836. https://doi.org/10.1016/j.chb.2008.02.012

APPENDICES

Appendix A

<u>Background Information</u>

Please answer the following questions about yourself by selecting the appropriate choice and/or using the space provided.

1. Gender _____
   □ Male
   □ Female
   □ Other (please specify)

2. Age _____ (Years)

3. Ethnicity

   □ Aboriginal (e.g., Inuit, Metis, North American Indian)

   □ Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan)

   □ Black (e.g., African, Haitian, Jamaican, Somali)

   □ Asian (e.g., Chinese, Filipino, Korean, Japanese) □ White (Caucasian)

   □ Latin American

   □ Other (please specify)_____

4. Year of studies: □ 1 □ 2 □ 3 □ 4 □ 5 or more

Program of study _____

Appendix B

<u>Social Networking Site Use</u>

1. How much time, **in minutes,** do you spend on each social networking site **on average** per day? (Note: If you do not use the site please enter a 0)

[1 hour = 60 minutes]

<u>Facebook:</u>

Time spent on each day: _____ minutes

<u>Instagram:</u>

Time spent on each day: _____ minutes

<u>Snapchat:</u>

Time spent on each day: _____ minutes

<u>Twitter:</u>

Time spent on each day: _____ minutes

<u>Other (Please Specify):</u>

Time spent of each day: _____ minutes

□ I do not use any other social networking sites other than the ones stated above.

Appendix C

<u>Social Networking Site Activity</u>
(Santarossa and Woodruff, 2017)

While on social networking sites, I usually spend a lot of time . . .

1: Posting pictures on my profile

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

2. Posting text-based comments on my profile

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

3. Looking at my own profile

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

4. Looking at photos on others' profiles

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

5. Looking at posts on others' profiles

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

6. Leaving posts or comments on others' profiles

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

Appendix D

Body Image Disturbance Questionnaire (BIDQ)

(Cash, Phillips, Santos, & Hrabosky, 2004)

This questionnaire assesses concerns about physical appearance. Please read each question carefully and circle the answer that best describes your experience.

1.) Are you concerned about the appearance of some part(s) of your body which you consider especially unattractive? (Circle the best answer)

1	2	3	4	5
Not at all concerned	Somewhat concerned	Moderately concerned	Very concerned	Extremely concerned

2.) If you are at least somewhat concerned, do these concerns preoccupy you? That is, you think about them a lot and they're hard to stop thinking about? (Circle the best answer)

1	2	3	4	5
Not at all preoccupied	Somewhat preoccupied	Moderately preoccupied	Very preoccupied	Extremely preoccupied

3.) Has your physical "defect" often caused you a lot of distress, torment, or pain? How much? (Circle the best answer)

1	2	3	4	5
No distress	Mild, and not too disturbing	Moderate and disturbing, but still manageable	Severe, and very disturbing	Extreme, and disabling

130

4.) Has your physical "defect" caused you impairment in social, occupational or other important areas of functioning? How much? (Circle the best answer)

1	2	3	4	5
No limitation	Mild interference, but overall performance not impaired	Moderate, definite interference, but still manageable	Severe, causes substantial impairment	Extreme, incapacitating

5.) Has your physical "defect" significantly interfered with your social life? How much? (Circle the best answer)

1	2	3	4	5
Never	Occasionally	Moderately Often	Often	Very Often

6.) Has your physical "defect" significantly interfered with your schoolwork, your job, or your ability to function in your role? How much? (Circle the best answer)

1	2	3	4	5
Never	Occasionally	Moderately Often	Often	Very Often

7.) Do you ever avoid things because of your physical "defect"? How often? (Circle the best answer)

1	2	3	4	5
Never	Occasionally	Moderately Often	Often	Very Often

Appendix E

Multidimensional Body-Self Relations Questionnaire- Appearance Evaluation Subscale
(MBSRQ-AES)
(Brown, Cash, & Milulka, 1990)

Instructions: Using the scale below, please circle the number that best matches your agreement with the following statements.

Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree
1	2	3	4	5

1. My body is sexually appealing.   1   2   3   4   5

2. I like my looks just the way they are.   1   2   3   4   5

3. Most people would consider me good looking. 1   2   3   4   5

4. I like the way I look without my clothes.   1   2   3   4   5

5. I like the way my clothes fit me.   1   2   3   4   5

6. I dislike my physique.   1   2   3   4   5

7. I'm physically unattractive.   1   2   3   4   5

Multidimensional Body-Self Relations Questionnaire- Body Areas Satisfaction Subscale
(MBSRQ-BASS)
(Brown, Cash, & Milulka, 1990)

8-16. 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:

Very Dissatisfied	Mostly Dissatisfied	Neither Satisfied Nor Dissatisfied	Most Satisfied	Very Satisfied
1	2	3	4	5

_____ 8. Face (facial features, complexion)
_____ 9. Hair (color, thickness, texture)
_____ 10. Lower torso (buttocks, hips, thighs, legs)
_____ 11. Mid torso (waist, stomach)
_____ 12. Upper torso (chest or breasts, shoulders, arms)
_____ 13. Muscle tone
_____ 14. Weight
_____ 15. Height
_____ 16. Overall appearance

Appendix F

<u>Body Comparison Scale (BCS)</u>
(Fisher, Dunn, & Thompson, 2002)

For the items below, use the following scale to rate how often you compare these aspects of your body to those of other individuals of the same sex when using social networking sites online or on your smartphone. NOTE: Please be sure that you read and respond to all of the questions according to how you would compare yourself to your same sex peers.

Never	Seldom	Sometimes	Often	Always
1	2	3	4	5

	Never				**Always**
1. Ears	1	2	3	4	5
2. Nose	1	2	3	4	5
3. Lips	1	2	3	4	5
4. Hair	1	2	3	4	5
5. Teeth	1	2	3	4	5
6. Chin	1	2	3	4	5
7. Shape of face	1	2	3	4	5
8. Cheeks	1	2	3	4	5
9. Forehead	1	2	3	4	5
10. Upper arm	1	2	3	4	5
11. Forearm	1	2	3	4	5
12. Shoulders	1	2	3	4	5
13. Chest	1	2	3	4	5
14. Back	1	2	3	4	5

134

15. Waist	1	2	3	4	5
16. Stomach	1	2	3	4	5
17. Buttocks	1	2	3	4	5
18. Thighs	1	2	3	4	5
19. Hips	1	2	3	4	5
20. Calves	1	2	3	4	5
21. Muscle tone of upper body	1	2	3	4	5
22. Overall shape of upper body	1	2	3	4	5
23. Muscle tone of lower body	1	2	3	4	5
24. Overall shape of lower body	1	2	3	4	5
25. Overall body	1	2	3	4	5

Appendix G

Final Physical Appearance Comparison Scale-3rd Edition (PACS-3)
(Schaefer & Thompson, 2018)

People sometimes compare their physical appearance to the physical appearance of others. This can be a comparison of their weight or shape, muscularity, or overall appearance. Below you will find a list of different contexts in which people may engage in these types of physical appearance comparisons. For each type of comparison, please do the following:

- Step 1: First indicate how often you make these kinds of comparisons (using the scale provided, Never to Almost Always)
- Step 2: If you never engage in a particular type of comparison (i.e., rated the item as "Never"), then go directly to the next set of items. However, if you rate an item as "Seldom," "Sometimes," "Often," or "Almost Always" please also rate how you felt you looked relative to the comparison target (Much Better to Much Worse), and how that comparison made you feel (Very Positive to Very Negative).

1) When I'm at a party or social gathering, I compare my overall appearance to the appearance of others.	Never	Seldom	Sometimes	Often	Almost Always
1b) When I make these comparisons, I typically believe that I look _____ than the person to whom I am comparing myself.	Much Better	Better	The same	Worse	Much Worse
1c) When you make these comparisons, how does it usually make you feel?	Very Positive	Positive	Neutral	Negative	Very Negative
2) When I'm out in public, I compare my weight/shape to the weight/shape of others.	Never	Seldom	Sometimes	Often	Almost Always
2b) When I make these comparisons, I typically believe that I look _____ than the person to whom I am comparing myself.	Much Better	Better	The same	Worse	Much Worse
2c) When you make these comparisons, how does it usually make you feel?	Very Positive	Positive	Neutral	Negative	Very Negative

136

3) When I meet a new person (same sex), I compare my weight/shape to his/her weight/shape.					
3b) When I make these comparisons, I typically believe that I look _____ than the person to whom I am comparing myself.	Much Better	Better	The same	Worse	Much Worse
3c) When you make these comparisons, how does it usually make you feel?	Very Positive	Positive	Neutral	Negative	Very Negative
4) When I watch a movie, I compare my overall appearance to the appearance of the actors/actresses.	Never	Seldom	Sometimes	Often	Almost Always
4b) When I make these comparisons, I typically believe that I look _____ than the person to whom I am comparing myself.	Much Better	Better	The same	Worse	Much Worse
4c) When you make these comparisons, how does it usually make you feel?	Very Positive	Positive	Neutral	Negative	Very Negative
5) When I watch television, I compare my weight/shape to the weight/shape of the actors/actresses.	Never	Seldom	Sometimes	Often	Almost Always
5b) When I make these comparisons, I typically believe that I look _____ than the person to whom I am comparing myself.	Much Better	Better	The same	Worse	Much Worse
5c) When you make these comparisons, how does it usually make you feel?	Very Positive	Positive	Neutral	Negative	Very Negative
6) When I see a model in a magazine, I compare my weight/shape to his/her weight/shape.	Never	Seldom	Sometimes	Often	Almost Always
6b) When I make these comparisons, I typically	Much Better	Better	The same	Worse	Much Worse

137

believe that I look _____ than the person to whom I am comparing myself.					
6c) When you make these comparisons, how does it usually make you feel?	Very Positive	Positive	Neutral	Negative	Very Negative
7) When I see a model in a magazine, I compare my muscularity to his/her muscularity.	Never	Seldom	Sometimes	Often	Almost Always
7b) When I make these comparisons, I typically believe that I look _____ than the person to whom I am comparing myself.	Much Better	Better	The same	Worse	Much Worse
7c) When you make these comparisons, how does it usually make you feel?	Very Positive	Positive	Neutral	Negative	Very Negative
8) When I watch a movie, I compare my muscularity to the muscularity of the actors/actresses.	Never	Seldom	Sometimes	Often	Almost Always
8b) When I make these comparisons, I typically believe that I look _____ than the person to whom I am comparing myself.	Much Better	Better	The same	Worse	Much Worse
8c) When you make these comparisons, how does it usually make you feel?	Very Positive	Positive	Neutral	Negative	Very Negative
9) When I'm out in public, I compare my muscularity to the muscularity of others.	Never	Seldom	Sometimes	Often	Almost Always
9b) When I make these comparisons, I typically believe that I look _____ than the person to whom I am comparing myself.	Much Better	Better	The same	Worse	Much Worse
9c) When you make these comparisons, how does it usually make you feel?	Very Positive	Positive	Neutral	Negative	Very Negative

138

Appendix H

<u>Photo Activity Measure</u>
(McLean, Paxton, Wertheim, & Masters, 2015)

1.) How frequently do you take "selfies," or photographs with only yourself in the photo?

1	2	3	4	5	6	7	8
Less than once a month	Once a month	Once every 2 weeks	Once every week	More than once a week	Once a day	Twice a day	More than twice a Day

2.) How frequently do you take "usies," or photographs with yourself and others in the photo?

1	2	3	4	5	6	7	8
Less than once a month	Once a month	Once every 2 weeks	Once every week	More than once a week	Once a day	Twice a day	More than twice a Day

Appendix I

<u>Self-photo Sharing Frequency</u>
(McLean, Paxton, Wertheim, & Masters, 2015)

1.) Do you post photos of yourself or share them through services like "Snapchat" or "Instagram"?

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

2.) Do you avoid putting photos of yourself on social media? *(reverse scored)*

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

Appendix J

<u>Self-Photo Manipulation Scale</u>
(McLean, Paxton, Wertheim, & Masters, 2015)

Instructions: For photos of yourself that you post online or share via mobile, how often do you do the following to make the photos look better?

	Never	**Rarely**	**Sometimes**	**Often**	**Always**
Get rid of red eye	1	2	3	4	5
Make yourself look larger	1	2	3	4	5
Highlight facial features, e.g., cheekbones or eye colour/brightness	1	2	3	4	5
Make yourself look skinnier	1	2	3	4	5
Edit to hide blemishes like pimples	1	2	3	4	5
Whiten your teeth	1	2	3	4	5
Make specific parts of your body look larger or look smaller	1	2	3	4	5
Edit or use apps to smooth skin	1	2	3	4	5

Appendix K

<u>Photo Investment Scale</u>
(McLean, Paxton, Wertheim, & Masters, 2015)

Instruction: Please think about photos of yourself that you post online or share through
social media and mark your answer along the line to indicate the best response for you.

1	It's easy to choose the photo	——————————	It's hard to choose the photo
2	I take a long time to choose the photo	——————————	I choose the photo very quickly
3	I feel anxious or worried about the photos I share/post	——————————	I feel very comfortable about the photos I share/post
4	I share/post whichever photo is available	——————————	I take photos especially for posting/sharing
5	I don't care what others will think about how I look	——————————	I worry about what others will think about how I look
6	I don't care which photos I share/post	——————————	I carefully select the best photo to share/post
7	I worry about whether anyone will "Like" my photos	——————————	I don't care whether anyone will "Like" my photos
8	I *don't* take any notice of how many "Likes" my photos get	——————————	I take notice of how many "Likes" my photos get

Scoring

Each item is scored from 0-100. The left end of the scale is anchored at zero, the right end

anchored at 100 Total score: mean of all items.

VITA AUCTORIS

NAME:	Alicia Berze-Butts
PLACE OF BIRTH:	St. Catharines, ON
YEAR OF BIRTH:	1987
EDUCATION:	Fort McMurray Composite High School, Fort McMurray, AB, 2005
	St. Francis Xavier University, B.A., Antigonish, NS, 2010