

University of Windsor

## Scholarship at UWindor

---

Electronic Theses and Dissertations

Theses, Dissertations, and Major Papers

---

10-30-2020

# What Do You See When You Look at Me? Social Media, Socialized Gender Variables, and Disordered Eating Among Adolescent Girls

Annamaria McAndrew  
*University of Windsor*

Follow this and additional works at: <https://scholar.uwindsor.ca/etd>

---

### Recommended Citation

McAndrew, Annamaria, "What Do You See When You Look at Me? Social Media, Socialized Gender Variables, and Disordered Eating Among Adolescent Girls" (2020). *Electronic Theses and Dissertations*. 8459.

<https://scholar.uwindsor.ca/etd/8459>

This online database contains the full-text of PhD dissertations and Masters' theses of University of Windsor students from 1954 forward. These documents are made available for personal study and research purposes only, in accordance with the Canadian Copyright Act and the Creative Commons license—CC BY-NC-ND (Attribution, Non-Commercial, No Derivative Works). Under this license, works must always be attributed to the copyright holder (original author), cannot be used for any commercial purposes, and may not be altered. Any other use would require the permission of the copyright holder. Students may inquire about withdrawing their dissertation and/or thesis from this database. For additional inquiries, please contact the repository administrator via email ([scholarship@uwindsor.ca](mailto:scholarship@uwindsor.ca)) or by telephone at 519-253-3000ext. 3208.

What Do You See When You Look at Me? Social Media, Socialized Gender Variables, and  
Disordered Eating Among Adolescent Girls

By

Annamaria McAndrew

A Dissertation  
Submitted to the Faculty of Graduate Studies  
through the Department of Psychology  
in Partial Fulfillment of the Requirements for  
the Degree of Doctor of Philosophy  
at the University of Windsor

Windsor, Ontario, Canada

2020

© 2020 Annamaria McAndrew

What Do You See When You Look at Me? Social Media, Socialized Gender Variables, and  
Disordered Eating Among Adolescent Girls

by

Annamaria McAndrew

APPROVED BY:

---

M. Dionne, External Examiner  
Ryerson University

---

D. Kane  
Faculty of Nursing

---

K. Babb  
Department of Psychology

---

K. Lafreniere  
Department of Psychology

---

R. Menna, Advisor  
Department of Psychology

August 24, 2020

## DECLARATION OF ORIGINALITY

I hereby certify that I am the sole author of this thesis and that no part of this thesis has been published or submitted for publication.

I certify that, to the best of my knowledge, my thesis does not infringe upon anyone's copyright nor violate any proprietary rights and that any ideas, techniques, quotations, or any other material from the work of other people included in my thesis, published or otherwise, are fully acknowledged in accordance with the standard referencing practices. Furthermore, to the extent that I have included copyrighted material that surpasses the bounds of fair dealing within the meaning of the Canada Copyright Act, I certify that I have obtained a written permission from the copyright owner(s) to include such material(s) in my thesis and have included copies of such copyright clearances to my appendix.

I declare that this is a true copy of my thesis, including any final revisions, as approved by my thesis committee and the Graduate Studies office, and that this thesis has not been submitted for a higher degree to any other University or Institution.

## ABSTRACT

The present study examined sociocultural factors associated with disordered eating among adolescent girls. The objective of Part 1 of the study was to explore the associations between social media use, socialized gender variables, and eating pathology. Participants were 238 adolescent girls between 14 and 17 years of age. Participants completed online measures assessing eating pathology, objectified body consciousness, social media use, and self-esteem. Results of Part 1 indicated that girls used photo-based social media applications – in particular, Instagram and Snapchat – for between one and four hours per day. Time spent using and frequency of checking social media were associated with disordered eating and body dissatisfaction. Engagement with photo-based social media, invested personal use of photo-based social media, and editing physical appearance in photographs were also associated with disordered eating, body dissatisfaction, and body surveillance. A path analysis supported the existence of significant associations between engagement with photo-based social media, internalization of the thin ideal, physical appearance comparison, body surveillance, body shame, self-esteem, body dissatisfaction, and disordered eating, with the combination of variables explaining 67% of the variance in disordered eating.

A subsample of participants who completed Part 1 ( $n = 77$ ) agreed to complete Parts 2 and 3 of the study. The objective of Part 2 of the study was to explore the image of the “ideal girl”, and to assess whether preferences for appearance were associated with social media use and/or eating pathology. Participants were asked about their perceptions of and preferences for appearance. Participants were also shown images of three young women and asked about their perceptions of each girl’s appearance, as well as their perceptions of each girl’s preferences for her appearance. Results of Part 2 indicated that girls wanted their bodies (in general), as well as

most specific body parts, to be thinner and more muscular. Higher scores on variables related to disordered eating (e.g., body dissatisfaction, thin ideal internalization, and physical appearance comparison), objectification (e.g., body surveillance and body shame), and engagement with photo-based social media were associated with stronger preferences for idealized appearance. When examining perceptions of preferences for appearance among other women, girls reported believing that other women wanted to be more muscular, but not necessarily thinner. Consistent with this, adolescents appeared to have stronger preferences for idealized appearance for themselves compared to others, and were also more dissatisfied with aspects of their own appearance than they expected other women to be with aspects of their appearances.

The objective of Part 3 of the study was to assess whether adherence to idealized standards for appearance among girls affected adolescents' perceptions of their attractiveness and interpersonal qualities. Participants were randomly assigned to view a photograph of a young woman – those assigned to the “idealized” condition viewed an image in which the woman fit the appearance of the ideal girl; those assigned to “non-idealized” condition viewed an image in which the same woman did not fit the appearance of the ideal girl. Participants then completed a measure assessing the woman's physical attractiveness, social attractiveness, and task competence. Participants who viewed the idealized photograph perceived the woman as being more competent to perform tasks; they also expected the woman to receive more “Likes” if she were to post her photo on social media. Perceptions of the woman's physical and social attractiveness did not significantly differ between conditions. Overall, findings of the present study have implications for understanding the role of sociocultural influences – including photo-based social media use, and adherence to idealized standards for appearance – in the development of issues related to body image and disordered eating among adolescent girls.

## ACKNOWLEDGEMENTS

First and foremost, to my supervisor, Dr. Rosanne Menna – your encouragement, wisdom, kindness, and unwavering support has been invaluable to me throughout my graduate training. With your guidance, I felt confident in pursuing an ambitious project that filled me with curiosity and passion. I am deeply grateful for everything I have learned – with respect to both research and clinical work – under your tutelage over the past 6 years.

To my committee members, Dr. Kim Babb, Dr. Kathryn Lafreniere, and Dr. Debbie Kane, and my external examiner, Dr. Michelle Dionne – thank you for taking the time to carefully and critically review this lengthy document, and to offer your perspectives. I greatly value the knowledge and insight that you have contributed to this project.

To my husband, James – thank you for your endless patience, humour, and optimism. You'll be pleased to know that I am finally graduating (forever). See you in California!

To my family, especially my parents – thank you for reminding me who I am outside of school (namely, “Sissy”) and that I am very, very loved.

Lastly, to my friends, for always being there when I needed a late-night vent, a belly laugh, a weekend visit, and everything in between.

## TABLE OF CONTENTS

DECLARATION OF ORIGINALITY.....	iii
ABSTRACT.....	iv
ACKNOWLEDGEMENTS.....	vi
LIST OF FIGURES.....	viii
LIST OF TABLES.....	ix
LIST OF APPENDICES.....	xi
CHAPTER I.....	1
Introduction.....	1
Literature Review.....	4
Eating Pathology.....	4
Disordered Eating.....	8
Sociocultural Influences.....	13
Gender Roles.....	19
Disordered Eating, Gender, and Social Discourses.....	20
Out with the Old, In with the New (Media).....	26
The Internet and Mental Health.....	28
The Present Study.....	46
Research Questions and Hypotheses.....	50
CHAPTER II.....	56
Method.....	56
Participants.....	56
Materials and Measures.....	60
Part 1.....	60
Part 2.....	76
Part 3.....	81
Procedure.....	83
CHAPTER III.....	87
Results.....	87
Preliminary Analyses.....	87
Missing Data.....	87
Assumptions.....	88
Effectiveness of Random Assignment.....	91
Exploratory Factor Analysis of the PBSMUS.....	92
Main Analyses.....	96
Part 1.....	96
Part 2.....	115
Part 3.....	141
CHAPTER IV.....	147
Discussion.....	147
Social Media Use Among Adolescent Girls.....	148
Photo-Based Social Media Use.....	151
The Ideal Girl.....	159
Self-Assessment.....	160
Other-Assessment.....	168



Self Versus Other.....	172
Idealized Self-Presentation.....	174
Limitations and Future Directions.....	177
Summary and Applied Implications.....	186
REFERENCES.....	192
APPENDICES.....	244
VITA AUCTORIS.....	264

## LIST OF FIGURES

Figure 1. <i>Hypothesized Path Model</i> .....	52
Figure 2. <i>Path Analysis – Model 1</i> .....	109
Figure 3. <i>Path Analysis – Model 2</i> .....	110
Figure 4. <i>Path Analysis – Model 3</i> .....	111
Figure 5. <i>Path Analysis – Model 4 (Final Model)</i> .....	113

## LIST OF TABLES

Table 1. <i>Demographic Characteristics for the Part 1 Sample (N = 238) and Private/Public Subsamples</i> .....	58
Table 2. <i>Demographic Characteristics for the Part 2/3 Subsample (n = 77)</i> .....	59
Table 3. <i>Final PBSMUS Items (Following Exploratory Factor Analysis)</i> .....	71
Table 4. <i>Communalities, Rotated Pattern Matrix, and Structure Correlations for Photo-Based Social Media Use Survey EFA (N = 238)</i> .....	96
Table 5. <i>Inter-Factor Correlations for Photo-Based Social Media Use Survey (N = 238)</i> .....	96
Table 6. <i>Descriptive Statistics for Primary Study Variables Independent Samples t-tests Comparing Public and Private School Students</i> .....	98
Table 7. <i>Correlations Between Demographics and Primary Study Variables for the Total Sample (N = 238)</i> .....	99
Table 8. <i>Descriptive Statistics for Primary Study Variables and Independent Samples t-tests Comparing Public and Private School Students in Grade 9</i> .....	100
Table 9. <i>Descriptive Statistics for Social Media Variables and Independent Samples t-tests Comparing Public and Private School Students</i> .....	103
Table 10. <i>Correlations Between Demographics and Additional Social Media Variables for the Total Sample (N = 238)</i> .....	104
Table 11. <i>Descriptive Statistics for Social Media Variables and Independent Samples t-tests Comparing Public and Private School Students in Grade 9</i> .....	105
Table 12. <i>Descriptive Statistics for Original Photo-Based Social Media Use Survey Items (N = 238)</i> .....	106
Table 13. <i>Descriptive Statistics for Study Variables for the Part 2 Subsample (n = 77)</i> .....	117
Table 14. <i>Descriptive Statistics – Self Assessment (n = 77)</i> .....	118
Table 15. <i>Correlations Between Self-Actual Assessment and Demographic Variables (n = 77)</i> .....	119
Table 16. <i>Hypotheses 3a and 3b: Regressions Predicting Self-Perceptions from Primary Study Variables (n = 77)</i> .....	122
Table 17. <i>Correlations between Self-Ideal Assessment and Demographic Variables (n = 77)</i> .....	124

Table 18. <i>Hypotheses 4a and 4b: Regressions Predicting Appearance Ideals (Self-Ideal Assessment) from Primary Study Variables (n = 77)</i> .....	128
Table 19. <i>Descriptive Statistics for Other-Actual Assessments of the Three Models and Repeated-Measures ANOVA (n = 77)</i> .....	131
Table 20. <i>Descriptive Statistics for Other-Ideal Assessments of the Three Models and Repeated-Measures ANOVA (n = 77)</i> .....	132
Table 21. <i>Paired Samples t-tests Comparing Perceptions of Actual Appearance to Preferences for Ideal Appearance for Models 1, 2, 3 (n = 77)</i> .....	133
Table 22. <i>Descriptive Statistics for Average Other-Ideal Scores (n = 77)</i> .....	134
Table 23. <i>Correlations between Average Other-Ideal Scores and Demographic Variables (n = 77)</i> .....	135
Table 24. <i>Hypotheses 5a and 5b: Regressions Predicting Appearance Ideals (Mean Other-Ideal Scores) from Primary Study Variables (n = 77)</i> .....	139
Table 25. <i>Research Question 6: Paired Samples t-tests Comparing Self-Ideal to Mean Other-Ideal Scores (n = 77)</i> .....	140
Table 26. <i>Research Question 7: Paired Samples t-tests Comparing Actual vs. Ideal Discrepancies for Self and Other (n = 77)</i> .....	142
Table 27. <i>Summary of Results</i> .....	144

## LIST OF APPENDICES

Appendix A: Demographics Questionnaire.....	245
Appendix B: Other Social Media Use.....	257
Appendix C: Parts 2 and 3 – Self and Other Assessments.....	267

# CHAPTER I

## Introduction

Coping with the transition between childhood and adolescence – and emerging (relatively) unscathed – is no easy feat. Across fields, research has consistently identified puberty as a high-risk period for the development of mental health problems, including internalizing issues (e.g., anxiety and depression), externalizing issues (e.g., disruptive behaviours), and disordered eating (Byrne et al., 2017; Klump, 2013). For young girls in particular, the social ramifications associated with adolescent development may be especially difficult to navigate. Across a relatively short time span, girls experience physiological changes including increases in body size (i.e., height, weight, and body fat) and the development of secondary sex characteristics (e.g., menarche, growth of body hair, and breast development; e.g., McCabe et al., 2002). Despite being markers of healthy physiological development, these changes are simultaneously rewarded (i.e., through objectification and sexualization) and vilified by broader society (e.g., Piran, 1996, 2017). When observing and coping with these changes in the absence of empowering support, girls learn to associate their female bodies with embarrassment, shame, and even disgust (Piran, 2017).

In relation to disordered eating, the normative processes associated with female development move girls' bodies further away from socialized "ideals" for appearance (e.g., Thompson & Heinberg, 1999; Tiggemann, 2011), resulting in increases in body dissatisfaction and engagement in body alteration practices (e.g., Grabe et al., 2008; Myers & Crowther, 2009; Piran, 2017). Within the field of psychology, the traditional media (e.g., television, music videos, and magazines) has long been considered the central force in transmitting and reinforcing the increasingly unrealistic and unattainable ideals for female beauty (e.g., Holland & Tiggemann,

2016; Levine & Smolak, 1996). Although the link between media exposure and disordered eating – often found to occur through processes of physical appearance comparison and internalization of the thin ideal (e.g., Keery et al., 2004; Rodgers et al., 2015) – is supported by decades of research (Grabe et al., 2008; Myers & Crowther, 2009), the landscape of the media has changed dramatically in recent years. While the mass media remains relevant, among youth it has largely been eclipsed by a newer, faster, and more accessible model: social media.

Social media – broadly defined as Internet-based networks that allow users to create a profile from which they can share content and communicate with others (Boyd & Ellison, 2008) – is extensively used among youth, with popular networks including Facebook, and more recently, Instagram and Snapchat (Associated Press NORC Center for Public Affairs Research [AP-NORC], 2017). In recent years, research has linked social media use with the development of a range of mental health issues, including depression (e.g., Appel et al., 2016; Frison & Eggermont, 2017; Lin et al., 2016), anxiety (Mabe et al., 2014; Woods & Scott, 2016), and eating pathology (e.g., Cohen et al., 2018; Holland & Tiggemann, 2016; McLean et al., 2015; Tiggemann & Slater, 2013, 2014). Though informative, research examining the link between social media and mental health in general (and disordered eating in particular; Perloff, 2014; Prieler & Choi, 2014) is limited by several factors. These limitations include: (1) a preponderance of young adult samples (e.g., college and university students; Holland & Tiggemann, 2016), despite 94% of adolescents reporting regular social media use (AP-NORC, 2017); (2) an extensive focus on Facebook (e.g., Appel et al., 2016; Fardouly & Vartanian, 2015), despite photo-based networks (e.g., Instagram and Snapchat) eclipsing Facebook in popularity (AP-NORC, 2017); and (3) vague operationalization of social media variables, despite the increasingly multifaceted nature of social networks (e.g., Mabe et al., 2014).

Recent research examining the link between social media and disordered eating suggests that the use of photo-based networks (i.e., social media networks that are centred on photo sharing) may be particularly damaging (Cohen et al., 2017; Cohen et al., 2018; Hogue & Mills, 2019; Turner & Lefevre, 2017). When considering the rising popularity of image-based networks among female youth (namely, Instagram and Snapchat; Lenhart et al., 2015) and the sensitivity of the peripubertal period for eating disorder development (Klump, 2013), the importance of conducting further research is emphasized. Furthermore, as opposed to considering the influence of social media in isolation from other sociocultural factors (resulting in the development of prevention and intervention programs with limited success; Piran & Cormier, 2005), it is essential to consider disordered eating and social media use in the context of socialized gender discourses (i.e., objectification and body consciousness), as these are thought to be particularly salient during early adolescent development (Piran, 2017). Accordingly, the present study endeavoured to combine areas of literature – most notably, research and theory on media use (e.g., Keery et al., 2014) and socialized gender variables (e.g., Fredrickson & Roberts, 1997; McKinley & Hyde, 1996) – to illustrate the comprehensive network of sociocultural influences on the development of disordered eating among adolescent girls. The objectives of the present study were: (1) to describe social media use among adolescent girls, and to test a model illustrating the associations between photo-based social media engagement, mechanisms associated with disordered eating (i.e., internalization of the thin ideal and physical appearance comparison), socialized gender variables (i.e., body surveillance and body shame), body dissatisfaction, and eating pathology among adolescent girls; (2) to explore the image of the “ideal girl” (e.g., Piran, 2017), and assess whether girls’ preferences for appearance are associated with the use of photo-based social media networks and/or with eating pathology; and



(3) to assess whether adherence to idealized standards for appearance among girls affects adolescents' perceptions of their physical attractiveness and interpersonal qualities.

## **Literature Review**

### **Eating Pathology**

The Feeding and Eating Disorders section of the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association [APA], 2013) comprises six diagnoses that share a unifying feature: persistent disturbance of eating (or eating-related behaviours) that results in altered consumption of food and significant impairment in physical health and/or psychosocial functioning. Of these diagnoses, Anorexia Nervosa (AN) and Bulimia Nervosa (BN) are most relevant to adolescent development. AN is characterized by restriction of food intake leading to significantly low body weight, intense fear of weight gain, and disturbance in the way in which body weight or shape is experienced (e.g., lack of recognition of low body weight, undue influence of weight on self-worth; APA, 2013). A diagnosis of AN can be further specified as restricting type (i.e., without bingeing and purging) or binge-eating/purging type. BN is characterized by recurrent episodes of binge eating (i.e., eating a large amount of food in a discrete period of time, with a sense of lack of control over eating) and recurrent inappropriate compensatory behaviours to prevent weight gain (e.g., self-induced vomiting, excessive exercise, misuse of laxatives or medication; APA, 2013). Both AN and BN occur more frequently in females than males (Hudson et al., 2007; Nagl et al., 2016; Swanson et al., 2010), with ratios ranging from 16:1 to 29:1 (Nagl et al., 2016).

Prevalence estimates of clinically diagnosable eating disorders vary across studies, but are generally low. For AN, the 12-month prevalence is approximately 0.4% (APA, 2013), with lifetime prevalence rates ranging from 0.8% to 0.9% among women (Hudson et al., 2007; Stice

et al., 2013; Nagl et al., 2016). For BN, 12-month prevalence rates range from 1% to 1.5% (APA, 2013), with lifetime prevalence rates ranging from 1.5% (Hudson et al., 2007) to 2.6% (Stice et al., 2013) among women. That said, with more lenient diagnostic criteria – for example, exhibiting symptoms of AN without amenorrhea and/or being underweight, or exhibiting symptoms of BN without the required duration of binge eating or purging – prevalence estimates are higher. Across diagnoses, estimates of sub-threshold presentations among young women are as high as 7.4% (12-month prevalence) and 11.5% (lifetime prevalence; Nagl et al., 2016). Furthermore, findings suggest that the prevalence of both clinically diagnosable eating disorders, as well as subclinical pathology, may actually be increasing over time (Smink et al., 2012), particularly among youth (i.e., children and adolescents; La Via, 2016; Nicholls et al., 2011).

Development and course of AN and BN are variable. Both disorders can have onset as young as late childhood or early adolescence (APA, 2013), with puberty thought to represent a period of critical risk for their development (e.g., Klump, 2013). Some research suggests that onset (of either diagnosis) may be bimodally distributed (Halmi et al., 1979; Volpe et al., 2016), with peaks occurring at 16 years and 23 years of age for AN, and at 16 years and 25 years of age for BN (Volpe et al., 2016). Conversely, other research does not support a bimodal distribution; for example, in a longitudinal study with a community sample ( $N = 3021$ ), Nagl et al. (2016) found AN and BN to be relatively homogenous in terms of age of onset, with peak incidence periods occurring between 13 and 18 years of age. Across studies and diagnoses, early onset appears to be more common than later onset; for example, Volpe et al. found that over 75% individuals had onset (of AN or BN) prior to age 24. In general, ages of onset as found by epidemiological studies are consistent with clinical guidelines suggesting that the onset of both

AN and BN are typically associated with stressful life events (APA, 2013), such as the myriad stressors associated with puberty and late adolescence (e.g., Piran, 2017).

Stability of either diagnosis and associated outcomes vary across studies. That said, findings converge to suggest high stability of eating disorder symptoms among girls and women. For example, in a community sample of young adult women, Hay et al. (2010) found that women with eating disorders maintained high levels of symptomology across a two-year span, and consistently reported poor quality of life. Upon following a younger community sample (i.e., girls and women aged 14 to 24 years) across a ten-year span, Nagl et al. (2016) also found evidence for stability – in particular, clinically significant pathology was more stable than subclinical pathology, and AN symptoms were more stable than BN symptoms. There is even evidence to suggest stability of symptomology during childhood. Using a longitudinal cohort design, Evans et al. (2017) found that a higher level of eating pathology at 9 years of age was predictive of higher eating pathology at 12 years of age. In general, researchers have proposed that variation in outcomes may be partially due to the nature of the sample (i.e., clinical versus community samples), as well as differences in the operationalization of variables of interest, such as criteria for remission (Nagl et al., 2016). Within a community sample, Nagl et al. (2016) reported rates of remission ranging between 48% and 70% across subtypes and severity levels. Comparatively, research with clinical samples suggests particularly poor outcomes. For example, in a 12-year follow-up study of individuals hospitalized for eating disorders, Fichter et al. (2006) reported a 53% remission rate (i.e., defined as “good” or “intermediate” outcomes). Of the remainder of the sample, 39% had a poor outcome, and 8% were deceased.

Both AN and BN are associated with elevated risk for mortality, whether by medical complications associated with the disorder or by suicide (e.g., APA, 2013; Arcelus et al., 2011;

Fichter & Quadflieg, 2016; Fichter et al., 2006; Hoang et al., 2011). Crude mortality rates (i.e., number of deaths per number of affected individuals) are estimated to range between 5% to 5.9% for individuals with AN and 2% to 2.5% for individuals with BN (APA, 2013; Fichter & Quadflieg, 2016). The standardized mortality ratio (SMR; i.e., observed deaths among patients/expected deaths in the population, matched for age and gender) has been estimated to be 7.8 across eating disorder diagnoses (Hoang et al., 2011). Among individuals with AN, SMRs range between 5.35 and 11.6; among individuals with BN, SMRs are lower (although still elevated), ranging between 1.49 and 4.1 (Fichter & Quadflieg, 2016; Hoang et al., 2011). In addition to the particularly high risk of mortality associated with AN, individuals with AN have also been found to die at an earlier age than individuals with BN (with mortality peaking between ages 25 and 34), most often due to natural causes associated with the disorder (e.g., low body weight; Fichter & Quadflieg, 2016). Across studies, factors associated with poorer outcomes (including heightened mortality) among individuals with eating disorders include: diagnosis of AN; higher impulsivity; greater symptom severity; greater symptom chronicity; unemployment; taking psychotropic medication; poor social adjustment; lack of social support; immature coping style; high levels of interpersonal distrust; and general psychological distress (Dingemans, et al., 2016; Fichter & Quadflieg, 2016; Hay et al., 2010; LeGrange et al., 2014).

Eating disorders are widely considered to be difficult to treat (Fassino & Abbate-Daga, 2013). Empirical support for psychosocial interventions is limited, particularly among child and adolescent samples (Keel & Haedt, 2008; Lock, 2015). Intentional and unintentional denial of the presence of the illness is common (e.g., Vandereycken, 2006), and has been linked to resistance to treatment (e.g., Fassino & Abbate-Daga, 2013; Gregertsen et al., 2017). Among individuals with AN, participation in treatment is also thought to be hindered by the egosyntonic

nature of the illness, in which individuals value their disorder (Gregertson et al., 2017).

Consistent with these features, rates of treatment utilization are quite low relative to the number of individuals affected (e.g., Hepworth & Paxton, 2007; Neumark-Sztainer et al., 2011; Tillman et al., 2012). Tying this to outcomes, premature discharge from treatment has been associated with a shorter time to death among affected individuals (Fichter & Quadflieg, 2016); conversely, greater symptom change occurring early during the treatment process is thought to be the best predictor of a positive outcome (Vall & Wade, 2015).

### ***Disordered Eating***

In recent years, increasing recognition of the presence of subclinical eating pathology among women in particular has contributed to the conceptualization of eating disorders as belonging to a larger spectrum of disordered eating attitudes and behaviours (e.g., Piran & Cormier, 2005). From this perspective, eating disorders are conceptualized as extremes of multiple related continua, including: negative body image, unhealthy weight control, weight and shape overvaluation, irrational fear of body fat, self-surveillance and self-criticism, and binge eating (Levine & Smolak, 2006; Levine & McVey, 2015). Regardless of whether an individual's presentation merits clinical diagnosis of an eating disorder, the presence of disordered eating attitudes and behaviours are of concern. This is particularly true if the individual in question exhibits moderate to severe levels of multiple continua, and/or when these attitudes and behaviours are associated with disability and/or distress (Levine & McVey, 2015). Disordered eating has also been found to be associated with negative consequences for overall health and well-being (e.g., Piran & Cormier, 2005), including substance use (e.g., binge drinking, tobacco consumption), depression, anxiety, self-injury, and suicidal ideation (Mills et al., 2012; Neumark

Sztainer et al., 2011; Stein et al., 2013). Furthermore, many of these behaviours represent risk factors for future eating disorder development (Levine & McVey, 2015; Patton et al., 1999).

In particular, negative body image – and a closely associated construct, body dissatisfaction – have received considerable empirical support as being risk factors for the development of eating disorders (e.g., Holland & Tiggemann, 2016). Body image is defined as an individual's perceptions, thoughts, and feelings about their body (Grogan, 2008); body dissatisfaction occurs when negative body image results in a discrepancy between a person's perception of their own body versus their ideal body (Grogan, 2008). Body dissatisfaction tends to be greater among girls and women compared to boys and men, although this difference may not emerge until early adolescence (Bearman et al., 2006; Levine & Piran, 2004).

Within psychology, the development of negative body image and body dissatisfaction – as well as their relation to disordered eating – have been conceptualized using broad sociocultural perspectives (Thompson & Heinberg, 1999; Tiggemann, 2011). According to sociocultural theories (e.g., Thompson et al., 1999), perceptions of the “ideal body” are shaped and reinforced by social influences – most notably, the mass media (Holland & Tiggemann, 2016). Through the incessant depiction of women as “...glamorous, often photo-shopped women who are young, tall, moderately breasted, and incredibly thin” (Holland & Tiggemann, 2016, p. 101), the media industry (e.g., magazines, television, music videos, etc.) has long been considered the central force in transmitting and promoting a beauty ideal for women that is both unhealthy and largely unattainable (see Levine & Smolak, 1996, for a review). Despite being unfeasible by healthy or natural means, this ideal – generally referred to as the “thin ideal” – is internalized among Westernized women across the span of development. This process of thin ideal internalization, in combination with a general overvaluation of weight and shape as being

integral to one's self-worth (APA, 2013), is associated with attentional biases (e.g., Cho & Lee, 2013; Gao et al., 2014; Horndasch et al., 2012) and engagement in social comparisons with other women (e.g. Cho & Lee, 2013; Tiggemann & Miller, 2010), resulting in and reinforcing dissatisfaction with one's own body (Tiggemann & Miller, 2010).

**Disordered Eating Across Development.** Within the last two decades, research has accumulated to support the existence of disordered eating among women in adulthood (e.g., Solmi et al., 2014), emerging adulthood (e.g., Bankoff et al., 2013), adolescence (e.g., Neumark-Sztainer et al., 2006), and even childhood (e.g., Holt & Ricciardelli, 2008). As young as 6 years of age, girls have been found to indicate a preference for a thinner ideal body figure (Dohnt & Tiggemann, 2005, 2006), as well as a conceptual understanding of dieting as a means to achieve thinness (Lowes & Tiggemann, 2003). Although disordered eating concerns among children tend to be less severe and less frequent than those among adults, it is thought that early incidence of these behaviours may increase the likelihood of the development of more severe eating pathology later in life (Holt & Ricciardelli, 2008). Recent research supports this link – in particular, studies have found that engagement in dieting behaviours in childhood (both food restriction and compensatory behaviours) is associated with greater eating pathology in adolescence (Evans et al., 2017) and in adulthood (Chung et al., 2017).

Although few studies have focused on preadolescence as a distinct developmental period, research implicates puberty as being a sensitive period – and perhaps a catalyst – for the development and/or intensification of disordered eating among young girls (e.g., Field et al., 1999; Klump, 2013; Levine & Smolak, 1998; Stice, 2002). Puberty is a time when the body, gender identity, and sexuality become highly salient for girls (Bearman et al., 2006; Daniels & Zurbriggen, 2016a), and the pressure to conform with female beauty ideals intensifies (e.g.,

Piran, 2015). Findings suggest that both advanced pubertal development and early pubertal timing are associated with increased disordered eating symptoms (Klump, 2013). Connecting this to societal pressures, researchers have noted that the physiological changes associated with healthy pubertal development (e.g., hormonal changes, weight gain; Klump, 2013) widen the gap between girls' developing bodies and the thin ideal presented in the media (see Bearman et al., 2006, for a review). The exaggeration of this discrepancy is thought to be at least partly responsible for the increases in body dissatisfaction and disordered eating that are seen following puberty (Bearman et al., 2006; Field et al., 1999). Furthermore, it has been suggested that early pubertal development in particular may lead to adverse consequences when it occurs in the context of other social stressors typical of early adolescence, including dating, school transitions (Stice, 2002; McCabe & Ricciardelli, 2005), and general increases in independence and responsibility (Halmi et al., 1979). When considered in light of cognitive changes that also occur during this period – including an increased capacity for self-awareness and self-consciousness (see Tiggemann & Miller, 2010, for a review) – it seems as though early adolescence may represent a “perfect storm” of vulnerability for the development of disordered eating.

The prevalence of disordered eating attitudes and behaviours has been well documented across adolescence and into emerging adulthood (e.g., Ata et al., 2007; Meyer, 2005; Nagl et al., 2016; Neumark-Sztainer et al., 2006; Neumark-Sztainer et al., 2011; Schwitzer et al., 2001; Stice, 2002). Although estimates vary across studies, it seems as though negative attitudes towards body weight and shape are rather pervasive. For example, Bearman et al. (2006) found that 50% of adolescent girls reported being unhappy with their bodies. Similarly, other studies have found that up to 80% of teenage girls report a desire to lose weight, despite being in



developmentally normative ranges for weight and height (Bearman et al., 2006; McCreary Centre Society, 1999; Meyer, 2001).

In addition to reporting attitudes associated with body dissatisfaction, teenage girls also report engaging in disordered eating behaviours (Ata et al., 2007; Bearman et al., 2006; Meyer, 2001). In a Canadian sample of adolescent girls, 27% reported significant symptomology – most commonly, food restriction by dieting (23%), although bingeing (15%) and purging by self-induced vomiting (8.2%) were also reported (Jones et al., 2001). A more recent longitudinal study reported higher estimates. Upon following 1092 adolescents across a 10-year span, Neumark-Sztainer et al. (2012) found that 37.8% of girls reported persistent dieting and 43.7% reported persistent use of unhealthy weight control behaviours (e.g., fasting, use of food substitutes, use of laxatives, etc.). Notably, engagement in extreme weight-control behaviours tended to increase across the span of adolescence (Neumark-Sztainer et al., 2012). Interestingly, the researchers also found that persistent dieting and unhealthy weight control behaviours at the first two time points predicted greater BMI increases by the third time point; specific weight-control behaviours associated with the largest BMI increases included skipping meals, restricting food intake, and using diet pills (Neumark-Sztainer et al., 2012). It is possible, then, that the persistence of disordered eating across time may be due to a reciprocal relation between weight gain and engagement in weight control methods. For example, attempts to control weight may paradoxically lead to increases in weight, which may then lead to further and perhaps increased engagement in weight-control practices. Consistent with this, separate studies have found that eating pathology during adolescence predicted continued, and often more severe, eating pathology in emerging adulthood (e.g., Allen et al., 2013).

Among emerging adult samples (and college and university students in particular), there is ample evidence supporting the prevalence of disordered eating (e.g., Bankoff et al., 2013; Meyer, 2005). In a sample of 2822 university students in the United States, Eisenberg et al. (2011) found that 13.5% of female students self-reported significant levels of eating disorder pathology, 34% reported believing themselves to be fat despite others saying they are thin, and 26% reported worrying about losing control over how much food they ate. Instead of relying on self-report, which may be unreliable particularly for the assessment of eating pathology (Vandereycken, 2006), Stein and colleagues (2013) used ecological momentary assessment to measure frequency of engagement in disordered eating behaviours over a two-week period. Within a sample of female university students, Stein et al. (2013) found that 48.1% of young women in their sample reported engaging in food restriction, 18% used excessive exercise to control weight, and approximately 13% engaged in bingeing and purging. Not only is disordered eating common among women in emerging adulthood, it is also persistent – in a study of the natural course of eating pathology across a three-year span, Mills et al. (2012) found that young women's engagement in disordered eating remained relatively stable, showing little evidence of natural recovery without intervention.

### ***Sociocultural Influences***

Despite the prevalence of disordered eating among women and girls from childhood to emerging adulthood (and into adulthood; Ackard et al., 2013; Solmi et al., 2014), the etiology of eating pathology is complex and, from a comprehensive viewpoint, relatively poorly understood. Based on a review of findings of studies using integrative methodologies (e.g., studies examining biological and environmental influences, such as twin studies, and studies with data at biological and behavioural levels, such as neuroimaging studies), Culbert et al. (2015) concluded that the

etiology of disordered eating involves the complex interplay of biopsychosocial effects, with effect sizes for individual factors being small-to-medium in magnitude. Culbert et al. (2015) confirm that risk factors for disordered eating include both psychosocial factors (including media exposure and pressures for thinness), as well as non-specific personality factors (including neuroticism and perfectionism), but contend that many factors (i.e., predisposition to internalization) are likely to have significant biological underpinnings (e.g., Kaye et al. 2013).

**Sociocultural Theories.** Within psychology, theories emphasizing sociocultural influences appear to have gained the most traction in the past few decades (Tiggemann & Miller, 2010), with one of the most prominent being the tripartite influence model (Thompson et al., 1999). In its most basic form, the tripartite influence model (Thompson et al., 1999) postulates that contemporary beauty ideals for women are transmitted and reinforced through three primary sources – parents, peers, and the media – via two mechanisms: appearance comparison (i.e., comparing one’s own physical appearance to that of others) and internalization of the thin ideal (Keery et al., 2004; Thompson et al., 1999). Specifically, the model posits that sources of sociocultural influence are indirectly related to body dissatisfaction (through internalization of the thin ideal and appearance comparison), which is then related to disordered eating behaviours (e.g., restriction of food intake, bingeing, and compensatory behaviours; Thompson et al., 1999). A cross-sectional investigation of the structure of the model by Keery et al. (2004) supported the framework proposed by Thompson et al. (1999), with minor modifications. Specifically, though both appearance comparison and internalization were indirect links between sociocultural influence (calculated to be the combined influence parents, peers, and media) and body dissatisfaction (which was then associated with disordered eating behaviours), unexpected connections also emerged. Notably, appearance comparison (one mediator) was directly

associated with internalization of the thin ideal (second mediator); furthermore, thin ideal internalization was also directly associated with restrictive eating practices (Keery et al., 2004).

Of the sources of sociocultural influence postulated by the tripartite model, the mass media is thought to be the most powerful (e.g., Tiggemann & Miller, 2010) and has been extensively researched (e.g., Grabe et al., 2008). Across time (and as the media's reach has grown), images of women in the media have become increasingly thin (see Grabe et al., 2008, for a review), such that the majority are not only thinner than the average woman, but often significantly underweight (e.g., Katzmarzyk & Davis, 2001; Morrison et al., 2004). This depiction of women is common even among media sources associated with health promotion (i.e., health magazines; Bazzini et al., 2015), as well as sources perceived to feature “ordinary people” (Kraus & Martins, 2017). Exposure to these images has long been thought to lead to an increase in the extent to which women subscribe to and aspire to attain these standards, as well as modify their own behaviours to approximate these standards (i.e., engagement in body alteration practices; Thompson et al., 2004; Rodgers et al., 2015).

***Thin Ideal Internalization.*** The process of internalization of the ideal presented by the media (i.e., the thin ideal) is widely supported by research (e.g., Tiggemann & Miller, 2010; Tiggemann & Slater, 2013, 2014). In a meta-analysis of 141 studies (80 experimental and 61 correlational, with samples including children, adolescents, and adult females), Grabe and colleagues (2008) found that exposure to thin-ideal focused media (e.g., television programs and fashion magazines) was associated with higher levels of body dissatisfaction, stronger internalization of the thin ideal, and more frequent disordered eating attitudes and behaviours (with all effect sizes in the small-to-moderate range). Interestingly, Grabe et al. (2008) also found that effect sizes for internalization of the thin ideal were greater for correlational versus

experimental studies, and that within these correlational studies, effect sizes were greater for newer as opposed to older studies. While this could be due to improvements in study design, Grabe et al. (2008) also offer a second interpretation: it is possible that internalization of the thin ideal develops over time and in response to pervasive exposure to thin ideal media. Thus, with continued depictions of thin women by the media and continued exposure across time, we could expect the magnitude of these effects to continue to grow. That said, moderators of the effects of media exposure on factors related to disordered eating (including thin ideal internalization) have been fairly inconsistent (Levine & Murnen, 2009), and more research is needed in this regard.

***Appearance Comparison.*** The link between the media, social appearance comparison, and body dissatisfaction is rooted in social comparison theory (Festinger, 1954), which proposes that people evaluate themselves by making comparisons to others. Social comparisons can be differentiated based on the perceived status of the target (in relation to dimensions of personal relevance; e.g., Sahay & Piran, 1997). If the target is perceived to be superior to oneself, this results in an upward comparison; conversely, if the target is perceived to be inferior, the comparison is downward. The directionality of the comparison has consequences for the individual making the comparison – upward comparisons result in negative self-evaluations, whereas downward comparisons result in positive self-evaluations (Festinger, 1954). In body image research, the majority of studies examining the impact of making social comparisons on self-evaluations have typically focused on body size (Cho & Lee, 2013; Myers & Crowther, 2009), although other dimensions relevant to appearance (e.g., skin colour; Sahay & Piran, 1997) have also been examined. Connecting this process to media exposure, idealized depictions of women (as presented by the media) are likely to induce upward comparisons, resulting in negative self-evaluations by highlighting the discrepancies between one's own body and the

idealized image (Groesz et al., 2002; Perloff, 2014; Prierer & Choi, 2014). The results of a meta-analysis by Myers and Crowther (2009) support this link: across 156 studies, the researchers found a moderate effect of appearance-focused upward social comparisons (in person and in the media) on body dissatisfaction. Furthermore, and consistent with previous research (Groesz et al., 2002), both age and gender moderated this effect – specifically, the link between social comparison and body dissatisfaction was stronger for women (compared to men) and for younger samples (compared to adult samples). This suggests that adolescent girls, for whom physical appearance is particularly salient (e.g., Bearman et al., 2006), may be especially prone to making social comparisons and/or especially sensitive to their negative effects (e.g., Kraye et al., 2008), although more research is needed to fully investigate this possibility.

***Longitudinal Associations.*** Despite the prominence of the tripartite influence model within the field, Rodgers and colleagues (2015) noted the lack of knowledge about relations between essential components of the model across time. In particular, there is a considerable dearth of knowledge about the relationship between thin ideal internalization and appearance comparison (the mediating processes of the model; Thompson et al., 1999; Keery et al., 2004). Although in their final model Keery et al. (2004) supported a direct link from appearance comparison to thin ideal internalization, due to the cross-sectional nature of the data, the directionality of the link could not be confirmed. As these processes occur within individuals over time, it is also possible that internalization leads to appearance comparison, or that the link between two processes is reciprocal. To investigate this further, Rodgers and colleagues (2015) examined the associations between internalization of the media ideal (analogous to internalization of thin ideal, as defined in earlier research), social appearance comparison, and body dissatisfaction within a sample of 277 early adolescent girls at three time points across a

span of 14 months. Inconsistent with Keery et al.'s (2004) model, Rodgers et al. (2015) found that internalization of the media ideal temporally preceded and significantly predicted social appearance comparison, which in turn predicted body dissatisfaction. In addition, the data suggested a reciprocal relationship between internalization of the thin ideal and body dissatisfaction, a novel finding that suggests that feelings of body dissatisfaction among girls may lead to an increased desire to look like women presented in the media (Rodgers et al., 2015).

Although sociocultural perspectives (including the tripartite model) have greatly contributed to our conceptualization of the etiology of disordered eating, there is more to consider. Within the eating disorder field, studies have consistently shown that attitudes (e.g., negative body image), processes (e.g., thin ideal internalization, appearance comparison), and behaviours (e.g., weight-control methods, dieting, restriction of food intake) associated with disordered eating, as well as rates of clinically diagnosable eating disorders, are considerably higher among girls and women compared to boys and men (APA, 2013; Bearman et al., 2006; Levine & Piran, 2004). In addition to being more common, the female experience of disordered eating is thought to be qualitatively different from the male experience (e.g., in males, there may be a stronger emphasis on reducing body fat and increasing muscularity, as opposed to controlling weight; McLean et al., 2018; Streigel-Moore & Bulik, 2007). As such, the vast majority of psychological research has used samples that predominantly (if not entirely) consist of girls and women (e.g., Kinasz et al., 2016). And yet, despite the volume of research dedicated to the female experience, our understanding of eating pathology, while certainly developing, remains incomplete. What are we missing?

The answer: gender. We've accepted the gender discrepancy in experiences of disordered eating, but have neglected to question *why* this discrepancy exists. *Why* is disordered eating, as

currently defined, more common among women? How might gender contribute to the development and maintenance of eating pathology? And what are the possible implications of gender for the identification, prevention, and treatment of disordered eating?

## **Gender Roles**

Feminist-informed approaches to disordered eating argue for the necessity (in research and clinical work) of contextualizing the issue within the socially-constructed concept of gender (Piran, 1996; Piran & Cormier, 2005). Objectification theory – which examines the experiential consequences of being female in a culture that sexualizes the female body – has previously been applied to the etiology of disordered eating (Fredrickson & Roberts, 1997). Objectification refers to the conceptualization of an individual as an object who is intended for the pleasure of others (Fredrickson & Roberts, 1997). Throughout history, socialization processes in Western society (particularly those related to gender roles) have transmitted, promoted, and reinforced the objectification of women through countless avenues – most conspicuously, perhaps, through the reach of the media. When depicted in the media, women are reduced to objects to be looked at and evaluated based on appearance; this commonly involves the emphasis or isolation of individual body parts (Fredrickson & Roberts, 1997; McKinley & Hyde, 1996). Similar to the internalization of the thin ideal, objectification theory contends that exposure to objectified presentations of other women leads to the internalization of objectification (McKinley & Hyde, 1996; Fredrickson & Roberts, 1997); that is, women learn to adopt a third-person perspective when viewing and evaluating their own bodies, a process known as self-objectification (Daniels & Zurbriggen, 2016a; Fardouly et al., 2015a; Fredrickson & Roberts, 1997; McKinley & Hyde, 1996; Ramsey & Horan, 2016). As media images portraying the thin ideal are also likely to



objectify women (Ghaznavi & Taylor, 2015), it is rational to presume that these processes may interact in creating a prototype of the ideal woman.

Similar to the early developmental origins of a desire for thinness (e.g., Dohnt & Tiggemann, 2005, 2006), research has found self-objectification to be present among females in late childhood (Grabe et al., 2007) and early adolescence (Dakanalis et al., 2014). Behaviourally, self-objectification manifests through constant awareness and monitoring of the body's external appearance (i.e., body surveillance); this can increase anxiety and shame about the body (McKinley & Hyde, 1996; Grabe et al., 2007), which then can contribute to the development of body dissatisfaction and disordered eating (Dakanalis et al., 2014; Davis et al., 2001; Harper & Tiggemann, 2008; Holland & Tiggemann, 2016; Meier & Gray, 2013). Self-objectification has also been linked to depressed mood among female adolescents (Grabe et al., 2007) and emerging adults (Tiggemann & Williams, 2012).

### ***Disordered Eating, Gender, and Social Discourses***

Apart from the process of objectification, some researchers have attempted to broaden the scope of inquiry regarding the impact of social discourses (including socialized gender roles) on the development of disordered eating among girls and women. For example, Levine and Piran (2004) argue that our understanding of negative body image and disordered eating could be enriched by recognizing that body image (and body alterations) are anchored in cultural discourses, and that social inequity affects women's bodily experiences beyond pressures for thinness. In a study of interpersonal qualities associated with the female socialization process, Zaitsoff et al. (2002) examined the association between inhibited expression of negative feelings, prioritization of the needs of others in interpersonal relationships, self-esteem, and symptoms of disordered eating among female adolescents. Although the strongest predictors of disordered

eating were global and shape- and weight-based self-esteem, Zaitsoff et al. (2002) found that girls reporting higher levels of disordered eating also reported higher levels of self-silencing and anger suppression. Despite these findings, only a handful of empirical studies have since investigated (and supported) the links between self-silencing and disordered eating among community (Norwood et al., 2011) and clinical (Buchholz et al., 2007) samples of female adolescents and young adults (Frank & Thomas, 2003; Shouse & Nilsson, 2011). Levine and Piran (2004) argue that the need to conduct this research is emphasized by studies indicating that existing prevention efforts – most of which are based on models that do not explicitly address broad social influences – are limited in their effectiveness, and generally fail to produce long-term effects among participating youth. By contrast, prevention programs that have resulted in favourable changes (e.g., reductions in disordered eating) that are maintained at follow-up have tended to include education about social discourses (e.g., gender stereotypes in the media), as well as strategies for analyzing and resisting their influences (e.g., Levine & Piran, 2004; Piran, 2015).

The Developmental Theory of Embodiment (DTE; Piran, 2017; Piran & Teall, 2012) is an example of a social discourse model with direct implications for the understanding of the development of eating disorders among girls and women. Emerging from the field of philosophy, the construct of embodiment is best understood as the experience of engagement of one's body in the world (Allan, 2005; see Teall, 2015, for a review). The culmination of years of qualitative and quantitative research, the DTE (Piran, 2017) connects women's experiences of living in their bodies and interacting with the world to a range of outcomes associated with negative well-being that are more commonly experienced by girls and women relative to boys and men. These outcomes include, but are not limited to, negative body image, disordered eating, self-injury,

body alterations (e.g., plastic surgery), and engagement in sexual activity without desire or protection (see Piran, 2017, for a review). According to Piran (2017), these experiences are behavioural expressions of disruptive body experiences that signify, in some way or another, “bodies in distress” (p. xi). Although eating disorders have previously been conceptualized as a phenomenon distinct from embodiment, this separation may be artificial (Piran, 2017).

The DTE illustrates how girls’ sense of existing in their bodies is shaped through experiences with the world in physical and mental domains, as well as through experiences related to social power. The quality of engagements with the world are described across five dimensions: body connection and comfort; agency and functionality; experience and expression of desire; attuned self-care; and inhabiting the body as a subjective site. These dimensions are anchored by positive and negative embodiment, and exist continuously across the lifespan (e.g., from early childhood throughout adulthood). Positive experiences in these domains enhance embodiment, whereas negative experiences lead to disrupted embodiment (Piran, 2017).

Compared to any other phase of development, childhood (i.e., up to age eight years) is characterized by the most positive experiences of embodiment (Piran, 2017). In physical and mental domains, girls experience flexibility in gender roles, allowing for engagement in a range of pursuits (even those characterized as being “masculine”, such as playing sports). Although there is some emphasis on adherence to feminine stereotypes and the privileges this conveys (e.g., needing to look pretty to be of worth; engagement in dainty and domestic tasks), adherence is not strongly reinforced, nor is resistance reliably penalized. The relative lack of emphasis on feminine standards for appearance allows girls to focus on meaningful engagement in activities and skill development (e.g., improving athletic skills) without concern for aesthetics. Appetite for food is typically healthy and free from restrictive rules (i.e., related to body appearance).

Exposure to empowering relationships and examples of gender equity (e.g., in the family environment) may protect against experiences of disrupted embodiment (Piran, 2017).

Consistent with research identifying adolescence as a high-risk period for the development of disordered eating (e.g., Klump, 2013) and other mental health issues (Byrne et al., 2017), disruptions to embodiment sharply increase during this period. As put by Piran (2017), “as girls are initiated into owning and inhabiting women’s bodies, their bodies become less safe, their embodied agency gets penalized and negatively labelled, their appetites problematized, and acting in attunement with their needs is questioned” (p. 12). In the physical domain, girls experience the physiological changes associated with puberty, and often without empowering support. Girls are socialized to hold negative views about these changes; as stated by one participant: ““Puberty is a terrible part of life. It is *gross*. You gain a lot of weight. You get more hair where you don’t want it, like your legs and underarms. You sweat more. I hate bras, they are so uncomfortable. I am worried about getting my period...” (Piran, 2017, p. 93). Along with maturing bodies, opportunities for physical activity can be reduced due to restricted access to sites of physical engagement (compared to boys) and clothing that exposes the body and restricts free movement (e.g., tight and/or revealing clothes). Exposing clothing can also elicit unwanted attention and stares, leading to fear of harassment. Finally, girls at this age note the introduction of constriction of desire (Piran, 2017). This includes a lack of support and/or validation for emerging sexual desire, as well as the restriction of appetite (e.g., “... I won’t eat anything that has pure sugar in it. That’s disgusting, my body does not let me eat sugar,” p. 87) due to concerns about weight gain (e.g., ““In Grade 6 I gained like fifteen pounds in a space of like three months...that was probably one of the *darkest* moments of my life,” p. 84). Mentally, girls learn that the body is both deficient (e.g., continually in need of repair), as well as an object

to be gazed at (the introduction of objectification). Societal rules for appearance and activity are now enforced, and deviation is penalized. To illustrate, Piran (2017) notes that, when asked to draw the ideal girl, “diverse tweens [ages 9 to 12 years] consistently both draw and describe the ideal girl as thin, beautiful, with long, straightened blond hair and blue eyes, and wearing makeup. She is attired in tight and exposing clothes...and high heels. The ideal girl is also physically restricted and on display as a passive, perfect object” (p. 91). Related to social power, girls that look and behave like the ideal girl are the most popular, but are also devalued within patriarchal society (Piran, 2017).

In early adolescence (ages 13 and 14 years; Piran, 2017), acting physically *in* the world is replaced with acting *on* one’s body. Girls communicate the desire to achieve a more sculpted, thinner, and generally smaller body shape (e.g., ““Losing weight means, like, people take a, like a *second look*. And then you just feel better because you’re smaller”, p.125), often achieved through the commencement of dieting (e.g., ““I need to watch what I’m eating. I eat healthy, but I also eat junk... I should eat more vegetables...””, p. 120) and compulsive exercise (e.g., ““...I’m doing the exercises I’m like, ‘oh yeah, I’m losing weight. Got to keep going!’ It’s a *pain in the ass* but I do them anyway...””, p. 113). Girls also begin to wear make-up and to alter and remove body hair: ““I straighten my hair every morning, if I am not lazy, ‘cause when it’s curly it looks like a mess. I put makeup on. I wake up at seven...”” (p. 113). According to Piran (2017), living in altered bodies perpetuates continued engagement in alterations, as girls become more intolerant to the natural appearances of themselves and others. Across experiences of individual girls, societal standards for feminine physical appearance are prioritized over girls’ comfort (e.g., ““She wears skin tight shirts, and in the middle of the winter she wears mini-skirts to school with bare legs to impress the guy she likes...””, p. 119) and safety (e.g., ““They won’t

only look up a girl's skirt, they will grab it and pull it up, or they will just pull down the underpants", p.115). Girls quickly learn that they must somehow navigate a culture wherein self-objectification is simultaneously desired (e.g., "... boys like the strapless shirts and the shirts that have like thin straps that show your bra straps and everything...", p. 126) and penalized (e.g., "You could be labeled a slut from what you wear...short skirts and low cut tops", p. 131). Piran (2017) notes that the labels "slut" and "prude" are commonly used by both boys and girls during this period, but are exclusively used to label girls – a double standard that girls, even at this early age, begin to recognize. Despite their acceptance in social settings, there is significant weight behind these words – according to Piran, their casual use reinforces the "vilification of female sexuality" as well as patriarchal notions of male control over women's bodies (Piran, 2017). Past early adolescence, patterns of physical restriction and constraint, body alterations aimed at improving deficient bodies, and sexualization and objectification continue to intensify and are accompanied by increased risks for sexual violations (e.g., harassment and abuse; Piran, 2017).

The importance of considering broad social discourses in our conceptualization of the development of disordered eating is highlighted by the disruptions to embodiment that occur during adolescence, which has previously been identified as a period of biological sensitivity for the development of eating pathology (e.g., Klump, 2013). While the evidence in support of the role of the media (e.g., Grabe et al., 2008) is solid, it is clearly not the only factor contributing to the emergence of eating pathology in young girls. Although previous research examining the role of the media (e.g., Tiggemann & Slater, 2013) has typically been conducted separately from research examining the influence of socialized gender processes (e.g., Zaitsoff et al., 2002), this separation may be artificial. Although there has been some overlap in examining media

internalization and objectification processes (e.g., Meier & Gray, 2014), as a field we have neglected to root the experience of media exposure within the context of the social construct of gender. As evidenced by the limited success of prevention and intervention programs (e.g., Piran & Cormier, 2005), the distinction between media-based research and gender-based research has only gotten us so far; we are hampering our own progress.

This is not a call to abandon media-based research; in fact, it's quite the opposite. It's a proposal to continue examining media influences within a more comprehensive sociocultural context. To continue with media-based research, however, we need to recognize how the media has changed (Perloff, 2014). The mass media – historically consisting of print media (e.g., newspapers, magazines, and books), the music and radio industry, and film and television (Sterin & Winston, 2017) – is becoming obsolete. A new media – that which requires the use of a computer for distribution and exhibition – has taken over, creating a fundamental shift in the way we share and receive information (Manovich, 2001).

### **Out with the Old, In with the New (Media)**

To describe computer technology as revolutionary is not a hyperbole – just ask anyone born before the mid-1990s. According to generational researcher and psychologist Jean Twenge, individuals born in the year 1995 and later belong to iGen – the first generation to be born with commercialized Internet (Twenge, 2017). Members of iGen will never recall an age without the Internet (Twenge, 2017) – when research required encyclopedias and hardcovers, when music was stored on cassette tapes and compact discs, and when telephones were for speaking (and for the most part, were either stuck to a wall or the size of a brick). Though computer technology has evolved at a “breakneck speed” (Twenge, 2017, p. 5), its integration into our everyday lives has occurred quietly. According to Statistics Canada (2009, 2016), in the year 2007 (approximately

12 years after the commercialization of the Internet), 73% of Canadians aged 15 and older reported regular Internet use; by 2009, this proportion had increased to 80%; and by 2016, to 90%. Increases in Internet use are thought to be linked to advances in computer technology that have enabled ease of access (Carbonell et al., 2018; Lenhart et al., 2015). What began with home computer ownership in the 1980s has evolved to a point when, as aptly noted by Twenge (2017), "...we looked up, maybe from our own phones, and realized that everyone around us had a phone in his or her hands" (p. 50). Statistical data support this sentiment: in the year 2016, 76% of all Canadians and 94% of Canadians aged 15 to 34 years reported owning a smartphone. Of individuals with a smartphone, 90% reported owning at least two digital devices, and 80% owned three or more (Statistics Canada, 2016).

Among young people in particular, computer technology is omnipresent; adolescents have been dubbed the "defining users" of the Internet (Valkenburg & Peter, 2009). Studies converge to suggest that almost 100% of preadolescents and adolescents have regular access to the Internet (e.g., Tiggemann & Slater, 2013, 2014; Twenge, 2017; Wartberg et al., 2018), with estimates of daily use ranging between 1.5 hours (Tiggemann & Slater, 2013, 2014) and 4 hours (George et al., 2017; Rikkers et al., 2016; Wartberg et al., 2018). When exposure to all forms of "screen time" (e.g., texting, Internet, video gaming, television, and video chat; all of which are accessible via smartphone) has been measured, estimates of use are as high as 6.5 hours per day (Rideout et al., 2010; Twenge, 2017). When accounting for media multitasking (i.e., using more than one form of media at once), young persons may be exposed to 8.5 hours of content daily. As noted by Twenge (2017), when new media exposure is considered within the limits of the 24-hour day, and in conjunction with hours required for school attendance and sleep, it appears there is little time for much else. Although parental monitoring and/or mediation of Internet use has



typically been associated with protective effects (e.g., less negative outcomes associated with use; Bleakley et al., 2016; Ding et al., 2017; Khurana et al., 2015; Lin et al., 2009), studies have suggested relatively low rates of parental monitoring (e.g., Tiggemann & Slater, 2013) and knowledge of the extent of adolescents' use (Bleakley et al., 2016).

### ***The Internet and Mental Health***

The prominence of the Internet and computer technology has motivated both clinicians and researchers to explore the point at which use of the Internet may be considered pathological. Across studies, this notion has been referred to as Internet addiction (Banjanin et al., 2015), Compulsive Internet Use (Ciarrochi et al., 2015), and Problematic Internet Use (Caplan, 2002, 2003). Despite variations in terminology, the idea of problematic or compulsive Internet use is generally understood as the inability to control one's use of the Internet (or engagement in online/computer-based activities), leading to negative consequences for valued daily activities and/or life domains (e.g., Ciarrochi et al., 2015). From a clinical perspective, the American Psychiatric Association has yet to recognize problematic use of the Internet/computer technology as an official diagnosis, but has proposed a similar condition – Internet Gaming Disorder – to be considered for inclusion in the next edition of the DSM (APA, 2013). Based on empirical literature from researchers in Asia (that has primarily focused on young boys), Internet Gaming Disorder is characterized by compulsive engagement in online games resulting in clinically significant impairment or distress. The condition – which is associated with neglect of interests and responsibilities outside of gaming (e.g., academics, employment, family life, etc.) – has been likened to addiction, although this is a point of controversy in the field (e.g., see Caplan, 2003, 2007, for a review).

In addition to investigating whether the use of the Internet is pathological in and of itself, there has been a proliferation of research investigating negative outcomes for mental health and well-being associated with excessive use (Bleakley et al., 2016; George et al., 2017; Wartberg et al., 2018). Across studies, time using the Internet (and related forms of computer technology) has been found to be associated with poor self-regulation (Blachnio & Przepiorka, 2016; Bleakley et al., 2016), symptoms of Attention-Deficit/Hyperactivity Disorder (e.g., Bleakley et al., 2016; Kaess et al., 2014; Tatenio et al., 2016; Weiss et al., 2011), symptoms of conduct disorder (Bleakley et al., 2016; Kaess et al., 2014), depression (e.g., Banjanin et al., 2015; Kaess et al., 2014; Moreno et al., 2015), anxiety (Caplan, 2007; Demirci et al., 2015; Kaess et al., 2014), and disordered eating (e.g., Tiggemann & Miller, 2010).

Given the theoretical predictions of sociocultural models (Keery et al., 2004; Thompson et al., 1999), as well as the extensive evidence supporting the association between mass media and disordered eating (e.g., Grabe et al., 2008), data suggesting a link between the Internet and eating pathology is hardly surprising. Specifically, among preadolescent (aged 10 to 12 years) and adolescent (aged 13 to 15 years) girls, both time spent using the Internet (Tiggemann & Slater, 2013, 2014) and extent of exposure to appearance-focused Internet content (Tiggemann & Miller, 2010) have been found to be associated with disordered eating attitudes (e.g., weight dissatisfaction, drive for thinness; Tiggemann & Miller, 2010; Tiggemann & Slater, 2013, 2014) and behaviours (e.g., dieting; Tiggemann & Slater, 2014). Furthermore – and consistent with predictions of the tripartite model (Keery et al., 2004; Thompson et al., 1999) – both appearance comparison and internalization of the thin ideal have been found to mediate the relationship between Internet exposure and eating pathology (Tiggemann & Miller, 2014).

As the abundance of research examining Internet exposure and outcomes for mental health (including eating pathology) has been correlational, less is known about these relationships across time. While we are currently unable to definitively answer the question of what came first – the chicken (Internet exposure) or the egg (mental health problems) – research by Ciarocchi and colleagues (2015) may permit us a tentative guess. In one of the first attempts at analyzing temporal trends, Ciarrochi et al. (2015) assessed Internet use and mental well-being within a sample of 2068 Australian adolescents across a four-year span. Using latent growth analyses, the authors found that higher levels of Internet use temporally preceded the development of mental health problems. Notably, the relationship between the Internet and poor mental health was *not* reciprocal – that is, mental health problems did not predict subsequent Internet use over time (Ciarrochi et al., 2015).

Although more research is needed to support our emerging understanding of how the Internet affects the development of mental health problems, the link between Internet use and mental health problems is disconcerting, particularly in light of data suggesting that adolescents are online for several hours per day (e.g., Twenge, 2017). As many exasperated parents and teachers have likely wondered: how are adolescents filling that many hours online? What do they use the Internet for?

**Social Media.** Research suggests that one of the primary ways in which adolescents use the Internet is to communicate (Greenfield & Yan, 2006; Valkenburg & Peter, 2009). In the 1990s, this occurred by means of e-mail and chatroom technologies, later evolving to online instant messenger services (e.g., AOL Instant Messenger, MSN Messenger) and “social network sites” (Boyd & Ellison, 2008), or as we collectively call them, social media. According to Boyd and Ellison (2008), social network sites are “web-based services that allow individuals to (1)

construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (p. 211). The first social network sites were developed in the late 1990s, and were popularized in the early 2000s with the launch of Friendster (Boyd & Ellison, 2008). In the time since, popular social networks (within North America) have included MySpace, Facebook, Twitter, Instagram, Snapchat, and Tumblr (Boyd & Ellison, 2008; Lenhart et al., 2015). Although each of these networks differ in their specific characteristics and capabilities, what is common between them is their personal or egocentric nature; the individual user is the centre of the community they create for themselves (Boyd & Ellison, 2008).

Although the functions and breadth of social networks have expanded exponentially in recent years (e.g., Boyd, 2014), at the most basic level, a social media profile is a landmark from which an individual can create and share their own content, as well as consume (actively and passively) content generated by other users (Perloff, 2014; Prieler & Choi, 2014). The opportunity for active engagement by all users is a defining characteristic of social media, and is in stark contrast to the user’s experience of mass media, which is limited to passive consumption. While the most conspicuous form of active engagement in social networks is content generation in the form of a “post”, users also have the opportunity to provide feedback on the posts of users within their network (Prieler & Choi, 2014). Originally, this feedback was limited to open-ended comments and the option of endorsement (e.g., Facebook or Instagram “Likes”), but has since been expanded on Facebook to include a range of affective reactions (including “Love”, “Wow”, and “Angry”).

Fundamentally speaking, the boundaries of one’s social network are defined by the user’s identification of relationships with others within the network. Depending on the specific social

network, these relationships may be bidirectional (e.g., “Friends” on Facebook) or unidirectional in nature (e.g., “Followers” on Instagram; Boyd & Ellison, 2008). At its origins, a defining feature of social media was the familiarity of one’s social network. Whereas mass media content was available to large and heterogeneous samples, social media differed in that users shared and consumed content within an explicitly defined network of individuals, typically consisting of “people who [were] already a part of their extended social network” (Boyd & Ellison, 2008, p. 211). As put by Perloff (2014), “[Social network sites] were fundamentally the media of one’s peers” (p. 366).

In the current day and age, social networks – now readily accessed as applications on smartphones – have evolved to become omnipresent in the lives of young people, with 94% of adolescents reporting regular use (AP-NORC, 2017). Social networks have also changed considerably since their initial development. Although written a mere four years ago, is Perloff’s description of social media as “the media of one’s peers” still accurate?

The answer: it’s complicated. Although popular social networks (including Facebook, Instagram, and Snapchat) provide users with options regarding who can see their content (with limitations – for example, on Facebook, a user’s current “cover photo” and name are always publicly viewable), there is less control over the content one consumes. Any individual user may choose to primarily attend to content posted by their network of peers, but can also easily access content posted by those outside of their explicitly-formed network. For example, even without actively making use of available search tools, Instagram’s “Explore” page and Snapchat’s “Discover” page expose users to a feed of content (selected based on content the user has previously engaged with) posted by users outside of their network. Content is no longer limited to posts by familiar others; what’s more, content is no longer limited to posts by actual human

beings. Within recent years, social media has seemingly evolved from “the media of one’s peers” into news outlets (Hermida et al., 2012), sources of health information (Lin & Chang, 2018), business marketing tools (e.g., Lipsman et al., 2012), direct shopping channels (Frier, 2016), and mediums of political expression and communication (e.g., Cook, 2017), to name a few.

The myriad capabilities offered by social networks complicates initial forays into social media research. While the need to investigate psychological facets of social media use is widely recognized, our conceptualization of social media is murky at best, its definitional bounds vague and constantly evolving. At present, in order to examine the associations between individuals’ use of social media and various outcomes of interest, we must have knowledge of the various and wide-ranging functions of social media, and strive to describe the specific behaviours of interest. In attempting to understand the links between adolescents’ engagement in social media and mental health – with a particular focus on disordered eating – a logical place to begin might be by simply asking: what social networks are adolescents commonly using, and how are they using them?

***Facebook, Instagram, Snapchat.*** As social media has evolved, so have adolescents’ preferences for use. Facebook – the longstanding juggernaut of social media– remains popular among adults (Greenwood et al., 2016), but may be losing its grip among adolescents. Based on a survey of 1060 American adolescents aged 13 to 17 years, Lenhart et al. (2015) reported Facebook to be the most commonly used social network as of the year 2015, followed in popularity by Instagram (used by 52% of the sample), Snapchat (41%), and Twitter (33%). In terms of frequency of access, 41% of adolescents reported using Facebook most often, followed by Instagram (20%), Snapchat (11%), and Twitter (6%; Lenhart et al., 2015). A mere 2 years later, however, Facebook had been dethroned – twice. Within a sample of 790 adolescents, 76%

reported using Instagram and 75% reported using Snapchat, followed by Facebook (66%) and Twitter (47%; AP-NORC, 2017). Among adolescent social media users, Instagram and Snapchat were also accessed more frequently than Facebook (AP-NORC, 2017).

Trends in social media use among adolescents have also been found to vary according to demographic variables. Regarding age, findings converge to suggest that social media use increases across the span of adolescence (AP-NORC, 2017; Rideout et al., 2010). In 2015, Lenhart et al. reported that younger adolescents (i.e., 13 to 14 years of age) were more likely than older adolescents (i.e., 15 to 17 years of age) to identify Instagram as the social network they used most often. By 2017, this trend was no longer apparent, with older adolescents reporting more frequent use of all social networks relative to younger adolescents (AP-NORC, 2017). Regarding trends based on gender, multiple researchers (AP-NORC, 2017; Burnette et al., 2017; Lenhart et al., 2015; Len-Rios et al., 2015) have reported that adolescent girls spend more time using visual-based social media (such as Instagram and Snapchat) compared to boys, whereas boys spend more time playing computer and online games (AP-NORC, 2017). Family income and ethnicity have also been studied. Although rates of smartphone use were consistently high across all income brackets, adolescents in households earning \$100,000 (USD) or more per year were more likely to use Instagram (82%) than adolescents in households earning less (72% ; though rates of engagement remained fairly high regardless of income; AP-NORC, 2017). Regarding ethnicity, Black adolescents were more likely than White and Hispanic adolescents to use Snapchat (AP-NORC, 2017).

***Social Media and Mental Health.*** Consistent with research supporting associations between Internet exposure and poor mental health, social media use has been linked with mental health issues including depression (Appel et al., 2016; Lin et al., 2016; O’Keeffe, & Clarke-

Pearson, 2011; Sampasa-Kanyinga & Lewis, 2015), anxiety (Mabe et al., 2014; Woods & Scott, 2016), and disordered eating attitudes and behaviours (e.g., Holland & Tiggemann, 2016). That said, much of the current research explicitly linking social media and mental health in general (e.g., Appel et al., 2016), as well as disordered eating in particular (Holland & Tiggemann, 2016), has been conducted with samples of young adults and has focused on the influence of Facebook (Appel et al., 2016). As such, researchers have articulated the need to study samples of younger adolescents and/or older adults (Appel et al., 2016), and to investigate the links between mental health and social networks other than Facebook (especially considering the popularity of Instagram and Snapchat among adolescents; AP-NORC, 2017).

In general, existing research supports the link between engagement in Facebook and disordered eating (Holland & Tiggemann, 2016), but the processes underlying this link are unclear. Among studies that have operationalized social media exposure as the amount of time spent using Facebook or the frequency of checking Facebook, results tentatively suggest a link between Facebook and disordered eating, although the evidence is inconsistent. Results of several correlational studies suggest that more time spent on Facebook (Mabe et al., 2014; Tiggemann & Slater, 2013) and greater frequency of Facebook access (e.g., profile checking; Fardouly & Vartanian, 2015) are associated with higher levels of disordered eating attitudes. However, other results do not support a direct link between time spent on Facebook and disordered eating (e.g., Meier & Gray, 2014; Walker et al., 2015).

Results of experimental studies are similarly inconsistent. Upon randomly assigning women to spend twenty minutes on Facebook versus a control website, Mabe et al. (2014) found that women exposed to Facebook reported greater concerns about weight and shape relative to women in the control group. In contrast to these results, upon randomly assigning women to



spend ten minutes browsing Facebook, an appearance-focused website (i.e., online fashion magazine), or neutral website (i.e., home craft website), Fardouly et al. (2015b) found that, whereas women exposed to the appearance-focused website reported heightened body dissatisfaction, women exposed to Facebook did not experience this effect. Though it's possible the amount of time was insufficient to induce an effect on the outcome (e.g., Kazdin, 2003), this argument is weakened by the significant effect found in the appearance-focused website condition.

Considering the plethora of activities available to the Facebook user upon exposure to the site, what is perhaps more likely is that merely assessing and/or manipulating duration of exposure does not sufficiently capture the true mechanisms of the association (e.g., Fardouly & Vartanian, 2015; Holland & Tiggemann, 2016; Walker et al., 2015). Supporting this notion, although Meier and Gray (2014) did not find overall Facebook exposure to be associated with eating pathology, specific engagement in photo-based activities on Facebook was positively associated with thin ideal internalization and drive for thinness, and negatively associated with weight satisfaction. Similarly, Walker et al. (2015) found that Facebook intensity (i.e., level of emotional connection or dependence on Facebook) among college students was associated with engagement in online physical appearance comparison, which was then associated with heightened disordered eating. In the absence of online physical appearance comparison, however, Facebook intensity was actually associated with lower disordered eating (Walker et al., 2015). Fardouly and Vartanian (2015) also found physical appearance comparisons to mediate the link between Facebook and body image concerns; furthermore, the researchers found that comparisons to peers were found to have a greater negative impact on body image than comparisons to celebrities and/or models. Taken together, scientifically assessing how we use

social networks (and the underlying processes that occur) seems likely to be more informative than merely understanding how often we use them, or for how long. When we consider this, it appears that engagement in Facebook (and perhaps other social networks, although more research is needed) may be a “double-edged sword for disordered eating behaviour” (Walker et al., 2015, p.161). Although Facebook may provide users with more opportunities to compare themselves with images of friends (e.g., Fardouly & Vartanian, 2015; Meier & Grey, 2014), engagement on Facebook can also be beneficial in terms of social and emotional support (Grieve & Watkinson, 2017; Walker et al., 2015, for review).

More recent research has specifically examined the association between exposure to social networks intended for photo-sharing and disordered eating among adult women (e.g., Cohen et al., 2017; Holland & Tiggemann, 2017; Sherlock & Wagstaff, 2019; Turner & Lefevre, 2017). Within a sample of young adult women (ages 18 to 29 years), Cohen and colleagues (2017) found that specifically following appearance-focused accounts on Instagram was associated with thin ideal internalization, drive for thinness, and body surveillance. In a novel research design, Holland and Tiggemann (2017) assessed disordered eating symptoms among two groups of adult women: those who post “fitspiration” content (i.e., content designed to promote fitness through exercise and eating well) and those who post travel images. Consistent with expectations, women who posted fitspiration content scored significantly higher on multiple indices of disordered eating. Upon examining characteristics of the fitspiration group, Holland & Tiggemann (2017) found that 17.5% of the women were at risk for eating disorder diagnosis, compared to only 4.3% of women in the travel group. Finally, Turner and Lefevre (2017) examined symptoms of orthorexia nervosa, a relatively novel condition (not included in the *DSM-5*) associated with an obsession with healthy eating, among social media users. Turner and

Lefevre (2017) found that higher Instagram use was associated with symptomology of orthorexia nervosa; interestingly, this association was not found for any other social media network.

When research suggesting harmful effects of engaging in online photo-based activities is considered in light of the rising popularity of image-based social networks among youth (namely, Instagram and Snapchat; AP-NORC, 2017; Lenhart et al., 2015), the importance of conducting further research – particularly with adolescents – is emphasized. That said, the multifaceted nature of social media – and in particular, the factors involved in posting and/or viewing a photo on a social network – can make it difficult for researchers to know where to begin. Starting at the most basic element of the question – what makes photo-based activities so salient?

***Image-Based Research.*** Seminal research on consumer behaviour suggests that pictures are more likely to be remembered than text (Childers & Houston, 1984), an effect dubbed by the researchers “the image-superiority effect”. At the time the research was conducted, the implications were primarily used to support the use of images in the advertising industry (Childers & Houston, 1984). In the present day, the image-superiority effect might contribute to our understanding of why photo-based social networks are so powerful, both in their popularity among youth (e.g., AP-NORC, 2017) and in their potential role in disordered eating among girls (Meier & Gray, 2014; Turner & Lefevre, 2017).

Outside of the domain of social media, the link between photo perception and disordered eating has been studied using eye-tracking technology. Girls with disordered eating typically overvalue shape and weight (Levine & Smolak, 2006), resulting in excessive monitoring of their own bodies as well as frequent comparison with bodies of others (e.g., Myers & Crowther, 2009). Researchers have conceptualized this process as representing a type of cognitive bias –

specifically, a bias in the allocation of attention towards information relevant to shape and weight (Horndasch et al., 2012). Accordingly, researchers have presumed that when exposed to images of female bodies, individuals' looking patterns (used as a behavioural indicator of attention) should differ according to an individual's degree of disordered eating symptomology. Results supporting this prediction have been inconsistent, however (Cho & Lee, 2013; Gao et al., 2014). In their study comparing women with high versus low levels of self-reported body dissatisfaction, Cho and Lee (2013) found that, compared to women low in body dissatisfaction, women high in body dissatisfaction spent more time looking at images of thin bodies, and rated thin bodies to be more attractive (compared to other body types). Gao et al. (2014) also found that attention patterns differed between women reporting high vs. low levels of disordered eating, but in a different manner. Specifically, Gao et al. (2014) found that, relative to girls with low levels of disordered eating, girls with high levels of disordered eating allocated more attention toward both fat and thin bodies (compared to control images).

Other studies do not support the link between disordered eating and attention allocation; in contrast, these studies suggest that, regardless of eating pathology, girls are more likely to attend to visual information that is relevant to shape and weight (compared to information that is not relevant to shape/weight; Glauert et al., 2009; Horndasch et al., 2012). However, as with the findings of Cho and Lee (2013) and Gao et al. (2014), specific patterns in attention allocation varied across studies. Horndasch et al. (2012) found that all girls, regardless of eating pathology, spent more time looking at areas of the body that are typically sources of dissatisfaction (e.g., waist, legs, hips, etc.) relative to other body areas. Comparatively, Glauert et al. (2009) found that, when exposed to images of "thin" and "fat" bodies, all girls (regardless of eating pathology) allocated greater attention towards thin bodies. Although conclusions are difficult to draw due to

differences in study methodology, results seem to suggest that visual information related to shape and weight is salient and attended to by most girls (Horndasch et al., 2012; Glauret et al., 2009). In addition, results tentatively suggest that patterns of attention toward shape/weight-based visual information may be exacerbated among women with higher levels of eating pathology (e.g., Cho & Lee, 2013), but more research is needed.

To further complicate matters, results of eye-tracking (Roefs et al., 2008; Jansen et al., 2005) and neuroimaging (Castellini et al., 2009) studies also appear to differ according to the identity of the individual in the photo (i.e., a picture of oneself vs. a picture of another person). Within a sample of normal-weight women without significant eating pathology, Roefs and colleagues (2008) found that when exposed to a photo of their own body, women attended most to their self-rated most unattractive body part; when exposed to the photo of a control body, women attended most to the body part they perceived as being most attractive. This pattern was also found by Jansen and colleagues (2005), but only among women high in eating pathology. In their study, Jansen et al. (2005) found that women low in eating pathology preferentially attended to their self-identified attractive body parts when viewing their own body, and attended to unattractive body parts when viewing the body of another woman. Although more research is needed, these findings may have significant implications for our understanding of how social comparison processes contribute to disordered eating. Specifically, it seems that women low in disordered eating may demonstrate a self-serving protective bias when viewing their own and others' bodies; by preferentially attending to their own attractive body parts and others' unattractive body parts, any social comparisons made are likely to be downward, resulting in positive (and protective) self-evaluations (Jansen et al., 2005). In contrast, among women with higher levels of disordered eating, this protective bias appears to be absent; preferential attention

to their own unattractive body parts and others' attractive body parts increases the likelihood of upward comparisons, resulting in negative self-evaluations (Jansen et al., 2005; Roefs et al., 2008).

Although findings from eye-tracking studies cannot be directly applied to our understanding of the processes that occur upon viewing photos of oneself and others on social media, they certainly aren't irrelevant. Given the popularity of image-based social media among adolescent girls (AP-NORC, 2017), the link between photo-based activities on social media and disordered eating (Meier & Gray, 2014), and the fact that photos of friends and of oneself are among the most common content posted on Instagram (Hu et al., 2014), the results of these studies are worthy of consideration. That said, the conditions of observing an image of another girl as part of an eye-tracking study are very different from the conditions under which girls observe images of others on social media. The images themselves are also likely to differ – apart from the fact that social media provides users with opportunities for feedback, images used in eye-tracking studies are often computer-generated (Cho & Lee, 2013; Glauert et al., 2009). When the images do feature real human beings, features of the photograph are closely controlled (e.g., black bathing suit, neutral background), are sometimes edited (e.g., to manipulate body size, Castellini et al., 2009; to remove colour, Roefs et al., 2008), and do not always feature the entire person (e.g., body without the head; Jansen et al., 2005; Roefs et al., 2008). When thinking about how to apply image processing research to girls' experiences on social media – and further relate this to experiences of disordered eating – we need to think about what girls see on social media.

***Photos on Social Media.*** In a content analysis of photos posted by almost 14000 Instagram users, Hu et al. (2014) found that approximately one-quarter of photos on Instagram

were selfies (i.e., photos of oneself; 24.2%) or photos of friends (22.4%). The next most common were photos of activities (e.g., concerts), gadgets (e.g., electronic tools), text (e.g., motivational quotes), and food. Apart from the analysis of Hu et al. (2014), content analyses on Instagram have primarily focused on particular types of images, including fitspiration (i.e., photos promoting health) and thinspiration (i.e., photos promoting thinness) images. For example, Ging and Garvey (2018) found that thinspiration images posted on social media typically included underweight female bodies, text relating to disordered eating, text relating to self-harm and/or suicide, advice for maintaining an eating disorder, and selfies of individuals with eating disorders. Although Ging and Garvey (2018) did not specifically identify sexualized content, Ghaznavi and Taylor (2015) noted that the majority of thinspiration images (found using Twitter and Pinterest) in their analysis depicted extremely thin women in sexually suggestive and/or objectifying positions. Tiggemann and Zaccardo (2016) also noted a theme of objectification across fitspiration images (i.e., using a “sexy” pose, or clearly focusing on a specific body part, such as the abdominal muscles), which mostly featured thin and toned women.

Of course, an individual’s degree of exposure to thinspiration or fitspiration images on a network such as Instagram will depend (to an extent) on these images being specifically sought out. Consistent with this, the gratification hypothesis proposes that individuals actively participate in forms of media to satisfy needs, which can be functional or dysfunctional (Perloff, 2014). According to this notion, girls with body image concerns may seek content related to disordered eating on social media (e.g., fitspiration or thinspiration content), which may induce physical appearance comparisons and reinforce the normalization (Young & Jordan, 2013) of unattainable (and perhaps unhealthy) body image ideals (Perloff, 2014). This cycle would also be consistent with the longitudinal research of Rodgers et al. (2015), whose findings indicate a

reciprocal relationship between media internalization and body image concerns. Based on this reasoning, it would be beneficial for future research to assess the prevalence of thinspiration and fitspiration images on social media, and to determine whether girls with (clinical or subclinical) eating pathology are more likely to seek out this content.

***Self-Presentation on Social Media.*** As noted by Boyd & Ellison (2008), social media is unique in that the content traditionally revolves around oneself; as an extension of this, social networks offer adolescents an unprecedented (and evolving) amount of control over the self-image they present (e.g., Zhao et al., 2013). This degree of control over one's self-presentation is likely to be associated with consequences (both positive and negative) not only for the poster – for example, through reception and feedback to the photo by one's audience (Zhao et al., 2013) – but also for the consumer of the material. Specifically, one's self-presentation on social media (e.g., through “posts” generated by the user), in combination with the reactions of other users to the content (e.g., comments or “Likes”), is likely to affect the viewer's perceptions of the user in question. In turn, the viewer's perception of the user – whether accurate or not – may (positively or negatively) affect the viewer's perception of themselves.

Research on self-presentation on social media is scant, but existing findings suggest that girls and women tend to present themselves in an idealized (Manago et al., 2008) and often objectified manner (Daniels & Zurbriggen, 2016a; Kapidzic & Herring, 2011, 2015; Ramsey & Horan, 2016). In an analysis of 400 social media profile photographs, Kapidzic and Herring (2015) found significant differences in gaze, posture, dress, and distance from the camera according to gender. In particular, girls presented themselves in a more sexualized manner. In self-selected profile photos, girls typically appeared close to the camera, in revealing clothes, and posed seductively. These findings were consistent with earlier research suggesting that girls'



profile pictures in online chatrooms conformed to traditional gender stereotypes for appearance (Kapidzic & Herring, 2011). Regarding specific social networks, Ramsey and Horan (2016) found Instagram to contain a higher degree of self-sexualized content relative to other social networks, which they propose may be due to its photo-centric design and large celebrity following. Ramsey and Horan (2016) also found that wanting attention on social media was the strongest predictor of posting self-sexualized photos among young women.

The manner in which an individual presents themselves, both in-person and on social media, is likely to impact others' evaluations of them (Guntuku et al., 2015); these perceptions may or may not be consistent with the image the individual is intending to project. Based on research with adult women indicating an association between sexualized self-presentation in photos and negative perceptions by others, Daniels and Zurbriggen (2016a) presented older adolescent girls and young adult women with a social media profile with either a sexualized profile picture (i.e., a young adult woman dressed in revealing clothing) or a non-sexualized profile picture (i.e., the same woman dressed in conservative clothing). Consistent with the researchers' predictions, the sexualized profile owner was perceived to be less competent and less socially attractive compared to the non-sexualized profile owner. Contrary to predictions, the sexualized profile owner was also perceived to be less physically attractive. Interestingly, age of participant interacted with judgements of social attractiveness, such that younger participants perceived the sexualized profile owner to be less socially attractive (relative to older participants). Daniels and Zurbriggen (2016a) explain their findings in the context of socialized gender discourses; consistent with Piran (2017), they note that sexualized self-presentation is associated with perceived benefits (e.g., increased interest from boys and men; Murnen & Smolak, 2013), but is also associated with relational costs. The finding suggesting emphasized

relational costs (i.e., reduced perceptions of social attractiveness) among younger girls are consistent with DTE, which notes an increase in competition between girls over intimate relations during early adolescence (Piran, 2017). In terms of benefits, both Ghaznavi and Taylor (2015) and Ramsey and Horan (2016) have found that self-sexualized photos tend to receive more “Likes” on social media.

In terms of consequences for consumers of content on photo-based social media, this remains relatively unstudied. Although existing findings suggest that engagement in photo-based activities on social media is associated with disordered eating, the mechanisms of this process are currently unclear. Researchers have suggested that social media may result in the exacerbation of adolescents’ misperceptions of others’ lives due to the extent of control social media users have regarding the image they project (Jordan et al., 2011). This is especially relevant given that image modification technology has become readily accessible to social media users, from simple tools such as Instagram filters (which alter colour, composition, brightness, etc.) to more complex tools such as Photoshop. In the advertising industry, it was thought that making consumers aware of photo-altering practices would reduce the negative impact of altered images on viewers’ body image. Research suggests that this is not the case, however. Tiggemann et al. (2013) found that the presence of warning labels (indicating photo alteration) on advertisements did not reduce body dissatisfaction among women; in fact, for women high in trait appearance comparison, exposure to warning labels resulted in increased body dissatisfaction (Tiggemann et al., 2013). Similar results were found by Harrison and Hefner (2014): compared to adolescents exposed to unretouched and retouched images, adolescents who viewed images explicitly identified as retouched (retouched-aware condition) reported the greatest increases in objectified body consciousness and decreases in body self-esteem.

Other researchers have conceptualized the potential negative impacts of social media use with social normative theory (Young & Jordan, 2013). Specifically, this perspective suggests that young people's behaviours are strongly influenced by estimates of whether peers are engaging in the same behaviours. In their research, Young and Jordan (2013) found that young people exposed to Facebook images of sexually suggestive behaviours estimated that a larger percentage of their peers had engaged in risky sexual behaviours, and were more likely to report a willingness to engage in these behaviours themselves (e.g., intercourse without protection), compared to individuals exposed to non-suggestive photos. Connecting this to body image and disordered eating, it is possible that a preponderance of social media content that depicts socialized gender ideals for appearance and/or engagement in disordered eating may contribute to the normalization of unhealthy attitudes and a willingness to engage in body alteration practices. That said, the effects of exposure to specific types of images are likely to be moderated by individual personality characteristics. For example, centrality of appearance to self-worth may render photos depicting unattainable thinness more or less influential in eliciting disordered eating attitudes and behaviours (Prieler & Choi, 2014).

### **The Present Study**

The broad objective of the present study was to deepen our understanding of the mechanisms underlying the development of disordered eating among adolescent girls, with a particular emphasis on how engagement in social media practices may contribute to this process. This objective is informed by theory and research regarding sociocultural influences on feminine appearance ideals and eating pathology. Theories of sociocultural influence – namely, the tripartite model (e.g., Keery et al., 2004) and objectification theory (Fredrickson & Roberts, 1997) – have been independently linked to disordered eating in previous research, but these

bodies of literature have remained somewhat segregated. As socialized gender discourses have been found to impact the presentation of girls and women in forms of media (traditional and social), it would be beneficial to consider the combined influence of media exposure and gender socialization processes on the development of disordered eating. This point is reinforced by the DTE, which posits that disordered eating – as well as other issues more commonly experienced by girls and women – may be best understood as mental and behavioural expressions of “bodies in distress” (Piran, 2017, p. xi.). This viewpoint is valuable to disordered eating research as it emphasizes the need to consider the broader sociocultural contexts in which women’s subjective bodily experiences (e.g., eating pathology) are embedded (Piran, 2017).

Without integrating principles across bodies of literature, our understanding of the development of disordered eating remains incomplete; we fail to see the forest for the trees. As such, the present study is a novel attempt to combine influences from disparate theories into a more comprehensive model of sociocultural influences on the development of disordered eating among girls. The present study is also informed by the vast empirical literature supporting the association between the media and eating pathology. In examining the influence of the media, the present study is novel in its focus on social media practices, as the majority of work within this domain has focused on traditional forms of media (e.g., television and magazines; Grabe et al., 2008). Although more recent efforts have begun to examine the impact of social media on the development of disordered eating, these studies have typically focused on older forms of social media (i.e., Facebook; Fardouly & Vartanian, 2015), and have been limited by vague operationalization of social media variables (e.g., only measuring time spent using multifaceted networks; Mabe et al., 2014) and a general dependence on young adult samples (e.g., college/university students; Holland & Tiggemann, 2016). The importance of conducting this

research with adolescents is emphasized by the sensitivity of the peripubertal period for eating disorder development (Klump, 2013), the salience of socialized gender variables within this phase of development (Piran, 2017), and the popularity of engaging with photo-based social networks among this group (AP-NORC, 2017).

The present study had three parts. The first part of the study involved the assessment of variables of interest among girls aged 14 to 17 years, including eating pathology and body dissatisfaction, mechanisms associated with disordered eating (i.e., internalization of the thin ideal and physical appearance comparison), and socialized gender variables (body surveillance and body shame). Adolescent girls were also surveyed about their engagement in social media networks, including types of social media networks used, time spent using specific networks, and specific activities engaged in (e.g., posting content, viewing content).

The second part of the present study endeavoured to explore the image of the “ideal girl” (e.g., Piran, 2017), and whether adolescent girls’ preferences for appearance are associated with disordered eating and the use of photo-based social media networks. Within the field of body image research, the image of the ideal girl has historically been equated with the thin ideal depicted by the mass media (Morrison et al., 2004; Prieler & Choi, 2014; Thompson & Heinberg, 1999). Extending this image past thinness, the ideal girl has also been described as being beautiful, with white skin, long and styled hair (preferably blonde), blue eyes, wearing makeup, and wearing tight/exposing clothing (e.g., Levine & Smolak, 1996; Piran, 2017). This illustration of the ideal girl is thought to be reflective of values for beauty and femininity that have been transmitted and reinforced by social systems, including the mass media. Within recent years, however, the social landscape has shifted somewhat. Although the mass media likely remains relevant (to an extent) among youth, it is possible that the depiction of girls and women

on social media may be causing the image of the ideal girl to change (e.g., Fardouly et al., 2015b; Harrison & Hefner, 2014). The design of this aspect of the study represents an application of self-discrepancy theory (Higgins, 1987) to the study of body image (e.g., Vartanian, 2012). According to self-discrepancy theory, an individual's perception of their actual attributes is reflective of the "actual self", whereas the "ideal self" refers to the attributes that the individual would like to possess (Higgins, 1987); in past research, the difference between these measurements has been interpreted as an indicator of body dissatisfaction (see Vartanian, 2012, for a review). In addition to assessing perceptions of and preferences for appearance among the adolescents themselves, this part of the study also involved exposure to images of three young women (of varying ethnicities). Upon viewing each image, participants were asked about the extent to which each young woman fit with their idea of the "ideal girl"; their perceptions of the girl's appearance; and their perceptions of the girl's preferences for her appearance.

Part three of the study assessed whether adherence to idealized standards for appearance affects perceptions of girls' bodies and appearances, as well as perceptions of interpersonal qualities. Participants were exposed to the image of a fourth girl – those assigned to the "idealized" condition viewed an image in which the girl fit the appearance of the "ideal girl" (e.g., long styled hair, wearing makeup, attired in tight/restrictive/revealing clothes); in contrast, participants assigned to the "non-idealized" condition viewed an image in which the same girl did not fit the appearance of the ideal girl (e.g., hair unstyled, no make-up, conservative and non-restrictive clothing). Upon viewing either image, participants were asked to rate the girl on a number of characteristics, including physical attractiveness, social attractiveness, and intelligence. They were also asked to predict how many "Likes" they anticipate the photo would receive if it were posted on a social media network.

## ***Research Questions and Hypotheses***

Regarding Part 1 of the proposed study, primary research questions (and associated hypotheses) were as follows:

1) How are adolescent girls using social media?

This question was examined with regard to general social media use, as well as specific use of photo-based social networks. Based on research linking disordered eating (e.g., Cohen et al., 2018; Holland & Tiggemann, 2017; McLean et al., 2015) and gender-based social discourses (e.g., Kapidzic & Herring, 2011, 2015; Ramsey & Horan, 2016) with social media use (and photo-based social media use in particular; Cohen et al., 2017; Turner & Lefevre, 2017), specific hypotheses included:

- a. Higher levels of disordered eating and body dissatisfaction would be associated with: more time using social media, greater engagement in photo-based networks, and greater use of photo editing/alteration practices.
- b. Higher levels of body surveillance would be associated with: more time using social media, greater engagement in photo-based networks, and greater use of photo editing/alteration practices.

2) What are the associations between social media use, eating pathology, mechanisms associated with disordered eating, and gender-based social discourses?

This question was examined through the development of a hypothetical path model (see Figure 1). Based on theory and previous research regarding sociocultural influences on the development of disordered eating (e.g., Keery et al., 2004; Thompson et al., 1999; Tiggemann & Miller, 2014), the following hypotheses were specified:

- a. Greater engagement with photo-based social media would be positively associated with greater internalization of the thin ideal (Keery et al., 2004), greater physical appearance comparison (Keery et al., 2004), and greater body surveillance (Vuković, et al., 2018).
- b. Internalization of the thin ideal would be associated with greater physical appearance comparison (Rodgers et al., 2015), greater body surveillance (Fitzsimmons-Craft et al., 2012), greater body dissatisfaction (Fitzsimmons-Craft et al., 2016), and greater disordered eating (Keery et al., 2004).
- c. Physical appearance comparison would be associated with greater body surveillance (Tylka & Sabik, 2010), greater body shame (Tylka & Sabik, 2010), greater body dissatisfaction (Fitzsimmons-Craft et al., 2016), and greater disordered eating (Alcaraz-Ibanez et al., 2020; Lin & Soby, 2016).
- d. Body surveillance would be associated with greater body shame (Slater & Tiggemann, 2002, 2014) and greater body dissatisfaction (Fitzsimmons-Craft et al., 2012; Mercurio & Rima, 2011).
- e. Body shame would be associated with greater body dissatisfaction (Sun, 2018) and greater disordered eating (Slater & Tiggemann, 2002, 2014).
- f. Greater body dissatisfaction would be associated with greater eating pathology (Keery et al., 2004).

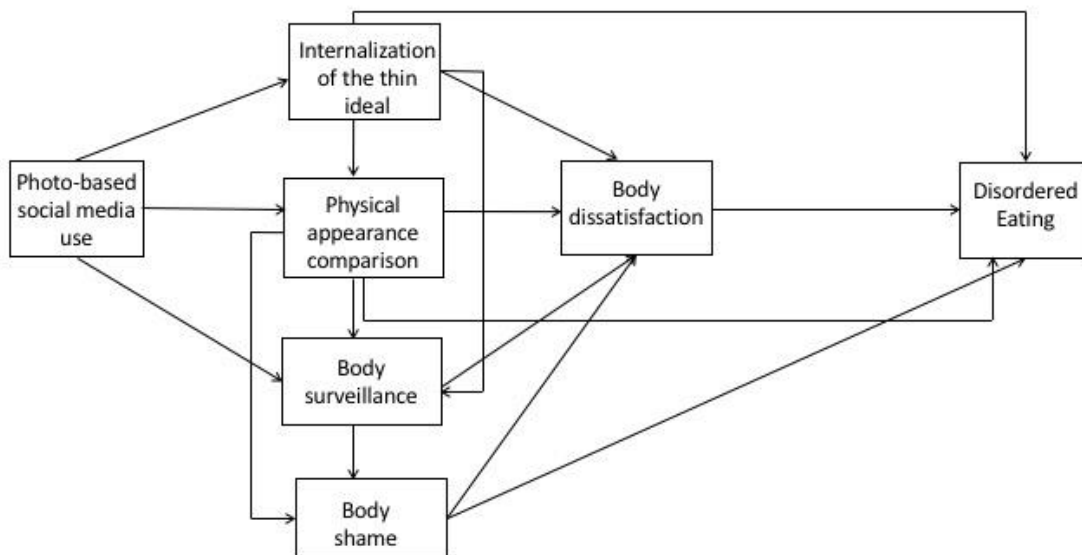
In addition to the examination of these specific hypotheses, the role of self-esteem (e.g., Tylka & Sabik, 2010) was also explored, on the basis of previous research demonstrating significant associations between self-esteem, variables related to disordered eating (Espinoza et



al., 2019; Paxton et al., 2006; Shroff & Thompson, 2006), and variables related to self-objectification (Iannaccone et al., 2016; Vuković et al., 2018) among adolescent girls.

**Figure 1**

*Hypothesized Path Model*



Regarding Part 2 of the study, which was largely exploratory in nature, specific research questions (and associated hypotheses) regarding participants' perceptions of their own bodies were as follows:

- 3) How do adolescent girls perceive their *own* bodies? It was hypothesized that:
  - a. Higher levels of disordered eating (and mechanisms associated with disordered eating, including internalization of the thin ideal and physical appearance comparison) would be associated with more negative perceptions of one's body (particularly on dimensions of shape and weight).
  - b. Greater engagement with photo-based social media would be associated with more negative perceptions of one's body (particularly on dimensions of shape and weight).
- 4) How do adolescent girls want their bodies to look? Is there a discrepancy between how girls perceive their own bodies and how they want their bodies to look (i.e., actual bodies vs. ideal bodies)? Regarding ideals for appearance, it was hypothesized that:
  - a. Higher levels of disordered eating (and mechanisms associated with disordered eating) would be associated with stronger preferences for idealized physical appearance (particularly on dimensions related to shape and weight).
  - b. Greater engagement with photo-based social media would be positively associated with preferences for idealized physical appearance (particularly on dimensions related to shape and weight).

Specific research questions (and associated hypotheses) regarding participants' perceptions of other girls' bodies are as follows:

- 5) How do adolescent girls perceive the bodies of other girls, and how do they believe the bodies of other girls should look? Is there a discrepancy between how girls perceive other

girls' bodies and how they believe other girls want their bodies to look (i.e., actual bodies vs. ideal bodies)? Regarding ideals for appearance, it was hypothesized that:

- a. Higher levels of disordered eating (and mechanisms associated with disordered eating) would be associated with stronger preferences for idealized physical appearance among other girls (particularly on dimensions of shape and weight).
- b. Greater engagement with photo-based social media would be positively associated with preferences for idealized physical appearance among other girls.

Specific research questions (and associated hypotheses) regarding potential discrepancies between perceptions of girls' own bodies and the bodies of other girls were as follows:

- 6) Is there a discrepancy between adolescents' preferences for their own appearance vs. their perceptions of other girls' preferences for their bodies (i.e., ideal self vs. ideal other)?
- 7) Does the discrepancy between actual and idealized bodies for oneself (self actual-ideal discrepancy) differ from the discrepancy between perceptions of actual and idealized bodies for other girls (other actual-ideal discrepancy)?

Finally, regarding Part 3 of the study, specific research questions (and associated hypotheses) included:

- 8) Does adherence to idealized standards for appearance affect perceptions of girls' physical appearance and interpersonal qualities? Based on research and theory supporting relational costs for sexualized appearance (e.g., Parker et al., 1995; Piran, 2017) and the specific findings of Daniels and Zurbriggen (2016a) in their study of perceptions of sexualized profile pictures, it was hypothesized that:

- a. Girls in the idealized condition would perceive the model as less socially attractive.
- b. Girls in the idealized condition would perceive the model as less physically attractive.
- c. Girls in the idealized condition would perceive the model as less competent to perform tasks.

It was also hypothesized that:

- d. Girls assigned to the idealized condition would predict the model to receive more “Likes” if she were to post her photo on social media.

## **CHAPTER II**

### **Method**

#### **Participants**

Girls between the ages of 14 and 17 years were recruited from schools in Southern Ontario for participation in the present study. Participation was restricted to adolescents who identify with the female gender as disordered eating issues are more prevalent among girls and women (Smink et al., 2012), and photo-based social media networks are more popular among adolescent girls (AP-NORC, 2017; Lenhart et al., 2015). Similarly, participation was restricted to girls between the ages of 14 and 17 due to the sensitivity of the adolescent period for the development of disordered eating (Klump, 2013) and the popularity of engaging with social media within this group (AP-NORC, 2017; Lenhart et al., 2015); gender-based social discourses are also particularly salient at this time (Piran, 2017).

Applications for data collection were submitted to public and Catholic school boards and private schools across Southern Ontario (including Halton, Windsor-Essex, Waterloo, Durham, Kawartha Pine Ridge, and Toronto). Approval to collect data was granted by the Windsor-Essex Catholic School Board (through which five high schools agreed to participate), and by a private all-girls school in Toronto. Across all schools, principals allowed the study to be conducted with female students currently registered in a grade 9 or 10 (all-female) health and physical education course. Some of the students enrolled in these courses were in grade 11.

For Part 1 of the study, data were collected from 248 participants in total. Six cases were removed from the final data set due to large proportions of missing data (on the basis of 40 to 100% missingness); another four cases were identified as multivariate outliers (detailed in the Results section) and were also removed from the data set. Accordingly, the final Part 1 sample

consisted of data from 238 participants. The majority (61.9%,  $n = 146$ ) of the students were in Grade 9, 28.4% ( $n = 67$ ) were in Grade 10, and 9.2% ( $n = 22$ ) were in Grade 11 (though enrolled in a Grade 9/10 health and physical education course). The mean age of adolescents who participated in Part 1 was 14.78 years ( $SD = 0.80$ ), and the mean Body Mass Index (BMI, calculated from self-reported weight and height) was 20.66 ( $SD = 3.69$ ).

Of the 238 participants in the Part 1 sample, 150 attended Catholic high schools in the Windsor-Essex region (school 1,  $n = 39$ ; school 2,  $n = 21$ ; school 3,  $n = 8$ ; school 4,  $n = 72$ ; school 5,  $n = 10$ ), and 88 attended the private school in Toronto. There were some demographic differences between students attending the public schools vs. the private school. Regarding grade distribution, all of the students from the private school (100%,  $n = 88$ ) were in Grade 9; among students attending public schools, 39.2% were in Grade 9 ( $n = 58$ ), 45.3% were in Grade 10 ( $n = 67$ ), and 14.9% were in Grade 11 ( $n = 22$ ). Accordingly, adolescents attending the private school were significantly younger ( $M = 14.37$ ,  $SD = 0.51$ ) than those attending public schools ( $M = 15.02$ ,  $SD = 0.84$ ,  $t(234.64) = 7.44$ ,  $p < .001$ ). Adolescents attending private school also had significantly lower BMIs ( $M = 19.61$ ,  $SD = 2.78$ ) than those attending public schools ( $M = 21.27$ ,  $SD = 4.03$ ,  $t(228.06) = 3.74$ ,  $p < .001$ ). Ethnic composition was similar across private and public school students. Among students attending public schools, the majority of participants were Caucasian (63.9%), followed by Arab (10.9%), and Black (5.4%), with the remaining 19.8% belonging to other ethnic groups. Among students attending private school, the majority were Caucasian (63.2%), followed by Chinese (17.2%), and Black (4.6%), with the remaining 15% belonging to other ethnic groups. Other demographic characteristics for the Part 1 sample are listed in Table 1. As seen in the table, adolescents attending private school were significantly

more likely to have accessed mental health (counselling) services than adolescents attending public schools.

**Table 1**

*Demographic Characteristics for the Part 1 Sample (N = 238) and Private/Public Subsamples*

Demographic Characteristic	Part 1 sample, N = 238		Private, n = 88		Public, n = 150		$\chi^2$ (1, N = 238)	p
	n	%	n	%	n	%		
Mental health (counselling) services								
Current	28	11.76	16	18.18	12	8.00		
Past	69	28.99	36	40.90	33	22.00		
Any history (current or past)	71	29.83	36	40.90	35	23.33	8.92	.003
Psychological diagnosis								
Current	37	15.55	16	18.18	21	14.00		
Past	30	12.61	14	15.90	16	10.67		
Any history (current or past)	37	15.55	16	18.18	21	14.00	1.19	.276
Eating disorder diagnosis								
Current	8	3.36	3	3.41	5	3.33		
Past	5	2.10	2	2.27	3	2.00		
Any history (current or past)	11	4.62	5	5.68	6	4.00	0.42	.519

*Note.* Any history (current or past) = number of participants that endorsed “current” and/or “past” for items regarding mental health service use, psychological diagnosis, and eating disorder diagnosis. Chi square test results represent relationships between school sector (private vs. public) and categorical demographic variables (history of mental health services, history of psychological diagnosis, and history of eating disorder diagnosis).

Of the students that completed Part 1 of the study, 85 agreed to participate in Parts 2 and 3 of the study. Eight cases (one of which was also removed from the Part 1 data set due to missingness) were removed from the data set due to large proportions of missing data (on the basis of 40 to 100% missingness). Accordingly, the final Part 2/3 sample consisted of data from 77 participants. All of the students who completed Parts 2 and 3 attended Catholic high schools in the Windsor-Essex region (school 1,  $n = 7$ ; school 2,  $n = 13$ ; school 3,  $n = 2$ ; school 4,  $n = 43$ , school 5,  $n = 10$ ). The mean age of participants in this sample was 15.00 ( $SD = 0.91$ ), and the mean BMI was 21.27 ( $SD = 4.21$ ). The majority (58.9%,  $n = 43$ ) of the students who completed Parts 2 and 3 were in Grade 10, 31.5% ( $n = 23$ ) were in Grade 9, and 9.6% ( $n = 7$ ) were in Grade 11. In terms of ethnicity, the majority of participants were Caucasian (60.8%), followed by Arab (12.2%), Black (6.8%), and Chinese (2.7%), with the remaining 17.5% belonging to other ethnic groups. Other demographic characteristics for the Part 2/3 subsample are listed in Table 2.

**Table 2**

*Demographic Characteristics for the Part 2/3 Subsample ( $n = 77$ )*

Demographic Characteristic	$n$	%
Mental health (counselling) services		
Current	5	6.50
Past	18	23.38
Any history (current or past)	18	23.38
Psychological diagnosis		
Current	10	12.99
Past	7	9.09
Any history (current or past)	10	12.99
Eating disorder diagnosis		
Current	2	2.60
Past	2	2.60
Any history (current or past)	3	3.90

*Note.* Any history (current or past) = number of participants that endorsed “current” and/or “past” for items regarding mental health service use, psychological diagnosis, and eating disorder diagnosis.



## Materials and Measures

### *Part 1*

In Part 1 of the study, participants completed questionnaires that assessed disordered eating, social media use, self-objectification, and self-esteem.

**Demographics.** Participants completed a background information questionnaire asking about: age, gender, estimated weight and height, ethnicity, grade, country of birth, use of professional mental health services, previous/current diagnosis of a mental health issue, and previous/current eating disorder diagnosis (see Appendix A).

**Eating Pathology.** Disordered eating was measured using the Eating Disorder Examination – Questionnaire (EDEQ; Fairburn & Beglin, 2008). The EDEQ is a self-report version of the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993), an investigator-based interview considered to be the “gold-standard” for identifying persons at risk for clinically diagnosable eating disorders (e.g., Berg et al., 2011; Quick & Byrd-Bredbenner, 2012). The EDEQ is commonly used in lieu of the EDE due to the limitations inherent to the interview version – namely, the costs associated with its administration (training is required) and the time required for administration (Fairburn & Beglin, 1994). Accordingly, the EDEQ is commonly used to assess attitudes and behaviours associated with disordered eating in both clinical and non-clinical samples of adults (e.g., Quick & Byrd-Bredbenner, 2012) and adolescents aged 12 to 18 years (Carter et al., 2001; Mantilla & Birgegard, 2016; Penelo et al., 2013; White et al., 2014).

The EDEQ 6.0 consists of 23 attitudinal items that assess the nature and frequency of disordered eating attitudes and behaviours over the past 28 days. The four subscales of the EDEQ – Restraint, Eating Concern, Shape Concern, and Weight Concern – are made up of 23

items answered on a 7-point Likert scale from 0 (*no days, not at all, or none of the times*) to 6 (*everyday, markedly, or every time*). The Restraint subscale contains five items measuring restrained eating, such as “On how many of the past 28 days have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?” The Eating Concern subscale contains five items measuring preoccupation with eating and food, such as “On how many of the past 28 days have you had a definite fear of losing control over eating?” The Shape Concern subscale contains eight items measuring dissatisfaction with shape, such as “Over the past 28 days, has your shape influenced how you think about (judge) yourself as a person?” Finally, the Weight Concern subscale contains five items measuring dissatisfaction with body weight, such as “Over the past 28 days, how dissatisfied have you been with your weight?” Subscale scores reflect the severity of each particular aspect of disordered eating, and are obtained by calculating the mean of all relevant items. The global score (which was used in the present study) is calculated by summing subscale scores and dividing by the number of subscales. Higher scores on the individual subscales and/or the global score are indicative of more severe eating pathology.

In past research, internal consistency of subscale scores has ranged from acceptable to excellent in community samples of emerging adults and adults (Luce & Crowther, 1999; Mond et al., 2004; Rø et al., 2010); internal consistency of individual subscale scores within adolescent samples is variable (e.g., Nakai et al., 2015; Wade et al., 2008). For the global score, Cronbach’s alpha coefficients have indicated adequate to excellent internal consistency in adolescent (i.e., girls aged 12 to 18 years; Decaluwe et al., 2002; Mayer et al., 2012; Penelo et al., 2013), young adult (Luce & Crowther, 1999; McAndrew & Menna, 2017; Rø et al., 2010) and adult samples (Mond et al., 2004). Re-testing conducted over a two-week interval has indicated adequate to

excellent test-retest reliability for individual subscales and the global score (Luce & Crowther, 1999; Penelo et al., 2013). Research conducted with longer re-test intervals suggests a high degree of temporal stability for attitudinal features of disordered eating (Mond et al., 2004); temporal stability was comparatively lower for items assessing eating behaviours, but this may reflect actual variation in the occurrence of the behaviours (Mond et al., 2004).

In terms of validity, studies have found a high level of agreement (convergence) between scores on the EDE interview and scores on the EDEQ (Berg et al., 2011; Fairburn & Beglin, 1994; Mond et al., 2004). In adult samples, subscale scores (Mond et al., 2004) and global scores (Aardoom et al., 2012) have been found to successfully discriminate between clinically significant cases (i.e., individuals satisfying diagnostic criteria for an eating disorder) and non-cases (i.e., individuals not satisfying diagnostic criteria). Within adolescent samples, the EDEQ has been found to perform well as a diagnostic and predictive tool (Wade et al., 2008). In a comparison of several measures of eating pathology within samples of healthy adolescent females, the EDEQ was found to have better sensitivity than the EDI in accurately identifying girls with eating pathology (i.e., young girls with serious eating problems were likely to receive low scores on the EDI; Engelsens & Laberg, 2001). Caution has been recommended in interpreting individual subscale scores on the EDEQ, however, as numerous studies have found the original four-factor structure to be unstable within community samples of adolescents (Penelo et al., 2013; Wade et al., 2008; White et al., 2014).

For the present study, in accordance with Carter et al. (2001), the time frame was shortened from 28 days to 14 days, as the shorter time frame is thought to be more developmentally appropriate. In the Part 1 sample ( $N = 238$ ) and the Part 2/3 subsample ( $n = 77$ ), internal consistency for the global score was excellent (Cronbach's alphas = .95 and .96,

respectively).

**Body Dissatisfaction.** Body dissatisfaction was measured using the Body Esteem Scale for Adolescents and Adults (BESAA; Mendelson et al., 2001). The BESAA is a self-report measure of evaluations of one's body and appearance. It is widely used with adolescents (i.e., girls aged 11 years and older; Cragun et al., 2013; Ferguson et al., 2014; McVey et al., 2003; Mendelson et al., 2001) and adults (Teall & Piran, 2015). The BESAA contains 23 items forming three subscales: Appearance, Weight, and Attribution. Items are answered on a 5-point Likert-type scale ranging from 0 (*never*) to 4 (*always*). The Appearance scale, which was used in the present study, consists of 10 items assessing general feelings about one's appearance, such as "I'm pretty happy about the way I look" and "My looks upset me" (reverse coded). On this scale, higher scores indicate greater body satisfaction, and lower scores indicate greater body dissatisfaction.

Following scale development, Mendelson et al. (2001) reported internal consistency of the BESAA to range between acceptable and excellent among girls and women aged 12 through 25 years (Mendelson et al., 2001). Mendelson et al. (2001) also presented evidence supporting construct, convergent, and discriminant validity; additionally, re-testing conducted over a three-month interval indicated good to excellent test-retest reliability for individual subscales and the global score. Subsequent studies with child and adolescent girls (aged 10 to 17 years; Cragun et al., 2013; Ferguson et al., 2014) have generally found internal consistency (for the total score and subscale scores) to be good or excellent. The BESAA has been found to demonstrate concurrent validity, as evidenced by negative correlations with BMI and positive correlations with self-esteem (Cragun et al., 2013). In the present study, internal consistency for the Appearance subscale score was excellent for both the Part 1 sample (Cronbach's  $\alpha = .92$ ) and the Part 2/3

subsample (Cronbach's alpha = .94).

**Physical Appearance Comparison.** Physical appearance comparison was measured using the Physical Appearance Comparison Scale – Revised (PACSR; Schaefer & Thompson, 2014). The PACSR is an 11-item self-report measure of one's tendency to make physical appearance comparisons across a broad range of social contexts. The PACSR contains 11 items which are answered on a 5-point Likert-type scale ranging from 0 (*never*) to 4 (*always*). Items include the following: “When I’m with a group of friends, I compare my body size to the body size of others”, “When I’m shopping for clothes, I compare my weight to the weight of others”, and “When I’m at a party, I compare my body shape to the body shape of others”. On the PACSR, higher scores indicate a higher frequency of physical appearance comparisons.

The PACSR was developed and validated with a sample of 1176 women in emerging adulthood (college students). Schaefer and Thompson (2014) reported excellent internal validity as well as evidence for convergent validity with measures of disordered eating, including the EDEQ. The PACSR has demonstrated excellent internal consistency in samples of female post-secondary students (i.e., Cronbach's alphas > .96; Herbozo et al., 2017; Schaefer et al., 2015; Tiggemann & Brown, 2018; Walker et al., 2015). Initial use in adolescent samples (e.g., girls aged 12 to 14 years) has also suggested excellent internal consistency (Burnette, 2016).

The PACSR was adapted from the original 5-item Physical Appearance Comparison Scale (PACS) developed by Thompson et al. (1991). Although the original PACS was among the most commonly used measures of appearance comparison (Myers & Crowther, 2009; Schaefer & Thompson, 2014), researchers often reported poor reliability requiring modifications to the scale to achieve adequate internal consistency (i.e., removing a reverse-scored item; Schaefer & Thompson, 2014). Furthermore, the original PACS was limited in the social contexts to which it

referred, and only assessed comparisons of one's "figure", as opposed to assessing weight and/or shape. In the present study, internal consistency for the PACSR was excellent for both the Part 1 sample (Cronbach's  $\alpha = .96$ ) and the Part 2/3 subsample (Cronbach's  $\alpha = .96$ )

**Thin Ideal Internalization.** Internalization of the thin ideal was measured using the Internalization – Thin/Low Body Fat subscale of the Sociocultural Attitudes Towards Appearance Questionnaire, 4<sup>th</sup> Edition – Revised (SATAQ-4R-Female; Schaefer et al., 2017). The SATAQ-4R-Female is the most recently revised version of the Sociocultural Attitudes Toward Appearance Questionnaire (Heinberg et al., 1995), one of the most commonly used measures of sociocultural influences on disordered eating. This version of the questionnaire was recently developed to address conceptual limitations of its predecessor (the SATAQ-4; Schaefer et al., 2015). Due to significant differences in performance across genders, separate scales were developed for women (SATAQ-4R-Female, used in the present study) and men (SATAQ-4R-Male; Schaefer et al., 2017).

The SATAQ-4R-Female contains 31 items answered on a 5-point Likert-type scale ranging from 1 (*definitely disagree*) to 5 (*definitely agree*). The structure of the scale is thought to differ according to developmental stage – Schaefer et al. (2017) observed a seven-factor structure among college women, and a six-factor structure among adolescent girls. The six-factor structure suggests three subscales pertaining to internalization of sociocultural appearance ideals, and three subscales pertaining to pressures for thinness. Subscale scores are obtained by calculating the mean of all relevant items (Schaefer et al., 2015). The Internalization subscales assess desire for Thin/Low Body Fat (e.g., "I want my body to look very lean"), desire for Muscular appearance (e.g., "I would like to have a body that looks very muscular"), and a desire for General Attractiveness (e.g., "It is important to me to be attractive"). The Pressures subscales

assess perceived appearance-related pressures from Peers/Significant Others (e.g., “I get pressure from my peers to decrease my level of body fat”), Family (e.g., “I feel pressure from family members to look thinner”), and Media (e.g., “I feel pressure from the media to look thinner”). On the Internalization – Thin/Low Body Fat subscale, higher scores indicate greater internalization of the thin ideal.

The SATAQ-4R-Female was developed and validated with samples of college women, college men, and girls aged 10 to 14 years (Schaefer et al., 2017). Its predecessors (e.g., the SATAQ-4 and SATAQ-3) have demonstrated good reliability and validity across studies (see Grabe et al., 2008; Myers & Crowther, 2009). Among adult women and adolescent girls, the SATAQ-4R-Female subscales demonstrate good internal consistency and concurrent validity, as evidenced by positive associations with other measures of disordered eating (e.g., the EDI-3; Schaefer et al., 2017). Among adult women, the subscales also demonstrated good test-retest reliability. In the present study, internal consistency for the Internalization – Thin/Low Body Fat subscale was fair for both the Part 1 sample (Cronbach’s  $\alpha = .76$ ) and the Part 2/3 subsample (Cronbach’s  $\alpha = .74$ ).

**Social Media.** Participants answered questions assessing time spent using social media networks, with procedures adapted from previous research (Fardouly et al., 2018; Hendrickse et al., 2017; Meier & Gray, 2014; Tiggemann & Slater, 2014). Engagement with photo-based social media was measured with a survey (the Photo-Based Social Media Use Survey [PBSMUS]) developed for the purposes of the present study (see Appendix B). The Social Media Use Integration Scale (SMUIS; Jenkins-Guarnieri, Wright, & Johnson, 2013) was included as an additional measure of social media use to assess for concurrent validity with the PBSMUS.

To assess time spent using social media, participants were asked to complete an open-ended item: “The social media network I use most often is [blank]”. Time spent on this social media network was assessed by asking (Fardouly et al., 2018): “How often do you check [social media network] (even if you are logged on all day)?” (1 = *not at all*, 2 = *every few days*, 3 = *once a day*, 4 = *every few hours*, 5 = *every hour*, 6 = *every 30 minutes*, 7 = *every 10 minutes*, 8 = *every 5 minutes*) and “Overall, how long do you spend on [social media network] on a typical day?” (1 = *5 minutes or less*, 2 = *15 minutes*, 3 = *30 minutes*, 4 = *1 hour*, 5 = *2 hours*, 6 = *3 hours*, 7 = *4 hours*, 8 = *5 hours*, 9 = *6 hours*, 10 = *7 hours*, 11 = *8 hours*, 12 = *9 hours*, 13 = *10 hours or more*). The aforementioned two questions were also modified to specifically inquire about time spent using Instagram and Facebook (Fardouly et al., 2018). If participants previously listed Facebook or Instagram as the account they use most often, they were able to indicate this (to avoid the provision of redundant information).

Participants were also asked to complete the following two statements: “I would be happy if I received approximately [blank] ‘Likes’ on a photo that I posted on social media” and “I would be unhappy if I received approximately [blank] ‘Likes’ on a photo that I posted on social media”.

***Photo-Based Social Media Use Survey (PBSMUS)***. Participants’ engagement in photo-based activities on social media was assessed with a survey consisting of 26 items. Survey items were adapted from previous studies specifically assessing Facebook (Meier & Gray, 2014) and Instagram (Hendrickse et al., 2017) activity, and novel items (about image-editing practices and investment in social media) were also developed for the purposes of the current study. Unless otherwise stated, items were answered on a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*very often*).



General photo-based social media use was assessed with questions adapted from previous research (Hendrickse et al., 2017; Meier & Gray, 2014). Questions began with “How often do you use social media to...” and finished with: “Post photos (or videos) of yourself”; “Post photos (or videos) of yourself with others (e.g., friends, family)”; “Post photos (or videos) of others (e.g., friends or family) without you”; “Post photos (or videos) of things other than yourself or other people (e.g., objects or events)”; “Browse photos (or videos) of [friends/ celebrities/ acquaintances (i.e., people you know of)/ strangers (i.e., people you do not know at all)]”; “Read comments on photos (or videos) of others”; “Comment on photos (or videos) of [friends/ celebrities/ acquaintances/ strangers]”; and “Like photos (or videos) [friends/ celebrities/ acquaintances/ strangers]”. In previous studies using similar items in adolescent and emerging adult samples, internal consistency has ranged from acceptable to good (Hendrickse et al., 2017; Meier & Gray, 2014).

Given the accessibility of image-modification technology – for example, filters and editing tools available within photo-based applications (such as Instagram and Snapchat), as well as external applications used for photo editing (such as Photoshop) – and consistent with recommendations for future research as specified by Holland and Tiggemann (2016), the present study also asked participants about their image-editing practices. Questions began with “When using social media, how often do you...” and finished with: “...edit your photos using ‘filters’ provided by the app before you post them”, “...edit your photos using editing tools provided by the app (e.g., brightness, contrast, saturation, etc.) before you post them”, and “...edit your photos using external apps (e.g., Photoshop, Facetune, etc.) before you post them”. Participants were also asked about alteration of specific body parts: “... alter your figure/ body size (with

apps or editing tools) before you post a photo of yourself”, and “... alter your facial features (with apps or editing tools) before you post a photo of yourself”.

Participants were also asked about effort allocated to posting photos on social media. Questions began with “When using social media, how often do you...” and ended with: “...take multiple versions of a photograph before deciding to post it on social media”, “... ask others for their opinions on your photo before deciding to post it on social media”, “... spend time thinking of photo captions before posting a photo on social media”, and “... spend time planning your post before posting a photo on social media”.

An exploratory factor analysis (EFA) was conducted on items of the PBSMUS to determine the underlying factor structures. Results of the EFA are described in detailed in the Results section (see Tables 4 and 5). Three factors were identified: *Invested Personal Use* (10 items; e.g., “How often do you use social media to post photos of videos of yourself?” and “When using social media, how often do you ask others for their opinions on your photo before deciding to post it on social media?”), *Editing Physical Appearance* (3 items; e.g., “When using social media, how often do you edit your photos using external apps [e.g., Photoshop, Facetune, etc.] before you post them?”), and *Impersonal Active Consumption* (3 items; e.g., “How often do you use social media to ‘Like’ photos or videos of strangers?”). See Table 3 for a summary of final PBSMUS (items and corresponding factors).

Internal consistency ranged from good to excellent for the Invested Personal Use (Part 1 sample, Cronbach’s alpha = .91; Part 2/3 subsample, Cronbach’s alpha = .86) and Editing Physical Appearance (Part 1 sample, Cronbach’s alpha = .86; Part 2/3 subsample, Cronbach’s alpha = .86) subscales, but was poor for the Impersonal Active Consumption (Part 1 sample, Cronbach’s alpha = .64; Part 2/3 subsample, Cronbach’s alpha = .63) subscale. Internal

consistency for the global score was good (Part 1 sample, Cronbach's  $\alpha = .89$ ; Part 2/3 subsample, Cronbach's  $\alpha = .84$ ). Concurrent validity of the measure was also supported, as indicated by significant positive correlations between the PBMUS and the SMUIS total scores (Part 1 sample,  $r = .67, p < .001$ ; Part 2/3 subsample,  $r = .63, p < .001$ ).

**Table 3***Final PBSMUS Items (Following Exploratory Factor Analysis)*

Factor	Item
Invested Personal Use	1. How often do you use social media to post photos or videos of yourself? 2. How often do you use social media to post photos (or videos) of yourself with others (e.g., friends, family)? 3. How often do you use social media to browse photos (or videos) of friends? 4. How often do you use social media to browse photos (or videos) of acquaintances (i.e., people you know of)? 5. How often do you use social media to comment on photos or videos of friends? 8. How often do you use social media to “Like” photos (or videos) of friends? 13. When using social media, how often do you take multiple versions of a photograph before deciding to post it on social media? 14. When using social media, how often do you ask others for their opinions on your photo before deciding to post it on social media? 15. When using social media, how often do you spend time thinking of photo captions before posting a photo on social media? 16. When using social media, how often do you spend time planning your post before posting a photo on social media?
Impersonal Active Consumption	6. How often do you use social media to comment on photos (or videos) of celebrities? 7. How often do you use social media to comment on photos (or videos) of strangers (i.e., people you do not know at all)? 9. How often do you use social media to “Like” photos (or videos) of strangers (i.e., people you do not know at all)?
Editing Physical Appearance	10. When using social media, how often do you edit your photos using external apps (e.g., Photoshop, Facetune, etc.) before you post them? 11. When using social media, how often do you alter your figure/ body size (with apps or editing tools) before you post a photo of yourself? 12. When using social media, how often do you alter your facial features (with apps or editing tools) before you post a photo of yourself?

*Note.* Item numbers correspond to the final version of the PBSMUS.

***Social Media Use Integration Scale (SMUIS).*** The SMUIS (Jenkins-Guarnieri et al., 2014) was developed to measure the integration of social media into everyday life. Although

originally developed to assess Facebook use, the SMUIS was purposefully designed to be adapted to other forms of social media use (Jenkins-Guarnieri et al., 2014). The SMUIS contains 10-items answered on 6-point Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). The SMUIS was developed and validated with a sample of 616 students attending college in the United States. Factor analyses with this sample suggested two subscales: (1) Social Integration and Emotional Connection (SIEC) and (2) Integration into Social Routines (ISR). The SIEC subscale contains six items, including “I feel disconnected from friends when I have not logged into Facebook” and “I prefer to communicate with others mainly through Facebook”. The ISR subscale contains four items, including “Using Facebook is part of my everyday routine”. The overall scores and subscale scores are obtained by calculating the mean of relevant items, with higher scores suggesting more engaged used and integration of social media into everyday life (Jenkins-Guarnieri et al., 2014).

Within the development sample, internal consistency for the subscale scores and the total score ranged between good and excellent (Jenkins-Guarnieri et al., 2014). The measure showed good test-retest reliability across a three-week interval (Jenkins-Guarnieri et al., 2014). Concurrent validity was demonstrated through positive correlations between SMUIS scores and an existing scale of intensity of Facebook use (Jenkins-Guarnieri et al., 2014). Subsequent research with adolescents (aged 11 to 17 years; Woods & Scott, 2016; Ophir, 2017) and adults (McDougall et al., 2016; Maree, 2017) report good levels of internal validity (ranging from 0.83 to 0.89). In systematic reviews of measures of user engagement with social media, researchers (Maree, 2017; Sigerson & Cheng, 2018) concluded that the SMUIS has good reliability and validity across diverse age ranges.

Previous studies have primarily used the SMUIS to study Facebook (Sigerson & Cheng, 2018). Consistent with the methodology of Woods and Scott (2016) in their study with adolescents and McDougall et al. (2016) in their study with adults, items of the SMUIS were modified to assess investment in and integration of social media in general (e.g., item 1 modified from “I feel disconnected from friends when I have not logged in to Facebook” to “I feel disconnected from friends when I have not logged in to social media”). Internal consistency for the SMUIS total score was good for the Part 1 sample (Cronbach’s  $\alpha = .86$ ) and the Part 2/3 subsamples (Cronbach’s  $\alpha = .87$ ).

**Gender-Based Social Discourses.** Body surveillance and body shame were measured using the Body Surveillance and Body Shame subscales of the Objectified Body Consciousness Scale [OBCS]; McKinley & Hyde, 1996). The OBCS was developed to measure the internalization of objectification, or the tendency to view and evaluate one’s body as an outside observer (according to cultural standards for appearance; McKinley & Hyde, 1996). The OBCS consists of 24 items across three subscales: Body Surveillance, Body Shame, and Control Beliefs (the latter of which was not administered in the current study). The Body Surveillance and Body Shame subscales each contain eight items that are answered on a 6-point Likert-type scale ranging from 1 (*strongly agree*) to 6 (*strongly disagree*). The Body Surveillance scale assesses the extent to which an individual watches her body and thinks about her body in terms of how it looks (as opposed to how it feels); this scale contains items including: “I often worry about whether the clothes I am wearing make me look good”. The Body Shame scale assesses the extent to which an individual believes she is a bad person if her body does not meet cultural ideals for appearance; this scale contains items including: “I feel ashamed of myself when I haven’t made the effort to look my best”. Subscale scores are obtained by calculating the average

of all relevant items, with higher scores indicating higher levels of body surveillance and/or body shame.

In the development sample, consisting of women in emerging adulthood and adulthood, internal consistency for subscale scores ranged from acceptable to good (McKinley & Hyde, 1996). The subscales also demonstrated good test-retest reliability over a two-week interval (McKinley & Hyde, 1996). In terms of validity, the authors found that both body surveillance and body shame were moderately negatively correlated with body esteem, indicative of concurrent validity. Body surveillance was also positively correlated with public self-consciousness, and negatively correlated with private self-consciousness and social anxiety, indicative of concurrent and discriminant validity, respectively (McKinley & Hyde, 1996). Similarly, body shame was positively correlated with personal endorsement of cultural ideals for appearance (McKinley & Hyde, 1996).

The OBCS is commonly used in objectification research, both with adolescents (e.g., girls aged 12 to 16 years; Dakanalis et al., 2014; Slater & Tiggemann, 2002, 2014) and adults (Moradi & Huang, 2008; Moradi & Varnes, 2017). In research with adolescents, the Body Shame and Body Surveillance subscales are often administered without the Control Beliefs subscale (as was done in the present study; Slater & Tiggemann, 2002, 2010). The exclusion of the Control Beliefs subscale is supported by the work of Moradi and Varnes (2017), which investigated the factor structure and psychometric characteristics of the OBCS within a sample of undergraduate women. Their analyses suggested a poor fit for the three-factor model originally proposed by McKinley & Hyde (1996), primarily due to low loadings on the Control Beliefs factor (Moradi & Varnes, 2017). As a result, Moradi and Varnes (2017) suggested that Control Beliefs items be eliminated from the measure; furthermore, due to redundancies between

items on the Body Shame and Body Surveillance subscales, Moradi and Varnes (2017) also proposed an abbreviated measure containing 13 items. Based on the results of their analysis, Moradi and Varnes (2017) recommend that future researchers use either the original Body Shame and Body Surveillance items (as proposed by McKinley & Hyde, 1996) or the abbreviated version, depending on the need for brevity. In their sample of emerging adults, both the original and abbreviated version were found to have adequate internal consistency and demonstrated concurrent validity with related variables (Moradi & Varnes, 2017). To the author's knowledge, the abbreviated version of the OBCS has not yet been administered with an adolescent sample. Accordingly, the present study used the original Body Shame and Body Surveillance subscales. Internal consistency was good for both the Body Surveillance (Part 1 sample, Cronbach's  $\alpha = .81$ ; Part 2/3 subsample, Cronbach's  $\alpha = .83$ ) and Body Shame subscales (Part 1 sample, Cronbach's  $\alpha = .83$ ; Part 2/3 subsample, Cronbach's  $\alpha = .84$ ).

**Self-Esteem.** Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) for potential inclusion as a covariate of various analyses. The RSES is a unidimensional 10-item self-report questionnaire used to assess global self-esteem and general feelings of self-worth. Items are answered on a 4-point Likert-type scale ranging from 1 (*strongly agree*) to 4 (*strongly disagree*). Scores are obtained by calculating the average score of all items; higher scores on the measure are indicative of greater general self-esteem. The RSES has been used cross-culturally with community and clinical samples of children and adolescents (aged 9 to 19 years), with acceptable internal consistency (Barber et al., 1992; Faruggia et al., 2004; Gnambs et al., 2018; Moore & Smith, 2018; Salerno et al., 2017). In the present study, internal consistency for the RSES was good (Part 1 sample, Cronbach's  $\alpha = .89$ ; Part 2/3 subsample, Cronbach's  $\alpha = .90$ ).



## **Part 2**

In Part 2 of the study, participants were asked about their perceptions of themselves and other young women, as well as their preferences for physical appearance (see Appendix C).

**Self Assessment.** Participants were asked to respond to items regarding their perceptions of and preferences for appearance. Unless otherwise specified, each of the following questions was answered using a Visual Analogue Scale (VAS; Aitken, 1969), which is a horizontal line that is anchored by terms representing the extremes of the phenomenon being measured. In general, a VAS can represent a continuum between opposing terms (bipolar scale) or between a complete absence and most extreme value (unipolar scale; Couper et al., 2006). For each item, participants indicated the point along the line that best represented their perception, feeling, or opinion. Responses to each item were scored by measuring distance from the left end of the line to the point marked by the participant. Advantages of using VASs include heightened sensitivity to detect small differences in outcomes and the provision of interval-level data. Furthermore, in multi-step studies, the use of VASs decreases the likelihood of participants' recalling previous answers (e.g., Couper et al., 2006; Harper & Tiggenmann, 2008). VASs are often used in the assessment of pain (e.g., Kersten et al., 2014), but have also previously been used to measure facets of appearance satisfaction (Cho & Lee, 2013; Durkin & Paxton, 2002; Grabe et al., 2008; Myers & Crowther, 2009; Sahay & Piran, 1997). In general, VASs have demonstrated good reliability and validity (Couper et al., 2006; Durkin & Paxton, 2002).

**Self: Actual.** Participants were first asked to answer the following two items, which were anchored (from left to right on a VAS) by “completely agree” to “completely disagree”: “I look like the ‘ideal girl’” and “I would make changes to my appearance if I could”.

Participants were then asked about their perceptions of their own physical appearance. The first item (which was followed with two VASs) stated: “My body is...” anchored with *very fat* and *very thin*, and with *completely lacking muscle tone* and *very muscular*. Participants were asked about height with the item “I am...” anchored with *very short* and *very tall*. Specific body parts (including those typically associated with dissatisfaction; Horndasch et al., 2012) were assessed in the following formats: “My [arms/thighs/abdomen] [is/are]...”, anchored with *very fat* and *very thin*, and with *completely lacking muscle tone* and *very muscular*; “My breasts are...”, anchored with *very small (flat)* and *very big*; “My [waist/hips] [is/are]...”, anchored with *very narrow* and *very wide*; and “My buttocks is...” anchored with *very small* and *very big*, and *completely lacking muscle tone* and *very muscular*.

Other aspects of appearance (e.g., hair and facial features; Fardouly et al., 2015a) were assessed with the following items: “My hair is...” anchored with *very short* and *very long*, and with *very curly* and *very straight*; “My skin is...” anchored with *very white* and *very dark*; “My nose is...” anchored with *very narrow* and *very wide*, and with *very small* and *very big*; and “My lips are ...” anchored with *very thin* and *very full*. Finally, participants were asked to complete the following statements: “My eye colour is [colour]” and “My hair colour is [hair colour]”.

**Self: Ideal.** Participants were then asked the same items, modified to assess ideal preferences for their body and general appearance. The items read as follows: “I would like my body to be...” anchored with *very fat* and *very thin*, and with *completely lacking muscle tone* and *very muscular*; “I would like to be...” anchored with *very short* and *very tall*; “I would like my [arms/thighs/abdomen] to be...”, anchored with *very fat* and *very thin*, and *completely lacking muscle tone* and *very muscular*; “I would like my breasts to be...”, anchored with *very small (flat)* and *very big*; “I would like my [waist/hips] to be...”, anchored with *very narrow* and *very*

*wide*; and “I would like my buttocks to be...” anchored with *very small* and *very big*, and *completely lacking muscle tone* and *very muscular*; “I would like my hair to be...” anchored with *very short* and *very long*, and with *very curly* and *very straight*; “I would like my skin to be...” anchored with *very white* and *very dark*; “I would like my nose to be...” anchored with *very narrow* and *very wide*, and with *very small* and *very big*; and “I would like my lips to be...” anchored with *very thin* and *very full*. Finally, participants were asked to complete the following statements: “I would like my eye colour to be [colour]” and “I would like my hair colour to be [hair colour]”.

**Other Assessment.** Participants’ perceptions of the physical appearances of other young women were assessed through exposure to individual photographs of three young women and associated questions.

**Photographs.** An advertisement was posted online (via Facebook and Kijiji) to recruit young women interested in being photographed for Part 2 present study. The advertisement specified that interested participants should be between the ages of 18 and 25 years (so that the subjects were able to independently provide informed consent while still being relevant targets for social comparison; Festinger, 1954), that participation would involve being photographed with a “natural” appearance, and that the photographs would be evaluated by adolescent girls in an online study. The advertisement also specified that models would be offered a \$25.00 gift card as compensation for being photographed for the study. Eleven young women emailed the principal researcher to express their interest in being photographed. The principal researcher then emailed these individuals with additional details about participation (i.e., that individuals selected to be photographed would be asked to wear dark-coloured exercise clothes without obvious branding [e.g., Horndasch et al., 2012; Jansen et al., 2005], to refrain from wearing

makeup or jewelry, and to wear their hair down and dried to a natural texture) and a series of screening questions (i.e., “What is your age in years?”, “How much do you weigh?”, “How tall are you?”, “Is your hair currently dyed?”, “Have you previously had plastic surgery for cosmetic purposes?”, “Do you currently have any permanent or semi-permanent cosmetic enhancements [e.g., eyelash extensions, eyebrow tattoos, lip fillers, etc.]?”, and “What is your ethnicity?”). To satisfy criteria for inclusion, women were required to have a BMI within the approximate normal range (between 18.5 and 24.9), and to not have had plastic surgery for cosmetic enhancement purposes and/or other permanent or semi-permanent cosmetic enhancements. Efforts were also made to ensure representation of diverse ethnicities (e.g., Prieler & Choi, 2014).

Nine young women provided responses to the screening questions; of these, two did not meet criteria for inclusion due to their BMIs being below the lower limit of the normative range (i.e., below 18.5). The seven young women who satisfied inclusion criteria were sent a consent form for their review. Of these, three young women responded to indicate their continued interest in being photographed for Part 2, and arrangements were made to meet the researcher at a public community centre to be photographed.

Model 1 was a 23-year-old woman of Caucasian ethnicity, with blonde hair and brown eyes. Self-reported weight was 54.4 kg, and self-reported height was 162.6 cm (BMI = 20.6). In the photograph, she wore a black sports bra and black exercise shorts. Model 2 was a 22-year-old woman of Indian ethnicity, with dark brown hair and brown eyes. Self-reported weight was 48.7 kg and self-reported height was 162.4 cm (BMI = 18.5). In the photograph, she wore a black sports bra and grey exercise shorts. Model 3 was a 27-year-old woman of Egyptian ethnicity, with black hair and dark brown eyes. Self-reported weight was 61.2 kg, and self-reported height was 167.6 cm (BMI = 21.8). In the photograph, she wore a black sports bra and black leggings.

Each of the three women were individually photographed in front of a neutral background. In addition to wearing dark-coloured exercise clothing, the women had their hair unstyled, and wore no make-up whatsoever. When taking the photographs, the women were asked to look at the camera with a neutral facial expression (i.e., no smile), and to stand with their feet shoulder-width apart and arms hanging loosely at their sides (Gao et al., 2014; Horndasch et al., 2012; Jansen et al., 2005). Two photographs of each woman were used – one from a frontal perspective, and one with the subject’s body turned to the right. Each photograph depicted the woman’s entire body (i.e., from the bottom of the feet to the top of the head), including her face. Efforts were made to ensure that photo variables were consistent across stimuli (e.g., brightness, saturation, etc.), and photographs were edited to be the same size (Gao et al., 2014; Horndasch et al., 2012; Jansen et al., 2005). Each woman was offered a \$25.00 gift card as compensation for being photographed.

***Other: Actual and Ideal.*** After exposure to each set of photographs, participants were asked to respond to items regarding the model’s appearance. Participants were first asked to answer the following two items, which were anchored (from left to right on a VAS) by “completely agree” to “completely disagree”: “She looks like the ‘ideal girl’” and “She would make changes to her appearance if she could”.

Participants were then asked about their perceptions of the girl’s physical appearance (e.g., “Her [body part] is...”), followed by their perceptions of the girl’s preferences for her appearance (e.g., “She would like her [body part] to be...”). These items were identical to those inquiring about the participant’s perceptions of and preferences for her own appearance (i.e., self-actual and self-ideal assessment items), with wording slightly modified to allow for the assessment of the appearances of the three models (see Appendix C).

### **Part 3**

In Part 3 of the study, participants viewed a photograph of a young woman (see Appendix C) and were asked about their perceptions of her personal qualities.

**Photograph.** Recruitment procedures for Part 3 were analogous to those described for Part 2. An advertisement was posted online (via Facebook and Kijiji) to recruit individuals interested in being photographed. The advertisement specified that interested individuals should be between the ages of 18 and 25 years, that participation would involve being photographed twice (once with a “natural” appearance, and once with a “made-up” appearance), and that the photographs would be evaluated by adolescent girls in an online study. The advertisement also specified that the model would be offered a \$50.00 gift card as compensation for being photographed for the study.

Two young women emailed the researcher to indicate their interest in being photographed for Part 3. The principal researcher then emailed these individuals with additional details about participation (i.e., that individuals selected to be photographed would be asked to wear conservative and non-restrictive clothing [without obvious branding or logos], to refrain from wearing makeup or jewelry, and to wear their hair down and dried to a natural texture [i.e., no styling] for the first photograph; and to bring an outfit consisting of more sexualized/ revealing clothing [without obvious branding or logos], makeup, and products for hair styling for the second photograph). Participants were also emailed screening questions to determine inclusion criteria (the same as those described for Part 2). One young woman responded to the questions, satisfied inclusion criteria, and was sent a consent form for her review. Arrangements were made to meet the researcher to be photographed.

Model 4 was a 24-year-old woman of Caucasian ethnicity with brown hair and blue eyes. Self-reported weight was 63.5 kg, and self-reported height was 170 cm (BMI = 22). For both photographs (which were taken in the same location), the woman was asked to look at the camera with a neutral expression. For the “non-idealized” photo, the woman wore a loose-fitting t-shirt and track pants. Her hair was in a ponytail, and she wore no makeup or jewelry. For the “idealized” photo, the woman wore a low-cut red blouse and short denim shorts. She wore makeup and had her hair down around her shoulders. Across non-idealized and idealized conditions, efforts were made to ensure that photo variables were consistent (e.g., brightness, saturation, etc.), and photographs were edited to be the same size. The woman was offered a gift card (\$50.00 value) as compensation for being photographed for the study.

After viewing either the idealized or non-idealized photo (determined by random assignment to either condition), participants were asked to answer the following items, which were anchored (from left to right on a VAS) by “completely agree” to “completely disagree”: “She looks like the ‘ideal girl’” and “She would make changes to her appearance if she could”.

***Interpersonal Attraction.*** Following exposure to either the idealized photo or the non-idealized photo, participants were asked to complete the Interpersonal Attraction Scale (IAS; McCroskey & McCain, 1974) while referring to the girl in the photo. The IAS contains 15-items across three subscales that are answered on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The Social Attraction subscale contains five items, including “I think she could be a friend of mine” and “I would like to have a friendly chat with her”; higher scores on this subscale indicate higher perceived levels of social attractiveness. The Physical Attraction subscale contains five items, including: “I think she is quite pretty” and “I find her very attractive physically”; higher scores on this subscale indicate higher perceived levels of

physical attractiveness. The Task Attraction subscale (a measure of task competence) contains five items, including “I have confidence in her ability to get the job done” and “If I wanted to get things done, I could probably depend on her”; higher scores on this subscale indicate higher perceived levels of task competence. Within samples of undergraduate students, subscales of the IAS have demonstrated adequate to good internal consistency (McCroskey & McCain, 1974; Daniels & Zurbriggen, 2016a). After completing all items of the IAS, participants were asked to estimate how many “Likes” they anticipate the girl in the photo would receive if she were to post the photo on a social media account. In the present study (Part 2/3 subsample), internal consistency was fair for the Social Attraction (Cronbach’s  $\alpha = .78$ ), Physical Attraction (Cronbach’s  $\alpha = .79$ ), and Task Attraction subscales (Cronbach’s  $\alpha = .72$ ).

## **Procedure**

Approval was obtained from the University of Windsor Research Ethics Board and then sought from external research committees of school boards across Southern Ontario. Following the obtainment of ethics clearance (from the Windsor-Essex Catholic District School Board) principals of secondary schools were contacted and invited to have their students participate in the study. Permission to conduct the study was also granted by an all-girls private school in Toronto. Across all schools, principals allowed the study to be conducted with female students currently registered in a grade 9 or 10 health and physical education courses (which are all-female courses).

At each school, the study occurred across two testing sessions (which took place within the school setting). The principal researcher was present during data collection to monitor the students’ progress and answer any questions. Across all testing sessions, efforts were taken to



preserve confidentiality (e.g., by asking students to look only at their own survey, and seating the students with adequate distance between them).

Based on the methodology of previous research with high school students (Norman, 2017), principals of participating schools selected two dates on which female students in Grades 9 and 10 could complete the study in designated classrooms. Prior to the first date, the principal researcher made short recruitment presentations, during which eligible students (i.e., those currently enrolled in a grade 9 or 10 health and physical education class) were informed about the nature of the study and their participation. During the recruitment presentations, students were informed that participation in Part 1 would involve completing an online survey about their eating habits, body image, social media use, and self-esteem, and that they would be offered a \$5.00 gift card as compensation for participation. Students were also informed that, following their participation in the first part of the study, they would be provided with the opportunity to participate in a second part of the study (several weeks after Part 1). Students were informed that participation in Parts 2/3 would involve evaluating the appearances of young women in photographs, and that they would be offered entry into a draw for one of four \$100 gift cards as compensation for their participation. Students were informed that participation in either part of the study was completely voluntary, and that those who participated in Part 1 would not be required to participate in Parts 2/3. Students were notified of the date when the researchers would be returning to the school for Part 1 and were provided with a letter of information/parent consent form for Part 1.

The first testing session took approximately one hour. Students who had received parental consent to participate and were interested in completing Part 1 were provided with their own letter of information and consent form. Following the provision of informed consent,

students were provided with access to a school computer and were given the link to the online survey (administered using Qualtrics). Participants began by completing a demographics questionnaire; following this, the measures for Part 1 were presented in a randomized order. After completing the questionnaires, participants were verbally debriefed by the principal researcher as to the purpose of Part 1 of the study, and were provided with a debriefing letter to bring home to share with their parents/guardians. The debriefing letter included a list of school-specific and community resources for mental health issues, including issues related to disordered eating. When leaving the classroom, participants were offered a \$5.00 Starbucks gift card as compensation for their participation. They were also notified of the date when the researchers would be returning for Parts 2/3 of the study, and provided with the option of taking a letter of information/parent consent form for Parts 2/3.

The second testing session, which took place 1 to 2 weeks after the first session, took approximately 30 minutes. Students who had received parental consent to participate and were interested in completing Parts 2/3 were provided with their own letter of information and consent form. Following the provision of informed consent, students were provided with access to a school computer and were given the link to the online survey (administered using Qualtrics).

All students first completed Part 2 of the survey. Part 2 began with students completing the self-assessment task (actual self-assessment questions, followed by ideal self-assessment questions). Following completion of the self-assessment task, the following tasks were presented to participants in a randomized order (to control for order effects): (a) other-assessment of model 1 (actual other-assessment, followed by ideal other-assessment); (b) other-assessment of model 2 (actual other-assessment, followed by ideal other-assessment); and (c) other-assessment of model 3 (actual other-assessment, followed by ideal other-assessment).

For both the self and other-assessments, the “actual” assessment items (i.e., items asking about participants’ perceptions of the subject’s actual appearance) always preceded the “ideal” assessment items (i.e., items asking about the subject’s preferences for their appearance; Higgins, 1987; Vartanian, 2012). The actual assessment and ideal assessment items were presented on separate webpages. When participants had finished responding to the actual assessment items, they clicked “Next” to proceed to the ideal assessment items. Participants were not granted the opportunity to go back to review and/or change their answers. For the actual and ideal assessments, the photographs of the subject in question were located at the top of the webpage. Participants were able to view the photos at any time while completing the questions pertaining to that subject. However, once the questions pertaining to a specific subject were complete, participants did not have access to the photos of that subject again.

Following the completion of Part 2, the participants were randomly assigned to either the “idealized” or “non-idealized” study condition to determine which version of the Part 3 photograph participants were exposed to. Participants then answered questions about the model’s appearance and interpersonal qualities (IAS measure). Following the completion of the survey, participants were verbally debriefed as to the purpose of the study, and were provided with the opportunity to ask questions. Participants were also provided with a debriefing letter that included a list of school-specific and community resources for mental health issues, including issues related to disordered eating. As compensation for participation in Parts 2 and 3 of the study, participants were offered entry into a draw to win one of four \$100.00 e-gift cards (to an establishment of their choosing). The draw was conducted after data collection at all schools was complete. Winners of the draw were contacted by the principal researcher and emailed their e-gift card of choice.

## CHAPTER III

### Results

All statistical analyses were conducted using the Statistical Package for the Social Sciences Version 26 (SPSS) as well as the R Project for Statistical Computing (R). Prior to conducting the main analyses, data were screened to identify missing data. Assumptions of all statistical analyses were assessed and appropriate steps were taken to address violations when necessary. Bivariate correlations were conducted between relevant demographic variables and all study variables to identify potential covariates. Independent samples *t*-tests and one-way Analysis of Variance tests (ANOVAs) were conducted to assess differences in study variables related to categorical demographic variables (e.g., grade) and sampling variables (e.g., school and school sector [private versus public]).

#### Preliminary Analyses

##### *Missing Data*

For both the Part 1 and Part 2/3 data sets, missing values analyses were conducted at the item level to determine the proportions of missing data. In the Part 1 data set, four cases were removed due to 100% missingness; another two cases were subsequently removed due to large proportions of missing data (i.e., > 40%). Following these removal of these cases, the overall percentage of missing values was 2.43%. The percentage of missing values for each item ranged from 0% to 4.1%. With respect to the pattern of missing data, Little's MCAR test was not significant,  $\chi^2(16787, N = 238) = 16914.41, p = .243$ , indicating that the data were missing completely at random.

In the Part 2/3 data set, four cases were removed due to 100% missingness, and another four cases were subsequently removed due to large proportions of missing data (i.e., > 40%). Of

these eight cases, one had also been removed from the Part 1 data set due to missingness. Following the removal of these cases, the overall percentage of missing values was 3.82%. The percentage of missing values for each item ranged from 0% to 19.5% (self-assessment item: “I would make changes to my experience if I could”); excluding this item, percentage of missingness for each item ranged from 0 to 12.2% (IAS item 7: “She is very sexy looking”). Missingness for all other items was below 8.5%. With respect to the pattern of missing data, Little’s MCAR test was not significant,  $X^2(10759, N = 77) = 4940.90, p = 1.00$ , indicating that the data were missing completely at random.

For both data sets, Expectation Maximization was used to estimate missing values. Expectation Maximization is considered appropriate when data are missing completely at random (El-Masri & Fox-Wasylyshyn, 2005), and is thought to provide data for missing values with realistic estimates of variance (Tabachnick & Fidell, 2007).

### ***Assumptions***

Prior to conducting the main analyses of the study, assumptions of the parametric tests (i.e., bivariate correlations, MRAs, path analysis, independent and paired samples *t*-tests) used to analyze the data were assessed.

**Correct Specification of the Model.** The assumption of correct specification of the model is considered prior to the collection of data, and requires that predictor variables identified by theory and previous research are included in the statistical model (Cohen et al., 2003). For the present study, variables of interest were identified on a theoretical and empirical basis. Correlations between demographic and study variables were also examined to determine the inclusion of appropriate covariates in MRAs (i.e., variables that were significantly correlated with both the specified independent and dependent variables).

**Normality.** Univariate normality and normality of residuals was assessed using the Shapiro-Wilk's test, analysis of skewness and kurtosis values, and visual inspection of scatter plots, histograms, and Q-Q plots of the variables and their residuals. Shapiro-Wilk's statistics were significant for all study variables ( $ps < .05$ ). That said, the Shapiro-Wilk's statistic is not the most reliable indicator of deviations from normality, as in large samples, the test is likely to be significant even for small deviations from normality (Field, 2009). For all variables, skewness and kurtosis values were within acceptance ranges of  $\pm 2$  and  $\pm 3$ . Visual analysis of plots of the variables and their residuals indicated that distributions largely approximated the normal distribution. Thus, the assumption of normality was considered to be upheld.

**Sample Size.** According to an a priori power analysis using G\*Power 2.3 (Faul et al., 2009), the Part 1 sample ( $N = 238$ ) was determined to be large enough to detect a small to medium effect based on a statistical power level of .80 ( $\alpha = .05$ ) with up to eight predictors included in the regression model. The sample size also exceeded the minimum recommended sample size of 200 for structural equation and path modelling (Kline, 2016).

In contrast, the Part 2/3 sample ( $n = 77$ ) was determined to be large enough to detect medium to large effects (power = .80,  $\alpha = .05$ ) with between three to eight predictors included in the regression model. For the paired samples  $t$ -tests conducted in Part 2 (power = .80,  $\alpha = .05$ , two-tailed), the sample of  $N = 77$  was determined to be large enough to detect a medium effect. For the independent samples  $t$ -tests conducted in Part 3 (power = .80,  $\alpha = .05$ , two-tailed), the sample of  $N = 77$  was large enough to detect large effects. Thus, it is possible that analyses conducted in Parts 2 and 3 (particularly the MRAs and the independent samples  $t$ -tests) may have been underpowered (which was taken into consideration in the interpretation of the findings).

**Homogeneity of Variance.** The assumption of homogeneity of variance – which requires that variances across experimental groups are approximately equivalent to one another – was assessed for primary study variables involves in Analyses of Variance (ANOVAs) and for Part 3 variables involved in independent samples *t*-tests. Results of Levene’s Test of Equality of Variances were found to be nonsignificant (all  $ps > .05$ ), indicating that variances were homogenous.

**Outliers.** Variables were inspected for univariate and multivariate outliers, as well as influential observations. To detect univariate outliers, data were converted to *z*-scores, with scores exceeding  $z = \pm 3.29$  considered to be outliers. To reduce the impact of these outlying data points and avoid data loss, each outlier was Winsorized (i.e., replaced with a raw score one unit less extreme than the present score; Tabachnick & Fidell, 2007). Multivariate outliers on predictor variables were detected using Mahalanobis distance values assessed on the  $X^2$  distribution ( $k = df, p = .001$ ), and multivariate outliers on outcome variables were detected using deleted studentized residual values evaluated on a *t* distribution ( $df = N - k - 1, p = .001$ ). In the Part 1 data set, four multivariate outliers on predictor variables were identified using Mahalanobis distance cut-off values, and were subsequently removed. No multivariate outliers were identified in the Part 2/3 data set. Influential observations – cases with extreme scores on a predictor variable and on the outcome variable – were detected using Cook’s Distance and Standardized DFFITs values (using cut-off values of one and two, respectively; Cohen et al., 2003). No influential observations were identified in either data set.

**Linearity.** To visually assess for assumption of linearity (i.e., linear relationships between predictor and outcome variables), scatter plots of residuals (i.e., the discrepancy between predicted and observed data points) were examined. Specifically, the scatterplots

depicted the residuals on the y-axis and (a) the independent variables of the regression and (b) the predicted values for the independent variables on the x-axis. Across all regression models, superimposed LOWESS lines (indicating the general trend of the data) generally followed the zero-line without large deviations, suggesting linear relationships between predictors and outcome variables.

**Homoscedasticity.** Similar to the assessment of linearity, homoscedasticity – the assumption of constant variance of the residuals across values of the independent variable – was assessed by examining scatterplots of the residuals. In general, the scatterplots generally depicted a constant variance of residuals across values of the independent variables (i.e., there was an approximately equal distribution of residuals above and below the zero-line, and no evidence of curvilinear or megaphone patterns). Although heteroscedasticity was not an issue, MRA is considered to be robust to violations of this assumption (Cohen et al., 2003).

**Multicollinearity.** To assess for multicollinearity between predictor variables, tolerance values – statistics based on the prediction of one independent variable from the other independent variables – were examined. In general, smaller tolerance values are indicative of higher levels of multicollinearity. In the present sample, all tolerance values were greater than the cut-off value of .20 (Field, 2009), indicating that multicollinearity was absent.

**Independence of Errors.** The assumption of independence of residuals was assessed by examining scatterplots (with residual values on the y-axis and case number on the x-axis) for evidence of data clustering; no such clustering was found. Furthermore, all Durbin-Watson statistics were in the range of 1.5 to 2.5 (Field, 2009), suggestive of no autocorrelation within the data. As such, this assumption of independence of errors was considered to be upheld.

### ***Effectiveness of Random Assignment***



A series of independent samples *t*-tests were conducted to determine whether there were significant differences in demographic and primary study variables between individuals assigned to the idealized vs. non-idealized conditions (Part 3). Results of the *t*-tests suggested that participants assigned to the idealized vs. non-idealized condition did not significantly differ in terms of demographic characteristics (age, grade, or BMI;  $ps > .05$ ). Participants assigned to the idealized vs. non-idealized conditions also did not significantly differ on primary study variables including disordered eating, body dissatisfaction, body surveillance, body shame, physical appearance comparison, thin ideal internalization, social media use, photo-based social media use, or self-esteem ( $ps > .05$ ). Results suggested that random assignment to idealized vs. non-idealized conditions was effective.

### ***Exploratory Factor Analysis of the PBSMUS***

An EFA was conducted on the items of the PBSMUS (using the Part 1 sample,  $N = 238$ ) to determine the underlying factor structure of the measure. The Kaiser-Meyer-Olkin measure of sampling adequacy was .88 (above the recommended cut-off of .60) and Bartlett's test of sphericity was significant ( $\chi^2 (325, N = 238) = 3494.66, p < .001$ ), indicating that the sample was factorable. To determine the number of factors to retain, multiple methods were used in accordance with the recommendations of Roberson et al. (2014), including: scree plot, Kaiser-Guttman rule, the Minimum Average Partial Test (O'Connor, 2000) and Parallel Analysis (O'Connor, 2000). In considering all methods in combination, between three and ten factors were specified. For the EFA, the correlation matrix was analyzed to ensure that variables with more variance did not influence the factor analysis more strongly than variables with less variance. The extraction method was iterative principal axis extraction. Because the initial factor extractions were not clearly interpretable, various rotation methods (Varimax, Promax, and

Oblimin) were applied to clarify the solutions, which were examined for salient cross-loadings across factors.

With each rotation attempted, pattern matrices were visually inspected for meaningful clustering of items (based on item content). Across rotations, it was noted that 10 items: (a) consistently loaded onto a factor independently (i.e., no other items primarily loaded onto this factor); (b) consistently cross-loaded onto more than one factor; and/or (c) failed to cluster with theoretically related items. As such, these items were deleted from the measure in an iterative process (i.e., the resultant factor matrix was examined following the deletion of each item). Thurstone's (1947) simple structure criteria were also applied to determine the factor structures with the highest average hyperplane counts (i.e., near-zero loadings). Ultimately, the most interpretable model consisted of 16 items loading onto 3 factors (Oblimin rotation, hyperplane count = 58.33%). Thus, subsequent interpretation of the latent variables (factors) underlying the 16-item version of the PBSMUS was based on this three-factor solution, which explained 61.8% of the item variance, considered an acceptable amount for a construct to be valid (Hair et al., 2012). Communalities (range = .23 to .85), rotated pattern matrix values, and factor structure correlations are listed in Table 4. For inter-factor correlations, see Table 5.

Interpretation of the three factors was as follows. The first factor was conceptualized as an Invested Personal Use factor, based on ten items (items 1, 2, 3, 4, 5, 8, 13, 14, 15, and 16). Adolescents endorsing high scores on this factor are likely to be avid users of photo-based social media, as evidenced by planned and thoughtful posting of photographs/videos of oneself and well-known others (e.g., friends, family, and acquaintances), and by consuming (i.e., browsing and reacting to) photos of well-known others.

The second factor was conceptualized as an Editing Physical Appearance factor, based on three items (items 10, 11, and 12). Adolescents endorsing high scores on this factor are likely to actively edit their photographs using external applications, with an emphasis on altering facets of their own physical appearance (e.g., body size and facial features).

The third factor was conceptualized as an Impersonal Active Consumption factor, based on three items (items 6, 7, and 9). Adolescents endorsing high scores on this factor are likely to actively consume (e.g., react to) photographs/videos of unknown others (e.g., celebrities and strangers).

**Table 4**

*Communalities, Rotated Pattern Matrix, and Structure Correlations for Photo-Based Social Media Use Survey EFA (N = 238)*

PBSMUS Item	Communality	Rotated pattern matrix			Structure correlations		
		F1	F2	F3	F1	F2	F3
1. ... post photos or videos of yourself?	.38	<b>.57</b>	.07	.07	.61	.23	.21
2. ...post photos (or videos) of yourself with others (e.g., friends, family)?	.40	<b>.58</b>	.10	.05	.62	.26	.19
3. ... browse photos (or videos) of friends?	.52	<b>.75</b>	-.08	-.08	.71	.12	.09
4. ... browse photos (or videos) of acquaintances (i.e., people you know of)?	.33	<b>.56</b>	-.05	.09	.57	.11	.22
5. ... comment on photos or videos of friends?	.56	<b>.76</b>	-.04	-.01	.75	.16	.17
8. ... “Like” photos (or videos) of friends?	.34	<b>.59</b>	-.01	-.03	.58	.15	.11
13. ... take multiple versions of a photograph before deciding to post it on social media?	.33	<b>.47</b>	.23	-.02	.53	.36	.11
14. ... ask others for their opinions on your photo before deciding to post it on social media?	.32	<b>.55</b>	.04	.01	.57	.20	.14
15. ... spend time thinking of photo captions before posting a photo on social media?	.23	<b>.39</b>	.19	.02	.45	.30	.13
16. ... spend time planning your post before posting a photo on social media?	.59	<b>.79</b>	-.10	-.01	.76	.12	.17
10. ... edit your photos using external apps (e.g., Photoshop, Facetune, etc.) before you post them?	.68	.16	<b>.76</b>	.06	.38	.81	.16
11. ... alter your figure/ body size (with apps or editing tools) before you post a photo of yourself?	.58	.07	<b>.75</b>	-.04	.26	.76	.04
12. ... alter your facial features (with apps or editing tools) before you post a photo of yourself?	.85	-.10	<b>.94</b>	.01	.16	.92	.06
6. ... comment on photos (or videos) of celebrities?	.60	.11	-.05	<b>.75</b>	.27	.05	.77
7. ... comment on photos (or videos) of strangers?	.61	-.23	.12	<b>.79</b>	-.01	.13	.75
9. ... “Like” photos (or videos) of strangers?	.28	.22	-.09	<b>.44</b>	.30	.01	.49

**Table 5**

*Inter-Factor Correlations for Photo-Based Social Media Use Survey EFA (N = 238)*

Factor	Invested Personal Use	Editing Physical Appearance	Impersonal Active Consumption
Invested Personal Use	1.00	0.27	0.23
Editing Physical Appearance	0.27	1.00	0.09
Impersonal Active Consumption	0.23	0.09	1.00

## Main Analyses

### *Part 1*

**Descriptives.** Descriptive statistics for primary study variables are listed in Table 6, and correlations between demographic and primary study variables can be found in Table 7. One-way ANOVAs were conducted to determine whether there were differences in primary study variables based on age or grade. Tukey's HSD test– which is considered valid for unequal sample sizes, when the assumption of homogeneity of variance is upheld (Shingala & Rajyagaru, 2015) – was used to test pairwise comparisons. Thin-ideal internalization was found to significantly differ according to age,  $F(3, 234) = 4.31, p = .006$ ; Tukey's HSD test indicated that internalization of thin ideal was significantly greater among 14-year-old adolescents ( $n = 99, M = 3.65, SD = 0.86$ ) compared to 15-year-old adolescents ( $n = 100, M = 3.19, SD = 0.92; p < .001$ ). Engagement with photo-based social media was found to significantly differ according to grade,  $F(2, 233) = 3.11, p = .047$ ; specifically, engagement with photo-based social media was greater among adolescents in Grade 11 ( $n = 23, M = 3.29, SD = 0.52$ ) compared to adolescents in Grade 9 ( $n = 146, M = 2.89, SD = 0.75; p = .035$ ).

As depicted in Table 6, several significant differences were found in primary study variables for students attending private versus public schools. Students attending the private school had significantly lower BMIs relative to students attending public schools. Students attending the private school also reported significantly greater thin ideal internalization than students attending public schools, and significantly greater physical appearance comparison than students attending public schools. No other significant differences were found between students attending public and private schools for primary study variables.

To account for differences in grade distribution between public and private school students, all of the aforementioned comparisons were repeated using only girls in grade 9 (private:  $n = 88$ , public:  $n = 58$ ). As depicted in Table 8, results were generally consistent with those described previously (those involving public school students in grades 9, 10, and 11); one exception to this was thin ideal internalization – when comparing only girls in grade 9, there was no longer a significant difference between the private and public subsamples.

**Table 6**

*Descriptive Statistics for Primary Study Variables Independent Samples t-tests Comparing Public and Private School Students*

Variable	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> (143)	<i>p</i>
	Total Sample, $N = 238$				Private, $n = 88$		Public, $n = 150$			
EDEQ	1.70	1.35	0	5.90	1.80	1.42	1.64	1.31	0.90	.368
BESAA	3.16	0.84	1.00	5.00	3.12	0.82	3.19	0.86	-0.57	.572
SATAQ	3.41	0.92	1.00	5.00	3.59	0.93	3.30	0.90	2.32*	.021
PACSR	2.67	1.07	0.86	5.00	2.92	1.12	2.53	1.01	2.71**	.007
OBCS Suv.	4.01	0.85	1.63	5.88	4.06	0.88	3.98	0.84	0.75	.455
OBCS Shame	3.03	0.97	1.00	5.88	3.14	1.01	2.97	0.95	1.28	.202
PBSMUS	2.94	0.70	1.00	4.75	2.92	0.85	2.96	0.61	-0.40	.689
RSES	2.76	0.57	1.30	4.00	2.75	0.59	2.77	0.57	-0.20	.843
BMI	20.66	3.69	11.05	32.92	19.61	2.78	21.27	4.03	-3.74	.001

*Note.* EDEQ = Eating Disorder Examination Questionnaire; BESAA = Appearance subscale of the Body Esteem Scale for Adolescents and Adults; SATAQ = Internalization – Thin/Low Body Fat subscale of the Sociocultural Attitudes Toward Appearance Questionnaire; SOQ = Self-Objectification Questionnaire; PACSR = Physical Appearance Comparison Scale – Revised; OBCS Suv. = Body Surveillance subscale of the Objectified Body Consciousness Scale; OBCS Shame = Body Shame subscale of the Objectified Body Consciousness Scale; PBSMUS = Photo-Based Social Media Use Survey; RSES = Rosenberg Self-Esteem Scale.

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

**Table 7***Correlations Between Demographics and Primary Study Variables for the Total Sample (N = 238)*

Variable	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Age	.12	.01	.04	-.02	-.00	.08	-.06	-.15*	.00	-.07	.10	.05
2. BMI	-	-.09	-.04	.04	.34**	-.19**	.14*	.16*	.06	.23**	-.03	-.04
3. Counselling <sup>a</sup>		-	.38**	.03	.07	-.06	.03	.06	.07	.13*	.13	-.08
4. Psych. Dx <sup>a</sup>			-	.34**	.18**	-.15*	.18**	.23**	.10	.22**	.10	-.22**
5. ED Dx <sup>a</sup>				-	.35**	-.24**	.21**	.22**	.24**	.29**	.06	-.29**
6. EDEQ					-	-.64**	.68**	.57**	.55**	.77**	.34**	-.45**
7. BESAA						-	-.65**	-.55**	-.65**	-.67**	-.28**	.68**
8. PACSR							-	.55**	.66**	.66**	.36**	-.47**
9. SATAQ								-	.52**	.60**	.22**	-.35**
10. OBCS Surv.									-	.60**	.54**	-.43**
11. OBCS Shame										-	.28**	-.54**
12. PBSMUS											-	-.12
13. RSES												

*Note.* BMI = Body Mass Index; Counselling = history of counselling; Psych. Dx = history of psychological diagnosis; ED Dx = history of eating disorder diagnosis; EDEQ = Eating Disorder Examination Questionnaire; BESAA = Appearance subscale of the Body Esteem Scale for Adolescents and Adults; SATAQ = Internalization – Thin/Low Body Fat subscale of the Sociocultural Attitudes Toward Appearance Questionnaire; SOQ = Self-Objectification Questionnaire; PACSR = Physical Appearance Comparison Scale – Revised; OBCS Surv. = Body Surveillance subscale of the Objectified Body Consciousness Scale; OBCS Shame = Body Shame subscale of the Objectified Body Consciousness Scale; PBSMUS = Photo-Based Social Media Use Survey; RSES = Rosenberg Self-Esteem Scale.

<sup>a</sup> Dummy coded variables: Counselling (0 = no, 1 = yes), Psych. Dx (0 = no, 1 = yes), ED Dx (0 = no, 1 = yes).

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

**Table 8**

*Descriptive Statistics for Primary Study Variables and Independent Samples t-tests Comparing Public and Private School Students in Grade 9*

Variable	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> (143)	<i>p</i>
	Private, <i>n</i> = 88		Public, <i>n</i> = 58			
EDEQ	1.80	1.42	1.68	1.26	0.52	.603
BESAA	3.12	0.82	3.11	0.80	0.87	.931
SATAQ	3.59	0.93	3.40	0.86	1.24	.217
PACSR	2.92	1.12	2.52	1.01	2.18*	.031
OBCS Suv.	4.06	0.88	3.93	0.77	0.94	.348
OBCS Shame	3.14	1.01	3.02	0.97	0.68	.498
PBSMUS	2.92	0.85	2.87	0.59	0.40	.691
RSES	2.75	0.59	2.71	0.50	0.38	.707
BMI	19.61	2.78	21.63	4.75	-3.24**	.001

*Note.* EDEQ = Eating Disorder Examination Questionnaire; BESAA = Appearance subscale of the Body Esteem Scale for Adolescents and Adults; SATAQ = Internalization – Thin/Low Body Fat subscale of the Sociocultural Attitudes Toward Appearance Questionnaire; SOQ = Self-Objectification Questionnaire; PACSR = Physical Appearance Comparison Scale – Revised; OBCS Suv. = Body Surveillance subscale of the Objectified Body Consciousness Scale; OBCS Shame = Body Shame subscale of the Objectified Body Consciousness Scale; PBSMUS = Photo-Based Social Media Use Survey; RSES = Rosenberg Self-Esteem Scale.

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

Research Question 1 (how do adolescent girls use social media) was assessed by examining descriptive statistics for items related to social media use and correlations between demographic and social media variables (see Tables 9 and 10), followed by MRAs.

Overall, adolescent girls identified Snapchat as the social media network they use most often (51.7%), followed by Instagram (37.1%), WeChat (3.0%), Twitter (2.2%), YouTube (1.3%), and other networks (3.0%); 1.7% reported that they did not use social media at all.

Although not explicitly predicted, a chi square test of independence supported a significant association between school sector (private vs. public) and choice of preferred social media network,  $X^2(2, N = 237) = 22.66, p < .001$ . Specifically, girls attending public school



identified Snapchat as the social media network they use most often (61%), followed by Instagram (28.1%); in contrast, girls attending private school identified Instagram as the social media network they use most often (45.9%), followed by Snapchat (28.2%). To account for the grade distribution differences between private and public school students, this analysis was repeated using only girls in grade 9 (private:  $n = 88$ , public:  $n = 58$ ); the chi-square test of independence remained significant,  $X^2(2, N = 145) = 18.72, p < .001$ , with differences in preferred networks analogous to those previously described.

On average, adolescents reported checking their preferred network *every 30 minutes* to *every hour*, and spending between *2 hours* and *3 hours* using their preferred network per day. As depicted in Table 9, time spent using preferred social media networks differed according to school sector. On average, adolescents attending public school checked their self-identified preferred networks more often (*every hour* to *every 30 minutes*) than adolescents attending private school (*every few hours* to *every hour*), and also spent more time using their preferred networks (*three hours* to *four hours*) than students attending private school (*one hour* to *two hours*).

Instagram and Facebook use were also explicitly assessed. Overall, adolescents reported checking Instagram *every few hours* to *every hour*, and spending *one hour* to *two hours* using the network per day. As depicted in Table 9, time using Instagram significantly differed according to school sector. On average, adolescents attending public school checked Instagram more often (*every few hours* to *every hour*) than those attending private school (*every few hours*), and also spent more time on Instagram (*one hour* to *two hours*) than students attending private school (*30 minutes* to *one hour*).

Regarding Facebook use, adolescents reported checking Facebook *not at all* to *every few days*, and spending *five minutes or less* to *15 minutes* using the network per day (on average). As depicted in Table 9, adolescents attending public school checked Facebook more often (*not at all* to *every few days*) than adolescents attending private school (*not at all*), and also spent more time on Facebook (*five minutes or less* to *15 minutes*) than students attending private school (*five minutes or less*).

Perceptions of responses to social media photos (i.e., desired amount of “Likes”) were also examined. In general, adolescents reported that they would be happy if they received an average of 280.58 “Likes” on a photo, and would be unhappy if they received an average of 122.86 “Likes” on a photo (although these values varied considerably). As depicted in Table 9, these responses did not significantly differ between adolescents attending private vs. public schools.

To account for difference in grade distribution between public and private school students, all of the aforementioned comparisons were repeated using only girls in grade 9 (private:  $n = 88$ , public:  $n = 58$ ); as depicted in Table 11, these results were consistent with those described previously (i.e., those involving public school students in grades 9, 10, and 11).

**Table 9**

*Descriptive Statistics for Social Media Variables and Independent Samples t-tests Comparing Public and Private School Students*

Variable	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> (143)	<i>p</i>
	Total sample, <i>N</i> = 238				Private, <i>n</i> = 88		Public, <i>n</i> = 150			
Checking: pref. network	5.22	1.61	1	8	4.43	1.42	5.68	1.54	-6.23***	.000
Time spent: pref. network	5.69	2.74	1	13	4.34	1.93	6.48	2.84	-6.32***	.000
Checking: Instagram	4.36	1.40	1	8	4.01	1.47	4.56	1.33	-2.90**	.004
Time spent: Instagram	4.51	2.08	1	13	3.89	1.85	4.87	2.13	-3.50**	.001
Checking: Facebook	1.21	0.59	1	4	1.01	0.12	1.32	0.69	-5.13***	.000
Time spent: Facebook	1.17	0.94	1	11	1.00	0.0	1.25	1.13	-2.51*	.014
“Likes” (Happy)	280.58	187.26	1	800	305.96	231.72	268.11	161.60	-1.21	.229
“Likes” (Unhappy)	122.86	123.93	0	500	149.87	162.91	109.48	98.67	-1.87	.064
PBSMUS										
Global score	2.94	0.70	1.00	4.75	2.92	0.85	2.96	0.61	-0.40	.662
Invested	3.66	0.87	1.00	5.00	3.59	1.05	3.71	0.75	-0.96	.341
Personal										
Impersonal	1.69	0.73	1.00	5.00	1.73	0.83	1.67	0.68	0.58	.566
Active										
Editing	1.80	1.07	1.00	5.00	1.88	1.20	1.75	0.99	0.83	.409
Physical										

*Note.* “Likes” (Happy) = responses to “I would be happy if I received approximately [blank] ‘Likes’ on a photo that I posted on social media”; “Likes” (Unhappy) = responses to “I would be unhappy if I received approximately [blank] ‘Likes’ on a photo that I posed on social media”; PBSMUS = Photo-Based Social Media Use Survey; PBSMUS Editing Physical = Editing Physical Appearance.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table 10***Correlations Between Demographics and Additional Social Media Variables for the Total Sample (N = 238)*

Variable	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Age	.12	.01	.04	-.02	.13	-.01	.01	.24**	.19**	.10	.08	.26**	.26**
2. BMI	-	-.09	-.04	.04	-.06	.03	.03	.09	.06	.09	.11	.05	.01
3. Counselling <sup>a</sup>		-	.38**	.03	.09	.15*	.07	.02	-.01	.08	-.02	-.04	.10
4. Psych. Dx <sup>a</sup>			-	.34**	.10	.06	.04	-.02	-.01	-.02	-.01	-.01	.02
5. ED Dx <sup>a</sup>				-	.02	.16*	-.01	.04	.12	-.12	-.02	-.01	-.02
6. PBSMUS Personal					-	.38**	.30**	.58**	.48**	.55**	.45**	.16*	.13
7. PBSMUS Edit						-	.25**	.11	.11	.11	.16*	.08	.11
8. PBSMUS Impersonal							-	.16*	.14*	.19**	.13	.00	.06
9. Checking: pref. network								-	.71**	.60**	.45**	.24**	.12
10. Time spent: pref. network									-	.51**	.68**	.22**	.12
11. Checking: Instagram										-	.71**	.20**	.29*
12. Time spent: Instagram											-	.18*	.14
13. Checking: Facebook												-	.56**
14. Time spent: Facebook													-

*Note.* BMI = Body Mass Index; Counselling = history of counselling; Psych. Dx = history of psychological diagnosis; ED Dx = history of eating disorder diagnosis; PBSMUS Personal/Edit/Impersonal = Invested Personal Use, Editing Physical Appearance, and Impersonal Active Consumption subscales of the Photo-Based Social Media Use Survey.

<sup>a</sup> Dummy coded variables: Counselling (0 = no, 1 = yes), Psych. Dx (0 = no, 1 = yes), ED Dx (0 = no, 1 = yes).

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

**Table 11**

*Descriptive Statistics for Social Media Variables and Independent Samples t-tests Comparing Public and Private School Students in Grade 9*

Variable	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> (143)	<i>p</i>
	Private, <i>n</i> = 88		Public, <i>n</i> = 58			
Checking: pref. network	4.43	1.42	5.59	1.50	4.72***	.000
Time spent: pref. network	4.34	1.93	6.74	3.03	5.35***	.000
Checking: Instagram	4.01	1.47	4.76	1.41	2.98**	.003
Time spent: Instagram	3.89	1.85	5.27	2.27	3.91**	.001
Checking: Facebook	1.01	0.12	1.19	0.52	2.90**	.004
Time spent: Facebook	1.00	0.00	1.08	0.34	1.87	.064
“Likes” (Happy)	305.96	231.72	265.44	177.39	-1.07	.289
“Likes (Unhappy)	149.87	162.91	102.45	100.19	-1.89	.062
PBSMUS						
Global score	2.92	0.85	2.87	0.59	-0.40	.691
Invested Personal	3.59	1.05	3.63	0.77	0.27	.791
Impersonal Active	1.73	0.83	1.57	0.58	-1.26	.211
Editing Physical	1.88	1.20	1.62	0.96	-1.37	.173

*Note.* “Likes” (Happy) = responses to “I would be happy if I received approximately [blank] ‘Likes’ on a photo that I posted on social media”; “Likes” (Unhappy) = responses to “I would be unhappy if I received approximately [blank] ‘Likes’ on a photo that I posed on social media”; PBSMUS = Photo-Based Social Media Use Survey; PBSMUS Editing Physical = Editing Physical Appearance.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Individual responses to items assessing photo-based social media engagement (from the original PBSMUS measure, from which the final PBSMUS was derived) were also examined.

PBSMUS factor scores and global scores did not significantly differ between private and public school students; as such, the following items were analyzed for the combined sample.

Descriptive statistics for individual items on the original PBSMUS measure are listed in Table

12.

**Table 12***Descriptive Statistics for Original Photo-Based Social Media Use Survey Items (N = 238)*

Item	<i>M (SD)</i>	<i>Min.</i>	<i>Max.</i>
How often do you use social media to...			
... post photos or videos of yourself?	3.11 (1.12)	1	5
... photos or videos of yourself with others?	3.28 (1.09)	1	5
... post photos or videos of others without you?	2.41 (1.09)	1	5
... post photos or videos of things other than yourself or other people?	2.64 (1.15)	1	5
... browse photos or videos of friends?	4.09 (1.03)	1	5
... browse photos or videos of celebrities?	3.42 (1.18)	1	5
... browse photos or videos of acquaintances?	3.50 (1.07)	1	5
... browse photos or videos of strangers?	2.50 (1.17)	1	5
... read comments on photos or videos of others?	3.02 (1.14)	1	5
... comment on photos or videos of friends?	3.53 (1.17)	1	5
... comment on photos or videos of celebrities?	1.70 (0.98)	1	5
... comment on photos or videos of acquaintances?	2.36 (1.19)	1	5
... comment on photos or videos of strangers?	1.32 (0.66)	1	5
... “Like” photos or videos of friends?	4.25 (1.00)	1	5
... “Like” photos or videos of celebrities?	3.24 (1.37)	1	5
... “Like” photos or videos of acquaintances?	3.29 (1.20)	1	5
... “Like” photos or videos of strangers?	2.04 (1.18)	1	5
When using social media, how often do you...			
... edit your photos using filters provided by the app before you post them?	2.63 (1.38)	1	5
... edit your photos using editing tools provided by the app before you post them?	2.87 (1.41)	1	5
... edit your photos using external apps before you post them?	2.13 (1.37)	1	5
... alter your figure/ body size (with apps or editing tools) before you post a photo of yourself?	1.55 (1.08)	1	5
... alter your facial features (with apps or editing tools) before you post a photo of yourself?	1.72 (1.15)	1	5
... take multiple versions of a photograph before deciding to post it on social media?	4.04 (1.19)	1	5
...ask others for their opinions on your photo before deciding to post it on social media?	3.72 (1.39)	1	5
... spend time thinking of photo captions before posting a photo on social media?	3.69 (1.24)	1	5
... spend time planning your post before posting a photo on social media?	3.43 (1.38)	1	5

**Hypothesis 1a.** It was predicted that higher levels of disordered eating and body dissatisfaction would be associated with more time using social media, greater engagement with photo-based networks, and greater use of photo editing. Hypothesis 1a was partially supported.

Greater disordered eating was significantly associated with greater frequency of checking adolescents' self-identified most commonly-used networks ( $r = .13, p = .019$ ); both disordered eating ( $r = .19, p = .003$ ) and body dissatisfaction ( $r = -.13, p = .039$ ) were associated with greater time spent using preferred networks. Disordered eating and body dissatisfaction were also significantly associated with greater frequency of checking Instagram (EDEQ:  $r = .15, p = .020$ ; BESAA:  $r = -.14, p = .034$ ) and with greater time spent using Instagram (EDEQ:  $r = .24, p < .001$ ; BESAA:  $r = -.18, p = .006$ ).

Due to significant differences in social media use variables by school sector, analyses were also conducted separately for private and public school subsamples. Among students attending private school ( $n = 88$ ), disordered eating and body dissatisfaction were significantly associated with greater time spent using students' self-identified most commonly used networks (EDEQ:  $r = .34, p < .001$ , BESAA:  $r = -.31, p = .004$ ) and with greater time spent on Instagram (EDEQ:  $r = .37, p = .001$ , BESAA:  $r = -.27, p = .014$ ). Disordered eating and body dissatisfaction were not significantly associated with checking Facebook (EDEQ:  $r = .07, p = .579$ ; BESAA:  $r = .06, p = .633$ ).

Among students attending public school ( $n = 150$ ), disordered eating was significantly associated with greater frequency of checking ( $r = 0.18, p = .025$ ) and greater time spent using ( $r = 0.18, p = .027$ ) students' self-identified most commonly used networks. Disordered eating was also significantly associated with greater frequency of checking Instagram ( $r = .18, p = .029$ ), and both disordered eating ( $r = .20, p = .015$ ) and body dissatisfaction ( $r = -.17, p = .045$ ) were

associated with greater time spent using Instagram. Neither disordered eating nor body dissatisfaction were associated with checking (EDEQ:  $r = .04$ ,  $p = .659$ ; BESAA:  $r = -.14$ ,  $p = .097$ ) or time spent using Facebook (EDEQ:  $r = .04$ ,  $p = .640$ ; BESAA:  $r = -.14$ ,  $p = .132$ ).

Regarding engagement with photo-based networks (as measured by PBSMUS subscales), across all adolescents in the sample, both disordered eating ( $r = .26$ ,  $p < .001$ ) and body dissatisfaction ( $r = -.23$ ,  $p < .001$ ) were associated with greater invested personal use of photo-based social media, with greater impersonal active consumption of photo-based social media (EDEQ:  $r = .19$ ,  $p = .003$  ; BESAA:  $r = -.15$ ,  $p = .021$ ), and with greater editing of physical appearance in photos (EDEQ:  $r = .34$ ,  $p < .001$ ; BESAA:  $r = -.24$ ,  $p < .001$ ).

**Hypothesis 1b.** It was hypothesized that higher levels of body surveillance would be associated with more time using social media, greater engagement with photo-based networks, and greater use of photo editing. Hypothesis 1b was supported.

Across all adolescents, greater body surveillance was significantly associated with frequency of checking ( $r = .23$ ,  $p < .001$ ) and time spent using adolescents' self-identified most commonly-used networks ( $r = .25$ ,  $p < .001$ ). Body surveillance was also significantly associated with frequency of checking ( $r = .24$ ,  $p < .001$ ) and time spent using Instagram ( $r = .22$ ,  $p = .001$ ). Results did not differ when analyses were conducted separately for private and public school subsamples.

Regarding engagement with photo-based networks (as measured by PBSMUS subscales), among students attending both private and public schools, body surveillance was associated with invested personal use of photo-based social media ( $r = .49$ ,  $p < .001$ ), impersonal active consumption of photo-based social media ( $r = .24$ ,  $p < .001$ ), and editing physical appearance in photos ( $r = .40$ ,  $p < .001$ ).



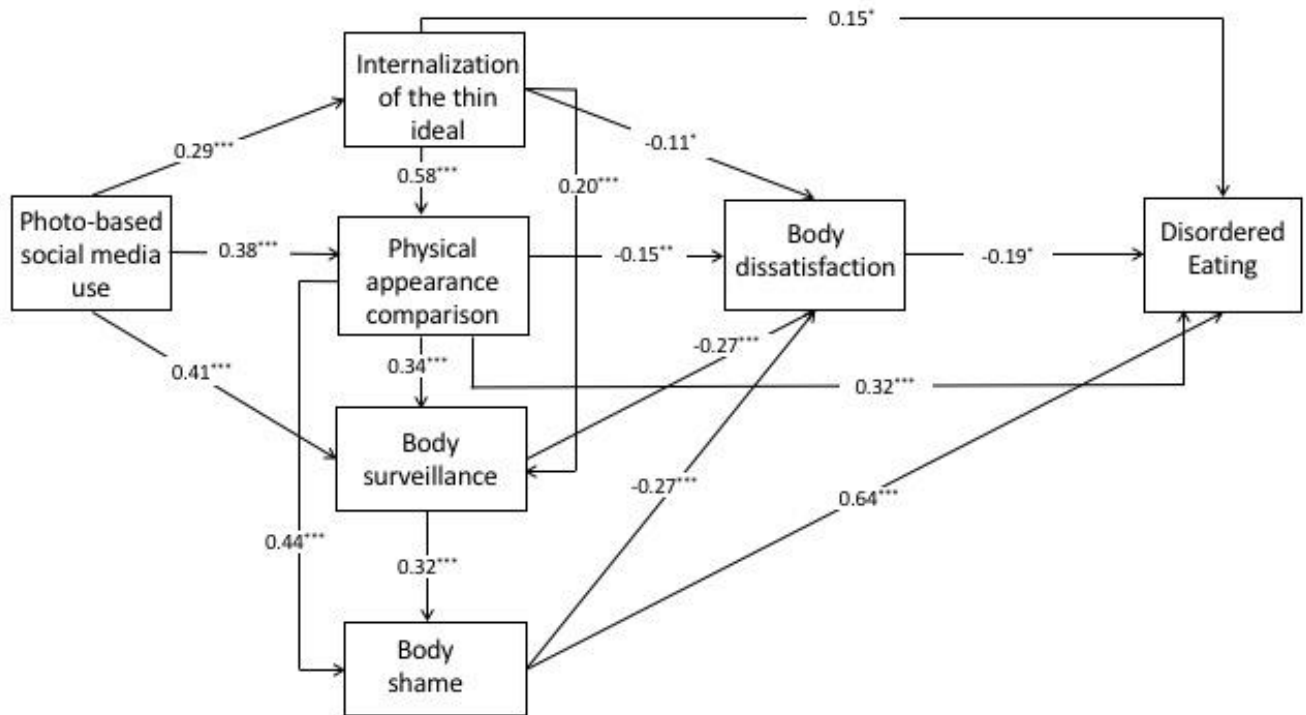
Research Question 2 (what are the associations between social media use, mechanisms associated with disordered eating, and gender-based social discourses) was assessed by conducting a path analysis.

The fit of the model proposed in Figure 2 (Model 1) was evaluated. The following statistics were examined to determine model fit:  $\chi^2$  goodness of fit test (null hypothesis: no significant difference between observed and expected covariance matrices); comparative fit index (CFI), with values greater than 0.90 indicating acceptable fit (Hu & Bentler, 1999); Root Mean Square Error of Approximation (RMSEA), with values of 0.06 or less indicating acceptable model fit (Hu & Bentler, 1999; MacCallum et al., 1996); and the Standardized Root Mean Square Residual (SRMR), with values of .08 or less indicating good fit (Hu & Bentler, 1999).

As depicted in Figure 2, all paths were significant. However, the fit of the model was not supported ( $\chi^2(5, N = 238) = 36.44, p < .001$ ;  $CFI = 0.967$ ;  $RMSEA = 0.163$ ;  $SRMR = 0.046$ ). Modification indices (MI) were examined and indicated that the addition of two paths – between thin-ideal internalization and body shame (*modification index* [ $MI$ ] = 26.17) and between PBSMUS and EDEQ Global ( $MI = 4.12$ ) – would significantly improve model fit. As these paths were consistent with existing research and theory, these paths were included and the updated model (Model 2) was tested.

**Figure 2**

*Path Analysis – Model 1*

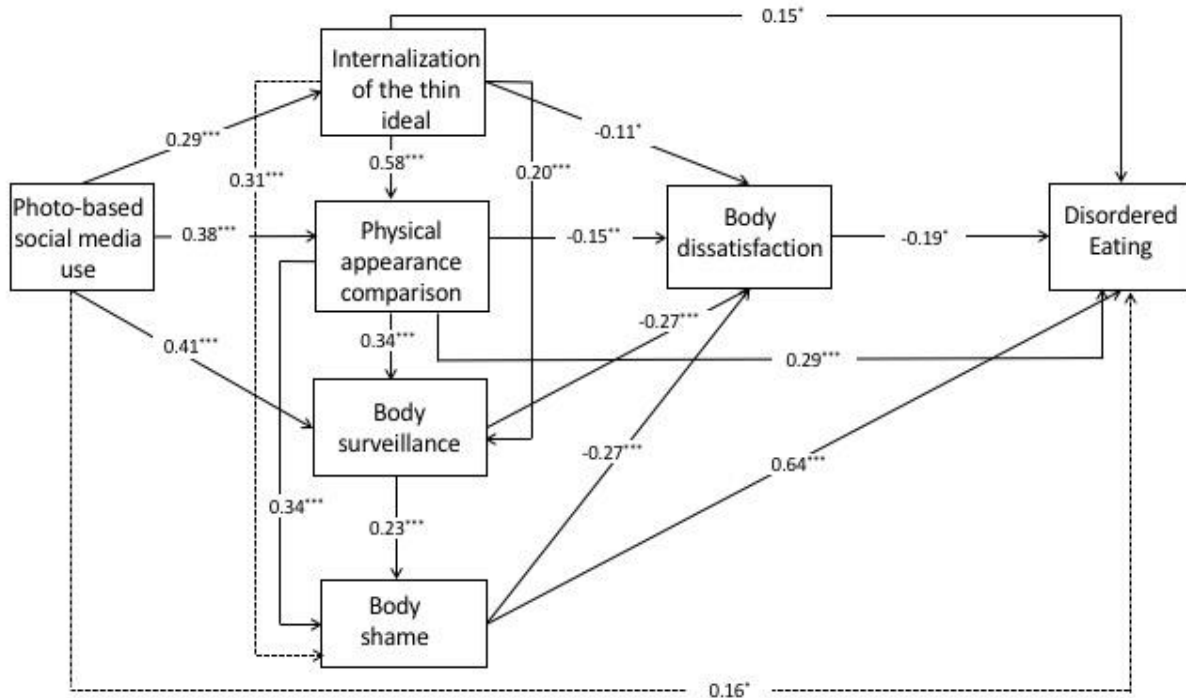


Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

The fit of Model 2 was supported ( $X^2(3, N = 238) = 5.16, p = .160$ ;  $CFI = 0.998$ ;  $RMSEA = 0.055$ ;  $SRMR = 0.015$ ). As depicted in Figure 3, all paths were significant. As currently specified, the model predicted 4.8% of the variance in thin-ideal internalization, 36.5% of the variance in physical appearance comparison, 57.4% of the variance in body surveillance, 54.1% of the variance in body shame, 57.4% of the variance in body dissatisfaction, and 67% of the variance in disordered eating.

**Figure 3**

*Path Analysis – Model 2*



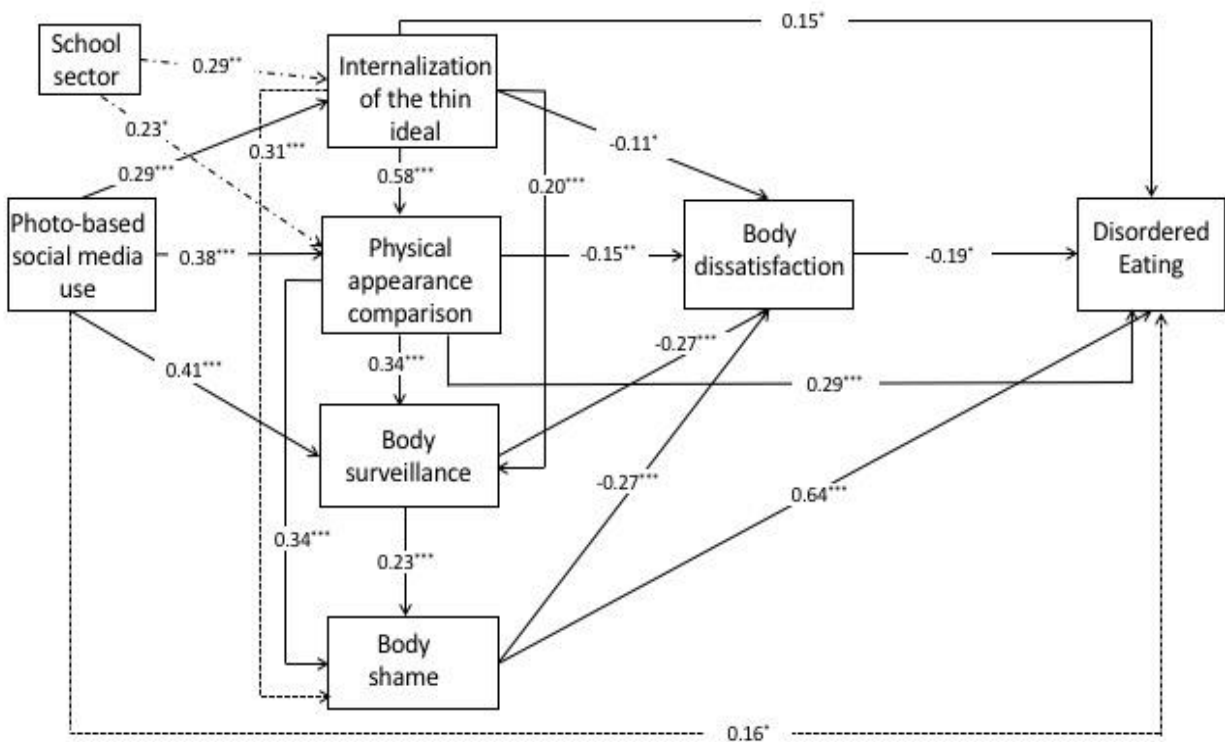
*Note.* \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

The roles of school sector and self-esteem were then explored. To assess the impact of school sector, two paths were added to Model 2 (creating Model 3): one path between school sector and internalization of the thin ideal, and another path between school sector and physical appearance comparison (based on significant differences in these variables between students attending private and public schools). The fit of Model 3 was supported ( $X^2(7, N = 238) = 10.14$ ,  $p = .181$ ;  $CFI = 0.997$ ;  $RMSEA = 0.043$ ;  $SRMR = 0.024$ ). As depicted in Figure 4, all paths were significant. As currently specified, the model predicted 7.2% of the variance in thin-ideal internalization, 37.5% of the variance in physical appearance comparison, 57.4% of the variance

in body surveillance, 54.1% of the variance in body shame, 57.4% of the variance in body dissatisfaction, and 67% of the variance in disordered eating.

**Figure 4**

*Path Analysis – Model 3*

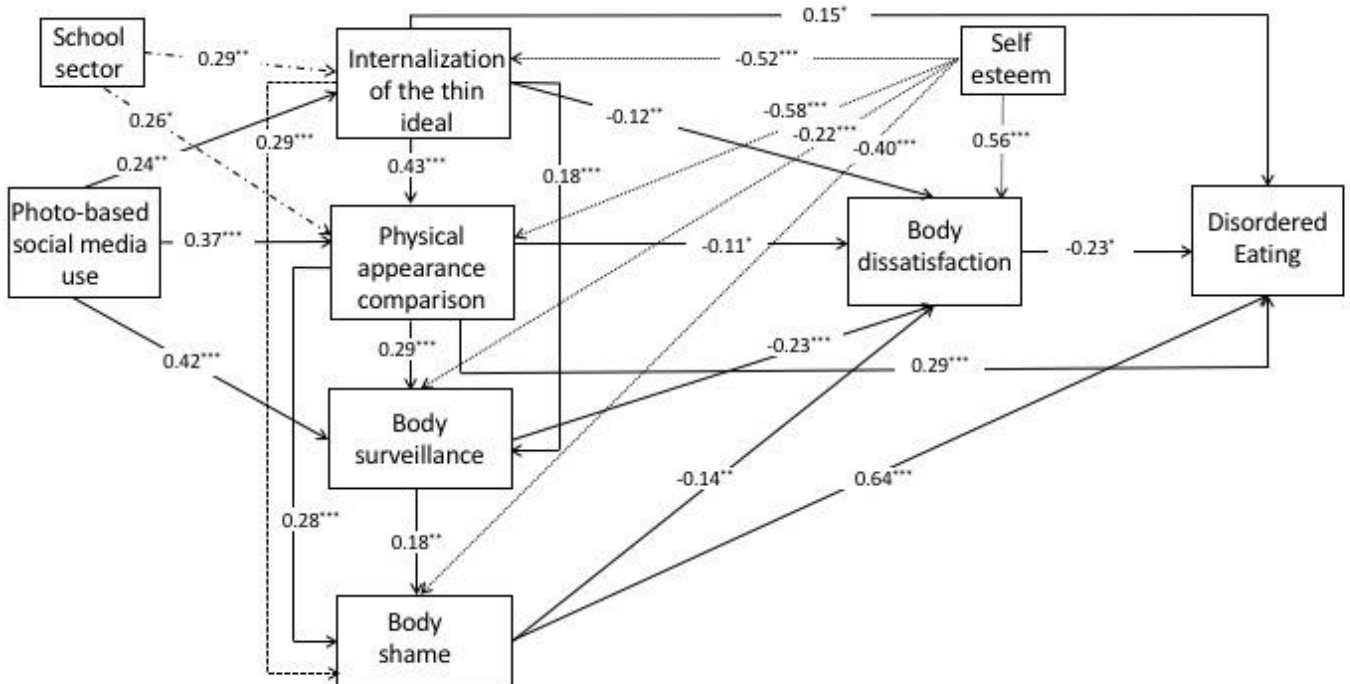


*Note.* \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Finally, to assess the role of self-esteem, Model 3 was modified to include paths between self-esteem and all primary study variables (based on preliminary analyses indicative of significant correlations; see Table 7), thus creating Model 4. The fit of Model 4 (the final model) was supported, ( $\chi^2(7, N = 238) = 5.91, p = .550$ ;  $CFI = 1.00$ ;  $RMSEA = 0.00$ ;  $SRMR = 0.014$ ). As depicted in Figure 5, all paths were significant, with the exception of the direct paths between self-esteem and disordered eating ( $B = 0.12, p = .316$ ) and between photo-based social media use and disordered eating ( $B = 0.15, p = .059$ ). As currently specified, the model predicted 17.7% of the variance in thin-ideal internalization, 46.0% of the variance in physical appearance comparison, 59.2% of the variance in body surveillance, 58.1% of the variance in body shame, 67.2% of the variance in body dissatisfaction, and 67% of the variance in disordered eating.

**Figure 5**

*Path Analysis – Model 4 (Final Model)*



*Note.* Only significant paths are depicted in the diagram. Paths between photo-based social media use and eating pathology and between self-esteem and eating pathology were not significant.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Hypotheses 2a to 2f.** Hypothesis 2a through 2f were assessed by examining coefficients associated with paths in Model 4.

Hypothesis 2a was supported. Greater engagement in photo-based social media was significantly associated with greater thin ideal internalization ( $B = 0.24$ ,  $SE = 0.077$ ,  $p = .002$ ), greater physical appearance comparison ( $B = 0.37$ ,  $SE = 0.074$ ,  $p < .001$ ), and greater body surveillance ( $B = 0.42$ ,  $SE = 0.054$ ,  $p < .001$ ).

Hypothesis 2b was supported. Greater internalization of the thin ideal was significantly associated with greater physical appearance comparison ( $B = 0.43, SE = 0.061, p < .001$ ), greater body surveillance ( $B = 0.18, SE = 0.047, p < .001$ ), greater body dissatisfaction ( $B = -0.12, SE = 0.045, p = .009$ ), and greater disordered eating ( $B = 0.15, SE = 0.072, p = .045$ ).

Hypothesis 2c was supported. Greater physical appearance comparison was significantly associated with greater body surveillance ( $B = 0.29, SE = 0.045, p < .001$ ), greater body shame ( $B = 0.28, SE = 0.056, p < .001$ ), greater body dissatisfaction ( $B = -0.11, SE = 0.045, p = .017$ ), and greater disordered eating ( $B = 0.29, SE = 0.070, p < .001$ ).

Hypothesis 2d was supported. Greater body surveillance was significantly associated with greater body shame ( $B = 0.18, SE = 0.067, p = .008$ ) and greater body dissatisfaction ( $B = -0.23, SE = 0.052, p < .001$ ).

Hypothesis 2e was supported. Greater body shame was significantly associated with greater body dissatisfaction ( $B = -0.14, SE = 0.049, p = .004$ ) and greater disordered eating ( $B = 0.65, SE = 0.081, p < .001$ ).

Finally, hypothesis 2f was supported, such that greater body dissatisfaction was significantly associated with greater disordered eating ( $B = -0.23, SE = 0.10, p = .023$ ).

**Exploratory Analyses.** Results of exploratory analyses are based on coefficients associated with paths in Model 4. Regarding the influence of school sector, attending private school (vs. public school) was significantly associated with greater internalization of the thin ideal ( $B = 0.29, SE = 0.11, p = .011$ ) and with greater physical appearance comparison ( $B = 0.26, SE = 0.11, p = .015$ ).

Regarding the influence of self-esteem, lower self-esteem was significantly associated with greater internalization of the thin ideal ( $B = -0.52, SE = 0.10, p < .001$ ), greater physical

appearance comparison ( $B = -0.58$ ,  $SE = 0.10$ ,  $p < .001$ ), greater body surveillance ( $B = -0.23$ ,  $SE = 0.071$ ,  $p = .001$ ), greater body shame ( $B = -0.40$ ,  $SE = 0.083$ ,  $p < .001$ ), and greater body dissatisfaction ( $B = 0.56$ ,  $SE = 0.066$ ,  $p < .001$ ). Self-esteem was not significantly associated with disordered eating ( $B = 0.12$ ,  $SE = 0.12$ ,  $p = .316$ ) or engagement with photo-based social media ( $B = 0.15$ ,  $p = .059$ ).

## **Part 2**

Descriptive statistics for primary study variables for the subsample of students who completed Part 2/3 appear in Table 13. Among the Part 2/3 subsample, disordered eating was found to significantly differ according to age,  $F(2, 71) = 4.19$ ,  $p = .019$ ; specifically, disordered eating was greater among 16-year-old adolescents ( $n = 16$ ,  $M = 2.44$ ,  $SD = 1.61$ ) compared to 15-year-old adolescents ( $n = 38$ ,  $M = 1.32$ ,  $SD = 1.14$ ;  $p = .014$ ). No other significant differences were found according to age or grade.

Research Question 3 (how do adolescent girls perceive their own bodies) was assessed by examining descriptive statistics for appearance related variables (self-actual assessment; see Table 14). Correlations between self-actual assessment variables and demographic variables are listed in Table 15.



**Table 13***Descriptive Statistics for Primary Study Variables for the Part 2 Subsample (n = 77)*

Variable	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
EDEQ	1.68	1.35	0	5.90
BESAA	3.12	0.93	1.00	5.00
SATAQ	3.27	0.91	1.00	5.00
PACSR	2.50	1.04	1.03	5.00
OBCS Surveillance	3.97	0.87	2.13	5.88
OBCS Shame	3.04	1.00	1.25	5.88
PBSMUS	2.96	0.57	1.56	4.19
RSES	2.76	0.58	1.40	4.00

*Note.* EDEQ = Eating Disorder Examination Questionnaire; BESAA = Appearance subscale of the Body Esteem Scale for Adolescents and Adults; SATAQ = Internalization – Thin/Low Body Fat subscale of the Sociocultural Attitudes Toward Appearance Questionnaire; SOQ = Self-Objectification Questionnaire; PACSR = Physical Appearance Comparison Scale – Revised; OBCS Surveillance. = Body Surveillance subscale of the Objectified Body Consciousness Scale; OBCS Shame = Body Shame subscale of the Objectified Body Consciousness Scale; PBSMUS = Photo-Based Social Media Use Survey; RSES = Rosenberg Self-Esteem Scale.

**Table 14***Descriptive Statistics – Self Assessment (n = 77)*

Self assessment variable	Self: actual		Self: ideal		<i>t</i>	<i>p</i>
	<i>M (SE)</i>	<i>Range</i>	<i>M (SE)</i>	<i>Range</i>		
Body ... [very fat/ very thin]	56.00 (2.66)	0 - 100	66.01 (1.98)	28 - 100	-3.33**	.001
My body is... [lack. muscle/ muscular]	47.28 (2.92)	0 - 100	60.77 (2.11)	8 - 100	-5.57***	.000
Height... [very short/ very tall]	51.37 (3.12)	4 - 100	52.80 (2.32)	4 - 100	-0.64	.527
Arms... [very fat/ very thin]	52.61 (2.90)	0 - 100	68.24 (1.80)	31 - 100	-4.73***	.000
Arms...[lack. muscle/ muscular]	42.55 (3.35)	0 - 97.50	61.11 (2.34)	14 - 100	-6.64***	.000
Thighs... [very fat/ very thin]	38.59 (2.70)	0 - 100	57.96 (1.97)	7 - 100	-6.30***	.000
Thighs... [lack. muscle/ muscular]	51.71 (3.17)	0 - 100	61.22 (2.14)	13 - 100	-2.96**	.004
Abdomen... [very fat/ very thin]	52.37 (2.74)	0 - 100	75.78 (1.83)	46 - 100	-7.81***	.000
Abdomen... [lack. muscle/ muscular]	43.68 (2.51)	0 - 100	69.42 (2.06)	20 - 100	-8.46***	.000
Breasts... [very small/ very big]	46.11 (3.39)	0 - 100	55.11 (2.49)	0 - 100	-2.25*	.028
Waist... [very narrow/ very wide]	47.06 (3.10)	0 - 100	28.43 (2.05)	0 - 75	3.28**	.002
Hips... [very narrow/ very wide]	39.33 (2.49)	0 - 100	45.23 (2.14)	4 - 100	0.56	.577
Buttocks... [very small/ very big]	46.95 (2.97)	0 - 100	65.56 (2.32)	0 - 100	-5.91***	.000
Buttocks... [lack. muscle/ muscular]	45.00 (2.73)	0 - 100	60.13 (2.27)	12.69 - 100	-5.80***	.000
Hair... [very short/ very long]	58.81 (2.39)	5 - 100	70.86 (2.51)	13 - 100	-4.88***	.000
Hair... [very curly/ very straight]	47.11 (3.63)	0 - 100	49.42 (3.80)	0 - 100	-0.60	.551
Skin... [very white/ very dark]	32.71 (2.57)	0 - 100	46.92 (2.33)	1 - 84	-6.00***	.000
Nose... [very narrow/ very wide]	38.88 (2.48)	5 - 100	26.83 (2.08)	0 - 81	4.23***	.000
Nose... [very small/ very big]	45.06 (2.60)	5 - 100	23.88 (1.66)	0 - 54	6.96***	.000
Lips... [very thin/very full]	46.60 (3.09)	0 - 100	68.56 (2.17)	0 - 100	-7.15***	.000
I look like the ideal girl [agree/disagree]	47.06 (3.10)	0 - 100				
I would make changes to my appearance... [agree/disagree]	35.15 (4.51)	0 - 100				

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table 15***Correlations Between Self-Actual Assessment and Demographic Variables (n = 77)*

Self-actual assessment variable	Age	BMI	Counselling <sup>a</sup>	Psych. Dx <sup>a</sup>	ED Dx <sup>a</sup>
I look like the ideal girl [agree/disagree]	-.09	.13	.18	.37**	.39**
I would make changes to my appearance... [agree/disagree]	-.06	-.25*	-.05	-.15	-.17
Body...[very fat/very thin]	.02	-.55**	.08	.05	.04
Body... [lacking muscle/muscular]	.02	-.04	-.16	-.19	-.26*
Height... [short/tall]	.002	-.07	-.08	.04	.14
Arms... [very fat/very thin]	-.15	-.39**	-.03	-.14	-.31**
Arms... [lacking muscle/muscular]	.01	-.07	-.19	-.13	-.27*
Thighs... [very fat/very thin]	-.06	-.34**	.06	-.02	.04
Thighs... [lacking muscle/muscular]	.06	-.08	.12	.06	.01
Abdomen... [very fat/very thin]	-.12	-.36**	.02	-.14	-.12
Abdomen... [lacking muscle/muscular]	-.04	-.21	.17	-.03	.05
Breasts... [very small/very big]	.14	.39**	.05	-.15	-.22
Waist... [very narrow/very wide]	-.11	.39**	.03	.15	.20
Hips... [very narrow/very wide]	-.13	.42**	-.09	-.01	-.03
Buttocks... [very small/very big]	-.21	.11	-.17	-.24*	-.23*
Buttocks... [lacking muscle/muscular]	-.08	.02	.02	-.04	-.09
Hair... [very short/very long]	-.03	-.11	.05	.12	-.04
Hair... [very curly/very straight]	.12	.09	.10	.04	-.13
Skin... [very white/very dark]	-.06	.06	-.13	-.08	-.01
Nose... [very narrow/very wide]	-.03	-.04	-.01	-.04	.22
Nose... [very small/very big]	.17	.11	-.08	-.03	.19
Lips... [very thin/very full]	.00	-.02	-.04	.09	.16

*Note.* BMI = Body Mass Index; Counselling = history of counselling; Psych. Dx = history of psychological diagnosis; ED Dx = history of eating disorder diagnosis.

<sup>a</sup> Dummy coded variables: Counselling (0 = no, 1 = yes), Psych. Dx (0 = no, 1 = yes), ED Dx (0 = no, 1 = yes).

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

**Hypothesis 3a.** It was predicted that higher levels of disordered eating (and associated variables) would be associated with more negative perceptions of one's body, as measured by responses to "I look like the ideal girl" and "My body is...[very fat/very thin]". Hypothesis 3a was supported.

Greater disordered eating was significantly associated with disagreeing with the appearance of oneself as the "ideal girl" ( $r = .54, p < .001$ ). Although not specifically hypothesized, greater body dissatisfaction ( $r = -.63, p < .001$ ), physical appearance comparison ( $r = .52, p < .001$ ), thin ideal internalization ( $r = .39, p < .001$ ), body surveillance ( $r = .40, p < .001$ ), and body shame ( $r = .60, p < .001$ ) were also significantly associated with disagreeing with the appearance of oneself as the "ideal girl".

Greater disordered eating ( $r = -.53, p < .001$ ), body dissatisfaction ( $r = .31, p < .001$ ), physical appearance comparison ( $r = -.26, p = .024$ ), thin ideal internalization ( $r = -.29, p = .011$ ), and body shame ( $r = -.48, p < .001$ ) were significantly associated with perceiving oneself as fat.

**Hypothesis 3b.** It was predicted that greater engagement with photo-based social media would be associated with more negative perceptions of one's body, as measured by responses to "I look like the ideal girl" and "My body is...[very fat/very thin]". Hypothesis 3b was partially supported: greater photo-based social media engagement was significantly associated with disagreeing with the appearance of oneself as the "ideal girl" ( $r = .24, p = .038$ ). Engagement with photo-based social media was not significantly associated with responses to "My body is...[very fat/very thin]" ( $r = -.03, p = .773$ ).

Prior to conducting multiple regression analyses (MRAs), relevant correlations were examined to determine the inclusion of covariates. Variables were included as covariates if they

were significantly associated with an independent and a dependent variable. Regression results are summarized in Table 16. For the MRA predicting responses to “I look like the ideal girl”, self-esteem (RSES) was included as a covariate due to significant associations with the outcome variable ( $r = -.52, p < .001$ ) and the independent variables (see Table 6). History of a psychological diagnosis (Psychological Dx) and history of an eating disorder diagnosis (ED Dx) were also included as covariates. The regression predicting responses to “I look like the ideal girl” from disordered eating, body dissatisfaction, physical appearance comparison, thin ideal internalization, body surveillance, body shame, engagement with social media, self-esteem, Psychological Dx, and ED Dx was significant,  $F(10, 60) = 5.84, p < .001, adj. R^2 = 40.9\%$ . In the context of all other variables included in the model, only body shame ( $B = 12.15, SE = 5.66, p = .036$ ) emerged as a significant predictor, such that greater body shame was associated with disagreeing with the appearance of oneself as the “ideal girl”.

For the MRA predicting responses to “My body is...[fat/thin]”, body mass index (BMI) was included as a covariate due to significant associations with the outcome variable ( $r = -.55, p < .001$ ) and certain predictor variables (see Table 6). The regression predicting responses to “My body is... [fat/thin]” from disordered eating, body dissatisfaction, physical appearance comparison, thin ideal internalization, body shame, and BMI was significant,  $F(6, 67) = 9.41, p < .001, adj. R^2 = 40.9\%$ . In the context of all other variables included in the model, only BMI emerged as a significant predictor ( $B = -2.28, SE = 0.59, p < .001$ ), such that higher BMI was associated with perceiving oneself as fat.

**Table 16**

*Hypotheses 3a and 3b: Regressions Predicting Self-Perceptions from Primary Study Variables (n = 77)*

Variable	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Outcome: “I look like the “ideal girl”				
EDEQ	-2.31	3.92	-0.59	.558
BESAA	-9.53	5.23	-1.82	.073
SATAQ	-2.42	4.25	-0.57	.572
PACSR	1.59	4.21	0.38	.707
Body Surveillance	-4.55	4.71	-0.97	.338
Body Shame	12.15	5.66	2.15*	.036
RSES	-7.27	6.40	-1.14	.261
PBSMUS	4.09	5.90	0.69	.491
ED Dx <sup>a</sup>	8.28	15.77	0.53	.601
Psych. Dx <sup>a</sup>	4.66	9.12	0.51	.611
Outcome: “My body is...[fat/thin]”				
EDEQ	-5.36	3.45	-1.55	.125
BESAA	-0.05	3.53	-0.01	.989
SATAQ	2.99	3.46	0.864	.391
PACSR	2.96	3.51	0.845	.401
Body Shame	-6.17	4.45	-1.39	.171
BMI	-2.28	0.59	-3.84***	.000

*Note.* BMI = Body Mass Index; EDEQ = Eating Disorder Examination Questionnaire; BESAA = Appearance subscale of the Body Esteem Scale for Adolescents and Adults; SATAQ = Internalization – Thin/Low Body Fat subscale of the Sociocultural Attitudes Toward Appearance Questionnaire; PACSR = Physical Appearance Comparison Scale – Revised; PBSMUS = Photo-Based Social Media Use Survey; RSES = Rosenberg Self-Esteem Scale; Psych. Dx = history of psychological diagnosis; ED Dx = history of eating disorder diagnosis.

<sup>a</sup> Dummy coded variables: Psych. Dx (0 = no, 1 = yes ), ED Dx (0 = no, 1 = yes).

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Research Question 4 (how do adolescent girls want their bodies to look, and is there a discrepancy between actual and ideal bodies) was assessed by examining descriptive statistics for appearance related variables (self-ideal assessment), and by conducting paired samples *t*-tests between self-actual (e.g., “My [body part] is...”) and self-ideal (e.g., “I would like my [body part] to be...”) assessment items. Descriptive statistics for self-ideal assessment variables and *t*-

test results are listed in Table 14. Correlations between self-ideal assessment variables and demographic variables appear in Table 17.

Results of the paired samples *t*-tests indicated that, relative to their perceptions of their actual appearances, participants wanted their bodies to be thinner and more muscular; their arms to be thinner and more muscular; their thighs to be thinner and more muscular; their abdomens to be thinner and more muscular; their breasts to be bigger; their waists to be more narrow; their buttocks' to be bigger and more muscular; their hair to be longer; their skin to be darker; their noses to be narrower and smaller; and their lips to be fuller.

**Table 17***Correlations between Self-Ideal Assessment and Demographic Variables (n = 77)*

Self-ideal assessment variable	Age	BMI	Counselling <sup>a</sup>	Psych. Dx <sup>a</sup>	ED Dx <sup>a</sup>
Body...[very fat/very thin]	-.14	-.07	.21	.26*	.24*
Body... [lacking muscle/muscular]	.05	.00	.08	-.05	-.21
Height... [short/tall]	.10	.06	-.14	-.01	.22
Arms... [very fat/very thin]	-.03	.07	-.05	.16	.21
Arms... [lacking muscle/muscular]	.03	-.10	-.06	-.05	-.12
Thighs... [very fat/very thin]	.02	-.03	.09	.18	.05
Thighs... [lacking muscle/muscular]	.18	-.10	-.04	-.04	-.12
Abdomen... [very fat/very thin]	.06	.02	-.07	.05	.01
Abdomen... [lacking muscle/muscular]	.12	-.05	-.07	-.03	-.18
Breasts... [very small/very big]	-.04	-.22	-.19	-.13	.01
Waist... [very narrow/very wide]	-.12	-.04	.01	-.24*	-.18
Hips... [very narrow/very wide]	.10	.03	-.12	-.16	-.05
Buttocks... [very small/very big]	.08	-.09	-.22	-.03	.10
Buttocks... [lacking muscle/muscular]	.20	-.08	-.10	-.02	-.12
Hair... [very short/very long]	.18	-.14	.05	.24*	.05
Hair... [very curly/very straight]	-.06	.24	-.01	-.02	-.05
Skin... [very white/very dark]	.16	.00	-.30**	.04	.09
Nose... [very narrow/very wide]	-.04	-.04	-.02	-.20	-.12
Nose... [very small/very big]	-.05	.14	.10	-.14	-.06
Lips... [very thin/very full]	.07	-.00	-.12	.15	.22

*Note.* BMI = Body Mass Index; Counselling = history of counselling; Psych. Dx = history of psychological diagnosis; ED Dx = history of eating disorder diagnosis.

<sup>a</sup> Dummy coded variables: Counselling (0 = no, 1 = yes), Psych. Dx (0 = no, 1 = yes), ED Dx (0 = no, 1 = yes).

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



**Hypothesis 4a.** It was predicted that higher levels of disordered eating (and associated variables) would be associated with stronger preferences for idealized appearance, particularly on dimensions related to shape and weight. Hypothesis 4a was partially supported.

Correlations between disordered eating (and related variables) were examined. Higher levels of disordered eating were associated with a stronger preference for thin arms ( $r = .28, p = .016$ ), and with a stronger preference for a narrow waist ( $r = -.38, p = .001$ ). On dimensions unrelated to shape and weight, greater disordered eating was associated with a stronger preference for dark skin ( $r = .28, p = .015$ ).

Greater body dissatisfaction was associated with stronger preferences for a thin body ( $r = -.28, p = .015$ ) and a narrow waist ( $r = .42, p < .001$ ). On dimensions unrelated to shape and weight, greater body dissatisfaction was associated with a stronger preference for full lips ( $r = -.33, p = .003$ ).

Greater body surveillance was positively associated with stronger preferences for a thin body ( $r = .26, p = .028$ ), thin arms ( $r = .27, p = .022$ ), a thin abdomen ( $r = .35, p = .002$ ), a narrow waist ( $r = -.45, p < .001$ ), big breasts ( $r = .25, p = .031$ ), and a big buttocks ( $r = .35, p = .002$ ). Unrelated to shape and weight, greater body surveillance was associated with a stronger preference for a small nose ( $r = -.24, p = .042$ ). Greater body shame was associated with stronger preferences for thin arms ( $r = .26, p = .024$ ), a thin abdomen ( $r = .26, p = .026$ ), and a narrow waist ( $r = -.38, p < .001$ ). Unrelated to shape and weight, greater body shame was associated with a stronger preference for full lips ( $r = .23, p = .045$ ).

Greater physical appearance comparison was associated stronger preferences for thin arms ( $r = .26, p = .022$ ), thin thighs ( $r = .23, p = .047$ ), a thin abdomen ( $r = .33, p = .003$ ), and a

narrow waist ( $r = .46, p < .001$ ). Unrelated to shape and weight, physical appearance comparison was associated with a stronger preference for full lips ( $r = .29, p = .010$ ).

Finally, thin ideal internalization was associated with stronger preferences for a thin body ( $r = .33, p = .004$ ), thin arms ( $r = .36, p = .001$ ), thin thighs ( $r = .27, p = .019$ ), a thin abdomen ( $r = .37, p = .001$ ), and a narrow waist ( $r = -.48, p < .001$ ).

**Hypothesis 4b.** It was predicted that greater engagement with photo-based social media would be associated with preferences for idealized appearance, particularly on dimensions related to shape and weight. Hypothesis 4b was partially supported.

Engagement with photo-based social media was associated with stronger preferences for thin arms ( $r = .33, p = .004$ ), a thin abdomen ( $r = .38, p = .001$ ), a narrow waist ( $r = -.42, p < .001$ ), and a big buttocks ( $r = .36, p = .002$ ). Unrelated to shape and weight, engagement with photo-based social media was associated with stronger preferences for long hair ( $r = .25, p = .035$ ) and a small nose ( $r = -.30, p = .009$ ).

Based on correlational analyses, appearance ideals that were significantly associated with more than one primary study variable were further examined with MRAs (see Table 18). The MRA predicting responses to “I would like my body to be...[fat/thin]” from body dissatisfaction, body surveillance, and thin ideal internalization – with Psychological Dx and ED Dx included as covariates – was significant,  $F(5,65) = 2.44, p = .043, adj. R^2 = .093$ , although none of these variables emerged as significant predictors of the dependent variable.

The MRA predicting responses to “I would like my arms to be...[fat/thin]” from disordered eating, body surveillance, body shame, physical appearance comparison, thin ideal internalization, and engagement with photo-based social media was significant,  $F(6,67) = 3.18, p = .008, adj. R^2 = .152$ . In the context of all other predictors included in the model, only thin ideal

internalization emerged as a significant predictor of the dependent variable ( $B = 7.20$ ,  $SE = 2.85$ ,  $p = .014$ ), such that greater internalization of the thin ideal was associated with a stronger preference for thin arms.

The MRA predicting responses to “I would like my abdomen to be...[fat/thin]” from body surveillance, body shame, physical appearance comparison, thin ideal internalization, and engagement with photo-based social media was significant  $F(5,68) = 5.04$ ,  $p = .001$ , *adj. R*<sup>2</sup> = .217. Thin ideal internalization ( $B = 6.73$ ,  $SE = 2.66$ ,  $p = .014$ ) and engagement with photo-based social media ( $B = 7.51$ ,  $SE = 3.44$ ,  $p = .032$ ) emerged as significant predictors of the dependent variable, such that greater thin ideal internalization and greater engagement with photo-based social media were associated with stronger preferences for a thin abdomen.

The MRA predicting responses to “I would like my waist to be...[narrow/wide]” from disordered eating, body dissatisfaction, body surveillance, body shame, physical appearance comparison, thin ideal internalization, and engagement with photo-based social media – with Psychological Dx included as a covariate – was significant,  $F(8,62) = 5.52$ ,  $p < .001$ , *adj. R*<sup>2</sup> = .341. Thin ideal internalization ( $B = -8.17$ ,  $SE = 2.92$ ,  $p = .007$ ), physical appearance comparison ( $B = -6.20$ ,  $SE = 2.89$ ,  $p = .036$ ), and engagement with photo-based social media ( $B = -9.06$ ,  $SE = 3.99$ ,  $p = .027$ ) emerged as significant predictors of the outcome variable, such that greater thin ideal internalization, greater physical appearance comparison, and greater engagement with photo-based social media were associated with stronger preferences for a narrow waist.

The MRA predicting responses to “I would like my thighs to be...[fat/thin]” from physical appearance comparison and thin ideal internalization was significant,  $F(2,74) = 3.23$ ,  $p = .045$ , *adj. R*<sup>2</sup> = .056), although none of the variables emerged as significant predictors of the outcome variable.

**Table 18**

*Hypotheses 4a and 4b: Regressions Predicting Appearance Ideals (Self-Ideal Assessment) from Primary Study Variables (n = 77)*

Variable	B	SE	t	p
Outcome: "I would like my body to be...[fat/thin]"				
BESAA	-1.17	3.02	-0.64	.700
SATAQ	4.30	2.88	1.60	.141
Body Surv.	1.81	3.23	0.44	.577
ED Dx <sup>a</sup>	6.08	12.29	0.50	.622
Psych Dx <sup>a</sup>	4.88	6.94	0.70	.484
Outcome: "I would like my arms to be...[fat/thin]"				
EDEQ	0.41	2.54	0.16	.871
Body Surv.	-0.59	2.99	-0.20	.845
Body Shame	-3.78	3.71	-1.02	.312
SATAQ	7.20	2.85	2.53*	.014
PACSR	2.22	2.76	0.80	.425
PBSMUS	6.56	3.55	1.85	.069
Outcome: "I would like my abdomen to be...[fat/thin]"				
Body Surv.	1.59	2.87	0.55	.582
Body Shame	-5.76	3.04	-1.90	.062
SATAQ	6.74	2.66	2.53	.014
PACSR	3.80	2.52	1.51	.135
PBSMUS	7.51	3.44	2.19*	.032
Outcome: "I would like my waist to be...[narrow/wide]"				
EDEQ	1.96	2.71	0.72	.472
BESAA	3.65	3.14	1.16	.250
Body Surv.	-1.14	3.25	-0.35	.728
Body Shame	5.52	3.87	1.43	.159
SATAQ	-8.17	2.92	-2.80**	.007
PACSR	-6.20	2.89	-2.14*	.036
PBSMUS	-9.06	3.99	-2.27*	.027
Psych. Dx	-0.36	5.61	-.064	.950
Outcome: "I would like my thighs to be...[fat/thin]"				
SATAQ	3.84	2.51	1.53	.131
PACSR	1.86	2.20	0.85	.399

*Note.* EDEQ = Eating Disorder Examination Questionnaire; BESAA = Body Esteem Scale for Adolescents and Adults; SATAQ = Internalization – Thin/Low Body Fat; PACSR = Physical Appearance Comparison Scale; PBSMUS = Photo-Based Social Media Use Survey; Psych. Dx = history of psychological diagnosis; ED Dx = history of eating disorder diagnosis.

<sup>a</sup> Dummy coded variables: Psych. Dx (0 = no, 1 = yes ), ED Dx (0 = no, 1 = yes).

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

Research Question 5 (how do girls perceive the bodies of other girls, how do they believe the bodies of other girls should look, and is there a discrepancy between actual and ideal bodies for other girls) was assessed by examining descriptive statistics for appearance related variables (other-actual and other-ideal assessments) and by conducting paired samples *t*-tests between actual and ideal assessments for each of the three models.

Repeated-measures analyses of variance (ANOVAs) were conducted to assess whether there were differences in how girls perceived the bodies of each of the models (other-actual assessments), and how they believed the models would want their bodies to look (other-ideal assessments). Results of post-hoc tests are not reported for brevity. Regarding other-actual assessments, there were significant differences in participants' perceptions of the models across all appearance related variables (see Table 19). Regarding other-ideal assessments, there were significant differences for some, but not all, appearance-related variables (see Table 20). Specifically, participants' perceptions of how the models would like their bodies to look did not significantly differ between the three models for the following variables: arms (very fat/very thin), waist (very narrow/very wide), hips (very narrow/very wide), and nose (very small/very big).

Results of paired samples *t*-tests assessing the discrepancy between actual vs. ideal appearances for the three models appear in Table 21. Notably, across all three models, participants believed that the models would like their bodies to be more muscular; their arms to be more muscular; their thighs to be more muscular; their abdomens to be more muscular; their breasts to be bigger; their buttocks to be bigger and more muscular; and their lips to be fuller. Although there was a significant difference between perceptions of actual appearance and preferences for ideal appearance for abdomen (fat/thin), directionality was not consistent across

the three models. While participants believed that model 3 wanted her abdomen to be thinner, they believed models 1 and 2 wanted their abdomens to be bigger. Similarly, for hips (very narrow/very wide), while participants believed that model 3 wanted her hips to be more narrow, they believed models 1 and 2 wanted their hips to be wider.

**Table 19***Descriptive Statistics for Other-Actual Assessments of the Three Models and Repeated-Measures ANOVA (n = 77)*

Other-actual assessment item	Model 1		Model 2		Model 3		<i>F</i> (2, 152)
	<i>M</i> ( <i>SE</i> )	<i>Range</i>	<i>M</i> ( <i>SE</i> )	<i>Range</i>	<i>M</i> ( <i>SE</i> )	<i>Range</i>	
Body ... [very fat/very thin]	74.20 (1.72)	38.58 - 100	73.09 (1.68)	41 - 100	63.55 (1.49)	34 - 95	31.13***
Body... [lack. muscle/muscular]	37.45 (1.98)	4 - 88	61.22 (1.77)	24 - 90	52.03 (1.70)	11 - 83	52.72***
Height... [very short/very tall]	34.02 (1.68)	8 - 69	50.81 (1.51)	18 - 90	56.16 (1.63)	27 - 100	64.32***
Arms... [very fat/very thin]	69.94 (1.70)	39 - 100	65.10 (1.83)	32 - 100	56.99 (1.83)	24.45 - 93	18.71***
Arms... [lack. muscle/muscular]	34.90 (2.07)	2 - 99.62	58.06 (1.98)	10 - 100	47.86 (1.90)	6 - 85	34.58***
Thighs... [very fat/very thin]	75.80 (1.68)	43 - 100	59.00 (1.75)	23 - 100	49.54 (1.60)	17.35 - 86	94.23***
Thighs... [lack. muscle/muscular]	31.53 (2.44)	0 - 77	58.55 (1.77)	9 - 100	53.20 (1.90)	9 - 93	53.07***
Abdomen... [very fat/very thin]	75.64 (1.86)	38 - 100	76.11 (1.63)	42 - 100	62.85 (1.92)	20 - 98	31.57***
Abdomen... [lack. muscle/muscular]	45.91 (2.53)	0 - 99	67.28 (2.01)	19 - 100	50.61 (1.94)	13 - 95	31.54***
Breasts... [very small/very big]	22.06 (1.44)	1 - 58	29.20 (1.67)	6 - 64	44.68 (1.67)	8 - 78	66.52***
Waist... [very narrow/very wide]	27.95 (2.08)	0 - 75	27.78 (1.71)	1 - 67	38.71 (1.90)	6 - 92	14.66***
Hips... [very narrow/very wide]	27.67 (1.65)	1 - 65	34.68 (1.65)	1 - 67	50.08 (2.05)	4 - 87	52.28***
Buttocks... [very small/very big]	28.86 (1.86)	0 - 59	41.72 (1.81)	1 - 73	42.69 (1.82)	6 - 83	20.50***
Buttocks... [lack. muscle/muscular]	31.10 (1.80)	1 - 64	51.94 (2.18)	9 - 100	45.63 (1.89)	12 - 100	33.32***
Hair... [very short/very long]	29.96 (1.35)	1 - 52	70.26 (1.86)	18 - 100	61.18 (1.89)	28 - 100	225.46***
Hair... [very curly/very straight]	58.74 (2.08)	21 - 94	92.26 (1.11)	69 - 100	9.75 (1.76)	0 - 64.81	556.30***
Skin... [very white/very dark]	67.92 (1.40)	27 - 89	14.47 (1.01)	0 - 36	58.89 (1.60)	23 - 92	603.28***
Nose... [very narrow/very wide]	41.40 (2.38)	7 - 100	27.83 (2.14)	3 - 97.73	26.72 (1.84)	0 - 77	19.55***
Nose... [very small/very big]	44.86 (1.81)	15 - 87.58	27.38 (1.53)	2 - 55	38.27 (2.19)	3 - 97	26.19***
Lips... [very thin/very full]	42.49 (2.02)	4 - 74	27.54 (1.67)	0 - 74	56.87 (2.50)	12 - 100	54.66***
She looks like the ideal girl [agree/disagree]	43.83 (2.60)	0 - 100	24.84 (1.92)	0 - 68	36.35 (2.21)	0 - 87	23.99***
She would make changes to her appearance... [agree/disagree]	37.56 (2.68)	0 - 100	52.49 (3.15)	0 - 100	45.49 (2.95)	0 - 100	11.89***

*Note.* \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Table 20***Descriptive Statistics for Other-Ideal Assessments of the Three Models and Repeated-Measures ANOVA (n = 77)*

Other-ideal assessment item	Model 1		Model 2		Model 3		<i>F</i> (2, 152)
	<i>M</i> ( <i>SE</i> )	<i>Range</i>	<i>M</i> ( <i>SE</i> )	<i>Range</i>	<i>M</i> ( <i>SE</i> )	<i>Range</i>	
Body ... [very fat/very thin]	65.59 (1.89)	18 - 100	69.83 (1.54)	44 - 100	64.28 (1.44)	39 - 100	5.83**
My body is... [lack. muscle/muscular]	59.70 (1.69)	16 - 90	68.74 (1.59)	31 - 100	64.12 (1.64)	24 - 100	11.20***
Height... [very short/very tall]	52.73 (1.53)	21 - 83.43	55.06 (1.42)	24 - 85	57.31 (1.66)	24 - 100	3.63*
Arms... [very fat/very thin]	61.82 (1.87)	10 - 100	65.47 (1.45)	31 - 93	62.91 (1.32)	37 - 83	2.19
Arms...[lack. muscle/muscular]	58.33 (1.62)	18 - 93	68.24 (1.39)	35 - 95	62.10 (1.46)	36 - 100	19.63***
Thighs... [very fat/very thin]	55.82 (1.99)	15 - 100	61.20 (1.52)	37 - 93	56.66 (1.65)	12 - 96	5.31**
Thighs... [lack. muscle/muscular]	58.58 (1.80)	12 - 93	63.58 (1.64)	26 - 92	61.36 (1.64)	33 - 89	3.97*
Abdomen... [very fat/very thin]	67.16 (2.06)	8.31 - 100	73.10 (1.55)	45 - 100	67.74 (1.71)	18 - 99	6.66**
Abdomen... [lack. muscle/muscular]	60.36 (1.86)	22 - 100	72.39 (1.71)	39 - 100	64.00 (1.70)	28 - 99	20.51***
Breasts... [very small/very big]	55.13 (2.23)	15 - 100	53.85 (1.74)	16 - 100	58.85 (1.53)	30 - 100	4.19*
Waist... [very narrow/very wide]	29.55 (1.50)	1 - 65	31.20 (1.83)	0 - 79	31.31 (1.82)	0 - 83.4	0.52
Hips... [very narrow/very wide]	46.33 (2.62)	5 - 100	43.36 (1.87)	3 - 76	43.96 (2.03)	5 - 83	1.00
Buttocks... [very small/very big]	57.76 (1.86)	25 - 100	59.50 (1.78)	19 - 100	62.74 (1.62)	32 - 100	3.92*
Buttocks... [lack. muscle/muscular]	53.95 (1.99)	0 - 89	63.19 (1.74)	24 - 100	59.99 (1.97)	9 - 100	9.22***
Hair... [very short/very long]	52.20 (2.14)	17 - 100	70.31 (2.12)	19 - 100	67.09 (1.94)	19 - 100	30.86***
Hair... [very curly/very straight]	59.09 (2.71)	7 - 100	70.50 (2.93)	10 - 100	42.18 (3.62)	0 - 100	20.79***
Skin... [very white/very dark]	53.62 (2.02)	3.06 - 81	32.95 (1.96)	0 - 71	56.83 (1.72)	9 - 87	56.98***
Nose... [very narrow/very wide]	27.72 (1.38)	0 - 59.83	23.52 (1.52)	0 - 54	26.64 (1.65)	0 - 83	3.63*
Nose... [very small/very big]	27.53 (1.33)	0 - 60.34	25.61 (1.58)	0 - 62	27.81 (1.69)	0 - 76	1.17
Lips... [very thin/very full]	58.46 (1.78)	22 - 100	56.77 (2.06)	9 - 100	65.81 (1.95)	21 - 100	13.10***

*Note.* \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .



**Table 21**

*Paired Samples t-tests Comparing Perceptions of Actual Appearance to Preferences for Ideal Appearance for Models 1, 2, 3 (n = 77)*

Assessment item	Model 1		Model 2		Model 3	
	<i>t</i> (76)	<i>p</i>	<i>t</i> (76)	<i>p</i>	<i>t</i> (76)	<i>p</i>
Body ... [very fat/very thin]	3.65	.000	1.86	.067	-0.44	.661
My body is... [lack. muscle/muscular]	-9.54	.000	-4.36	.000	-5.33***	.000
Height... [very short/very tall]	-8.66	.000	-2.75	.008	-0.52	.602
Arms... [very fat/very thin]	3.20	.002	-0.19	.850	-3.45**	.001
Arms...[lack. muscle/muscular]	-9.29	.000	-5.10	.000	-5.95***	.000
Thighs... [very fat/very thin]	7.75	.000	-1.24	.219	-3.37**	.001
Thighs... [lack. muscle/muscular]	-10.08	.000	-2.58	.012	-3.40**	.001
Abdomen... [very fat/very thin]	3.75	.000	2.21	.030	-2.49*	.015
Abdomen... [lack. muscle/muscular]	-5.45	.000	-2.73	.008	-5.80***	.000
Breasts... [very small/very big]	-11.97	.000	-10.99	.000	-7.09***	.000
Waist... [very narrow/very wide]	-0.67	.505	-1.48	.143	3.24**	.002
Hips... [very narrow/very wide]	-5.88	.000	-4.27	.000	2.74**	.008
Buttocks... [very small/very big]	-10.56	.000	-6.92	.000	-7.64***	.000
Buttocks... [lack. muscle/muscular]	-10.18	.000	-4.37	.000	-6.64***	.000
Hair... [very short/very long]	-9.80	.000	-.024	.981	-2.78**	.007
Hair... [very curly/very straight]	-0.11	.912	7.81	.000	-7.75***	.000
Skin... [very white/very dark]	7.55	.000	-10.31	.000	1.30	.198
Nose... [very narrow/very wide]	5.82	.000	1.83	.071	.040	.968
Nose... [very small/very big]	8.10	.000	0.97	.333	4.49***	.000
Lips... [very thin/very full]	-7.23	.000	-11.35	.000	-3.79***	.000

*Note.* \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

In order to assess trends in perceived preferences for appearance across models, other-ideal scores were averaged across all models (Table 22). Correlations between average other-ideal scores and demographic variables appear in Table 23.

**Table 22**

*Descriptive Statistics for Average Other-Ideal Scores (n = 77)*

Other-ideal assessment item	<i>M (SD)</i>	<i>Range</i>
Body ... [very fat/very thin]	66.57 (11.45)	47 - 95.67
My body is... [lack. muscle/muscular]	64.18 (10.67)	36.33 - 92.67
Height... [very short/very tall]	55.03 (10.42)	25.33 - 79.33
Arms... [very fat/very thin]	63.40 (10.34)	34 - 88.33
Arms...[lack. muscle/muscular]	62.89 (10.31)	38 - 89.33
Thighs... [very fat/very thin]	57.89 (12.22)	26.67 - 93
Thighs... [lack. muscle/muscular]	61.17 (10.95)	34.67 - 87.33
Abdomen... [very fat/very thin]	69.41 (12.84)	41.67 - 103.60
Abdomen... [lack. muscle/muscular]	65.59 (11.94)	34.33 - 94.33
Breasts... [very small/very big]	55.94 (13.51)	27.67 - 100
Waist... [very narrow/very wide]	30.68 (11.49)	3.33 - 62.67
Hips... [very narrow/very wide]	44.55 (15.64)	6.67 - 95.73
Buttocks... [very small/very big]	60.00 (12.38)	28 - 100
Buttocks... [lack. muscle/muscular]	59.05 (12.50)	28.67 - 93.33
Hair... [very short/very long]	63.20 (13.20)	29.33 - 96
Hair... [very curly/very straight]	57.26 (15.69)	9 - 95
Skin... [very white/very dark]	47.80 (11.31)	12 - 70.67
Nose... [very narrow/very wide]	25.96 (10.53)	0 - 50
Nose... [very small/very big]	26.99 (10.91)	0 - 48
Lips... [very thin/very full]	60.35 (14.07)	24.67 - 100

**Table 23***Correlations between Average Other-Ideal Scores and Demographic Variables (n = 77)*

Other-ideal assessment item	Age	BMI	Counselling <sup>a</sup>	Psych. Dx <sup>a</sup>	ED Dx <sup>a</sup>
Body ... [very fat/very thin]	-.13	.02	.02	.13	.12
My body is... [lack. muscle/muscular]	.08	-.13	-.00	.08	.00
Height... [very short/very tall]	.04	-.05	-.15	.03	.26*
Arms... [very fat/very thin]	.01	.01	-.04	-.06	-.06
Arms...[lack. muscle/muscular]	.05	-.14	-.02	.05	.10
Thighs... [very fat/very thin]	.05	.07	-.09	-.02	.09
Thighs... [lack. muscle/muscular]	.07	-.03	.04	.11	-.03
Abdomen... [very fat/very thin]	-.10	.23*	-.12	-.01	-.05
Abdomen... [lack. muscle/muscular]	.03	.04	-.10	-.03	-.11
Breasts... [very small/very big]	-.07	.15	.07	.05	.28*
Waist... [very narrow/very wide]	-.16	-.13	.11	.09	.02
Hips... [very narrow/very wide]	.04	.17	.10	.17	.28*
Buttocks... [very small/very big]	.03	.06	-.04	.06	.30**
Buttocks... [lack. muscle/muscular]	.07	.01	-.11	-.03	.04
Hair... [very short/very long]	-.02	.22	-.11	-.25*	-.10
Hair... [very curly/very straight]	-.02	.17	-.10	.04	.21
Skin... [very white/very dark]	-.08	.01	-.21	-.06	.00
Nose... [very narrow/very wide]	-.05	.00	.10	.09	-.05
Nose... [very small/very big]	-.04	.03	.09	.03	-.13
Lips... [very thin/very full]	.21	.01	.02	.12	.14

*Note.* BMI = Body Mass Index; Counselling = history of counselling; Psych. Dx = history of psychological diagnosis; ED Dx = history of eating disorder diagnosis.

<sup>a</sup> Dummy coded variables: Counselling (0 = no, 1 = yes), Psych. Dx (0 = no, 1 = yes), ED Dx (0 = no, 1 = yes).

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

**Hypothesis 5a.** It was predicted that higher levels of disordered eating (and associated variables) would be associated with stronger preferences for idealized appearance among other women, particularly on dimensions related to shape and weight. Hypothesis 5a was partially supported.

Greater disordered eating was associated with stronger perceived preferences for big breasts ( $r = .23, p = .049$ ), wide hips ( $r = .30, p = .010$ ), and full lips ( $r = .23, p = .045$ ) among other women.

Greater body dissatisfaction was associated with stronger perceived preferences for big breasts ( $r = -.25, p = .029$ ), a big buttocks ( $r = -.32, p = .005$ ), a small nose ( $r = .25, p = .029$ ), and full lips ( $r = -.35, p = .002$ ) among other women.

Greater body surveillance was associated with stronger perceived preferences for a thin body ( $r = .27, p = .019$ ), thin arms ( $r = .24, p = .036$ ), a thin abdomen ( $r = .29, p = .012$ ), full lips ( $r = .25, p = .035$ ), and a small nose ( $r = -.25, p = .029$ ) among other women. Greater body shame was associated with a stronger perceived preference for wide hips ( $r = .24, p = .038$ ) among other women.

Greater physical appearance comparison was associated with stronger perceived preferences for a narrow waist ( $r = -.25, p = .030$ ), a small nose ( $r = -.33, p = .003$ ), and full lips ( $r = .39, p = .001$ ) among other women.

Finally, greater thin ideal internalization was associated with stronger perceived preferences for a thin body ( $r = .26, p = .025$ ), a thin abdomen ( $r = .24, p = .04$ ), and a narrow waist ( $r = -.25, p = .031$ ) among other women.

**Hypothesis 5b.** It was predicted that higher levels of engagement with photo-based social media would be associated with stronger preferences for idealized appearance among other

women, particularly on dimensions related to shape and weight. Hypothesis 5b was partially supported. Greater engagement with photo-based social media networks was associated with a stronger perceived preference for a thin abdomen among other women ( $r = .30, p = .01$ ).

Based on correlational analyses, appearance ideals that were significantly associated with more than one primary study variable were further examined with MRAs. Self-esteem (RSES) was included as a covariate when significantly correlated with the outcome variable – i.e., breasts (small/big;  $r = -.32, p = .006$ ), lips (thin/full;  $r = -.43, p < .001$ ), nose (small/big;  $r = .24, p = .036$ ) – and at least one independent variable. See Table 24 for MRA results.

The MRA predicting mean other-ideal scores for “She would like her body to be...[fat/thin]” from body surveillance and thin ideal internalization was significant,  $F(2,71) = 3.47, p = .036, adj. R^2 = .063$ , although neither of the variables emerged as significant predictors of the outcome variable.

The MRA predicting mean other-ideal scores for “She would like her abdomen to be... [fat/thin]” from body surveillance, thin ideal internalization, and engagement in photo-based social media was significant,  $F(3,69) = 3.19, p = .029, adj. R^2 = .084$ , although none of the variables emerged as significant predictors of the outcome variable.

The MRA predicting mean other-ideal scores for “She would like her waist to be... [narrow/wide]” from physical appearance comparison and thin ideal internalization was significant,  $F(2,74) = 3.14, p = .049, adj. R^2 = .053$ , although neither of the variables emerged as significant predictors of the outcome variable.

The MRA predicting mean other-ideal scores for “She would like her hips to be... [narrow/wide]” from disordered eating and body shame – with ED Dx included as a covariate –

was significant,  $F(3,68) = 3.19, p = .029, adj. R^2 = .085$ , although none of the variables emerged as significant predictors of the outcome variable.

The MRA predicting mean other-ideal scores for “She would like her breasts to be...[small/ big]” from disordered eating, body dissatisfaction, and self-esteem – with ED Dx included as a covariate – was significant,  $F(4,67) = 2.71, p = .037, adj. R^2 = .088$ , although none of the variables emerged as significant predictors of the outcome variable.

The MRA predicting mean other-ideal scores for “She would like her nose to be...[small/ big]” from body dissatisfaction, body surveillance, physical appearance comparison, and self-esteem was not significant,  $F(4,69) = 2.44, p = .055, adj. R^2 = .073$ .

Finally, the MRA predicting mean other-ideal scores for “She would like her lips to be...[thin/full]” from disordered eating, body dissatisfaction, body surveillance, body shame, and self-esteem was significant,  $F(5,68) = 3.35, p = .009, adj. R^2 = .139$ . In the context of all other predictors included in the model, only self-esteem emerged as a significant predictor of the outcome variable ( $B = -9.41, SE = 3.60, p = .011$ ), such that lower self-esteem was associated with a perceived preference for full lips among other girls.

**Table 24**

*Hypotheses 5a and 5b: Regressions Predicting Appearance Ideals (Mean Other-Ideal Scores) from Primary Study Variables (n = 77)*

Variable	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Outcome: “She would like her body to be...[fat/thin]”				
Body Surveillance	2.50	1.79	1.39	.168
SATAQ	1.92	1.77	1.09	.281
Outcome: “She would like her abdomen to be...[fat/thin]”				
Body Surveillance	2.03	2.20	0.92	.361
SATAQ	1.42	1.99	0.71	.478
PBSMUS	4.29	2.99	1.43	.157
Outcome: “She would like her waist to be...[narrow/wide]”				
SATAQ	-1.98	1.69	-1.17	.245
PACSR	-1.77	1.48	-1.19	.236
Outcome: “She would like her hips to be...[narrow/wide]”				
EDEQ	3.43	2.41	1.43	.159
Body Shame	-1.36	3.43	-0.40	.694
ED Dx	15.56	9.95	1.56	.123
Outcome: “She would like her breasts to be...[small/big]”				
EDEQ	-0.13	1.64	-0.08	.935
BESAA	-1.76	2.87	-0.61	.543
RSES	-4.10	3.67	-1.12	.268
ED Dx	11.69	8.65	1.35	.181
Outcome: “She would like her lips to be...[thin/full]”				
EDEQ	1.16	2.18	0.53	.598
BESAA	-0.01	3.10	-0.00	.997
Body Surveillance	2.50	2.47	1.01	.315
Body Shame	-2.69	3.16	-0.85	.399
RSES	-9.41	3.60	-2.62*	.011

*Note.* EDEQ = Eating Disorder Examination Questionnaire; BESAA = Appearance subscale of the Body Esteem Scale for Adolescents and Adults; SATAQ = Internalization – Thin/Low Body Fat subscale of the Sociocultural Attitudes Toward Appearance Questionnaire; PACSR = Physical Appearance Comparison Scale – Revised; PBSMUS = Photo-Based Social Media Use Survey; RSES = Rosenberg Self Esteem Scale.

\*  $p < .05$ .

Research Question 6 (is there a discrepancy between participants' preferences for their own appearance versus their perceptions of other girls' preferences for their bodies [i.e., ideal self vs. ideal other]) – was assessed by conducting paired samples *t*-tests between self-ideal and mean other-ideal scores. Results of the *t*-tests appear in Table 25.

Notably, compared to their perceptions of other girls' preferences for their bodies, participants preferred themselves to have significantly thinner arms, thinner and more muscular abdomens, bigger buttocks, longer hair, and fuller lips.

**Table 25**

*Research Question 6: Paired Samples t-tests Comparing Self-Ideal to Mean Other-Ideal Scores (n = 77)*

Assessment item	Self: ideal	Other: ideal (average)	<i>t</i> (76)	<i>p</i>
	<i>M</i> ( <i>SE</i> )	<i>M</i> ( <i>SE</i> )		
Body ... [very fat/ very thin]	66.05 (1.95)	66.57 (1.31)	-0.34	.739
Body ... [lack. muscle/ muscular]	60.92 (2.09)	64.19 (1.22)	-1.71	.092
Height... [very short/ very tall]	53.03 (2.30)	55.03 (1.19)	-0.97	.336
Arms... [very fat/ very thin]	68.30 (1.78)	63.40 (1.18)	2.95**	.004
Arms...[lack. muscle/ muscular]	61.31 (2.32)	62.89 (1.18)	-0.79	.435
Thighs... [very fat/ very thin]	57.83 (1.95)	57.89 (1.39)	-0.04	.969
Thighs... [lack. muscle/ muscular]	61.22 (2.14)	61.11 (1.26)	0.06	.954
Abdomen... [very fat/ very thin]	76.07 (1.81)	69.41 (1.47)	4.23***	.000
Abdomen... [lack. muscle/ muscular]	69.60 (2.04)	65.59 (1.36)	2.23*	.029
Breasts... [very small/ very big]	54.86 (2.47)	55.94 (1.54)	-0.40	.694
Waist... [very narrow/ very wide]	28.58 (2.03)	30.68 (1.31)	-1.19	.236
Hips... [very narrow/ very wide]	45.30 (2.11)	44.55 (1.78)	0.41	.680
Buttocks... [very small/ very big]	65.51 (2.29)	60.00 (1.41)	2.47*	.016
Buttocks... [lack. muscle/ muscular]	60.03 (2.24)	59.05 (1.42)	0.44	.662
Hair... [very short/ very long]	70.82 (2.48)	63.20 (1.50)	2.79**	.007
Hair... [very curly/ very straight]	49.68 (3.76)	57.26 (1.79)	-2.04*	.045
Skin... [very white/ very dark]	47.19 (2.32)	47.80 (1.29)	-0.27	.786
Nose... [very narrow/ very wide]	26.95 (2.06)	25.96 (1.20)	0.50	.619
Nose... [very small/ very big]	24.11 (1.66)	26.99 (1.24)	-1.94	.056
Lips... [very thin/very full]	68.40 (2.14)	60.35 (1.60)	4.22***	.000

*Note.* \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .



Research Question 7 (does the discrepancy between actual vs. ideal bodies for oneself [self-actual minus self-ideal] differ from the discrepancy between actual vs. ideal bodies for other girls [other-actual minus other-ideal]) was assessed by conducting paired samples *t*-tests (see Table 26). Self and other actual-ideal difference scores were calculated by subtracting ideal-assessment item scores from corresponding actual-assessment item scores. Other actual-ideal difference scores were then averaged across models to create a mean difference score for each item.

Self actual-ideal discrepancies were significantly different from average other actual-ideal discrepancies for: body (greater desire for body to be thinner for self), height (greater perceived desire to be taller for other), arms (greater desire for arms to be thinner for self), thighs (greater desire for thighs to be thinner for self), abdomen (greater desire for abdomen to be thinner and more muscular for self), breasts (greater perceived desire for breasts to be bigger for other), waist (greater desire for waist to be more narrow for self), hips (greater perceived desire for hips to be wider for other), skin (greater desire for skin to be darker for self), and nose (greater desire for nose to be smaller and more narrow for self).

**Table 26**

*Research Question 7: Paired Samples *t*-tests Comparing Actual vs. Ideal Discrepancies for Self and Other (*n* = 77)*

Assessment item	Self: actual- ideal difference	Other: actual- ideal difference	<i>t</i> (76)	<i>p</i>
	<i>M</i> ( <i>SE</i> )	<i>M</i> ( <i>SE</i> )		
Body ... [very fat/ very thin]	-10.19 (3.06)	3.31 (1.32)	-4.35***	.000
Body ... [lack. Muscle/ muscular]	-13.64 (2.45)	-14.37 (1.56)	0.26	.799
Height... [very short/ very tall]	-1.66 (2.62)	-8.04 (1.30)	2.03*	.046
Arms... [very fat/ very thin]	-15.69 (3.32)	0.61 (1.40)	-4.48***	.000
Arms...[lack. Muscle/ muscular]	-18.76 (2.82)	-15.95 (1.46)	-0.94	.351
Thighs... [very fat/ very thin]	-19.24 (3.05)	3.55 (1.63)	-7.33***	.000
Thighs... [lack. Muscle/ muscular]	-9.96 (3.37)	-13.23 (1.64)	0.92	.362
Abdomen... [very fat/ very thin]	-23.40 (3.00)	2.20 (1.29)	-8.30***	.000
Abdomen... [lack. Muscle/ muscular]	-25.92 (3.07)	-10.99 (1.43)	-4.98***	.000
Breasts... [very small/ very big]	-8.74 (3.89)	-23.96 (1.86)	3.44**	.001
Waist... [very narrow/ very wide]	10.75 (3.28)	0.80 (1.56)	2.99**	.004
Hips... [very narrow/ very wide]	1.57 (2.80)	-7.08 (1.89)	2.81**	.006
Buttocks... [very small/ very big]	-18.56 (3.14)	-22.24 (1.92)	1.18	.243
Buttocks... [lack. Muscle/ muscular]	-15.03 (2.59)	-16.16 (1.63)	0.41	.684
Hair... [very short/ very long]	-12.00 (2.46)	-9.40 (1.47)	-0.93	.354
Skin... [very white/ very dark]	-14.49 (2.41)	-0.71 (0.97)	-5.69***	.000
Nose... [very narrow/ very wide]	11.92 (2.82)	6.02 (1.64)	2.01*	.048
Nose... [very small/ very big]	20.95 (3.01)	9.85 (1.41)	3.93***	.000
Lips... [very thin/very full]	-21.80 (3.05)	-18.05 (1.78)	-1.10	.276

*Note.* \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

### **Part 3**

Research Question 8 (does adherence to idealized standards for appearance affect perceptions of girls' physical appearance and interpersonal qualities) was assessed by conducting independent samples *t*-tests comparing perceptions of the model in idealized vs. non-idealized conditions.

Notably, responses to the item assessing idealized appearance ("She looks like the ideal girl...[agree/disagree]") did not significantly differ between the idealized ( $M = 31.88$ ,  $SD = 22.23$ ) and non-idealized ( $M = 36.87$ ,  $SD = 20.93$ ;  $t(76) = -1.01$ ,  $p = .314$ ) conditions, suggesting that the effect of the manipulation may have been limited.

**Hypothesis 8a.** It was predicted that participants assigned to the idealized condition would perceive the model as less socially attractive. Hypothesis 8a was not supported. Perceptions of the model's social attractiveness did not significantly differ between participants assigned to the idealized ( $M = 5.33$ ,  $SE = 0.13$ ) versus non-idealized condition ( $M = 5.69$ ,  $SE = 0.16$ ),  $t(75) = -1.77$ ,  $p = .080$ , Cohen's  $d = 0.40$ .

**Hypothesis 8b.** It was predicted that participants assigned to the idealized condition would perceive the model as less physically attractive. Hypothesis 8b was not supported. Perceptions of the model's physical attractiveness did not significantly differ between participants assigned to the idealized ( $M = 5.12$ ,  $SE = 0.17$ ) versus non-idealized ( $M = 4.94$ ,  $SE = 0.16$ ) conditions,  $t(75) = 0.79$ ,  $p = .430$ , Cohen's  $d = 0.18$ .

**Hypothesis 8c.** It was predicted that participants assigned to the idealized condition would perceive the model as less competent to perform tasks. Hypothesis 8c was not supported. Interestingly, the opposite relation was found: participants assigned to the idealized condition perceived the model as significantly more competent to perform tasks ( $M = 5.40$ ,  $SE = .14$ ) than participants in the non-idealized condition ( $M = 4.79$ ,  $SE = 0.15$ ),  $t(75) = 2.99$ ,  $p = .004$ , Cohen's  $d = 0.68$ .

**Hypothesis 8d.** It was predicted that participants assigned to the idealized condition would predict the model to receive more "Likes" if she posted her photo on social media. Hypothesis 8d was supported. Participants in the idealized condition predicted the model to receive significantly more "Likes" ( $M = 246.51$ ,  $SE = 23.86$ ) than participants in the non-idealized condition ( $M = 154.09$ ,  $SE = 27.92$ ),  $t(75) = 2.51$ ,  $p = .014$ , Cohen's  $d = 0.57$ .

**Table 27**

*Summary of Results*

Research Question/ Hypothesis	Result
Part 1	
<p><b>RQ1:</b> How are adolescent girls using social media?</p> <ul style="list-style-type: none"> <li>• <b>Hypothesis 1a:</b> Higher levels of disordered eating would be associated with more time using social media, greater engagement with photo-based social media, and greater use of photo editing.</li> <li>• <b>Hypothesis 1b:</b> Higher levels of body surveillance would be associated with more time using social media, greater engagement with photo-based social media, and greater use of photo editing.</li> </ul> <p><b>RQ2:</b> What are the associations between social media use, eating pathology, mechanisms associated with disordered eating, and gender-based social discourses?</p> <ul style="list-style-type: none"> <li>• <b>Hypothesis 2a:</b> Greater engagement with photo-based social media would</li> </ul>	<p>Adolescent girls reported using photo-based social networks (including Snapchat and Instagram) for between 2 and 3 hours per day, and checking their preferred network every 30 minutes to one hour (on average). Adolescents attending public school reported checking social media more often, and spending more time on social media, than adolescents attending private school.</p> <p><b>Partially supported:</b> Across all adolescents, greater disordered eating and body dissatisfaction were associated with greater time spent using self-identified preferred networks, greater time spent using Instagram, greater invested personal use of photo-based social media, and greater editing of physical appearance in photos.</p> <p><b>Supported:</b> Across all adolescents, greater body surveillance was associated with greater frequency of checking and greater time spent using self-identified preferred networks and Instagram, greater invested personal use of photo-based social media, and greater editing of physical appearance in photos.</p> <p>A comprehensive path analysis supported significant associations between engagement with photo-based social media, internalization of the thin ideal, physical appearance comparison, body surveillance, body shame, body dissatisfaction, self-esteem, and eating pathology. The final model predicted 17.7% of the variance in thin-ideal internalization, 46.0% of the variance in physical appearance comparison, 59.2% of the variance in body surveillance, 58.1% of the variance in body shame, 67.2% of the variance in body dissatisfaction, and 67% of the variance in disordered eating</p> <p><b>Supported.</b></p>

---

be associated with greater internalization of the thin-ideal, greater physical appearance comparison, and greater body surveillance	
<ul style="list-style-type: none"> <li>• <b>Hypothesis 2b:</b> Internalization of the thin ideal would be associated with greater physical appearance comparison, greater body surveillance, greater body dissatisfaction, and greater disordered eating.</li> </ul>	<b>Supported.</b>
<ul style="list-style-type: none"> <li>• <b>Hypothesis 2c:</b> Physical appearance comparison would be associated with greater body surveillance, greater body shame, greater body dissatisfaction, and greater disordered eating.</li> </ul>	<b>Supported.</b>
<ul style="list-style-type: none"> <li>• <b>Hypothesis 2d:</b> Body surveillance would be associated with greater body shame and greater body dissatisfaction.</li> </ul>	<b>Supported.</b>
<ul style="list-style-type: none"> <li>• <b>Hypothesis 2e:</b> Body shame would be associated with greater body dissatisfaction and greater disordered eating.</li> </ul>	<b>Supported.</b>
<ul style="list-style-type: none"> <li>• <b>Hypothesis 2f:</b> Greater body dissatisfaction would be associated with greater eating pathology.</li> </ul>	<b>Supported.</b>

---

Part 2

**RQ3:** How do adolescent girls perceive their own bodies?

<ul style="list-style-type: none"> <li>• <b>Hypothesis 3a:</b> Higher levels of disordered eating (and mechanisms associated with disordered eating) would be associated with more negative perceptions of one's body (particularly on dimensions of shape and weight).</li> </ul>	<p><b>Supported:</b> Greater disordered eating, body dissatisfaction, physical appearance comparison, thin ideal internalization, body surveillance, and body shame were associated with disagreeing with the appearance of oneself as the "ideal girl". Greater disordered eating, body dissatisfaction, physical appearance comparison, thin ideal internalization, and body shame were associated with perceiving oneself as fat.</p>
<ul style="list-style-type: none"> <li>• <b>Hypothesis 3b:</b> Greater engagement with photo-based social media would be associated with more negative perceptions of one's body (particularly on dimensions of shape and weight).</li> </ul>	<p><b>Partially supported:</b> Greater engagement with photo-based social media was associated with disagreeing with the appearance of oneself as the ideal girl.</p>

---

---

**RQ4:** How do adolescent girls want their bodies to look? Is there a discrepancy between how girls perceive their own bodies and how they want their bodies to look?

- **Hypothesis 4a:** Higher levels of disordered eating (and mechanisms associated with disordered eating) would be associated with stronger preferences for idealized physical appearance (particularly on dimensions related to shape and weight).
- **Hypothesis 4b:** Greater engagement with photo-based social media would be positively associated with preferences for idealized physical appearance (particularly on dimensions related to shape and weight).

**RQ5:** How do adolescent girls perceive the bodies of other girls, and how do they believe the bodies of other girls should look? Is there a discrepancy between how girls perceive other girls' bodies and how they believe other girls want their bodies to look?

- **Hypothesis 5a:** Higher levels of disordered eating would be associated with stronger preferences for idealized physical appearance among other girls.
- **Hypothesis 5b:** Greater engagement with photo-based social media would be positively associated with preferences for idealized physical appearance among other girls.

**RQ6:** Is there a discrepancy between participants' preferences for their own

Relative to their perceptions of their actual appearances, participants wanted their bodies, arms, thighs, and abdomens to be thinner and more muscular, their breasts to be bigger, their waists to be more narrow, their buttocks' to be bigger and more muscular, their hair to be longer, their skin to be darker, their noses to be more narrow and smaller, and their lips to be fuller.

**Partially supported:** Higher levels of disordered eating (and associated variables) were associated with stronger preferences for thinness. Additionally, greater body dissatisfaction, body shame, and physical appearance comparison were associated with stronger preferences for full lips.

**Partially supported:** Greater engagement with photo-based social media was associated with stronger preferences for thin arms, a thin abdomen, a narrow waist, and a big buttocks. Unrelated to shape and weight, greater engagement with photo-based social media was associated with stronger preferences for long hair and a small nose.

Across all three models, participants believed that the models would like their bodies, arms, thighs, and abdomens to be more muscular; their breasts to be bigger; their buttocks to be bigger and more muscular; and their lips to be fuller.

**Partially supported:** Higher levels of disordered eating was associated with perceived preferences for big breasts, wide hips, and full lips among other women. Higher levels of associated variables (e.g., body surveillance and thin-ideal internalization) were associated with preferences for thinness.

**Partially supported:** Greater engagement with photo-based social media was associated with a stronger perceived preference for a thin abdomen among other women.

Compared to their perceptions of other girls' preferences for their bodies, participants

---

---

appearance vs. their perceptions of other girls' preferences for their bodies?

RQ7: Does the discrepancy between actual and idealized bodies for oneself (self actual-ideal discrepancy) differ from the discrepancy between actual and idealized bodies for other girls?

preferred themselves to have significantly thinner arms, thinner and more muscular abdomens, bigger buttocks, longer hair, and fuller lips.

Self actual-ideal discrepancies were significantly different from other actual-ideal discrepancies for body, arms, and thighs (with a stronger preference for these areas to be thinner for self); abdomen (with a stronger preference for abdomens to be thinner and more muscular for self); waist (with a stronger preference for waists to be more narrow for self); breasts (with a stronger perceived preference for breasts to be bigger for other); hips (with a stronger perceived preference for hips to be wider for other); skin (with a stronger preference for skin to be darker for self); and nose (with a stronger preference for noses to be smaller and more narrow for self).

---

### Part 3

RQ8: Does adherence to idealized standards for appearance affect perceptions of girls' physical appearance and interpersonal qualities?

- **Hypothesis 8a:** Girls in the idealized condition would perceive the model as less socially attractive.
- **Hypothesis 8b:** Girls in the idealized condition would perceive the model as less physically attractive.
- **Hypothesis 8c:** Girls in the idealized condition would perceive the model as less competent to perform tasks.
- **Hypothesis 8d:** Girls assigned to the idealized condition would predict the model to receive more "Likes" if she posted her photo on social media.

**Not supported:** Perceptions of the model's social attractiveness did not significantly differ between participants assigned to the idealized versus non-idealized condition.

**Not supported:** Perceptions of the model's physical attractiveness did not significantly differ between participants assigned to the idealized versus non-idealized conditions.

**Not supported:** Participants assigned to the idealized condition perceived the model as significantly *more* competent to perform tasks than participants in the non-idealized condition.

**Supported:** Participants in the idealized condition predicted the model to receive significantly more "Likes" than participants in the non-idealized condition.

---

## **CHAPTER IV**

### **Discussion**

The overarching purpose of the present study was to empirically examine the broad network of sociocultural influences impacting the development of disordered eating among adolescent girls. The developmental period of adolescence has long been recognized as a high-risk period for the development of mental health issues, including issues related to disordered eating (Byrne et al., 2017; Klump, 2013). Physiological changes associated with pubertal development – for example, increases in height, weight, and body fat percentage – and the development of secondary sex characteristics are simultaneously rewarded and vilified by broader society (e.g., McCabe et al., 2002; Piran, 2017). The increase in body size associated with adolescent development can be particularly hard for girls to navigate, as it may bring them farther away from widely accepted socialized “ideals” for appearance (e.g., Thompson & Heinberg, 1999; Tiggemann, 2011). Primed with the expectation that young women should be “... tall, moderately breasted, and incredibly thin” (Holland & Tiggemann, 2016, p. 101), adolescent girls experience feelings of body dissatisfaction, and begin to engage in body alteration practices (e.g., Grabe et al., 2008; Myers & Crowther, 2009; Piran, 2017).

The traditional media has long been considered one of the central forces responsible for transmitting ideals for female beauty (e.g., Holland & Tiggemann, 2016; Levine & Smolak, 1996); however, more recent research has begun to examine the role of social media in the development of eating pathology. Although studies have predominantly relied on emerging adult samples, existing research suggests that the use of photo-based networks – which are popular among female adolescents (AP-NORC, 2017; Lenhart et al., 2015) – may be particularly detrimental for the development of disordered eating (Cohen et al., 2017; Turner & Lefevre,



2017). With the aim of refining our understanding of the impact of sociocultural factors on the development of eating pathology among female youth, the broad objectives of the present study were: (1) to describe social media use among adolescent girls, and to illustrate the associations between photo-based social media use, socialized gender variables, and eating pathology among adolescent girls; (2) to explore the image of the “ideal girl” (e.g., Piran, 2017), and to assess whether preferences for appearance were associated with the use of photo-based social media and/or with disordered eating; and (3) to examine how adherence to idealized standards for appearance may affect adolescents’ perceptions of other girls.

### **Social Media Use Among Adolescent Girls**

Research Question 1 examined how adolescent girls use social media. Overall, adolescent girls identified Snapchat as the social media network they use most often, followed by Instagram. On average, girls reported checking their preferred network *every 30 minutes* to *every hour*, and spending between *2 hours* and *3 hours* using their preferred network per day. Adolescent girls reported minimal Facebook use – specifically, the vast majority of students indicated that they didn’t check Facebook at all, and reported spending five minutes or less on the network per day.

Time spent using social media networks in the present study was largely consistent with estimates from research with adolescents in Europe (Bányai et al., 2017), the United Kingdom (Scott et al., 2019), and North America (Coyne et al., 2020; Twenge, 2017). The popularity of Instagram and Snapchat among adolescent girls in the present study was also consistent with other research that has consistently identified these applications as being the most commonly used among adolescent girls in North America (AP-NORC, 2017; Burnette et al., 2017). Similarly, the comparatively lower use of Facebook uncovered in the present study is also supported by previous literature (AP-NORC, 2017). As stated by Burnette et al. (2017) in their

qualitative analysis of social media use among young adolescent girls, “... the overwhelming consensus was that Facebook was for older people” (p. 118).

Interestingly, there were several differences in social media use between adolescent girls attending public schools and those attending private school. Examining differences in social media use according to school sector was not a predetermined aim of the study, but the differences suggested by the data are striking. Among these differences, students attending public schools identified Snapchat as the network they used most often, followed by Instagram; in contrast, among students attending private school this pattern was reversed – students reported Instagram to be the network they used most often, followed by Snapchat. In addition to the discrepancy in preferred network, students attending public school reported checking social media networks more often, and spending more time using social media networks than students attending private school. Although outside of the scope of the present study, the identification of differences in social media behaviour between school sectors is important, as differential use of specific applications may have unique consequences for the psychological well-being of youth. That said, it should be noted that these differences may be related to differences in age and grade distributions between the private and public school samples. For example, students in the public school sample were significantly older than students in the private school sample, and age was positively associated with frequency of checking and time spent using preferred social media networks. Furthermore, the private school sample consisted only of students in grade 9, whereas the public school sample consisted of students in grades 9, 10, and 11. When analyses were repeated using only grade 9 students, however, all differences in social media use variables between private and public schools persisted.

In addition to the potential influences of age and/or grade, it is possible that differences in cell phone and/or social media policies between private and public school sectors may have impacted the findings (particularly those related to amount of use). As recently as September 2019, the private school at which data was collected had reportedly enforced a broad ban on cellphone use during school hours, unless specifically required by a teacher for educational purposes (Kerr, 2019). That said, a similar ban was also enforced by the Ontario provincial government in November 2019 (Brown, 2019). Thus, it is possible that differences in enforcement of cellphone bans between the private and public sectors may have contributed to the findings. Other factors that were not explicitly investigated but may have contributed to the findings include demographic factors that may have differed between the students attending private vs. public schools – for example, parent income, which has been found in past research to be associated with adolescents’ social media use (AP-NORC, 2017). Parent income has also been associated with parental monitoring of adolescents’ social media use (Top, 2016), which in turn, has been associated with protective effects against negative outcomes associated with use (e.g., Bleakley et al., 2016; Ding et al., 2017; Khurana et al., 2015; Lin et al., 2009).

Additionally, it should be noted that the private school from which data was collected was a single-gender school, whereas the public schools were coeducational. Although the impact of the single-gender school environment on social media use has not, to the author’s knowledge, been empirically examined, there is a wealth of research examining the impact of single-gender schooling on social behaviours and mental health in general (e.g., Cribb & Haase, 2016; Li & Wong, 2018; Wong et al., 2018). For example, Cribb and Haase (2016) found evidence for a protective effect of single-gender schooling on outcomes related to psychological well-being. Specifically, adolescent girls attending a single-gender school reported significantly lower

internalization of the thin ideal compared to girls attending a co-educational school; furthermore, among girls attending co-educational schools, greater internalization of the thin ideal was associated with poorer self-esteem (Cribb & Haase, 2016). Interestingly, these findings are in contrast to those found by the present study, wherein internalization of the thin ideal – as well as physical appearance comparison – were significantly higher among girls attending the private (single-gender) school relative to girls attending public (co-educational) schools. That said, the difference in thin ideal internalization between private and public subsamples was no longer significant when only grade 9 students were included in the analyses, though the difference in physical appearance comparison persisted. Despite this, the present findings emphasize the need for more research on the potential impacts of single-gender vs. co-educational schooling on variables related to body image and social media use.

### ***Photo-Based Social Media Use***

Understanding the specific ways in which adolescents are engaging with photo-based applications – in addition to understanding how often they use them, and for how long – is important, as previous research has suggested that photo-based social media networks have risen in popularity among youth (AP-NORC, 2017; Lenhart et al., 2015). Consistent with this, the present study found image-based applications (Instagram and Snapchat) to be the most commonly used networks among adolescent girls. The popularity of photo-based networks may have important implications for mental health; in particular, previous research has found engagement in photo-based activities to be associated with concerns related to disordered eating among adolescents (McLean et al., 2015; Meier & Gray, 2014) and young adults (Cohen et al., 2018; Hogue & Mills, 2019; Turner & Lefevre, 2017).

Regarding general use of photo-based social media, adolescents reported most often using networks to browse and “Like” photos of friends. Female adolescents also reported occasionally using photo-based social media networks to post photos (of themselves, and of themselves with others), to browse and “Like” photos of celebrities and acquaintances, to comment on photos of friends, and to read comments on photos. These activities were largely consistent with those identified by Burnette et al. (2017) in their analysis of social media behaviours among early adolescent girls. Notably, while it seems that social media is primarily used to consume and engage with content generated by familiar others, it is also used to engage with content generated by celebrities. The shift towards engagement with celebrity culture represents a broadening of the conceptualization of social media as being “...fundamentally the media of one’s peers” (p. 366; Perloff, 2014). Although outside of the scope of the present study, it would be worthwhile for future research to explore whether engagement in specific activities on social media (e.g., posting vs. consuming photos) and consumption of specific content (e.g., photos posted by peers vs. celebrities) are differentially associated with factors related to psychological well-being.

Analysis of specific items also indicated that female adolescents were generally invested in the process of posting photos or videos on social media. In particular, adolescents endorsed planning their social media posts, taking multiple versions of a photograph, asking for opinions from others, and spending time thinking of a caption prior to posting. These findings are consistent with the qualitative findings of Yau and Reich (2018), who studied self-presentation practices of adolescents on Facebook and Instagram. Yau and Rich (2018) found that adolescent girls, but not adolescent boys, tended to conceptualize posting content on social media as “work” and asked their friends for feedback on their photographs prior to posting. Investment in posting

photos has also been studied by McClean et al. (2015), who found that investment in posting photos of oneself was uniquely associated with disordered eating cognitions and behaviours among adolescent girls.

Explicit editing of one's physical appearance prior to posting photos on social media appeared to relatively uncommon. In general, adolescents reported rarely altering their figure, body size, or facial features prior to posting a photograph, and rarely to sometimes editing their photos using tools within the app (including filters) or using external apps. These findings were partially consistent with the research by Cohen et al. (2018), who found that the majority of emerging adults reported rarely or never editing photos to make themselves look better. Reports of adding filters to photos appeared to be higher in the study by Cohen et al. (2018), however, who found that the majority of young adults reported adding filters to their photos at least some of the time. Of course, while it is possible that editing photographs is uncommon, it is also possible that self-reports of editing one's physical appearance may differ from actual behaviours. In a study by Tiggemann et al. (2020), in which young adult women took photographs of themselves and then were provided with an opportunity to edit their physical appearances (with a specific application that provided options including facial contouring and eye enlargement), the majority of women used at least one editing tool. It should be noted that this study was limited to facial photos and facial editing; to the author's knowledge, editing photos of one's body has not yet been studied in a controlled setting. The findings of Tiggemann et al. (2020) suggest that women will edit their physical appearance in photos when provided with the opportunity to do so; thus, it is possible that if these features were to become more commonplace (e.g., built into existing social media applications), engagement in photo editing may increase. That said, there are likely to be myriad factors that may influence girls' and women's propensity to engage in

(and/or report engagement in) photo-editing outside of an empirical setting; these include, but are certainly not limited to, factors related to negative body image, factors related to social media use (e.g., extent of use, specific activities engaged in, and number of followers), and negative emotions (e.g., guilt or shame) associated with altering one's appearance.

Although the development of a psychometrically valid measure of engagement with photo-based social media was not a specific objective of the present study, an exploratory factor analysis was conducted on the original 26 items of the Photo Based Social Media Use Survey (PBSMUS) to determine the underlying factor structure. Results of the EFA indicated that the most interpretable solution consisted of 16 items across three factors describing: (1) Invested Personal Use of photo-based social media (e.g., planned and thoughtful posting of photos, as well as active consumption of photos of well-known others); (2) Editing Physical Appearance (e.g., altering facets of physical appearance using external applications); and (3) Impersonal Active Consumption (e.g., reacting to photographs and videos of unknown others). Although the PBSMUS requires cross-validation in an independent sample of female adolescents, it represents a significant contribution to this area of research, which has often relied on single items and/or measures that have not been empirically investigated to measure photo-based social media engagement (e.g., Burnette et al., 2017; Cohen et al., 2017; Turner & Lefevre, 2017).

Interestingly, engagement with photo-based social media (as measured by the global score and by individual subscale scores) did not significantly differ according to school sector, unlike estimates of use.

### **Photo-Based Social Media Use, Disordered Eating, and Socialized Gender**

**Variables.** Consistent with Hypotheses 1a and 1b, disordered eating, body dissatisfaction, and body surveillance were significantly associated with frequency of checking and time spent using

girls' self-identified preferred networks and Instagram. These findings are consistent with previous studies that have found associations between greater use of Instagram and concerns related to eating pathology among young women (Cohen et al., 2017; Turner & Lefevre, 2017; Sherlock & Wagstaff, 2019), and extends these associations to the developmental period of adolescence. Research has demonstrated that explicit feedback about body size (relative to normative standards) can impact one's body image (Dionne & Davis, 2004). Relating this to social media, it possible that exposure to photographs of oneself and others (which may or may not be edited) via photo-based social networks may serve to provide "feedback" about one's body, and that this information may contribute to negative body image, perhaps through the process of social comparison (Sherlock & Wagstaff, 2019).

Although research examining the links between self-objectification (including body surveillance) and photo-based social media use among adolescent girls is limited, Meier and Gray (2014) found the use of photo-related Facebook features to be associated with self-objectification among adolescent girls. Among adult women, studies have found general (Fardouly et al., 2015a) and photo-based (Cohen et al., 2017) Facebook use to be associated with self-objectification. With respect to Instagram, Cohen et al. (2017) found that following appearance-focused accounts (but not appearance-neutral accounts) was associated with increased body surveillance, and Fardouly et al. (2018) found greater Instagram use in general to be associated with greater self-objectification.

Apart from time spent using photo-based social media, disordered eating, body dissatisfaction, and body surveillance were also positively associated with invested personal use of photo-based social media, and with editing one's physical appearance in photos. These findings are consistent with (and extend) those of McLean et al. (2015), who found that, among



girls who reported regularly sharing images of themselves (selfies) on social media, higher engagement in photo manipulation practices and higher investment in selfies was associated with greater body dissatisfaction and eating concerns. Interestingly, in the study by McLean et al. (2015), general social media use was not significantly associated with variables related to eating pathology. Similarly, in their study of young adult women, Cohen et al. (2018) found that greater investment in “selfies” significantly predicted greater body dissatisfaction and eating disorder symptomology, whereas level of social media use and engagement in photo editing did not. With regards to self-objectification, Lamp et al. (2019) found greater manipulation of selfies to be associated with greater self-objectification among adult women, and Cohen et al. (2018) found that the relationship between investment in self-images and disordered eating existed only for women high in trait self-objectification.

It should be noted that both the studies by McLean et al. (2015) and Cohen et al. (2018) pertain specifically to selfies. Although the PBSMUS was not designed to specifically measure social media behaviours related to “selfies,” of the three items comprising the Editing Physical Appearance subscale of the PBSMUS, two items directly refer to editing one’s own features in photographs. Thus, the replication of the findings by McLean et al. (2015) support the validity of the Editing Physical Appearance subscale as a measure of editing self-photos. Unlike the studies by McLean et al. (2015) and Cohen et al. (2018), the Invested Personal Use subscale of the PBSMUS does not refer to photographs of oneself, but rather to photo-based social media activities in general; thus, the results of the current study suggest that the associations between disordered eating and photo investment are not specific to self-photos.

Collectively, the findings of the present study and past research broadly support the existence of broad associations between photo-based social media use and a heightened sense of

awareness of one's external appearance, the development of dissatisfaction with one's appearance, and disordered eating symptoms. What they do not offer, however, is a fine-tuned understanding of the complex network of associations connecting photo-based social media use to disordered eating. Accordingly, for Research Question 2, a path analysis was conducted to examine the specific observed associations between engagement with photo-based social media, disordered eating (and associated mechanisms), and gender-based social discourses. The intention of this approach was to combine perspectives from existing theories – namely, the tripartite model (Keery et al., 2004) and objectification theory (Fredrickson & Roberts, 1997) – into a comprehensive model of sociocultural factors influencing the development of disordered eating among adolescent girls.

As outlined in the results, several versions of the model were examined. The final model fit the data well, and compared to previous iterations, predicted the highest amount of variance in variables related to disordered eating and objectification, with approximately 67% of the variance in body dissatisfaction and disordered eating explained by the other variables. All hypotheses regarding specific paths in the model – which positioned internalization of the thin ideal, physical appearance comparison, body surveillance, and body shame as intermediary links between engagement with photo-based social media and disordered eating – were supported. When viewed with a broader lens, the results suggest that processes stipulated by both the tripartite influence model (Keery et al., 2004) and objectification theory (Fredrickson & Roberts, 1997) are concomitantly present in the associations connecting photo-based social media engagement with disordered eating among adolescent girls. In particular, the significant paths connecting engagement with photo-based social media to body dissatisfaction and disordered eating through thin ideal internalization and physical appearance comparison are consistent with

those stipulated in the tripartite influence model of disordered eating among adolescent girls (Keery et al., 2004). While the original associations in the tripartite model pertain to the influence of the traditional media (e.g., television and magazines), the present study extends these findings to the influence of photo-based social media. However, as depicted in the model, the variables implicated in the tripartite influence model were concurrently associated with those implicated in the processes described in objectification theory – specifically, body surveillance and body shame.

The path model tested in the present study represents a significant contribution to the empirical literature by illustrating the specific associations between photo-based social media use, mechanisms associated with disordered eating (e.g., internalization of the thin ideal and physical appearance comparison), socialized gender variables (e.g., body surveillance and body shame), body dissatisfaction, and disordered eating. Additionally, the model serves to highlight the role of low self-esteem (e.g., Espinoza et al., 2019; Iannaccone et al., 2016; Shroff & Thompson, 2006; Vuković et al., 2018) in potentially exacerbating these processes. Although some recent research with adult women has integrated the examination of photo-based social media exposure and objectification processes to predict eating pathology (e.g., Cohen et al., 2018; Fardouly et al., 2018; Melioli et al., 2015), studies with adolescents have primarily focused on the role of the traditional media and early forms of the Internet and social media (Meier & Gray, 2014; Tiggemann & Slater, 2015). The proliferation of photo-based social media among adolescent girls and its association with disordered eating (e.g., McLean et al., 2015) – along with the evidence that socialized gender processes influence the presentation of girls and women on social media (e.g., Daniels & Zurbriggen, 2016a; Kapidzic & Herring, 2011, 2015; Ramsey & Horan, 2016) – emphasize the need for these processes to be studied in relation to one another.

As detailed by Piran (2017), to fully understand the development of disordered eating among girls and women, it is critical that we consider the broader sociocultural contexts in which girls' subjective bodily experiences are embedded. Although validation in an independent sample of adolescent girls will be critical, the model uncovered by the present study moves us closer to the objective of understanding the complex network of sociocultural influences associated with body image and eating-related concerns in adolescent girls.

### **The Ideal Girl**

The objective of Part 2 of the study was to explore the image of the “ideal girl” (e.g., Piran, 2017), and to assess whether preferences for appearance were associated with the use of photo-based social media and/or with disordered eating. In the past several decades, the image of the “ideal girl” has historically been equated with the thin ideal depicted by the mass media (Morrison et al., 2004; Prieler & Choi, 2014; Thompson & Heinberg, 1999). Although the influence of the mass media remains relevant among youth, it is possible that the rise in popularity of social media has caused the image of the ideal girl to change (e.g., Perloff, 2014).

In a modern exploration of the image of the ideal girl, the present study developed a novel research paradigm in which adolescent girls were asked to evaluate themselves (e.g., “My body is...”) and their preferences for appearance (e.g., “I would like my body to be...”) using visual analogue scales. The design of the current study represents an application of self-discrepancy theory (Higgins, 1987) to the study of body image (e.g., Vartanian, 2012). In particular, the study allowed for the examination of perceptions of the ‘actual’ self (i.e., the adolescent’s current perception of her physical attributes) versus the ‘ideal’ self (i.e., the adolescent’s preferences for attributes she would like to possess; Higgins, 1987).

### ***Self-Assessment***

Research Question 3 examined how adolescent girls perceive their own bodies, and corresponding hypotheses 3a and 3b assessed whether disordered eating (and associated variables) and greater engagement with photo-based social media were associated with more negative self-perceptions.

In correlational analyses, adolescent girls reporting higher levels of disordered eating more strongly disagreed with the statement “I look like the ideal girl”. This result was replicated for mechanisms associated with disordered eating (thin ideal internalization and physical appearance comparison), objectification variables (body surveillance and body shame), and body dissatisfaction – higher levels of each of these variables were associated with a stronger perception of oneself as *not* looking like the “ideal girl”. Additionally, greater engagement with photo-based social media networks was also associated with disagreeing with the statement “I look like the ideal girl”. In a multiple regression analysis predicting the perception oneself as the “ideal girl”, however, only body shame emerged as a significant predictor of not perceiving oneself to look like the “ideal girl”. Collectively, these findings contribute to the body of literature detailing the adverse impacts of social media (e.g., Holland & Tiggemann, 2017), body dissatisfaction, and internalization of the objectified gaze on self-evaluation among adolescents (e.g., Harrison & Fredrickson, 2003; Piran, 2017; Slater & Tiggemann, 2010). In particular, results suggest that the association between perceiving oneself as failing to meet appearance standards and experiencing shame about one’s body may be particularly salient. It would be beneficial for future research to examine this association longitudinally, so that the directionality of this link can be explored.

In correlational analyses, adolescent girls reporting higher levels of disordered eating were more likely to perceive their bodies as being fat. This result was replicated for mechanisms

associated with disordered eating (i.e., physical appearance comparison and thin ideal internalization), body shame, and body dissatisfaction. These findings are consistent with cognitive biases associated with disordered eating, which result in more negative appraisals of one's body (e.g., American Psychiatric Association, 2013; Gledhill et al., 2019; Jansen et al., 2006; Schuck et al., 2018). It is possible, however, that some of these associations may have been confounded by body size – in the current study, BMI was significantly associated with both disordered eating and body shame, as well as perceiving one's body as fat. A follow-up multiple regression analysis supported this notion. Although the model predicting responses to “My body is... [fat/thin]” from disordered eating, body dissatisfaction, physical appearance comparison, thin ideal internalization, body shame, and BMI was significant, in the context of all variables included in the model, only BMI emerged as predictor of perceiving oneself as fat. Thus, in the present study, one's own body size was the most salient predictor of perceptions of body size, with larger body sizes associated with perceiving oneself as fat.

Research Question 4 examined how adolescent girls wanted their bodies to look, and whether there was a discrepancy between how girls perceived their own bodies (actual bodies) versus how they wanted their bodies to look (ideal bodies). Compared to their perceptions of their actual appearances, adolescent girls reported wanting their bodies (in general) to be thinner and more muscular; with regards to specific body parts, they also reported wanting their arms, thighs, and abdomens to be thinner and more muscular than they currently perceived them to be. Relatedly, adolescents wanted their waists to be more narrow, their breasts to be bigger, and their buttocks' to be bigger and more muscular.

The general preference for increased thinness (compared to perceptions of current appearance) is largely consistent with previous qualitative and quantitative research conducted

with female adolescents (Piran, 2017; Piran et al., 2006; Schneider et al., 2013) and adults (Crossley et al., 2012; Fingeret et al., 2004; Jacobi & Cash, 1994; MacNeill & Best, 2015). Across methodologies, which have included the use of photographic figure rating scales (MacNeill & Best, 2015), figure drawings (Solomon-Krakus et al., 2017), and computer-based interactive graphic software (Schneider et al., 2013), girls and women consistently demonstrate a preference for thinner bodies (relative to actual appearance). The preference for thinner bodies has also been found to be relatively consistent regardless of whether the individual's actual body is compared to their own personal appearance ideal, to their perception of what society holds as an ideal, or another frame of reference (e.g., that which another person considers to be the ideal; Vartanian, 2012). The present study extends these findings by using a methodology that relies solely on the individual's reflective description of their own body, without the use of any visual aid (i.e., not requiring the individual to select the image that they perceive as most closely 'matching' their own body).

The present study also extends our understanding of preferences for idealized appearance by providing information about preferences for specific body *parts* (as opposed to the body as a whole). Specifically, results suggested that while girls wanted certain body parts (e.g., arms, thighs, and abdomen) to be thinner and more muscular, they wanted other body parts (e.g., breasts and buttocks) to be bigger than the currently were. Although first identified as a limitation of body image research by Jacobi and Cash in 1994, perceptions of and preferences for appearance related to specific physical attributes remains understudied, particularly among adolescents. Similar to the findings of the present study, Jacobi and Cash (1994) found that emerging adult women wanted their weight to be lower, their bodies to be thinner and more muscular, their breasts to be larger, and their hair to be longer. Similarly, Forbes et al. (2006)

found that women desired larger breasts and greater height, but also wanted to weigh less, to have a smaller upper body, and to have a smaller lower body.

Other studies with adults have also examined more specific preferences for body shape; for example, in an innovative study that asked undergraduate women to select specific busts and hips from a book and to draw a waist connecting them, Harrison (2003) found that women desired a waist and hips significantly smaller than their own, but wanted a significantly larger bust. Similarly, Overstreet et al. (2010) found that the majority of women preferred a ‘curvaceous’ body shape, although slight differences emerged according to ethnicity; specifically, whereas White women preferred a slender body with medium breasts, Black women preferred a curvier body with medium breasts and a large buttocks. Using interactive computer software, Crossley et al. (2012) found that both waist-to-hip ratios and waist-to-chest ratios were lower in idealized figures, providing support for the “curvaceously thin” (p. 256) ideal found by Harrison (2003).

The preferences for ideal appearance expressed by girls in the present study are certainly consistent with the “curvaceously thin” ideal; however, the specific preference for muscularity found by the present study is also worth noting. The desire for curvaceously thin *and* muscular bodies may represent a more recent trend in perceptions of the ideal female body shape. In a series of studies examining cultural trends in ideal appearance, Bozsik et al. (2018) found that winners of American beauty pageants became progressively thinner *and* more muscular from 1999 to 2013. Furthermore, upon evaluating altered images of the same model (thin-muscular image vs. thin-only image), female undergraduate students consistently rated the thin-muscular as more attractive than the thin-only image (Bozsik et al., 2018). One factor influencing this shift may be the increased representations of toned and thin female figures in the media – in



particular, through “fitspiration” content on the Internet and social media (Bozsik et al., 2018; Holland & Tiggemann, 2016; Tiggemann & Zaccardo, 2015). As noted by Simpson and Mazzeo (2017), the overwhelming majority of women featured in fitspiration content on social media appear to be White. Although it is possible that desires for a thin and toned appearance are more prominent among White-identifying girls and women, it is also possible that – as is the case for general media content related to fashion, beauty, and feminine appearance ideals (Reddy-Best et al., 2018) – White women are overrepresented in these images, which may then serve to reinforce muscularity as an indicator of privilege (Magladry, 2018). Further research that critically examines the influence of systemic cultural factors on desires for thinness and muscularity will be essential to the advancement of this area of research.

Unrelated to shape and weight, adolescents reported wanting their hair to be longer, their skin to be darker, their noses to be smaller and more narrow, and their lips to be fuller. Although there is a considerable dearth of research related to preferences for facial features, these findings may have implications for girls’ and women’s attitudes toward and utilization of cosmetic surgery. Research has found body dissatisfaction to be positively associated with interest in cosmetic surgery among young women (Markey & Markey, 2009). Furthermore, statistics indicate that the incidence of cosmetic surgeries has increased among female adolescents (Rohrich & Cho, 2018) and young adults (American Society of Plastic Surgeons [ASPS], 2018) in recent years. Among these age groups, some of the most common procedures include rhinoplasty (nose reconstruction) and dermal fillers (i.e., injectable implants for various body parts; ASPS, 2018). The media has been implicated in impacting preferences for cosmetic surgery among young women (e.g., Swami, 2009). Interestingly, in a recent analysis of Google

trends, Tijerina et al. (2019) found that public interest in “lip fillers” rose by 3233% following Kylie Jenner’s announcement of her lip augmentation in May 2015.

The finding that adolescents wanted their skin to be darker also warrants discussion. Light skin has historically been considered a facet of the Westernized beauty ideal (Sahay & Piran, 1997). Prior to the 1900s, European Americans considered light (untanned) skin to be an indicator of higher social status; over time, however, shifts in cultural ideals resulted in a growing preference for tanned skin, which was interpreted as a signal of privilege and leisure (see Chen et al., 2018 for a review). Although preferences for skin tone have not been widely studied, consistent with the findings of the present study, both Sahay and Piran (1997) and Basch et al. (2012) found preferences for darker skin among White young women. Preferences for skin tone have been found to differ according to ethnicity, however; for example, women belonging to South Asian and East Asian ethnic groups typically report preferences for lighter skin (Sahay & Piran, 1997; Chen et al., 2018). Among Black women, lighter skin tones are perceived as more beautiful (Hunter, 2007); Black women with lighter skin tones also tend to enjoy more socioeconomic and cultural privileges than Black women with darker skin tones (Hall, 2017). Thus, while preferences for darker skin tones among adolescent girls may be interpreted as evidence of diversification and inclusivity of beauty ideals, among White girls and women in particular, it may also be an example of the appropriation of traditionally non-White features to present oneself as appealing (e.g., Bennett, 2018; Cashmore, 2019). Although tanned skinned is perceived as appealing by Westernized society, Black, Indigenous, and Persons of Colour (BIPOC) continue to experience discrimination on the basis of their skin colour (Polovick, 2017). As described by Broady et al. (2018), in addition to tanning to darken skin, appropriating aspects of Blackness may apply to other aspects of appearance as well – for example, the

prevalence of cosmetic surgeries to increase lip, breast, hip, and buttock size. In future research, it will be critical to explore perceptions of beauty ideals from the perspectives of BIPOC individuals.

Hypotheses 4a and 4b assessed whether disordered eating (and associated variables) and engagement in photo-based social media were associated with stronger preferences for idealized appearance (particularly on dimensions related to shape and weight). Results of correlational analyses indicated that disordered eating, body dissatisfaction, and associated mechanisms (i.e., physical appearance comparison and internalization of the thin ideal) were associated with preferences for thinness among specific body parts (including arms and waist), as well as preferences for facial features (e.g., full lips). These results extend those of previous research conducted with young adult women, which have found associations between disordered eating and body dissatisfaction and preferences for a smaller ideal body size (Anton et al., 2000; MacNeill & Best, 2015). Recent research conducted with a sample of German youth (ranging in age from 11 to 17 years) also found an association between disordered eating attitudes and behaviours and preferences for a thin ideal body (Schuck et al., 2018); interestingly, these preferences were strongest among girls aged 13 to 14 years.

Objectification-related variables (body surveillance and body shame) were also associated with preferences for thinness among specific body parts, including arms, abdomen, and waist, as well as preferences for facial features (i.e., body surveillance with a narrow nose, and body shame with full lips). Interestingly, body surveillance was uniquely associated with preferences for bigger buttocks and bigger breasts. Associations between objectification-related variables and preferences for idealized appearance have not been widely studied, particularly among adolescents. Existing research with adult women has found body shame to be associated

with a greater discrepancy between perceptions of actual and idealized bodies (Miner-Rubino et al., 2002; Tiggemann & Lynch, 2001). Similarly, a recent longitudinal study with girls aged 9 to 14 years found that greater body surveillance was associated with a greater actual-ideal discrepancy six months later (Rousseau & Eggermont, 2018). Although studies directly examining preferences for idealized appearance (as opposed to actual-ideal discrepancies) are limited, Forbes et al. (2006) found both body surveillance and body shame to be related to preferences for smaller upper body size (shoulders and upper arm), smaller lower body size (stomach, waist, thighs, and buttocks), and lower weight among female college students. Although more research is needed, it is possible that the specific associations between greater body surveillance (i.e., viewing and evaluating one's body as an outside observer; McKinley & Hyde 1996) and a desire for bigger breasts and buttocks may be attributed to the fact that these body parts are among those most commonly objectified in traditional media (e.g., Ward et al., 2006) and social media (Deighton-Smith & Bell, 2018).

Greater engagement with photo-based social media was associated with preferences for thin arms, a thin abdomen, a narrow waist, and big buttocks. Unrelated to shape and weight, engagement with photo-based social media was also associated with a preference for long hair and a narrow nose. Existing research in this area has primarily investigated the links between exposure to the traditional media and preferences for appearance. For example, Harrison (2003) found that exposure to ideal-body images on television was associated with preferences for a smaller waist and smaller hips; exposure to ideal-body images on television also affected preferences for breast size. Similarly, Schneider et al. (2013) found that the amount of time spent watching television was associated with actual-ideal body discrepancies among adolescents. Regarding the influence of social media, Fardouly and colleagues (2015b) found that, among

women with high appearance comparison tendencies, spending time on Facebook (as opposed to a control website) was associated with more facial, hair, and skin-related appearance discrepancies; interestingly, spending time on Facebook was not significantly associated with appearance discrepancies related to shape or weight. In another experimental study, Fardouly and Rapee (2019) found that exposure to idealized images of women wearing make-up (as opposed to exposure to appearance-neutral control images) was associated with women wanting to change aspects of their face, hair, and skin.

Follow-up multiple regression analyses predicting preferences related to size of body, arms, thighs, and waist from variables related to disordered eating, objectification, and photo-based social media use were significant. In each of the specific models, however, only a few variables emerged as significant predictors of the dependent variables. For example, in the context of other variables included in the respective models, greater thin ideal internalization was significantly associated with a stronger preference for thin arms; greater thin ideal internalization and engagement with photo-based social media were associated with stronger preferences for a thin abdomen; and greater thin ideal internalization, physical appearance comparison, and engagement with photo-based social media were associated with stronger preferences for a narrow waist. Although more research is needed, these results suggest that thin ideal internalization, physical appearance comparison, and engagement with photo-based social media may be among the most salient influences on adolescents' preferences for idealized appearance.

### ***Other-Assessment***

In addition to the study of adolescent girls' self-perceptions of and preferences for appearance (self-assessment), adolescent girls were also asked to evaluate the bodies of other women, and to provide their perceptions of the women's preferences for appearance (other-

assessment). Results of eye-tracking studies suggest that the ways in which women observe and perceive their own bodies may be discrepant from the ways in which they observe and perceive the bodies of other women (e.g., Roefs et al., 2008; Jansen et al., 2005). Relatedly, it is also possible that the appearance ideals that girls and women apply to themselves may be discrepant from those that they apply to other women. If such discrepancies were to exist, they may affect how girls and women – particularly those who overvalue shape and weight (e.g., Fairburn, 2008) – compare themselves to same-gender peers, with potential consequences for body image. Accordingly, Research Question 5 examined how adolescent girls perceive the bodies of other women, how they believe the bodies of other women should look, and whether there is a discrepancy between perceptions of actual and ideal bodies for other women. In general, this area remains relatively unexplored in the empirical literature. Due to the novel research design used by the present study, the following interpretations are made cautiously; efforts to replicate these results will be critical in informing our understanding of how girls perceive other girls and women.

Across all three models, perceptions of actual appearance significantly differed across all physical attributes; this in itself was not unexpected, as participants were perceiving three physically dissimilar young women. Interestingly, however, perceptions of idealized physical appearance also significantly differed between the women, with the exception of preferences for size of arms, width of waist and hips, and size of nose. This pattern of findings suggests that perceived preferences for idealized appearance among other women may, for the most part, depend on the appearance of the woman in question. However, the existence of some commonalities across women suggests that there may be some physical features (e.g., size of

arms, waist, hips, and nose) for which perceived preferences for idealized appearance are more consistent.

Regarding discrepancies between actual and ideal bodies, relative to perceptions of the women's actual appearances, adolescent girls believed that all three women wanted their bodies, arms, thighs, and abdomens to be more muscular. Adolescent girls also believed that, relative to their actual appearances, women wanted their buttocks to be bigger and more muscular and their breasts to be bigger. Unrelated to shape and weight, adolescent girls believed that each of the three models wanted their lips to be more full than they currently were. Thus, despite differences in actual appearance and perceived preferences for idealized appearance between the women, there were some consistencies in the existence of actual-ideal discrepancies. If these discrepancies are interpreted as indices of body dissatisfaction (e.g., Vartanian, 2012), it is possible that they represent the physical attributes that girls expect other women to be dissatisfied with. Indeed, many of these are the same attributes that adolescent girls reported to be dissatisfied with themselves. For example, in their own self-perceptions, adolescents also reported wanting their bodies, arms, thighs, and abdomens to be more muscular; their buttocks to be bigger and more muscular, their breasts to be bigger, and their lips to be fuller. Despite these consistencies between self and other perceptions, the absence of discrepancies related to thinness for other women is notable, as these discrepancies were prevalent among adolescents' self-perceptions.

To assess trends in perceived preferences for appearances, ideal scores were averaged across the three models. Although there were significant differences for appearance ideals that emerged between models, the objective of this aspect of the study was not to examine these differences *per se*; rather, the aim was to explore whether or not consistent trends in preferences

for appearance existed despite individual differences in appearance. In analyses associated with Hypothesis 5a, numerous associations were found between variables related to eating pathology and perceptions of others' preferences for idealized appearance. Greater disordered eating was associated with perceived preferences for big breasts and wide hips among other women; greater body dissatisfaction was associated with perceived preferences for big breasts and big buttocks; physical appearance comparison was associated with a perceived preference for a narrow waist; and thin ideal internalization was associated with perceived preferences for a thin body, a thin abdomen, and a narrow waist among other women. When compared to variables associated with eating pathology and preferences for appearance among adolescents themselves, interesting patterns emerge. Most notably, while associations between thin ideal internalization and preferences for appearance are broadly consistent between self and other, those that emerged for disordered eating (thin arms and narrow waist for self; big breasts and wide hips for other) and body dissatisfaction (thin body and narrow waist for self; big breasts and wide hips for other) are curiously different. The lack of a significant association between symptoms of eating pathology and perceived preferences for thinness among *other* women may be related to the importance of being comparatively thinner than others among individuals with eating disorders (e.g., Duarte et al., 2016).

Regarding objectification variables, greater body surveillance was associated with perceived preferences for a thin body, thin arms, and a thin abdomen among other women. Associations between body surveillance and perceived preferences for appearance for self and other were fairly consistent. It is possible that these consistencies between self and other may be due to the nature of the construct itself – namely, body surveillance (as measured by the OBCS) is the extent to which an individual takes an observer's perspective of their body and assesses



how it looks (e.g., McKinley & Hyde, 1996). It is possible that girls who are practiced at taking this perspective with their own bodies may readily observe and perceive the bodies of others in a similar way (e.g., Strelan & Hargreaves, 2005).

Finally, greater engagement with photo-based social media networks was associated with a perceived preference for a thin abdomen among other women. Thus, among girls who engage more readily with photo-based social media, it seems that having a thin abdomen is desirable for themselves, and is perceived to be desired by other women as well.

Although follow-up multiple regression analyses predicting perceived preferences for appearance among other women for body (fat/thin), abdomen (fat/thin), waist (narrow/wide) and hips (narrow/wide) were significant, no variables emerged as significant predictors for any of the models. Effect sizes for each of these models were small, and it is possible that the models were underpowered; however, it is also possible that true significant effects do not exist. Although more research is needed, it seems that variables related to disordered eating may be more strongly associated with preferences for appearance among oneself versus others.

### ***Self Versus Other***

Research Question 6 examined whether there was a discrepancy between adolescents' preferences for their own appearance versus their perceptions of other women's preferences for their bodies. Interestingly, compared to their perceptions of other women's preferences for appearance, adolescents preferred themselves to have significantly thinner arms, thinner and more muscular abdomens, bigger buttocks, longer hair, and fuller lips.

As noted earlier, there have been next to no attempts to study perceptions of idealized appearance among oneself *and* others in the empirical literature. Indeed, it seems that one of the only studies of this kind was conducted by Gardner et al. (1999) with children ages 7, 10, and 13

years. Using developmentally appropriate figural drawings, children were asked to select the body size that they desired, and the body size that they thought other children desired. Consistent with the present study, the authors found that girls selected a smaller ideal size for themselves (compared the ideal size they selected for other girls).

In a related query, Research Question 7 examined whether the discrepancy between actual and ideal bodies for the participants themselves differed from the discrepancy between actual and ideal bodies for other women. Analyses indicated that self actual-ideal discrepancies were significantly different from other actual-ideal discrepancies for numerous physical attributes. In general, results suggested desires for various for body parts to be thinner (e.g., body in general, along with arms, thighs, waist, and abdomen) and more muscular (e.g., abdomen) were stronger for self versus other. Unrelated to shape and weight, desires for to skin to be darker, and for noses to be smaller and more narrow were also stronger for self versus other.

The differences in actual-ideal discrepancies between self and other may be attributable to differences in ideal standards for appearance between self and other, and/or to differences in perceptions of actual appearance characteristics between self and other. The latter explanation seems likely for bodily attributes for which there were significant differences in actual-ideal discrepancies between self and other in the absence of significant differences in preferences for idealized appearance between self and other (e.g., body [fat/thin], height, thighs [fat/thin], breasts, waist, hips, skin, and nose). If the discrepancies *are* in fact attributable to differences in perceptions of actual appearance between self and other, it is possible that these differences may reflect actual differences in appearance, or may indicate the presence of a shape and weight-related perceptual bias. Although this distinction is outside of the scope of the current study, the existence of shape and weight-related perceptual biases – specifically, the overestimation of

one's own body size and/or shape (Cash & Deagle, 1997) – have been previously documented in the literature, and have been implicated in the development and maintenance of negative body image (e.g., Schuck et al., 2018) and eating disorders (e.g., Alexi et al., 2019; Challinor et al., 2017; Mohr et al., 2016). As started plainly by Gardner et al. (1999) in their study, it seems that "...girls will allow other girls more 'imperfections', relative to body size, than they do themselves" (p. 560). Although more research will be needed to further explore this phenomenon, it is possible that, by having stronger preferences for idealized physical appearance (for certain attributes) for themselves, coupled with the presence of a weight and shape-related perceptual bias – for example, the tendency to overestimate one's own body size, or perhaps to underestimate the size of others – girls and women may be more sensitively attuned to their own perceived discrepancies (i.e., ways in which they do not 'measure up', so to speak) than those of others (e.g., Cho & Lee, 2013; Glauret et al., 2009; Groesz et al., 2002; Horndasch et al., 2012; Jansen et al., 2005). Linking this to physical appearance comparison, this could increase the tendency for upwards physical appearance comparisons with objectively similar others, thus fuelling the development of negative body image (e.g., Cho & Lee, 2013; Fairburn, 2008; Myers & Crowther, 2009).

### **Idealized Self-Presentation**

The objective of Part 3 was to assess whether adherence to idealized standards for appearance affects perceptions of girls' appearances and interpersonal qualities. The present study used a between-subjects experimental design to attempt to replicate the findings of Daniels and Zurbriggen (2016a), with slight modifications made to study design. In the study by Daniels and Zurbriggen, the woman's photograph (in both conditions) was presented as part of a fictional Facebook profile. In addition to featuring the photograph, the Facebook profile included personal

information about the poster, including the individual's name and age (20 years), as well as details about her work, education, and interests. Given the decline in popularity of Facebook, particularly among adolescents, the present study did not embed the idealized versus non-idealized photographs within a fictional social media profile; instead, the photographs were presented without reference to any specific social media network.

Findings of the present study were generally inconsistent with those of Daniels and Zurbriggen (2016a). Contrary to predictions, adolescents exposed to the idealized (vs. non-idealized) photo did not perceive the model as less socially attractive (although mean scores were trending in the expected direction), less physically attractive, or less competent to perform tasks. Interestingly, with regards to task competence, the opposite effect was found: adolescents who viewed the idealized photograph actually perceived the woman as being more competent to perform tasks than those who viewed the non-idealized photograph. Consistent with study predictions, however, adolescents who viewed the idealized photo of the woman predicted that she would receive significantly more "Likes" if she posted her photo on social media (relative to adolescents who viewed the non-idealized photo). Thus, while the findings of the current study did not find evidence to support the relational costs associated with idealized appearance, the predictions for increased "Likes" may indicate the existence of a relational benefit (e.g., Murnen & Smolak, 2013) of idealized presentation.

The current findings suggest that idealized self-presentation on social media may not negatively affect girls' perceptions of other women's social attractiveness, physical attractiveness, or task competence in reality, which may reflect the normalization and acceptability of idealized and/or sexualized self-presentation on social media (Butkowski et al., 2019). That said, the absence of the predicted effects may also be an artefact of the study's

methodology. Firstly, it is possible that the model – an emerging adult woman – was not considered to be a relevant target for social comparison (Festinger, 1954) for the adolescents viewing the photo. However, the woman featured in the photographs in the Daniels and Zurbriggen (2016a) study was an emerging adult woman, and study effects were found with both adolescent girls and emerging adult women. What is perhaps more likely to have affected the results was the absence of personal information contributing to the woman’s identity, and the absence of information related to social media. Regarding the latter, it is possible that framing the photo as a picture that has been posted on social media may be a critical element of the effect, perhaps due to the perceived intentionality behind the action (i.e., wanting the photo/self to be seen by others).

Furthermore, it should be noted that perceptions of whether the girl in the photograph looked like the “ideal girl” did not significantly differ between conditions (although means were in the anticipated direction), suggesting that the effectiveness of the experimental manipulation was limited. Based on the fact that participants in both conditions broadly agreed that the pictured woman did look like the ideal girl, it is possible that specific features of her appearance (e.g., her perceived level of physical attractiveness) may have impacted the results. Another reason for the absence of this effect between conditions is that the photograph used in the idealized condition may not have been “sexy” enough. The outfit that the model wore in the idealized condition of the present study – a red low-cut shirt and denim shorts – was ostensibly less sexualized than the outfit described in the study by Daniels and Zurbriggen (2016a) – a low-cut red dress and a garter belt. This notion is supported by a separate study conducted by Daniels and Zurbriggen (2016b), which examined the specific criteria affecting the perceived acceptability of sexualized photographs on social media. In this study, adolescents and young

adult participants overwhelmingly disapproved of posting a profile photo of oneself in underwear on social media. More nuanced patterns emerged for swimwear, however, with acceptability influenced by the context of the photo and how revealing the swimsuit is. Thus to fully understand the relational costs (and benefits) associated with idealized appearance – whether it be in real life, or on social media – potentially critical variables should be carefully considered and manipulated in future research.

### **Limitations and Future Directions**

Although the results of the present study contribute to and extend the existing empirical literature in a number of ways, the findings are not without limitations. Participation in the present study was limited to female adolescents, as issues related to disordered eating tend to be more common among girls and women (e.g., Smink et al., 2012), and engagement in photo-based social media use tends to be higher among girls (AP-NORC, 2017; Lenhart et al., 2015; Len-Rios et al., 2015). However, issues related to body image do exist among boys and men – for example, McLean et al. (2018) found that boys demonstrate preferences for muscularity, and to a lesser extent, thinness, as early as age 6 years. Furthermore, research suggests that the prevalence of eating disorders among boys and men is likely underestimated (e.g., Sweeting et al., 2015). Thus, it would be informative for future research to investigate whether social media use and issues related to disordered eating are associated among boys, and to explore whether these links differ from those that have been found to exist among girls.

Furthermore, the sample of the present study was limited by inclusion of students from both public and private schools. Although assessing the impact of school sector (public vs. private) was not a predetermined aim of the present study, differences in specific variables emerged, and steps were taken to statistically account for these differences in subsequent

analyses. While the existence of these differences is acknowledged, the demographic data collected were insufficient to explain *why* the differences between the public and private school samples emerged. In addition to students attending the private school being significantly younger than those attending the public schools, differences between the schools that may have impacted the results include the differing geographic locations of the public schools (Windsor-Essex region) versus the private school (Toronto). Furthermore, attendance at the private school requires tuition (ranging from approximately \$30,000 to \$65,000 annually), whereas attendance at the public schools is free. Lastly, attendance at the private school is restricted to females, whereas the public schools were mixed-gender. The present study also did not explicitly assess differences in school curricula (e.g., emphasis on body image in health education) that may have influenced the results. Furthermore, although both the private school and the public school board have policies related to restricting cell phone use during school hours, enforcement of these policies was not assessed. Based on the emergence of significant differences between the private and public school samples in the present study, future research should more closely examine this phenomenon with an emphasis on identifying the specific variables that may be driving the effect (e.g., single gender vs. mixed gender environment, variables associated with parent income, etc.).

It should also be noted that the sample from which data was collected was likely not representative of the general population of Canadian adolescents. Across both private and public schools, approximately two-thirds of the sample were Caucasian; thus, while some ethnic diversity was accounted for, the sample size was inadequate to determine whether results differed according to ethnic group. Furthermore, it is possible that selection bias may have influenced the results, as schools (both public and private) who agreed to participate in the study

may have had existing interests in subject matter (which may have been associated with educational content that students received, independent of the study).

Although sample size was sufficient for analyses associated with Part 1 of the study ( $N = 238$ ), it is possible that specific analyses conducted for Part 2/3 of the study ( $n = 77$ ) may have been underpowered. This is particularly true for the regressions conducted in Part 2 to predict preferences for idealized appearance from variables related to disordered eating, objectification, and social media use (some of which included up to 10 predictors). Accordingly, the risk for Type II error may have been elevated. Also, because students who participated in Part 1 were not required to participate in Part 2/3 of the study, it is possible that the students who agreed to participate may have differed in some respects from those who opted not to participate; for example, students who agreed may have had a pre-existing interest in the study of body image and/or social media behaviours.

For Part 1 of the study, a novel measure of photo-based social media engagement was developed for use with the sample of adolescent girls, and subsequently used in data analyses. Although this measure represents a significant contribution to the literature, it will require cross-validation in an independent sample of adolescents before it can be reliably applied in future research. Future research may also want to consider further measure development (e.g., addition of new items), and also assess whether the measure can be applied with different populations (e.g., boys and men, emerging adults, adults, etc.).

A factor that limits the interpretation of the path model is the cross-sectional nature of the data. As the data were not investigated longitudinally, the path model cannot be interpreted temporally – results are correlational, and causation cannot be inferred. Related to this limitation, in addition to testing the model in an independent sample of adolescents, future research should



endeavour to analyze these associations longitudinally (e.g., Frison & Eggermont, 2017; Rousseau & Eggermont, 2018). It is also possible that some of the associations between variables may be bidirectional. Future research may also want to use the model proposed by the present study to inform the development of a model with latent variables that can be tested with Structural Equation Modelling. Research dedicated to further development of the model specifically – or the study of photo-based social media use in general – may want to consider the inclusion of variables related to peers (e.g., Keery et al., 2004; Schneider et al., 2013), variables related to parents (including parent monitoring of media use; Bleakley et al., 2016; Ding et al., 2017; Khurana et al., 2015; Lin et al., 2009; Schneider et al., 2013; Top, 2016), and variables related to media literacy (Rodgers et al., 2019). Furthermore, future studies may also want to consider the inclusion of personality variables – for example, neuroticism, which has been found in previous research to be associated with both body dissatisfaction and self-objectification (Davis et al., 1996; Dionne & Davis, 2004; Dionne et al., 1995). As the paths related to school sector were included in the model specifically to account for differences between private and public school students in this sample, these paths will likely need to be removed in future research (unless samples with private and public school students are specifically used).

Interpretation of findings from Part 2 of the study are limited due to the use of novel research methodologies which have not been previously examined in the literature. Future studies interested in testing these methodologies should focus on establishing their validity and reliability. In particular, it will be important for future studies to assess the test-retest reliability of the methods by having a subsample of participants repeat parts of the task (to determine whether assessments of self and other are stable across time).

Regarding procedures used for self-assessment, the current methodology relied solely on the individual's reflective description of their own body, without the use of any visual aid. Although this is similar to the methodology used by Jacobi and Cash (1994), most existing measures rely on visual aids such as figure drawings or photographs (although these have their own limitations, which have been acknowledged in the literature; e.g., Swami et al., 2008). Further research is needed to establish the validity of the self-assessment technique used in the present study; however, the significant associations between BMI and various self-assessment variables may support the validity of the methodology. Future research should specifically compare measures with and without visual aids to assess concordance between methodologies.

Another limitation related to the self-assessment procedures used by the current study was the inability to assess accuracy of self-perception (apart from the significant correlations with BMI). In previous research using contour figure scales, analyses have been conducted wherein current self-figure selection is converted to a *T*-score with height and weight normative tables (Thompson & Gray, 1995). To assess the accuracy of self-perception for methodologies without visual aids, future research may want to correlate self-perceptions of shape and weight with body measurements (which could be self-reported by the individual, or measured in a laboratory setting). Relatedly, future research may also want to investigate the use of alternative photographic methodologies. Similar to the procedures used by Tiggemann et al. (2020) in their study of facial selfies, researchers could take photographs of the participants in the laboratory. Participants could then provide their perceptions of themselves based on the photograph (actual assessment) and then be asked to edit the photograph to make themselves look like the ideal girl (ideal assessment). Alternatively, researchers may wish to investigate the use of graphic software

to have adolescents create a prototype of the “ideal girl” (similar to girls drawing their versions of their ideal girl; see Piran, 2017 for a review).

A limitation related to both self- and other-assessment procedures used in the present study relates to participants being prompted to think about specific aspects of appearance by being asked about them. As noted by Fardouly and Rapee (2019), it is possible that asking participants to consider specific body parts when assessing preferences for ideal appearance may have influenced the results (i.e., by drawing attention to attributes that they may not have spontaneously considered). In future research, consistent with the procedures used by Fardouly and Rapee (2019), researchers may want to first ask participants about aspects of their appearance that they are dissatisfied with and would change if they could. This could then be followed by prompting related to specific physical attributes of interest.

Regarding procedures used for other-assessment, there are several limitations related to the use of three young adult women as models. The decision to use three ethnically diverse women as models was based on a number of factors, most of which related to attempts to increase the generalizability of the findings. Although the use of one model was considered, this would have limited the findings to the appearance of one specific woman. By using more than one model, it allowed for values related to other-assessment to be averaged across the models to assess trends in preferences for appearance. Efforts were made to specifically recruit three ethnically diverse women to increase representation in research, and to prevent results being limited to perceptions of Caucasian-appearing females. However, due to the small sample size for Part 2/3, the impact of model ethnicity (Caucasian, Egyptian, and Indian) on perceptions of appearance could not be explicitly studied; furthermore, even if the sample size was great enough to allow for this analysis, ethnicity of the model would have been confounded with other

model-specific factors. Although using the three models did serve to increase the generalizability of the results (to a degree), many ethnic groups were not represented in the photographs (e.g., Black, Indigenous, Arab, East Asian, and Southeast Asian, among others).

Future research should endeavour to specifically examine the influence of ethnicity of the model and ethnicity of perceiver on perceptions of idealized appearance. This is particularly important due to research that suggests that preferences for appearance are likely to differ based on cultural factors. For example, in a qualitative examination of body image concerns among Black and White adolescents, Parker et al. (1995) found that Black girls were more flexible in their conceptualizations of beauty. Whereas White females were generally dissatisfied with their body shapes, Black females discussed “making what you’ve got work for you” (p. 103). Furthermore, whereas White adolescents described the ideal girl as being 5’7 and between 100 and 110 pounds with long blonde hair, Black girls described personality traits including being smart and friendly, and also described the importance of being well-groomed. Similarly, a study by Kemper et al. (1994) found that the female body size considered ideal by Black female adolescents was significantly larger than that selected by White adolescents. In a more recent study with Black and European American female college students, Webb et al. (2013) found that European American women preferred a curvy-thin or athletic ideal body, whereas Black women resisted notions of a singular ideal body size.

Apart from ethnicity, there are other ways that the models’ appearances could have been diversified. Although efforts were made to specifically recruit women with BMIs within the normal range for adults, the range of BMIs of the women featured in photographs was limited (ranging between 18.4 and 22). Recently, there have been a number of media campaigns ostensibly dedicated to increasing representation of a broader range of bodies in fashion and

beauty marketing, including the Dove Real Beauty and Aerie Real campaigns. Preliminary research on the latter campaign – which does not use digital retouching in its promotional photos – suggests that it may have beneficial impacts for altering socially prescribed beauty ideals, in part by reducing the prevalence of upward social comparisons (between consumer and models; Convertino et al., 2019). Despite contributing to the diversification of skin tones and body sizes represented in the media, campaigns such as these have also been criticized for espousing diversity while still reflecting a rather narrow representation of beauty that is consistent with social ideals (Bouma-Prediger, 2017; Convertino et al., 2019; de Freitas et al., 2017; Heiss, 2011). In particular, these campaigns tend to feature individuals with “...heteronormative and gender normative, able bodies” (Connell, 2013; p. 211), contributing to the perpetuation of overtly feminine appearances and an able-bodied worldview (Bouma-Prediger, 2017). This criticism also applies to the individuals photographed for the present study. Accordingly, it is imperative that future studies strive to reflect a broader representation of bodies that do not fit neatly into preconceived structures of ideal femaleness. While this certainly includes the involvement of persons with a range of body sizes and from various ethnocultural backgrounds, it also necessitates the involvement of LGBTQ individuals (e.g., femme-identified or genderqueer individuals); individuals with visible differences due to skin conditions, congenital conditions, or those related to illness or injury; and persons with disabilities.

Methodologically, it is also important to note that perceptions of the models’ bodies were likely confounded with other aspects of their appearances – for example, perceived attractiveness. This is an example of scale coarseness may have limited the precision of the measurements and increased the likelihood of measurement errors (Schuck et al., 2018). To control for the impact of appearance-related confounding variables, other methodologies – for

example, the photographic figure-rating scales (Swami et al., 2008) – have minimized the impact of facial cues by obscuring features, and have minimized the impact of ethnicity/skin tone by using grey scale. While measurement of perceptions of shape and weight have likely benefited from these alterations, they also reduce the ecological validity of the perceptions. Because the interests of the present study were not restricted to perceptions of shape and weight, but rather perceptions of the “whole girl”, features and skin tone were not obscured. This is an area deserving of further research, however – for example, future studies could compare perceptions of appearance with and without other appearance cues (e.g., facial features and skin tone).

An interesting avenue for future research to consider would be the investigation of whether there are differences in how adolescents perceive their own bodies versus the bodies of other girls that look *exactly* the same as their own, and whether such hypothetical biases may be associated with variables related to disordered eating. For example, researchers could use graphic software to create “avatars” based on a photograph of the adolescent. This would then allow for a true comparison of perceptions of self vs. other while controlling for the appearance of the individual.

Finally, another avenue for future research related to perceptions of idealized appearance for self and other is the investigation of whether desired changes in appearance are associated with attitudes regarding body alteration methods (e.g., Botox and plastic surgery). This should also be examined in relation to engagement with photo-based social media, as traditional media exposure has previously been linked to approval of body-alteration practices (Harrison, 2003). Similarly, more recent research has found that exposure to photographs of women who have undergone cosmetic enhancements was associated with stronger desires for cosmetic surgery

among women, particularly among those who spent a lot of time on social media and followed many accounts (Walker et al., 2019).

Regarding Part 3 of the study, there are many differences in study design between the current study and that of Daniels & Zurbriggen (2016a) that may have accounted for differences in results, which have been detailed earlier in the discussion. Related to this, however, future research should examine the role of critical variables associated with relational costs of sexualized appearance (e.g., specific facets of appearance or clothing, or variables related to intentionality of the social media post). Also, future research should consider whether there are gender differences in perceptions of the female adolescent in the photograph, as audiences of social media posts are unlikely to be restricted to girls and women.

### **Summary and Applied Implications**

In Part 1 of the study, it was found that adolescent girls used photo-based social media applications – in particular, Instagram and Snapchat – for between one and four hours per day, primarily to browse and “Like” photos of friends (and to a lesser extent, celebrities and acquaintances) and to post photos of themselves and close others. Time spent using and frequency of checking social media networks, including Instagram, were associated with disordered eating and body dissatisfaction. Engagement with photo-based social media, invested personal use of photo-based social media, and editing physical appearance in photographs were also associated with disordered eating, body dissatisfaction, and body surveillance.

However, the associations between photo-based media use and disordered eating among adolescent girls are neither simple nor straightforward. In an exploration of the broad sociocultural influences affecting the development of disordered eating among adolescent girls, a path model was proposed and tested. The results of the analysis supported the existence of

associations between engagement with photo-based social media, mechanisms associated with disordered eating (internalization of the thin ideal and physical appearance comparison), objectification-related variables (body surveillance and body shame), self-esteem, body dissatisfaction, and disordered eating. Although the model should be tested with longitudinal data to ascertain the temporal relationships between the variables in the model, the current depiction of the paths that connect engagement with photo-based social media use to disordered eating – in addition to illustrating the complexity of the development of issues related to body image – also highlight potential targets for intervention.

With regard to the findings linking photo-based social media engagement with disordered eating (and related variables), an obvious – though perhaps idealistic – target for intervention would be to limit the amount of time that adolescent girls spend using photo-based social media (e.g., Andrew et al., 2016). One avenue through which this may be accomplished is through parental restriction of excessive social media access, and/or parental modelling of appropriate social media use (Bleakley et al., 2016; Burnette et al., 2017; Khurana et al., 2015). Given the integration of social media use into the grain of daily life, however, mere limiting of use is unlikely to be sufficient. As such, recent empirical efforts have emphasized attempts to identify factors that may ameliorate the harmful effects of appearance-focused media consumption (including photo-based social media use) in order to prevent the development of issues related to body image and disordered eating (Levine & Smolak, 2015). One factor that has been proposed as having a potentially protective effect is media literacy – that is, the capacity of individuals to engage in critical media viewing (Rodgers et al., 2019; Tamplin et al., 2018). Factors associated with media literacy include reality skepticism (i.e., skepticism regarding the extent to which images portray reality), similarity skepticism (i.e., skepticism regarding the extent to which



images portray a reality that is comparable with one's own personal experience), and critical thinking (i.e., thinking about the intention and meaning of the media content; see Rodgers et al., 2019, for a review). In a study examining the influence of media literacy on the association between traditional media (e.g., television) exposure and negative body image among female adolescents, Rodgers et al. (2019) found that for adolescents with high levels of similarity skepticism, the effects of media exposure on body dissatisfaction (through thin ideal internalization and physical appearance comparison) were attenuated. In addition to this effect, Rodgers et al. (2019) found that both reality skepticism and critical thinking were independently negatively associated with body dissatisfaction.

The findings of Rodgers et al. (2019) support a potentially protective effect of media literacy on exposure to traditional media; however, less is known about how media literacy may function in the context of social media. Although Burnette et al. (2017) found that adolescent girls appeared to be aware of the artificiality of social media content posted by celebrities, other research suggests that the protective effect of critical thinking may be limited for social media content posted by similar others (Tamplin et al., 2018). As surmised by Tamplin et al. (2018), perceived similarities with peers may result in a lower likelihood of being skeptical about their social media posts, resulting in acceptance of their social media content. In spite of this, recent studies examining trends in social media use – specifically, ‘Instagram vs. reality’ posts and parodies of celebrity images – suggest that critical questioning of certain types of social media content may be associated with positive effects related to psychological well-being among adult women. In an examination of ‘Instagram vs. reality’ posts – which typically involve two side-by-side photographs depicting an idealized image of a woman and a more natural depiction of the same woman – Tiggemann and Anderberg (2019) found that viewing idealized images paired

with a ‘real’ image, and viewing ‘real’ images on their own, resulted in lower feelings of body dissatisfaction compared to viewing idealized images on their own. A separate study examining the impact of exposure to parodies of idealized images (i.e., humorous parody images of celebrity posts) found similarly beneficial effects (Slater et al., 2019). Specifically, Slater et al. (2019) found that women who viewed parody images reported higher body satisfaction and more positive mood compared to those who viewed idealized celebrity images. Although more research is needed, it is possible that posts of this nature – which highlight the unrealistic and unattainable nature of images posted on social media, as well as the effort associated with posting – may potentially exert their positive influence by enhancing critical thinking about the content (Slater et al., 2019).

In the exploration of the ideal girl that occurred in Part 2 of the study, findings indicated that girls wanted their bodies (in general), as well as most specific body areas (e.g., arms, thighs, abdomen, etc.) to be thinner and more muscular. They also wanted their breasts and buttocks to be bigger, their hair to be longer, their skin to be darker, their noses to be smaller, and their lips to be fuller. Higher scores on variables related to disordered eating (e.g., body dissatisfaction, thin ideal internalization, and physical appearance comparison), objectification (e.g., body surveillance and body shame), and engagement with photo-based social media were associated with stronger preferences for idealized appearance. Interestingly, when examining perceptions of preferences for appearance among other women, girls reported believing that other women wanted to be more muscular, but not necessarily thinner. Consistent with this, adolescents appeared to have stronger preferences for idealized appearance for themselves compared to others, and were also more dissatisfied with aspects of their own appearance than they expected other women to be (as evidenced by greater actual-ideal discrepancies for self vs. other).

It is possible that making girls aware of the standards that they hold for their appearances – and the widespread discrepancies that exist between how they perceive themselves versus how they want to look – may be beneficial in fostering critical thinking about socialized ideals for appearance (e.g., Dionne et al., 1995). Consistent with the recommendations of Levine & Smolak (2015), discussions of this nature – for example, developmentally-appropriate questioning of the social determinants of beauty ideals, and the commonality of the experience of appearance discontent – could be integrated into school-based efforts to cultivate protective factors (including media literacy, appreciation of diverse body shapes, and body functionality) to prevent the development of body image and disordered eating issues among adolescents. As evidenced by the success of cognitive dissonance programs related to body image – which engage participants in activities that require them to speak out against the thin ideal, thus creating dissonance for those who internalize the thin ideal – discussions of this nature may help girls to be more critical of idealized standards for appearance, which may in turn result in conscious efforts to reject the thin ideal and to resist the urge to engage in physical appearance comparisons (e.g., Andrew et al., 2016; Halliwell & Diedrichs, 2014; Halliwell et al., 2015). Consistent with this, it is possible that making girls aware of the harsher standards they hold for their own appearances (compared to their perceptions of others) may incite a unique form of dissonance. Active discussion and critical questioning related to why girls expect themselves to live up to appearance-based standards that they don't apply to others may then provide an opportunity to introduce skills related to self-compassion and body acceptance, which have been found to be protective against negative body image (e.g., Andrew et al., 2016; Rodgers et al., 2018).

Finally, in Part 3 of the study, results were suggestive of potential social benefits associated with idealized appearance. Specifically, idealized appearance in a photograph was

associated with being perceived by other girls as being as more competent to perform tasks, and with the expectation of receiving more “Likes” on social media. By making adolescents aware of the relational costs (as uncovered in previous research; e.g., Daniels & Zurbriggen, 2016a; Parker et al., 1995; Piran, 2017) and benefits associated with idealized appearance, they may begin to critically question the judgements that are made about girls and women on the sole basis of physical appearance. With appropriate guidance (e.g., through the development of school programs), this questioning may incite resistance towards cultural attitudes that condemn female self-presentation practices – for example, by fostering tolerance and acceptance of the ways in which girls and women choose to present their bodies, and by detaching physical appearance from perceptions of worth.

In general, the findings of this study emphasize the importance of teaching – and, perhaps more critically – culturally enabling girls to generate self-worth from sources apart from their physical appearance (whether in the flesh, or on social media; Levine & Smolak, 2015; Kusina & Exline, 2019; Piran, 2017). Although targeted prevention and intervention programs are undoubtedly beneficial, the potential positive impact of active modelling of resistance towards cultural attitudes and expectations associated with femaleness by adult figures – be it parents, teachers, or politicians – is also worth considering. Put more simply, perhaps girls cannot be expected to truly believe that their worth is not based in their appearance if these ideals continue to be upheld and reinforced on a daily basis. In order to support girls in existing in their bodies, perhaps it is time for adult women and men to experience their own dissonance, and to use the generated discomfort to model the process of challenging societal constraints associated with femininity.

## REFERENCES

- Aardoom, J. J., Dingemans, A. E., Slof Op't Landt, M. C. T., & Van Furth, E. F. (2012). Norms and discriminative validity of the Eating Disorder Examination Questionnaire (EDEQ). *Eating Behaviors*, 13(4), 305–309. <https://doi.org/10.1016/j.eatbeh.2012.09.002>
- Ackard, D. M. ., Richter, S., Frisch, M. J., Mangham, D., & Cronemeyer, C. L. (2013). Eating disorder treatment among women forty and older: Increases in prevalence over time and comparisons to young adult patients. *Journal of Psychosomatic Research*, 74(2), 175–178. <https://doi.org/10.1016/j.jpsychores.2012.10.014>
- Alcaraz-Ibanez, M., Sicilia, A., Diez-Fernandez, D. M., & Paterna, A. (2020) Physical appearance comparisons and symptoms of disordered eating: The mediating role of social physique anxiety in Spanish adolescents. *Body Image*, 32, 145 – 149. <https://doi.org/10.1016/j.bodyim.2019.12.005>
- Alexi, J., Palermo, R., Rieger, E., & Bell, J. (2019). Evidence for a perceptual mechanism relating body size misperception and eating disorder symptoms. *Eating and Weight Disorders: EWD*, 24(4), 615–621. <https://doi.org/10.1007/s40519-019-00653-4>
- Allen, K. L., Byrne, S. M., Oddy, W. H., & Crosby, R. D. (2013). Early onset binge Eating disorder treatment among women forty and older: Increases in prevalence over time and comparisons to young adult patients. *Journal of Psychosomatic Research*, 74(2), 175–178. <https://doi.org/10.1016/j.jpsychores.2012.10.014>
- Aitken, R. C. B. (1969). Measurement of feelings using visual analogue scales. *Proceedings of the Royal Society of Medicine*, 62, 17 – 20. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1810824/>

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Washington, DC: APA.
- American Society of Plastic Surgeons. (2018). *2018 plastic surgery statistics report*. Retrieved from: <https://www.plasticsurgery.org/documents/News/Statistics/2018/plastic-surgery-statistics-full-report-2018.pdf>.
- Andrew, R., Tiggemann, M., & Clark, L. (2016). Predicting body appreciation in young women: An integrated model of positive body image. *Body Image, 18*, 34 – 42.  
<http://dx.doi.org/10.1016/j.bodyim.2016.04.003>
- Anton, S. D., Perri, M. G., Riley III, J. R. (2000). Discrepancy between actual and ideal body images: Impact on eating and exercise behaviors. *Eating Behaviours, 1*(2), 153 – 160.  
[https://doi.org/10.1016/S1471-0153\(00\)00015-5](https://doi.org/10.1016/S1471-0153(00)00015-5)
- Appel, A., Gerlach, A. L., & Crusius, J. (2016). The interplay between Facebook use, social comparison, envy, and depression. *Current Opinion in Psychology, 9*, 44-49.  
<http://dx.doi.org/10.1016/j.copsyc.2015.10.006>
- Arcelus, J., Mitchell, A. J., Wales, J., & Nielson, S. (2011). Mortality rates in patients with anorexia nervosa and other eating disorders. *Archives of General Psychiatry, 68*(7), 724 – 731. <https://doi.org/10.1001/archgenpsychiatry.2011.74>
- Associated Press NORC Center for Public Affairs Research (AP-NORC) (2017, April). *Instagram and Snapchat are Most Popular Social Networks for Teens; Black Teens are Most Active on Social Media, Messaging App*. Retrieved from: <http://www.apnorc.org/projects/Pages/Instagram-and-Snapchat-are-Most-Popular-Social-Networks-for-Teens.aspx>
- Ata, R. N., Ludden, A. B., & Lally, M. M. (2007). The effects of gender and family,

- friend, and media influences on eating behaviors and body image during adolescence. *Journal of Youth and Adolescence*, 36(8), 1024–1037. <https://doi.org/10.1007/s10964-006-9159-x>
- Bankoff, S. M., Valentine, S. E., Jackson, M. A., Schacht, R. L., & Pantalone, D. W. (2013). Compensatory weight control behaviors of women in emerging adulthood: associations between childhood abuse experiences and adult relationship avoidance. *Journal of American College Health*, 61(8), 468-475. <https://doi.org/10.1080/07448481.2013.833515>
- Bányai F., Zsila Á., Király O., Maraz A., Elekes Z., Griffiths M. D., Andreasson, C. S., & Demetrovics, Z. (2017) Problematic social media use: Results from a large-scale nationally representative adolescent sample. *PLoS ONE*, 12(1): e0169839. <https://doi.org/10.1371/journal.pone.0169839>
- Barber, B. K., Chadwick, B. A., & Oerter, R. (1992). Parental behaviors and adolescent self-esteem in the United States and Germany. *Journal of Marriage and Family*, 54(1), 124 -141. <https://doi.org/0.2307/353281>
- Basch, C. H., Hillyer, C. G., Basch, C. E., & Neugut, A. I. (2012). Improving understanding about tanning behaviors in college students: A pilot study. *Journal of American College Health*, 60(3), 250–256. <https://doi.org/10.1080/07448481.2011.596872>.
- Bazzini, D. G., Pepper, A., Swofford, R., & Cochran, K. (2015). How healthy are health magazines? A comparative content analysis of cover captions and images of Women's and Men's Health magazines. *Sex Roles*, 72, 198–210. <https://doi.org/10.1007/s11199-015-0456-2>
- Bearman, S. K., Presnell, K., Martinez, E., & Stice, E. (2006). The skinny on body

- dissatisfaction: A longitudinal study of adolescent girls and boys. *Journal of Youth and Adolescence*, 35(2), 229-241. <http://dx.doi.org/10.1007/s10964-005-9010-9>
- Bennett, P. B. (2018). *Monroe and Kardashian as sexual icons: Active agents and cultural products* (Unpublished master's thesis). San Francisco State University, San Francisco, California.
- Berg, K. C., Peterson, C. B., Frazier, P., & Crow, S. J. (2011). Convergence of scores on the interview and questionnaire versions of the Eating Disorder Examination: A meta-analytic review. *Psychological Assessment*, 23(3), 714–724. <https://doi.org/10.1037/a0023246>
- Blachnio, A., & Przepiorka, A. (2016). Dysfunction of self-regulation and self-control in Facebook addiction. *Psychiatric Quarterly*, 87(3), 493 – 500. <https://doi.org/10.1007/s11126-015-9403-1>
- Bleakley, A., Ellithorpe, M., & Romer, D. (2016). The role of parents in problematic Internet use among US adolescents. *Media and Communication*, 4(3), 24 – 34. <https://doi.org/10.1764/mac.v4i3.523>
- Bond, L., Clements, J., Bertalli, N., Evans-Whipp, T., McMorris, B. J., Patton, G.,...& Catalano, R. F. (2006). A comparison of self-reported puberty using the Pubertal Development Scale and the Sexual Maturation Scale in a school-based epidemiologic survey, *Journal of Adolescence*, 29, 709 – 720. <https://doi.org/10.1016/j.adolescence.2005.10.001>
- Bozsik, F., Whisenhunt, B. L., Hudson, D. L., Bennett, B. L., & Lundgren, J. D. (2018). Thin is in? Think again: The rising importance of muscularity in the thin ideal female body. *Sex Roles*, 79, 609–615. <https://doi.org/10.1007/s11199-017-0886-0>



- Bouma-Prediger, S. (2017, April 21). *When will "real bodies" mean all bodies?: A critical look at the #AerieREAL ad campaign* [Conference presentation]. Celebration of Undergraduate Research and Creative Performance, Holland, MI, United States.
- boyd, d. (2014). *It's complicated: The social lives of networked teens*. New Haven, CT: Yale University Press.
- boyd, d., & Ellison, N. B. (2008). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13, 210 – 230.  
<https://doi.org/10.1111/j.1083-6101.2007.00393.x>
- Broady, K. E., Todd, C. L., & Darity, W. A. (2018). Passing and the costs and benefits of appropriating Blackness. *The Review of Black Political Economy*, 45(2), 104–122. <https://doi.org/10.1177/0034644618789182>
- Brown, D. (2019, November 3). Cellphone ban in Ontario classrooms starts today. *CBC/Radio-Canada*. <https://www.cbc.ca/news/canada/toronto/cellphone-ban-ontario-classrooms-1.5346207>
- Buchholz, A., Henderson, K. a, Hounsell, A., Wagner, A., Norris, M., & Spettigue, W. (2007). Self-silencing in a clinical sample of female adolescents with eating disorders. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 16(4), 158–163.  
Retrieved from: [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2247456/pdf/ccap16\\_4p158.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2247456/pdf/ccap16_4p158.pdf)
- Burnette, C. B. (2016). *Investigating social media use and its relation to body dissatisfaction in an early adolescent female sample* (Doctoral dissertation). Retrieved from: Virginia Commonwealth University Scholar's Compass, <http://scholarscompass.vcu.edu/etd/4738>

- Burnette, B., Kwitowski, M. A., & Mazzeo, S. E. (2017). "I don't need people to tell me I'm pretty on social media": A qualitative study of social media and body image in early adolescent girls. *Body Image*, 23, 114 – 125.  
<https://doi.org/10.1016/j.bodyim.2017.09.001>
- Byrne, M. L., Whittle, S., Vijayakumar, N., Dennison, M., Simmons, J. G., & Allen, N.B. (2017). A systematic review of adrenarche as a sensitive period in neurobiological development and mental health. *Developmental Cognitive Neuroscience*, 25, 12 – 28.  
<https://doi.org/10.1016/j.dcn.2016.12.004>
- Caplan, S. E. (2002). Problematic Internet use and psychosocial well-being: Development of a theory-based cognitive-behavioral measurement instrument. *Computers in Human Behavior*, 18, 553-575. [https://doi.org/10.1016/S0747-5632\(02\)00004-3](https://doi.org/10.1016/S0747-5632(02)00004-3)
- Caplan, S. E. (2003). Preference for online social interaction: A theory of problematic Internet use and psychosocial well-being. *Communication Research*, 30(6), 625–648.  
<https://doi.org/10.1177/0093650203257842>
- Caplan, S. E. (2007). Relations among loneliness, social anxiety, and problematic Internet use. *CyberPsychology & Behavior*, 10(2), 234–242. <https://doi.org/10.1089/cpb.2006.9963>
- Carbonell, X., Chamarro, A., Oberst, U., Rodrigo, B., & Prades, M. (2018). Problematic use of the Internet and smartphones in university students: 2006–2017. *International Journal of Environmental Research and Public Health*, 15, 475-488.  
<https://doi.org/10.3390/ijerph15030475>
- Carskadon, M. A., & Acebo, C. (1993). A self-administered rating scale for pubertal development. *Journal of Adolescent Health*, 14, 190 – 195.

- Carter, J. C., Seaton, E. K., & Rivas-Drake, D. (2017). Racial identity in the context of pubertal development: Implications for adjustment. *Developmental Psychology*, 53(11), 2170 – 2181. <http://dx.doi.org/10.1037/dev0000413>
- Carter, J. C., Stewart, A., & Fairburn, C. (2001). Eating disorder examination questionnaire: norms for young adolescent girls. *Behaviour Research and Therapy*, 39(5), 625 – 632. [https://doi.org/10.1016/S0005-7967\(00\)00033-4](https://doi.org/10.1016/S0005-7967(00)00033-4)
- Cash, T. F., & Deagle, E. A. (1997). The nature and extent of body-image disturbances in anorexia nervosa and bulimia nervosa: A meta-analysis. *International Journal of Eating Disorders*, 22, 107-126. [http://dx.doi.org/10.1002/\(SICI\)1098-108X\(199709\)22:2<107::AID-EAT1>3.0.CO;2-J](http://dx.doi.org/10.1002/(SICI)1098-108X(199709)22:2<107::AID-EAT1>3.0.CO;2-J)
- Cashmore, E. (2019). *Kardashian kulture: How celebrities changed life in the 21st century*. Emerald Group Publishing.
- Castellini, G., Polito, C., Bolognesi, E., D'Argenio, A., Ginestroni, A., Mascalchi, M....& Ricca, V. (2012). Looking at my body: Similarities and differences between anorexia nervosa patients and controls in body image visual processing. *European Psychiatry*, 28(7), 427- 435. <http://dx.doi.org/10.1016/j.eurpsy.2012.06.006>
- Challinor, K. L., Mond, J., Stephen, I. D., Mitchison, D., Stevenson, R. J., Hay, P., & Brooks, K. R. (2017). Body size and shape misperception and visual adaptation: An overview of an emerging research paradigm. *Journal of International Medical Research*, 45(6), 2001–2008. <https://doi.org/10.1177/0300060517726440>
- Chen, H.-Y., Yarnal, C., Chick, G., & Jablonski, N. (2018). Egg white or sun-kissed: A cross-cultural exploration of skin color and women's leisure behavior. *Sex Roles: A Journal of Research*, 78(3-4), 255–271. <https://doi.org/10.1007/s11199-017-0785-4>

- Childers, T. L., & Houston, M. J. (1984). Conditions for a picture-superiority effect on consumer memory. *Journal of Consumer Research*, 11(2), 643 – 654. Retrieved from: <http://www.jstor.org/stable/2488971>
- Cho, A. & Lee, J. H. (2013). Body dissatisfaction levels and gender differences in attentional biases toward idealized bodies. *Body Image*, 10, 95- 102. <http://dx.doi.org/10.1016/j.bodyim.2012.09.005>
- Choma, B. L., Visser, B. A., Pozzebon, J. A., Bogaert, A. F., Busseri, M. A., & Sadava, S. W. (2010). Self-objectification, self-esteem, and gender: Testing a moderated mediation model. *Sex Roles*, 63, 645 – 656. <http://dx.doi.org/10.1007/s11199-010-9829-8>
- Chung, Y. I., Kim, J. K., Lee, J. H., & Jung, Y. C. (2017). Onset of dieting in childhood and adolescence: implications for personality, psychopathology, eating attitudes and behaviors of women with eating disorder. *Eating and Weight Disorders*, 22(3), 491 – 497. <http://dx.doi.org/10.1007/s40519-016-0285-5>
- Ciarrochi, J., Parker, P., Sahdra, B., Marshall, S., Jackson, C., Gloster, A. T., & Heaven, P. (2016). The development of compulsive internet use and mental health: A four-year study of adolescence. *Developmental Psychology*, 52(2), 272–283. <https://doi.org/10.1037/dev0000070>
- 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 Behaviour*, 79, 68- 74. <https://doi.org/10.1016/j.chb.2017.10.027>

- Connell, C. (2013). Fashionable resistance: Queer ‘fa(t)shion’ blogging as counterdiscourse. *WSQ: Women's Studies Quarterly*, 41(1), pp. 209–224.  
<https://doi.org/10.1353/wsqs.2013.0049>
- Convertino, A. D., Rodgers, R. F., Franko, D. L., & Jodoin, A. (2019). An evaluation of the Aerie Real campaign: Potential for promoting positive body image? *Journal of Health Psychology*, 24(6), 726–737. <https://doi.org/10.1177/1359105316680022>
- Cook, J. M. (2017). Twitter adoption and activity in U.S. legislatures: A 50-state study. *American Behavioral Scientist*, 61(7), 724–740. <https://doi.org/10.1177/0002764217717564>
- Couper, M. P., Tourangeau, R., Conrad, F. G., & Singer, E. (2006). Evaluating the effectiveness of visual analog scales: A web experiment. *Social Science Computer Review*, 24(2), 227 – 245. <https://doi.org/10.1177/0894439305281503>
- Coyne, S. M., Rogers, A. A., Zurcher, J. D., Stockdale, L., & Booth, M. (2020). Does time spent using social media impact mental health?: An eight year longitudinal study. *Computers in Human Behavior*, 104. <https://10.1016/j.chb.2019.106160>
- Cragun, D., DeBate, R. D., Ata, R. N., & Thompson, J. K. (2013). Psychometric properties of the Body Esteem Scale for Adolescents and Adults in an early adolescent sample. *Eating and Weight Disorders*, 18, 275 – 282. <https://doi.org/10.1007/s40519-013-0031-1>
- Cribb, V. L., & Haase, A. M. (2016). Girls feeling good at school: School gender environment, internalization and awareness of socio-cultural attitudes associations with self-esteem in adolescent girls. *Journal of Adolescence*, 46, 107-114.  
<https://doi.org/10.1016/j.adolescence.2015.10.019>

- Crossley, K. L., Cornelissen, P. L., Tovée, M. J. (2012). What is an attractive body? Using an interactive 3D program to create the ideal body for you and your partner. *PLoS ONE*, 7(11): e50601. <https://doi.org/10.1371/journal.pone.0050601>
- Culbert, K. M., Racine, S. E., & Klump, K. L. (2015). Research review: What we have learned about the causes of eating disorders - A synthesis of sociocultural, psychological, and biological research. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 56(11), 1141–1164. <https://doi.org/10.1111/jcpp.12441>
- Dakanalis, A., Carrà, G., Calogero, R., Fida, R., Clerici, M., Zanetti, M. A., & Riva, G. (2014). The developmental effects of media-ideal internalization and self-objectification processes on adolescents' negative body-feelings, dietary restraint, and binge eating. *European Child and Adolescent Psychiatry*, 24(8), 997–1010. <https://doi.org/10.1007/s00787-014-0649-1>
- Daniels, E. A. & Zurbriggen, E. L. (2016a). The price of sexy: Viewer's perceptions of a sexualized versus non-sexualized Facebook profile photograph. *Psychology of Popular Media Culture*, 5(1), 2-14. <http://dx.doi.org/10.1037/ppm0000048>
- Daniels, E. A. & Zurbriggen, E. L. (2016b). "It's not the right way to do stuff on Facebook": An investigation of adolescent girls' and young women's attitudes toward sexualized photos on social media. *Sexuality and Culture*, 20, 936 – 964. <https://doi.org/10.1007/s12119-016-9367-9>
- Davis, C., Dionne, M. & Lazarus, L. (1996). Gender-role orientation and body image in women and men: The moderating influence of neuroticism. *Sex Roles*, 34, 493–505. <https://doi.org/10.1007/BF01545028>
- Davis, C., Shuster, B., Dionne, M., & Claridge, G. (2001). Do you see what I see?: Facial

- attractiveness and weight preoccupation in college women. *Journal of Social and Clinical Psychology*, 20(2), 147–160. <https://doi.org/10.1521/jscp.20.2.147.22260>
- de Freitas, A., Jordan, H., & Hughes, E. K. (2017). Body image diversity in the media: A content analysis of women's fashion magazines. *Health Promotion Journal of Australia*, 29(3), 251 – 256. <https://doi.org/10.1002/hpja.21>
- Decaluwe, V., Braet, C., & Fairburn, C. G. (2002). Binge eating in obese children and adolescents. *International Journal of Eating Disorders*, 33, 78-84. <https://doi.org/10.1002/eat.10110>
- Deighton-Smith, N., & Bell, B. T. (2018). Objectifying fitness: A content and thematic analysis of #fitspiration images on social media. *Psychology of Popular Media Culture*, 7(4), 467–483. <https://doi.org/10.1037/ppm0000143>
- Demirci, K., Akgönül, M., & Akpınar, A. (2015). Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. *Journal of Behavioral Addictions*, 4(2), 85–92. <https://doi.org/10.1556/2006.4.2015.010>
- Dijkstra, P., & Barelds, D. P. H. (2011). Examining a model of dispositional mindfulness, body comparison, and body satisfaction. *Body Image*, 8(4), 419 – 422. <https://doi.org/10.1016/j.bodyim.2011.05.007>
- Ding, Q., Li, D., Zhou, Y., Dong, H., & Luo, J. (2017). Perceived parental monitoring and adolescent internet addiction: A moderated mediation model. *Addictive Behaviours*, 74, 48 – 54. <https://doi.org/10.1016/j.addbeh.2017.05.033>
- Dingemans, A. E., van Son, G. E., Aardoom, J. J., Bruidegom, K., Slof-Op 't Landt, M.

- C. T., & van Furth, E. F. (2016). Predictors of psychological outcome in patients with eating disorders: A routine outcome monitoring study. *International Journal of Eating Disorders*, 49(9), 863–873. <https://doi.org/10.1002/eat.22560>
- Dionne, M. M., & Davis, C. (2004). Body image variability: The influence of body-composition information and neuroticism on young women's body dissatisfaction. *Body Image*, 1(4), 335–349. <https://doi.org/10.1016/j.bodyim.2004.10.003>
- Dionne, M., Davis, C., Fox, J., & Gurevich, M. (1995). Feminist ideology as a predictor of body dissatisfaction in women. *Sex Roles*, 33, 277–287. <https://doi.org/10.1007/BF01544615>
- Dohnt, H. K., & Tiggemann, M. (2005). Peer influences on body dissatisfaction and dieting awareness in young girls. *British Journal of Developmental Psychology*, 23(1), 103–116. <https://doi.org/10.1348/026151004X20658>
- Dohnt, H. K., & Tiggemann, M. (2006). Body image concerns in young girls: The role of peers and media prior to adolescence. *Journal of Youth and Adolescence*, 35(2), 141–151. <https://doi.org/10.1007/s10964-005-9020-7>
- 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.comppsy.2016.01.003>
- Durkin, S. J., & Paxton, S. J. (2002). Predictors of vulnerability to reduced body image satisfaction and psychological wellbeing in response to exposure to idealized female media images in adolescent girls. *Journal of Psychosomatic Research*, 53, 995 – 1005. [https://doi.org/10.1016/S0022-3999\(02\)00489-0](https://doi.org/10.1016/S0022-3999(02)00489-0)
- Eisenberg, D., Nicklett, E. J., Roeder, K., & Kirz, N. E. (2011). Eating disorder



- Symptoms among college students: Prevalence, persistence, correlates, and treatment-seeking. *Journal of American College Health*, 59(8), 700–707. <https://doi.org/10.1080/07448481.2010.546461>
- Engelsen, B. K., & Laberg, J. C. (2001). A comparison of three questionnaires (EAT-12, EDI, and EDEQ) for assessment of eating problems in healthy female adolescents. *Nordic Journal of Psychiatry*, 55(2), 129 – 135. <https://doi.org/10.1080/08039480121342>
- Espinoza, P., Penelo, E., Mora, M., Francisco, R., González, M. L., & Raich, R. M. (2018). Bidirectional relations between disordered eating, internalization of beauty ideals, and self-esteem: A longitudinal study with adolescents. *The Journal of Early Adolescence*, 39(9), 1244 – 1260. <https://doi.org/10.1177/0272431618812734>
- Evans, E. H., Adamson, A. J., Basterfield, L., Le Couteur, A., Reilly, J. K., Reilly, J. J., & Parkinson, K. N. (2017). Risk factors for eating disorder symptoms at 12 years of age: A 6-year longitudinal cohort study. *Appetite*, 108, 12–20. <https://doi.org/10.1016/j.appet.2016.09.005>
- Fairburn, C. G. (2008). *Cognitive behaviour therapy and eating disorders*. Guildford Press.
- Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *The International Journal of Eating Disorders*, 16(4), 363–370. [https://doi.org/10.1002/1098-108X\(199412\)](https://doi.org/10.1002/1098-108X(199412))
- Fairburn, C. G., & Beglin, S. J. (2008). Eating Disorder Examination Questionnaire (EDEQ 6.0). In Fairburn, C. G. (2008). *Cognitive behaviour therapy and eating disorders* (Appendix A). New York, NY: Guilford Press.
- Fairburn, C. G., & Cooper, Z. (1993). The Eating Disorder Examination. In C. G.

- Fairburn, & G. T. Wilson, *Binge eating: Nature, assessment and treatment* (12th ed.) (pp. 317–360). New York: Guilford Press.
- Fardouly, J., Diedrichs, P. C., Vartanian, L. R., & Halliwell, E. (2015a). The mediating role of appearance comparisons in the relationship between media usage and self-objectification in young women. *Psychology of Women Quarterly*, 39(4), 447-457. <http://dx.doi.org/10.1177/0361684315581841>
- Fardouly, J., Diedrichs, P. C., Vartanian, L. R., & Halliwell, E. (2015b). Social comparisons on social media: the impact of Facebook on young women's body image concerns and mood. *Body Image*, 13, 38-45. <http://dx.doi.org/10.1016/j.bodyim.2014.12.002>.
- Fardouly, J., & Rapee, R. M. (2019). The impact of no-makeup selfies on young women's body image. *Body Image*, 28, 128 –134. <https://doi.org/10.1016/j.bodyim.2019.01.006>
- 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. <http://dx.doi.org/10.1016/j.copsyc.2015.09.005>
- Fardouly, J., Willburger, B. K., & Vartanian, L. R. (2018). Instagram use and young women's body image concerns and self-objectification: Testing mediational pathways. *New Media and Society*, 20(4), 1380-1395. <http://dx.doi.org/10.1177/1461444817694499>
- Farruggia, S. P., Chen, C., Greenberger, E., Dmitrieva, J., & Macek, P. (2004). Adolescent self-esteem in cross-cultural perspective: Testing measurement equivalence and a mediation model. *Journal of Cross-Cultural Psychology*, 35(6), 719-733. <http://dx.doi.org/10.1177/0022022104270114>
- Fassino, S., & Abbate-Daga, G. (2013). Resistance to treatment in eating disorders: A

- critical challenge. *BMC Psychiatry*, 13, 282 – 286. Retrieved from:  
<http://www.biomedcentral.com/1471-244X/13/282>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G\*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. <http://dx.doi.org/10.3758/BRM.41.4.1149>
- 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), 1–14. <https://doi.org/10.1007/s10964-012-9898-9>
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7(2), 117 – 140. <https://doi.org/10.1177/001872675400700202>
- Fichter, M. M., & Quadflieg, N. (2016). Mortality in eating disorders: Results of a large prospective clinical longitudinal study. *International Journal of Eating Disorders*, 49(4), 391–401. <https://doi.org/10.1002/eat.22501>
- Fichter, M. M., Quadflieg, N., & Hedlund, S. (2006). Twelve-year course and outcome predictors of anorexia nervosa. *International Journal of Eating Disorders*, 39(2), 87–100. <https://doi.org/10.1002/eat.20215>
- Field, A. E., Camargo, C. A., Taylor, C. B., Berkey, C. S., Roberts, S. B., & Colditz, G. A. (2001). Peer, parent, and media influences on the development of weight concerns and frequent dieting among preadolescent and adolescent girls and boys. *Pediatrics*, 107(1), 54–60. <https://doi.org/10.1542/peds.107.1.54>
- Fingeret, M. C., Gleaves, D. H., & Pearson, C. A. (2004). On the methodology of body image

- assessment: The use of figural rating scales to evaluate body dissatisfaction and the ideal body standards of women. *Body Image*, 1(2), 207 – 212.
- <https://doi.org/10.1016/j.bodyim.2004.01.003>
- Fitzsimmons-Craft, E. E., Bardone-Cone, A. M., Crosby, R. D., Engel, S. G., Wonderlich, S. A., & Bulik, C. M. (2016). Mediators of the relationship between thin-ideal internalization and body dissatisfaction in the natural environment. *Body Image*, 18, 113 – 122.
- <https://doi.org/10.1016/j.bodyim.2016.06.006>.
- 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, 43 – 49. <https://doi.org/10.1016/j.bodyim.2011.09.002>
- Forbes, G. B., Jobe, R. L., & Revak, J. A. (2006). Relationships between dissatisfaction with specific body characteristics and the Sociocultural Attitudes Toward Appearance Questionnaire-3 (SATAQ-3) and Objectified Body Consciousness Scale (OBCS). *Body Image*, 3(3), 295 – 300. <https://doi.org/10.1016/j.bodyim.2006.07.003>
- Frank, J. B., & Thomas, C. D. (2003). Externalized self-perceptions, self-silencing, and the prediction of eating pathology. *Canadian Journal of Behavioural Science*, 35(3), 219–228. <https://doi.org/10.1037/h0087203>
- Fredrickson, B. L., & Roberts, T. A. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly*, 21, 173-206. Retrieved from: <http://journals.sagepub.com/doi/pdf/10.1111/j.1471-6402.1997.tb00108.x>
- Fredrickson, B. L., Roberts, T. A., Noll, S. M., Quinn, D. M., & Twenge, J. M. (1998).

- That swimsuit becomes you: Sex differences in self-objectification, restrained eating, and math performance. *Journal of Personality and Social Psychology*, 75(1), 269 – 284.  
<https://doi.org/10.1037/0022-3514.75.1.269>
- Frier, S. (2016, November 1). Instagram tries to ease its users into shopping. *Bloomberg Business Week*, 4499, 49-50.
- Frison, E., & Eggermont, S. (2017). Browsing, posting, and liking on Instagram: The reciprocal relationships between different types of Instagram use and adolescents' depressed mood. *Cyberpsychology, Behavior, and Social Networking*, 20(10), 603 – 609.  
<https://doi.org/10.1089/cyber.2017.0156>
- Gao, X., Deng, X., Yang, J., Liang, S., Liu, J., & Chen, H. (2014). Eyes on the bodies: An eye tracking study on deployment of visual attention among females with body dissatisfaction. *Eating Behaviours*, 15, 540- 549. <http://dx.doi.org/10.1016/j.eatbeh.2014.08.001>
- Gardner, R. M., Friedman, B. N., & Jackson, N. A. (1998). Methodological concerns when using silhouettes to measure body image. *Perceptual and Motor Skills*, 86(2), 387 – 395.  
<https://doi.org/10.2466/pms.1998.86.2.387>
- Gardner, R. M., Friedman, B. N., & Jackson, N. A. (1999). Hispanic and White children's judgements of perceived and ideal body size in self and others. *The Psychological Record*, 49, 555 – 564. <https://doi.org/10.1007/BF03395326>
- George, M. J., Russell, M. A., Piontak, J. R., & Odgers, C. L. (2017). Concurrent and subsequent associations between daily digital technology use and high-risk adolescents' mental health symptoms. *Child Development*, 89(1), 78–88. <https://doi.org/10.1111/cdev.12819>

- Ghaznavi, J., & Taylor, L. D. (2015). Bones, body parts, and sex appeal: An analysis of #thinspiration images on popular social media. *Body Image, 14*, 54-61. <http://dx.doi.org/10.1016/j.bodyim.2015.03.006>
- Ging, D., & Garvey, S. (2018). “Written in these scars are the stories I can’t explain”: A content analysis of pro-ana and thinspiration image sharing on Instagram. *New Media and Society, 20*(3), 1181–1200. <https://doi.org/10.1177/1461444816687288>
- Glauert, R., Rhodes, G., Fink, B., & Grammer, K. (2009). Body dissatisfaction and attentional bias to thin bodies. *International Journal of Eating Disorders, 43*(1), 42-49. <http://dx.doi.org/10.1002/eat.20663>
- Gledhill, L. J., George, H. R., & Tovée, M. J. (2019). Perceptual not attitudinal factors predict the accuracy of estimating other women’s bodies in both women with Anorexia Nervosa and controls. *Frontiers in Psychology, 10*(997). <https://doi.org/10.3389/fpsyg.2019.00997>
- Gnambs, T., Scharl, A., & Schroeders, U. (2018). The structure of the Rosenberg Self-Esteem Scale: A cross-cultural meta-analysis. *Zeitschrift für Psychologie, 226*(1), 14–29. <https://doi.org/10.1027/2151-2604/a000317>
- Grabe, S., Hyde, J. S., & Lindberg, S. M. (2007). Body objectification and depression in adolescents: The role of gender, shame, and rumination. *Psychology of Women Quarterly, 31*, 164–175. <https://doi.org/10.1.1.909.6922>
- 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*(3), 460–476. <https://doi.org/10.1037/0033-2909.134.3.460>
- Greenfield, P., & Yan, Z. (2006). Children, adolescents, and the Internet: A new field of

- inquiry in developmental psychology. *Developmental Psychology*, 42(3), 391–394.  
<https://doi.org/10.1037/0012-1649.42.3.391>
- Greenwood, S., Perrin, A., Duggan, M. (2016, November 11). *Social media update 2016*.  
 Retrieved from: <http://www.pewinternet.org/2016/11/11/social-media-update-2016/>
- Gregertsen, E. C., Mandy, W., & Serpell, L. (2017). The egosyntonic nature of anorexia:  
 An impediment to recovery in Anorexia Nervosa treatment. *Frontiers in Psychology*, 8,  
 1-9. <https://doi.org/10.3389/fpsyg.2017.02273>
- Grieve, R., & Watkinson, J. (2017). The psychological benefits of being authentic on  
 Facebook. *Cyberpsychology, Behavior, and Social Networking*, 19(7), 420–425.  
<https://doi.org/10.1089/cyber.2016.0010>
- 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. (2008). *Body image: Understanding body dissatisfaction in men, women, and  
 children*. London: Routledge.
- Guntuku, S. C., Qiu, L., Lin, W., & Jakhetiya, V. (2015, October). *Do others perceive  
 you as you want them to? Modelling personality based on selfie*. Paper presented at the  
 ACM Multimedia Workshop on Affect and Sentiment in Multimedia in Brisbane,  
 Australia. <http://dx.doi.org/10.1145/2813524.2813528>.
- Hall, J. C. (2017). No longer invisible: Understanding the psychosocial impact of skin color  
 stratification in the lives of African American women. *Health & Social Work*, 42(2), 71-  
 78. <https://doi.org/10.1093/hsw/hlx001>

- Halliwel, E., & Diedrichs, P.C. (2014). Brief report: Testing a dissonance body image intervention among young girls. *Health Psychology, 33*, 201-204.  
<https://doi.org/10.1037/a0032585>
- Halliwel, E., Jarman, H., McNamara, A., Risdon, H., & Jankowski, G. (2015). Dissemination of evidence-based body image interventions: A pilot study into the effectiveness of using undergraduate students as interventionists in secondary schools. *Body Image, 14*, 1–4. <https://doi.org/10.1016/j.bodyim.2015.02.002>
- Halmi, K. A., Casper, R. C., Eckert, E. D., Goldberg, S. C., & Davis, J. M. (1979). Unique features associated with age of onset of Anorexia Nervosa. *Psychiatry Research, 1*(2), 209–215. [https://doi.org/10.1016/0165-1781\(79\)90063-5](https://doi.org/10.1016/0165-1781(79)90063-5)
- Harper, B., & Tiggemann, M. (2008). The effect of thin ideal media images on women's self-objectification, mood, and body image. *Sex Roles, 58*, 649 – 657. <https://doi.org/10.1007/s11199-007-9379-x>
- Harrison, K. (2003). Television viewers' ideal body proportions: The case of the curvaceously thin woman. *Sex Roles, 48*(5), 225 – 264. <https://doi.org/10.1023/A:1022825421647>
- Harrison, K. & Fredrickson, B. L. (2003). Women's sports media, self-objectification, and mental health in Black and White adolescent females. *Journal of Communication, 53*(2), 216 – 232. <https://doi.org/10.1111/j.1460-2466.2003.tb02587.x>
- Harrison, K., & Hefner, V. (2014). Virtually perfect: Image retouching and adolescent body image. *Media Psychology, 17*, 134-153. <http://dx.doi.org/10.1080/15213269.2013.770354>
- Hay, P., Buttner, P., Mond, J., Paxton, S. J., Rodgers, B., Quirk, F., & Darby, A. (2010).



- Quality of life, course and predictors of outcomes in community women with EDNOS and common eating disorders. *European Eating Disorders Review*, 18(4), 281–295.  
<https://doi.org/10.1002/erv.1023>
- Heinberg, L. J., Thompson, J. K., & Stormer, S. (1995). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire. *International Journal of Eating Disorders*, 17(1), 81 – 89.
- Heiss, S. N. (2011). Locating the bodies of women and disability in definitions of beauty: An analysis of Dove’s campaign for Real Beauty. *Disability Studies Quarterly*, 31(1).  
Retrieved from: <https://dsq-sds.org/article/view/1367/1497>
- 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 Behaviour*, 72, 92 – 100. <http://dx.doi.org/10.1016/j.chb.2017.04.027>
- Hepworth, N., & Paxton, S. J. (2007). Pathways to help-seeking in bulimia nervosa and binge eating problems: A concept mapping approach. *International Journal of Eating Disorders*, 40, 493-504. <https://doi.org/10.1002/eat.20402>
- Herbozo, S., Stevens, S. D., & Thurston, I. B. (2017). The mediating role of appearance comparisons on the relationship between negative appearance commentary and binge eating symptoms. *Eating Behaviours*, 26, 155 – 158. <http://dx.doi.org/10.1016/j.eatbeh.2017.03.008>
- Hermida, A., Fletcher, F., Korell, D., & Logan, D. (2012). Share, like, recommend: Decoding the social media news consumer. *Journalism Studies*, 13(5–6), 815–825.  
<https://doi.org/10.1080/1461670X.2012.664430>

- Higgins, E. T. (1987). Self-discrepancy: A theory relating self and affect. *Psychological Review*, 94(3), 319–340. <https://doi.org/10.1037/0033-295X.94.3.319>
- Hoang, U., Goldacre, M., & James, A. (2014). Mortality following hospital discharge with a diagnosis of eating disorder: National record linkage study, England, 2001-2009. *International Journal of Eating Disorders*, 47(5), 507–515. <https://doi.org/10.1002/eat.22249>
- Hogue, J., & Mills, J. S. (2019). The effects of active social media engagement with peers on body image in young women. *Body Image*, 28, 1 – 5. <https://doi.org/10.1016/j.bodyim.2018.11.002>
- 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. <http://dx.doi.org/10.1016/j.bodyim.2016.02.008>
- Holland, G., & Tiggemann, M. (2017). “Strong beats skinny every time”: Disordered eating and compulsive exercise in women who post fitspiration on Instagram. *International Journal of Eating Disorders*, 50(1), 76–79. <https://doi.org/10.1002/eat.22559>
- Holt, K. E., & Ricciardelli, L. A. (2008). Weight concerns among elementary school children: A review of prevention programs. *Body Image*, 5, 233-243. <http://dx.doi.org/10.1016/j.bodyim.2008.02.002>
- Horndasch, S., Kratz, O., Holczinger, A., Heinrich, H., Honig, F., Noth, E., & Moll, G. H. (2012). “Looks do matter”: Visual attentional biases in adolescent girls with eating disorders viewing body images. *Psychiatry Research*, 198, 321-323. <http://dx.doi.org/10.1016/j.psychres.2011.12.029>

- Hu, Y., Manikonda, L., & Kambhampati, S. (2014). What we Instagram: A first analysis of Instagram photo content and user types. *Proceedings of the Eight International AAAI Conference on Weblogs and Social Media*, 595–598. Retrieved from: <https://www.aaai.org/ocs/index.php/ICWSM/ICWSM14/paper/viewFile/8118/8087>
- Hudson, J. I., Hiripi, E., Pope, H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry*, 61(3), 348-358. <http://doi.org/10.1016/j.biopsych.2006.03.040>
- Hunter, M. (2007). The persistent problem of colorism: Skin tone, status, and inequality. *Sociology Compass*, 1(1), 237 – 254. <https://doi.org/10.1111/j.1751-9020.2007.00006.x>
- Iannaccone, M., D'Olimpio, F., Cella, S., & Cotrufo, P. (2016). Self-esteem, body shame and eating disorder risk in obese and normal weight adolescents A mediation model. *Eating Behaviors*, 21, 80 – 83. <https://doi.org/10.1016/j.eatbeh.2015.12.010>
- Jack, D. C., & Dill, D. (1992). The Silencing the Self Scale: Schemas of intimacy associated with depression in women. *Psychology of Women Quarterly*, 16(1), 97 – 106. [http://doi.org/10.1016/0191-8867\(92\)90024-2](http://doi.org/10.1016/0191-8867(92)90024-2)
- Jacobi, L., & Cash, T. F. (1994). In pursuit of the perfect appearance: Discrepancies among self-ideal percepts of multiple physical attributes. *Journal of Applied Social Psychology*, 24(5), 379–396. <https://doi.org/10.1111/j.1559-1816.1994.tb00588.x>
- Jansen, A., Nederkoorn, C., Mulken, S. (2005). Selective visual attention for ugly and beautiful body parts in eating disorders. *Behaviour Research and Therapy*, 43, 183-196. <http://dx.doi.org/10.1016/j.brat.2004.01.003>
- Jansen, A., Smeets, T., Martijn, C., & Nederkoorn, C. (2006). I see what you see: The lack of

- self-serving body image bias in eating disorders. *British Journal of Clinical Psychology*, 45, 123 – 135. <https://doi.org/10.1348/014466505X50167>
- Jenkins-Guarnieri, M. A., Wright, S. L., & Johnson, B. (2013). Development and validation of a social media use integration scale. *Psychology of Popular Media Culture*, 2(1), 38-50, <http://dx.doi.org/10.1037/a0030277>
- Jones, J. M., Bennett, S., Olmsted, M. P., Lawson, M. L., & Rodin, G. (2001). Disordered eating attitudes and behaviours in teenaged girls: A school-based study. *Canadian Medical Association Journal*, 165(5), 547-552. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC81412/>
- Jordan, A. H., Monin, B., Dweck, C. S., Lovett, B. J., John, O. P., & Gross, J. J. (2011). Misery has more company than people think: Underestimating the prevalence of others' negative emotions. *Personality and Social Psychology Bulletin*, 37(1), 120 – 135. <http://dx.doi.org/10.1177/0146167210390822>.
- Kaess, M., Durkee, T., Brunner, R., Carli, V., Parzer, P., Wasserman, C., ... & Wasserman, D. (2014). Pathological Internet use among European adolescents: Psychopathology and self-destructive behaviours. *European Child and Adolescent Psychiatry*, 23(11), 1093–1102. <https://doi.org/10.1007/s00787-014-0562-7>
- Kapidzic, S. & Herring, C. (2011). Gender, communication, and self-presentation in teen chatrooms revisited: Have patterns changed? *Journal of Computer-Mediated Communication*, 17(1), 39-59. <http://dx.doi.org/10.1111/j.1083-6101.2011.01561.x>
- Kapidzic, S., & Herring, S. C. (2015). Race, gender, and self-presentation in teen profile photographs. *New Media & Society*, 17(6), 959 -976. <http://dx.doi.org/10.1111/j.1083-6101.2011.01561.x>

- Karsay, K., Knoll, J., & Matthes, J. (2018). Sexualizing media use and self- objectification: A meta-analysis. *Psychology of Women Quarterly*, 42(1), 9 – 28.  
<http://dx.doi.org/10.1177/0361684317743019>
- Katzmarzyk, P. T., & Davis, C. (2001). Thinness and body shape of Playboy centerfolds from 1978 to 1998. *International Journal of Obesity*, 25, 590–592.
- Kaye, W. H., Wierenga, C. E., Bailer, U. F., Simmons, A. N., & Bischoff-Grethe, A. (2013). Nothing tastes as good as skinny feels: The neurobiology of anorexia nervosa. *Trends in Neuroscience*, 36(2), 110 – 121. <https://doi.org/10.1016/j.tins.2013.01.003>
- Kazdin, A. E. (2003). *Research design in clinical psychology (4<sup>th</sup> edition)*. London: Pearson.
- Keel, P. K., & Haedt, A. (2008). Evidence-based psychosocial treatments for eating problems and eating disorders. *Journal of Clinical Child & Adolescent Psychology*, 37(1), 39–61, <https://doi.org/10.1080/15374410701817832>
- Keery, H., van den Berg, P., & Thompson, J. K. (2004). An evaluation of the Tripartite Influence Model of body dissatisfaction and eating disturbance with adolescent girls. *Body Image*, 1(3), 237–251. <https://doi.org/10.1016/j.bodyim.2004.03.001>
- Kemper, K. A., Sargent, R. G., Drane, J. W., Valois, R. F., & Hussey, J. R. (1994). Black and White females' perceptions of ideal body size and social norms. *Obesity Research*, 2, 117 – 126. <https://doi.org/10.1002/j.1550-8528.1994.tb00637.x>
- Kerr, K. (2019, September 27). Mixed reception: Canada's private schools grapple with growing phone use. *The Globe and Mail*. <https://www.theglobeandmail.com/featured-reports/article-mixed-reception-canadas-private-schools-grapple-with-growing-phone/>
- Kersten, P., White, P. J., & Tennant, A. (2014). Is the pain visual analogue scale linear

- and responsive to change? An exploration using Rasch analysis. *PLoS ONE*, 9(6), 1 – 10.  
<https://doi.org/10.1371/journal.pone.0099485>
- Khurana, A., Bleakley, A., Jordan, A. B., & Romer, D. (2015). The protective effects of parental monitoring and Internet restriction on adolescents' risk of online harassment. *Journal of Youth and Adolescence*, 44(5), 1039–1047. <https://doi.org/10.1007/s10964-014-0242-4>
- Kinasz, K., Accurso, E. C., Kass, A. E., & Le Grange, D. (2016). Does sex matter in the clinical presentation of eating disorders in youth? *Journal of Adolescent Health*, 58(4), 410–416. <https://doi.org/10.1016/j.jadohealth.2015.11.005>
- Klump, K. L. (2013). Hormones and behavior puberty as a critical risk period for eating disorders: A review of human and animal studies. *Hormones and Behavior*, 64(2), 399–410. <https://doi.org/10.1016/j.yhbeh.2013.02.019>
- Kline, R. B. (2016). *Principles and practice of structural equation modelling*, 4<sup>th</sup> edition. New York, NY: The Guildford Press.
- Knauss, C., Paxton, S. J., & Alsaker, F. D. (2008). Body dissatisfaction in adolescent boys and girls: Objectified body consciousness, internalization of the media body ideal and perceived pressure from media. *Sex Roles: A Journal of Research*, 59(9-10), 633 – 643. <https://doi.org/10.1007/s11199-008-9474-7>
- Kraus, A., & Martins, N. (2017). On the street: A content analysis of body imagery in streetstyle fashion blogs. *Journal of Broadcasting and Electronic Media*, 61(2), 351–367. <https://doi.org/10.1080/08838151.2017.1309410>
- Krayer A., Ingledew, D. K., Iphofen, R. (2008). Social comparison and body image in

- adolescence: A grounded theory approach. *Health Education Research*, 23(5), 892–903.  
<https://doi.org/10.1093/her/cym076>
- Kusina, J. R., & Exline, J. J. (2019). Beyond body image: A systematic review of classroom-based interventions targeting body image of adolescents. *Adolescent Research Review*, 4, 293 – 311. <https://doi.org/10.1007/s40894-019-00121-1>
- La Via, M. C. (2016). Eating disorders in children, adolescents, and young adults. *Journal of the American Academy of Child & Adolescent Psychiatry*, 55(10), S88.  
<https://doi.org/10.1016/j.jaac.2016.07.021>
- Lamp, S. J., Cugle, A., Silverman, A. L., Thomas, M. T., Liss, M., & Erchull, M. J. (2019). Picture perfect: The relationship between selfie behaviors, self-objectification, and depressive symptoms. *Sex Roles*, 81, 704 – 712. <https://doi.org/10.1007/s11199-019-01025-z>
- Le Grange, D., Fitzsimmons-Craft, E. E., Crosby, R. D., Hay, P., Lacey, H., Bamford, B., ... Touyz, S. (2014). Predictors and moderators of outcome for severe and enduring anorexia nervosa. *Behaviour Research and Therapy*, 56(1), 91–98. <https://doi.org/10.1016/j.brat.2014.03.006>
- Lenhart, A., Duggan, M., Perrin, A., Stepler, R., Rainie, L., & Parker, K. (2015). Teens, social media and technology overview 2015: Smartphones facilitate shifts in communication landscape for teens. *Pew Research Center*, (April), 1–47.
- Len-Rios, M. E., Hughes, H. E., McKee, L. G., & Young, H. N. (2015). Early adolescents as Publics: A national survey of teens with social media accounts, their media use preferences, parental mediation, and perceived internet literacy. *Public Relations Review*, 42(1), 101-108. <http://dx.doi.org/10.1016/j.pubrev.2015.10.003>

- Levine, M. P., & McVey, G. L. (2015). Developing an ecological approach to eating disorders prevention: The Ontario project. In L. Smolak & M. P. Levine (Eds.), *The Wiley handbook of eating disorders* (pp. 639-654). West Sussex, UK: John Wiley & Sons, Ltd.
- 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(1), 9 – 42. <https://doi.org/10.1521/jscp.2009.28.1.9>
- Levine, M. P., & Piran, N. (2004). The role of body image in the prevention of eating disorders. *Body Image*, 1, 57-70. [http://dx.doi.org/10.1016/S1740-1445\(03\)00006-8](http://dx.doi.org/10.1016/S1740-1445(03)00006-8)
- Levine, M. P., & Smolak, L. (1996). Media as a context for the development of disordered eating. In L. Smolak, M. P. Levine, & R. Striegel-Moore (Eds.), *The developmental psychopathology of eating disorders* (pp. 235 – 257). Hillsdale, NJ: Erlbaum.
- Levine, M. P. & Smolak, L. (1998). The mass media and disordered eating: Implications for primary prevention. In W. Vandereycken & G. Noordenbos (Eds.), *The prevention of eating disorders* (pp. 23 – 56). London: Athlone Press.
- Levine, M. P., & Smolak, L. (Eds.). (2006). *The prevention of eating problems and eating disorders: Theory, research, and practice*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Levine, M. P., & Smolak, L. (2015). The role of protective factors in the prevention of negative body image and disordered eating. *Eating Disorders: The Journal of Treatment and Prevention*, 1 – 8. <http://dx.doi.org/10.1080/10640266.2015.1113826>



- Li, G., & Wong, W. I. (2018). Single-sex schooling: Friendship, dating, and sexual orientation. *Archives of Sexual Behaviour*, 47, 1025 – 1039. <https://doi.org/10.1007/s10508-018-1187-6>
- Lin, C. H., & Chang, C. M. (2018). What motivates health information exchange in social media? The roles of the social cognitive theory and perceived interactivity. *Information & Management*. Advance online publication. <https://doi.org/10.1016/j.im.2018.03.006>
- Lin, C. H., Lin, S. L., & Wu, C. P. (2009). The effects of parental monitoring and leisure boredom on adolescents' Internet addiction. *Adolescence*, 44(176), 993 – 1004.
- Lin, L., & Soby, M. (2016). Appearance comparison styles and eating disordered symptoms in women. *Eating Behaviours*, 23, 7 – 12. <https://doi.org/10.1016/j.eatbeh.2016.06.006>
- Lin, L. Y., Sidani, J. E., Shensa, A., Radovic, A., Miller, E., Colditz, J. B., ... & Primack, B. A. (2016). Association between social media use and depression among U.S. young adults. *Depression and Anxiety*, 33(4), 323–331. <https://doi.org/10.1002/da.22466>
- Lipsman, A., Mudd, G., Rich, M., & Bruich, S. (2012). The power of “like”: How brands reach (and influence) fans through social-media marketing. *Journal of Advertising Research*, 52(1), 40–52. <https://doi.org/10.2501/JAR-52-1-040-052>
- Lock, J. (2015). An update on evidence-based psychosocial treatments for eating disorders in children and adolescents. *Journal of Clinical Child & Adolescent Psychology*, 44(5), 707 – 721. <https://doi.org/10.1080/15374416.2014.971458>
- Lowes, J., & Tiggemann, M. (2003). Body dissatisfaction, dieting awareness and the impact of parental influence in young children. *British Journal of Health Psychology*, 8, 135–147. <https://doi.org/10.1348/135910703321649123>
- Luce, K. H., & Crowther, J. H. (1999). The reliability of the Eating Disorder

- Examination-Self-Report Questionnaire version (EDEQ). *International Journal of Eating Disorders*, 25, 349–351.
- 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.  
<http://dx.doi.org/10.1002/eat.22254>
- MacNeill, L. P., & Best, L. A. (2015). Perceived current and ideal body size in female undergraduates. *Eating Behaviors*, 18, 71 – 75.  
<https://doi.org/10.1016/j.eatbeh.2015.03.004>
- Magladry, M. (2018). *Fitspiration or fitsploitation? Postfeminism, digital media and authenticity in women’s fitness culture* (Unpublished doctoral dissertation). Curtin University, Perth, Australia.
- Manago, A. M., Graham, M. B., Greenfield, P. M., & Salimkhan, G. (2008). Self-presentation and gender on MySpace. *Journal of Applied Developmental Psychology*, 29(6), 446–458. <https://doi.org/10.1016/j.appdev.2008.07.00>
- Manovich, L. (2001). What is new media? *The New Media Theory Reader*, 5–10.  
Retrieved from: [https://dss-edit.com/plu/Manovich-Lev\\_The\\_Language\\_of\\_the\\_New\\_Media.pdf](https://dss-edit.com/plu/Manovich-Lev_The_Language_of_the_New_Media.pdf)
- Mantilla, E. F., & Birgegård, A. (2016). Eating disorder examination questionnaire: Norms and clinical reference data from adolescent boys and girls in Sweden. *Psychiatry Research*, 239, 156 – 162. <http://dx.doi.org/10.1016/j.psychres.2016.03.022>
- Maree, T. (2017). The Social Media Use Integration Scale: Toward reliability and validity. *International Journal of Human–Computer Interaction*, 33(12), 963 – 972.  
<https://doi.org/10.1080/10447318.2017.1301041>

- Markey, C. H., & Markey, P.M. (2009). Correlates of young women's interest in obtaining cosmetic surgery. *Sex Roles, 61*, 158-166. <https://doi.org/10.1007/s11199-009-9625-5>
- Markham, A., Thompson, T., & Bowling, A. (2005). Determinants of body-image shame. *Personality and Individual Differences, 38*(7), 1529 –1541. <https://doi.org/10.1016/j.paid.2004.08.018>
- Mayer, B., Muris, P., Freher, K. N., Stout, J., & Polak, M. (2012). Covariation bias for food-related control is associated with eating disorders symptoms in normal adolescents. *Journal of Behavior Therapy and Experimental Psychiatry, 43*, 1008 – 1013. <https://doi.org/10.1016/j.jbtep.2012.03.007>
- McAndrew, A. J., & Menna, R. (2017). Perceptions of disordered eating and associated help seeking in young women. *Eating Disorders: The Journal of Treatment and Prevention, 26*(2), 107 – 126. <https://doi.org/10.1080/10640266.2017.1318624>
- McCabe, M. P., & Ricciardelli, L. A. (2005). A longitudinal study of body image and strategies to lose weight and increase muscles among children. *Applied Developmental Psychology, 26*, 559–577. <https://doi.org/10.1016/j.appdev.2005.06.007>
- McCabe, M. P., Ricciardelli, L. A., & Finemore, J. (2002). The role of puberty, media and popularity with peers on strategies to increase weight, decrease weight and increase muscle tone among adolescent boys and girls. *Journal of Psychosomatic Research, 52*, 145 – 153. [https://doi.org/10.1016/S0022-3999\(01\)00272-](https://doi.org/10.1016/S0022-3999(01)00272-)
- McCreary Centre Society. Adolescent health survey II: province of British Columbia. Vancouver: The McCreary Centre Society; 1999. Retrieved from: <https://www.mcs.bc.ca/ahs>
- McCroskey, J. M., & McCain, T. A. (1974). The measurement of interpersonal attraction.

- Speech Monographs*, 41, 261–266. <https://doi.org/10.1080/03637757409375845>
- McDougall, M. A., Walsh, M., Wattier, K., Knigge, R., Miller, L., Stevermer, M., Fogas, B. S. (2016). The effect of social networking sites on the relationship between perceived social support and depression. *Psychiatry Research*, 246, 223 – 229.  
<http://dx.doi.org/10.1016/j.psychres.2016.09.018>
- McKinley, N. M., & Hyde, J. S. (1996). The Objectified Body Consciousness Scale: Development and validation. *Psychology of Women Quarterly*, 20, 181–215.  
<https://doi.org/10.1111/j.1471-6402.1996.tb00467.x>.
- McLean, S. A., Paxton, S. J., Wertheim, E. H., & Masters, J. E. (2015). Photoshopping the selfie: Self photo editing and photo investment are associated with body dissatisfaction in adolescent girls. *International Journal of Eating Disorders*, 48(8), 1132 – 1140.  
<https://doi.org/10.1002/eat.22449>
- McLean, S. A., Wertheim, E. H., & Paxton, S. J. (2018). Preferences for being muscular and thin in 6-year-old boys. *Body Image*, 26, 98 – 102.  
<https://doi.org/10.1016/j.bodyim.2018.07.003>
- McVey, G. L., Lieberman, M., Voorberg, N., Wardrobe, D., & Blackmore, E. (2003). School-based peer support groups : A new approach to the prevention of disordered eating. *Eating Disorders*, 11, 169–185. <https://doi.org/10.1080/10640260390218297>
- Meier, E. P., & Gray, J. (2014). Facebook photo activity associated with body image disturbance in adolescent girls. *Cyberpsychology, Behaviour, and Social Networking*, 14(4), 199-206. <http://dx.doi.org/10.1089/cyber.2013.0305>
- Melioli, T., Rodgers, R. F., Rodrigues, M., & Chabrol, H. (2015). The role of body image in the

- relationship between Internet use and Bulimic symptoms: Three theoretical frameworks. *Cyberpsychology, Behavior, and Social Networking*, 18(11), 682 – 686.  
<https://doi.org/10.1089/cyber.2015.0154>
- Mendelson, B. K., Mendelson, M. J., & White, D. R. (2001). Body Esteem Scale for Adolescents and Adults. *Journal of Personality Assessment*, 76(1), 90 – 106.  
[https://doi.org/10.1207/S15327752JPA7601\\_6](https://doi.org/10.1207/S15327752JPA7601_6)
- Mercurio, A., & Rima, B. (2011). Watching my weight: Self-weighing, body surveillance, and body dissatisfaction. *Sex Roles*, 65, 47 – 55. <https://doi.org/10.1007/s11199-011-9980-x>
- Meyer, D. F. (2001). Help-seeking for eating disorders in female adolescents. *Journal of College Student Psychotherapy*, 15(4), 23-36. [https://doi.org/10.1300/J035v15n04\\_04](https://doi.org/10.1300/J035v15n04_04)
- Meyer, D. F. (2005). Psychological correlates of help seeking for eating-disorder symptoms in female college students. *Journal of College Counseling*, 8(1), 20–30.  
<https://doi.org/10.1002/j.2161-1882.2005.tb00069.x>
- Mills, J. S., Polivy, J., McFarlane, T. L., & Crosby, R. D. (2012). The natural course of eating pathology in female university students. *Eating Behaviours*, 13(4), 297- 304.  
<http://doi.org/10.1016/j.eatbeh.2012.07.005>
- Miner-Rubino, K., Twenge, J. M., & Fredrickson, B. L. (2002). Trait self-objectification in women: Affective and personality correlates. *Journal of Research in Personality*, 36(2), 147–172. <https://doi.org/10.1006/jrpe.2001.2343>
- Mohr, H. M., Rickmeyer, C., Hummel, D., Ernst, M., & Grabhorn, R. (2016). Altered visual adaptation to body shape in eating disorders: Implications for body image distortion. *Perception*, 45(7), 725–738. <https://doi.org/10.1177/0301006616633385>
- Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. V. (2004b). Temporal

- stability of the eating disorder examination questionnaire. *International Journal of Eating Disorders*, 36(2), 195-203. <http://doi.org/10.1002/eat.20017>
- Moore, J. S. B., & Smith, M. (2018) Children's levels of contingent self-esteem and social and emotional outcomes. *Educational Psychology in Practice*, 34(2) 113-130, <http://doi.org/10.1080/02667363.2017.1411786>
- Moradi, B. & Huang, Y. P. (2008). Objectification theory and psychology women: A decade of advances and future directions. *Psychology of Women Quarterly*, 32, 377 – 398. <http://doi.org/10.1111/j.1471-6402.2008.00452.x>
- Moradi, B., & Varnes, J. R. (2017). Structure of the Objectified Body Consciousness Scale: Reevaluated 20 Years later. *Sex Roles*, 77, 325 – 337. <http://doi.org/10.1007/s11199-016-0731-x>
- Moreno, M. A., Jelenchick, L. A., & Breland, D. J. (2015). Exploring depression and problematic internet use among college females: A multisite study. *Computers in Human Behavior*, 49, 601–607. <https://doi.org/10.1016/j.chb.2015.03.033>
- Morrison, T. G., Kalin, R., & Morrison, M. A. (2004). Body-image evaluation and body-image investment among adolescents: A test of sociocultural and social comparison theories. *Adolescence*, 39(155), 571 – 592.
- Murnen, S. K., & Smolak, L. (2013). "I'd rather be a famous fashion model than a Famous scientist." The rewards and costs of internalizing sexualization. In Zurbriggen, E. L., Roberts, T.-A. (Eds.), *The sexualization of girls and girlhood: Causes, consequences, and resistance* (pp. 235–256). New York, NY: Oxford University Press.
- Myers, T. A., & Crowther, J. H. (2009). Social comparison as a predictor of body

- dissatisfaction: A meta-analytic review. *Journal of Abnormal Psychology*, 118(4), 683–698. <https://doi.org/10.1037/a0016763>
- Nagl, M., Jacobi, C., Paul, M., Beesdo-Baum, K., Höfler, M., Lieb, R., & Wittchen, H. U. (2016). Prevalence, incidence, and natural course of anorexia and bulimia nervosa among adolescents and young adults. *European Child and Adolescent Psychiatry*, 25(8), 903–918. <https://doi.org/10.1007/s00787-015-0808-z>
- Nakai, Y., Noma, S., Nin, K., Teramukai, S., & Wonderlich, S. A. (2015). Eating disorder behaviors and attitudes in Japanese adolescent girls and boys in high schools. *Psychiatry Research*, 230, 722–724. <http://dx.doi.org/10.1016/j.psychres.2015.09.045>
- Neumark-Sztainer, D., Wall, M., Guo, J., Story, M., Haines, J., & Eisenberg, M. (2006). Obesity, disordered eating, and eating disorders in a longitudinal study of adolescents: How do dieters fare 5 years later? *Journal of the American Dietetic Association*, 106(4), 559–568. <https://doi.org/10.1016/j.jada.2006.01.003>
- Neumark-Sztainer, D., Wall, M., Larson, N. I., Eisenberg, M. E., & Loth, K. (2011). Dieting and disordered eating behaviors from adolescence to young adulthood: Findings from a 10-year longitudinal study. *Journal of the American Dietetic Association*, 111(7), 1004–1011. <https://doi.org/10.1016/j.jada.2011.04.012>
- Neumark-Sztainer, D., Wall, M., Story, M., & Standish, A. R. (2012). Dieting and unhealthy weight control behaviors during adolescence: Associations with 10-year changes in body mass index. *Journal of Adolescent Health*, 50(1), 80–86. <https://doi.org/10.1016/j.jadohealth.2011.05.010>
- Nicholls, D. E., Lynn, R., & Viner, R. M. (2011). Childhood eating disorders: British

- national surveillance study. *The British Journal of Psychiatry*, 198(4), 295 – 301.  
<https://doi.org/10.1192/bjp.bp.110.081356>.
- Noll, S., & Fredrickson, B. (1998). A meditational model linking self-objectification, body shame, and disordered eating. *Psychology of Women Quarterly*, 22, 623–636.  
<https://doi.org/10.1111/j.1471-6402.1998.tb00181.x>
- Norman, J. M. (2017). *Implications of parenting behaviour and adolescent attachment for understanding adolescent sexting*. (Doctoral dissertation). Electronic Theses and Dissertations, Paper 7285. Retrieved from: <https://scholar.uwindsor.ca/etd/7285>
- Norwood, S. J., Bowker, A., Buchholz, A., Henderson, K. A., Goldfield, G., & Flament, M. F. (2011). Self-silencing and anger regulation as predictors of disordered eating among adolescent females. *Eating Behaviours*, 12, 112 – 118. <https://doi.org/10.1016/j.eatbeh.2011.01.009>
- O'Connor, B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instrumentation, and Computers*, 32, 396-402. <https://doi.org/10.3758/BF03200807>
- O'Keeffe, G. S., & Clarke-Pearson, K. (2011). The impact of social media on children, adolescents, and families. *Pediatrics*, 127(4), 800–804. <https://doi.org/10.1542/peds.2011-0054>
- Ophir, Y. (2017). SOS on SNS: Adolescent distress on social network sites. *Computers in Human Behaviour*, 68, 51 – 55. <http://dx.doi.org/10.1016/j.chb.2016.11.025>
- Overstreet, N. M., Quinn, D. M., & Agocha, V. B. (2010). "Beyond thinness: The influence of a curvaceous body ideal on body dissatisfaction in Black and White women": Erratum. *Sex Roles: A Journal of Research*, 63(9-10), 766. <https://doi.org/10.1007/s11199-010-9887-y>



- Patton, G. C., Selzer, R., Coffey, C., Carlin, J. B., & Wolfe, R. (1999). Onset of adolescent eating disorders: population based cohort study over 3 years. *BMJ (Clinical Research Ed.)*, 318(7186), 765–768. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC27789/pdf/765.pdf>
- Parker, S., Nichter, M., Nichter, M., Vuckovic, N., Sims, C., & Ritenbaugh, C. (1995). Body image and weight concerns among African American and White adolescent females: Differences that make a difference. *Human Organization*, 54(2), 103 –114. <https://doi.org/10.17730/humo.54.2.06h663745q650450>
- Parkinson, K. N., Tovée, M. J., & Cohen-Tovée, E. M. (1998). Body shape perceptions of preadolescent and young adolescent children. *European Eating Disorders Review*, 6(2), 126–135. [https://doi.org/10.1002/\(SICI\)1099-0968\(199806\)6:2<126::AID-ERV221>3.0.CO;2-L](https://doi.org/10.1002/(SICI)1099-0968(199806)6:2<126::AID-ERV221>3.0.CO;2-L)
- Paxton, S. J., Neumark-Sztainer, D., Hannan, P. J., & Eisenberg, M. E. (2006). Body dissatisfaction prospectively predicts depressive mood and low self-esteem in adolescent girls and boys. *Journal of Clinical Child and Adolescent Psychology*, 35(4), 539 – 549. [https://doi.org/10.12037/s15374424jccp3504\\_5](https://doi.org/10.12037/s15374424jccp3504_5)
- Penelo, E., Negrete, A., Portell, M., & Raich, R. M. (2013). Psychometric properties of the Eating Disorder Examination Questionnaire (EDEQ) and norms for rural and urban adolescent males and females in Mexico. *PLoS ONE*, 8(12), 1 – 11. <https://doi.org/10.1371/journal.pone.0083245>
- 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. <http://dx.doi.org/10.1007/s11199-014-0384-6>.

- Peterson, A. C., Crockett, L., Richards, M., & Boxer, A. (1988). A self-report measure of pubertal status: Reliability, validity, and initial norms. *Journal of Youth and Adolescence*, 17(2), 117 – 133. <http://dx.doi.org/10.1007/BF01537962>
- Piran, N. (1996). The reduction of preoccupation with body weight and shape in schools: A feminist approach. *Eating Disorders*, 4(4), 323-333. <http://dx.doi.org/10.1080/10640269608249192>
- Piran, N. (2015). New possibilities in the prevention of eating disorders: The introduction of positive body image measure. *Body Image*, 14, 146-157. <http://dx.doi.org/10.1016/j.bodyim.2015.03.008>
- Piran, N. (2017). *Journeys of embodiment at the intersection of body and culture: The developmental theory of embodiment*. Toronto, ON: Academic Press.
- Piran, N., Antoniou, M., Legge, R., McCance, N., Mizevich, J., Peasley, E., & Ross, E. (2006a). On girls' disembodiment: The complex tyranny of the 'ideal girl'. In D.L. Gustafson & L. Goodyear (Eds.), *Proceedings of the Women, Health, and Education: CASWE 6th BiAnnual International Institute*, (pp. 224–229). St John's, NL: Memorial University.
- Piran, N., & Cormier, H. C. (2005). The social construction of women and disordered eating patterns. *Journal of Counselling Psychology*, 52(4), 549-558. <http://dx.doi.org/10.1037/0022-0167.52.4.549>
- Piran, N., & Teall, T. (2012). The developmental theory of embodiment. In G. L. McVey, M. P. Levine, N. Piran, & H. B. Ferguson (Eds.), *Preventing eating-related and weight-related disorders: Collaborative research, advocacy, and policy change* (pp. 169– 198). Waterloo, ON: Wilfrid Laurier University Press.

- Polovick, M. (2017). *“Orange is the New Black”: The skin-tanning phenomenon and its influence on perceptions of race, class, and gender* (Unpublished master’s thesis). The College of Wooster, Wooster, Ohio.
- Prieler, M. & Choi, J. (2014). Broadening the scope of social media effect research on body image concerns. *Sex Roles*, 71, 378-388. <http://dx.doi.org/10.1007/s11199-014-0406-4>
- Quick, V. M., & Byrd-Bredbenner, C. (2012). Eating disorder examination questionnaire (EDEQ): Norms for US college students. *Eating and Weight Disorders*, 18(1), 29–35. <https://doi.org/10.1007/s40519-013-0015-1>
- Ramsey, L. R., & Horan, A. L. (2016). Picture this: Women's self-sexualization in photos on social media. *Personality and Individual Differences*. Advance online publication. <http://dx.doi.org/10.1016/j.paid.2017.06.022>
- Reddy-Best, K. L., Kane, L., Harmon, J., & Gagliardi, N. R. (2018). Critical perspectives on fashion textbooks: representations of race, gender, and body. *International Journal of Fashion Design, Technology and Education*, 11(1), 63-75. <https://doi.org/10.1080/17543266.2017.1299226>
- Rideout, V. J., Foehr, U. G., & Roberts, D. F. (2010). *Generation M2: Media in the lives of 8–18 year olds*. Retrieved from Kaiser Family Foundation website: <http://www.kff.org/entmedia/mh012010pkg.cfm>
- Ridders, W., Lawrence, D., Hafekost, J., & Zubrick, S. R. (2016). Internet use and electronic gaming by children and adolescents with emotional and behavioural problems in Australia – results from the second Child and Adolescent Survey of Mental Health and

- Wellbeing. *BMC Public Health*, 16(399), 1 – 16. <https://doi.org/10.1186/s12889-016-3058-1>
- Rø, O., Reas, D. L., & Lask, B. (2010). Norms for the Eating Disorder Examination Questionnaire among female university students in Norway. *Nordic Journal of Psychiatry*, 64(6), 428–432. <http://doi.org/10.3109/08039481003797235>
- Roberson III, R. B., Elliott, T. R., Chang, J. E., & Hill, J. N. (2014). Exploratory factor analysis in rehabilitation psychology: A content analysis. *Rehabilitation Psychology*, 59(4), 429 – 438. <https://doi.org/10.1037/a0037899>
- 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(5), 706 – 713. <http://dx.doi.org/10.1037/dev0000013>
- Rodgers, R.F., Donovan, E., Cousineau, T.M., Yates, K., McGowan, K., Cook, E., Lowy, A.S., & Franko, D.L. (2018). BodiMojo: Efficacy of a mobile-based intervention in improving body image and self-compassion among adolescents. *Journal of Youth and Adolescence*, 47, 1363-1372.
- Rodgers, R. F., McLean, S., & Paxton, S. J. (2019). When seeing is not believing: An examination of the mechanisms accounting for the protective effect of media literacy on body image. *Sex Roles*, 81, 87 – 96. <https://doi.org/10.1007/s11199-018-0973-x>
- Roefs, A., Jansen, A., Moresi, S., Willems, P., van Grootel, S., & van der Borgh, A. (2008). Looking good: BMI, attractiveness bias and visual attention. *Appetite*, 51, 552-555. <http://dx.doi.org/10.1016/j.appet.2008.04.008>
- Rohrich, R. J., & Cho, M. J. (2018). When is teenage plastic surgery versus cosmetic surgery

- okay? Reality versus hype: A systematic review. *Plastic and Reconstructive Surgery*, 142(3), 293e–302e. <https://doi.org/10.1097/PRS.00000000000004630>
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rousseau, A., & Eggermont, S. (2018). Media ideals and early adolescents' body image: Selective avoidance or selective exposure? *Body Image*, 26, 50 – 59. <https://doi.org/10.1016/j.bodyim.2018.06.001>
- Sahay, S. & Piran, N. (1997). Skin-colour preferences and body satisfaction among South Asian Canadian and European-Canadian female university students. *The Journal of Social Psychology*, 137(2), 161-171. <http://dx.doi.org/10.1080/0022454970 9595427>
- Salerno, L., Ingoglia, S., & Lo Coco, G. (2017). Competing factor structures of the Rosenberg Self-Esteem Scale (RSES) and its measurement invariance across clinical and non-clinical samples. *Personality and Individual Differences*, 113, 13 – 19. <http://dx.doi.org/10.1016/j.paid.2017.02.063>
- Sampasa-Kanyinga, H., & Hamilton, H. A. (2015a). Social networking sites and mental health problems in adolescents: The mediating role of cyberbullying victimization. *European Psychiatry*, 30(8), 1021 – 1027. <http://dx.doi.org/10.1016/j.eurpsy.2015.09.011>.
- Schaefer, L. M., Harriger, J. A., Heinberg, L. J., Soderberg, T., & Thompson, J. K. (2017). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire-4-Revised (SATAQ-4R). *International Journal of Eating Disorders*, 50, 104 – 117. <http://dx.doi.org/10.1002/eat.22590>
- Schaefer, L. M., Thibodaux, L. K., Krenik, D., Arnold, E., & Thompson, J. K. (2015).

- Physical appearance comparisons in ethnically diverse college women. *Body Image*, 15, 153 – 157. <http://dx.doi.org/10.1016/j.bodyim.2015.09.002>
- Schaefer, L. M., & Thompson, J. K. (2014). The development and validation of the Physical Appearance Comparison Scale-Revised (PACSR). *Eating Behaviours*, 15, 209 – 217. <http://dx.doi.org/10.1016/j.eatbeh.2014.01.001>
- Schneider, S., Weiß, M., Thiel, A., Werner, A., Mayer, J., Hoffmann, H., & Diehl, K. (2013). Body dissatisfaction in female adolescents: Extent and correlates. *European Journal of Pediatrics*, 172, 373-384. doi:10.1007/s00431-012-1897-z
- Schuck, K., Munsch, S., & Schneider, S. (2018). Body image perceptions and symptoms of disturbed eating behavior among children and adolescents in Germany. *Child and Adolescent Psychiatry and Mental Health*, 12(10), 1 – 11. <https://doi.org/10.1186/s13034-018-0216-5>
- Schwitzer, A., Rodriguez, L., Thomas, C., & Salimi, L. (2001). The eating disorders NOS diagnostic profile among college women. *Journal of American College Health*, 49(4), 157-166. <https://doi.org/10.1080/07448480109596298>
- Scott, H., Biello, S. M., & Cleland Woods, H. (2019). Social media use and adolescent sleep patterns: cross-sectional findings from the UK millennium cohort study. *BMJ Open*, 9(9), 1 – 9. <https://doi.org/10.1136/bmjopen-2019-031161>
- Sherlock, M., & Wagstaff, D. L. (2019). Exploring the relationship between frequency of Instagram use, exposure to idealized images, and psychological well-being in women. *Psychology of Popular Media Culture*, 8(4), 482–490. <https://doi.org/10.1037/ppm0000182>
- Shingala, M. C., & Rajyaguru, A. (2015). Comparision of post hoc tests for unequal variance.

- International Journal of New Technologies in Science and Engineering*, 2(5), 22 – 33.
- Shouse, S. H., & Nilsson, J. (2011). Self-silencing, emotional awareness, and eating behaviors in college women. *Psychology of Women Quarterly*, 35(3), 451–457. <https://doi.org/10.1177/0361684310388785>
- Shroff, H. & Thompson, J. K. (2006). Peer influences, body image dissatisfaction, eating dysfunction and self-esteem in adolescent girls. *Journal of Health Psychology*, 11(4), 533 – 551. <https://doi.org/10.1177/1359105306065015>
- Simpson, C. C., & Mazzeo, S. E. (2017). Skinny is not enough: A content analysis of fitspiration on Pinterest. *Health Communication*, 32(5), 560–567. <https://doi.org/10.1080/10410236.2016.1140273>
- Slater, A., & Tiggemann, M. (2002). A test of objectification theory in adolescent girls. *Sex Roles*, 46, 343–349. <https://doi.org/10.1023/A:1020232714705>
- Slater, A., & Tiggemann, M. (2010). Body image and disordered eating in adolescent girls and boys: A test of objectification theory. *Sex Roles*, 63, 42–49. <https://doi.org/10.1007/s11199-010-9794-2>
- Slater, A., & Tiggemann, M. (2014). Media exposure, extracurricular activities, and appearance-related comments as predictors of female adolescents' self-objectification. *Psychology of Women Quarterly*, 39(3), 1 – 15. <https://doi.org/10.1177/0361684314554606>
- Slater, A., Cole, N., & Fardouly, J. (2019). The effect of exposure to parodies of thin-ideal images on young women's body image and mood. *Body Image*, 29, 82 – 89. <https://doi.org/10.1016/j.bodyim.2019.03.001>
- Smink, F. R. E., Van Hoeken, D., & Hoek, H. W. (2012). Epidemiology of eating

- disorders: Incidence, prevalence and mortality rates. *Current Psychiatry Reports*, 14(4), 406–414. <https://doi.org/10.1007/s11920-012-0282-y>
- Sigerson, L., & Cheng, C. (2018). Scales for measuring user engagement with social network sites: A systematic review of psychometric properties. *Computers in Human Behaviour*, 83, 87 – 105. <https://doi.org/10.1016/j.chb.2018.01.023>
- Solmi, F., Hatch, S. L., Hotopf, M., Treasure, J., & Micali, N. (2014). Prevalence and correlates of disordered eating in a general population sample : the South East London Community Health ( SELCoH ) study, 1335–1346. <https://doi.org/10.1007/s00127-014-0822-3>
- Solomon-Krakus, S., Sabiston, C. M., Brunet, J., Castonguay, A. L., Maximova, K., & Henderson, M. (2017). Body image self-discrepancy and depressive symptoms among early adolescents. *Journal of Adolescent Health*, 60(1), 38 – 43. <https://doi.org/10.1016/j.jadohealth.2016.08.024>
- Statistics Canada. (2009). Canadian Internet Use Survey. Retrieved from: <http://www5.statcan.gc.ca/COR-COR/objList?lang=eng&srcObjType=SDDS& tgtObjType=CST &srcObjId=4432>
- Statistics Canada. (2016). General Social Survey: Canadians at Work and Home (GSS). Retrieved from: <https://www.statcan.gc.ca/pub/11-627-m/11-627-m2017032- eng.htm>
- Stein, K. F., Chen, D. G. D., Corte, C., Keller, C., & Trabold, N. (2013). Disordered eating behaviors in young adult Mexican American women: prevalence and associations with health risks. *Eating Behaviors*, 14(4), 476–483. <https://doi.org/10.1016/j.eatbeh.2013.08.001>
- Sterin, J. C., & Winston, T. (2017). *Mass media revolution*. New York, NY: Routledge.



- Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic eating behaviors in young adult Mexican American women: prevalence and associations with health risks. *Eating Behaviors*, 14(4), 476–483.  
<https://doi.org/10.1016/j.eatbeh.2013.08.001>
- Stice, E., Marti, C. N., & Rohde, P. (2013). Prevalence, incidence, impairment, and course of the proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of young women. *Journal of Abnormal Psychology*, 122(2), 445–457.  
<https://doi.org/10.1037/a0030679>.
- Strelan, P., & Hargreaves, D. (2005). Women who objectify other women: The vicious circle of objectification? *Sex Roles*, 52(9/10), 707 – 712. <https://doi.org/10.1007/s11199-005-3737-3>
- Striegel-Moore, R. H., & Bulik, C. M. (2007). Risk factors for eating disorders. *The American Psychologist*, 62(3), 181–198. <https://doi.org/10.1037/0003-066X.62.3.181>
- Sun, Q. (2018). Materialism, body surveillance, body shame, and body dissatisfaction: Testing a mediational model. *Frontiers in Psychology*, 9, 1 – 4. <https://doi.org/10.3389/fpsyg.2018.02088>
- Swami, V., Salem, N., Furnham, A., & Tovée, M. J. (2008). Initial examination of the validity and reliability of the female Photographic Figure Rating Scale for body image assessment. *Personality and Individual Differences*, 44(8), 1752 – 1761.  
<https://doi.org/10.1016/j.paid.2008.02.002>
- Swami, V., Stieger, S., Haubner, T., Voracek, M., & Furnham, A. (2009). Evaluating the

- physical attractiveness of oneself and one's romantic partner: Individual and relationship correlates of the love-is-blind bias. *Journal of Individual Differences*, 30(1), 35–43. <https://doi.org/10.1027/1614-0001.30.1.35>
- Swanson, S. A., Crow, S. J., Le Grange, D., Swendsen, J., & Merikangas, K. R. (2011). Prevalence and correlates of eating disorders in adolescents: Results from the national comorbidity survey replication adolescent supplement. *Archives of General Psychiatry*, 68(7), 714-723. <https://doi.org/10.1001/archgenpsychiatry.2011.22>.
- Sweeting, H., Walker, L., Maclean, A., Patterson, C., Raisanen, U., & Hunt, K. (2015). Prevalence of eating disorders in males: A review of rates reported in academic research and UK mass media. *International Journal of Men's Health*, 14(2), 1 – 27. <https://doi.org/10.3149/jmh.1402.86>
- Tabachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics (5th ed.). Needham Heights, Massachusetts: Allyn and Beacon.
- Tamplin, N.C., McLean, S.A., & Paxton, S.J. (2018). Social media literacy protects against the negative impact of exposure to appearance ideal social media images in young adult women but not men. *Body image*, 26, 29-37. <https://doi.org/10.1016/j.bodyim.2018.05.003>
- Tateno, M., Teo, A. R., Shirasaka, T., Tayama, M., Watabe, M., & Kato, T. A. (2016). Internet addiction and self-evaluated attention-deficit hyperactivity disorder traits among Japanese college students. *Psychiatry of Clinical Neuroscience*, 70(12), 567 – 572. <https://doi.org/10.1111/pcn.12454>
- Teall, T., & Piran, N. (2015, August). Embodied possibilities: Embodiment as a

- psychological construct and well-being. *Paper presented at the American Psychological Association Annual Convention.*
- Thompson, M. A., & Gray, J. J. (1995). Development and validation of a new body-image assessment scale. *Journal of Personality Assessment*, 64(2), 258–269.  
[https://doi.org/10.1207/s15327752jpa6402\\_6](https://doi.org/10.1207/s15327752jpa6402_6)
- Thompson, J. K., & Heinberg, L. J. (1999). The media's influence on body image disturbance and eating disorders: We've reviled them, now can we rehabilitate them? *Journal of Social Issues*, 55(2), 339–353. <https://doi.org/10.1111/0022-4537.00119>
- Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. Washington, DC, US: American Psychological Association.
- Thompson, J.K., Heinberg, L., & Tantleff, S. (1991). The Physical Appearance Comparison Scale. *The Behavior Therapist*, 14, 174
- Thompson, J. K., van den Berg, P., Roehrig, M., Guarda, A., & Heinberg, L. J. (2004). The Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3). *International Journal of Eating Disorders*, 35, 293-304. <https://doi.org/10.1002/eat.10257>
- Thurstone, L. L. (1947). Multiple factor analysis. Chicago: University of Chicago Press.
- 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* (2nd ed., pp. 12–19). New York: Guilford Press.
- Tiggemann, M., & Anderberg, I. (2019). Social media is not real: The effect of 'Instagram vs reality' images on women's social comparison and body image. *New Media and Society*, 1 – 17. <https://doi.org/10.1177/1461444819888720>

- Tiggemann, M., Anderberg, I., & Brown, Z. (2020). Uploading your best self: Selfie editing and body dissatisfaction. *Body Image*, 33, 175 – 182.  
<https://doi.org/10.1016/j.bodyim.2020.03.002>
- Tiggemann, M., & Brown, Z. (2018). Labelling fashion magazine advertisements: Effectiveness of different label formats on social comparison and body dissatisfaction. *Body Image*, 25, 97 – 102. <https://doi.org/10.1016/j.bodyim.2018.02.010>
- Tiggemann, M., & Miller, J. (2010). The internet and adolescent girls' weight satisfaction and drive for thinness. *Sex Roles*, 63(1), 79–90. <https://doi.org/10.1007/s11199-010-9789-z>
- Tiggemann, M. & Slater, A. (2013). NetGirls: The Internet, Facebook, and body image concern in adolescent girls. *International Journal of Eating Disorders*, 46, 630-633.  
<http://dx.doi.org/10.1002/eat.22141>
- Tiggemann, M. & Slater, A. (2014). NetTweens: The Internet and body image concerns in preteenage girls. *Journal of Early Adolescence*, 34(5), 606-620.  
<http://dx.doi.org/10.1177/0272431613501083>
- Tiggemann, M., & Slater, A. (2015). The role of self-objectification in the mental health of early adolescent girls: Predictors and consequences. *Journal of Pediatric Psychology*, 40(7), 704 – 711. <https://doi.org/10.1093/jpepsy/jsv021>
- Tiggeman, M., Slater, A., Bury, B., Hawkins, K., & Firth, B. (2013). Disclaimer labels on fashion magazine advertisements: Effects on social comparison and body dissatisfaction. *Body Image*, 10, 45-53. <http://dx.doi.org/10.1016/j.bodyim.2012.08.001>
- Tiggemann, M., & Williams, E. (2012). The role of self-objectification in disordered

- eating, depressed mood, and sexual functioning among women: A comprehensive test of objectification theory. *Psychology of Women Quarterly*, 36(1), 66–75.  
<https://doi.org/10.1177/0361684311420250>
- Tiggemann, M., & Zaccardo, M. (2015). “Exercise to be fit, not skinny”: The effect of fitspiration imagery on women’s body image. *Body Image*, 15, 61–67.  
<https://doi.org/10.1016/j.bodyim.2015.06.003>
- Tillman, K. S., Arbaugh, T., & Balaban, M. S. (2012). Campus programming for national eating disorders awareness week: An investigation of stigma, help-seeking, and resource knowledge. *Eating Behaviors*, 13(3), 281–284. <https://doi.org/10.1016/j.eatbeh.2012.03.010>
- Top, N. (2016). Socio-demographic differences in parental monitoring of children in late childhood and adolescents’ screen-based media use. *Journal of Broadcasting and Electronic Media*, 60(2), 195 – 212. <http://dx.doi.org/10.1080/08838151.2016.1164168>
- Turner, P. G., & Lefevre, C. E. (2017). Instagram use is linked to increased symptoms of orthorexia nervosa. *Eating and Weight Disorders*, 22, 277-284. <http://dx.doi.org/10.1007/s40519-017-0364-2>
- Twenge, J. (2017). *iGen: Why today’s super-connected kids are growing up less rebellious, more tolerant, less happy and completely unprepared for adulthood – and what that means for the rest of us*. New York, NY: Atria Books.
- Tylka, T., & Sabik, N. J. (2010). Integrating social comparison theory and self-esteem within objectification theory to predict women’s disordered eating. *Sex Roles*, 63, 18 – 31.  
<https://doi.org/10.1007/s11199-010-9785-3>
- Valkenburg, P. M., Peter, J., & Valkenburg, P. M. (2009). Social consequences of the

- Internet for adolescents: A decade of research. *Current Directions in Psychological Science*, 18(1), 1–5. <https://doi.org/10.1111/j.1467-8721.2009.01595.x>
- Vall, E., & Wade, T. D. (2015). Predictors of treatment outcome in individuals with eating disorders: A systematic review and meta-analysis. *International Journal of Eating Disorders*, 48(7), 946–971. <https://doi.org/10.1002/eat.22411>
- Vandereycken, W. (2006). Denial of illness in anorexia nervosa—a conceptual review: Part 1 diagnostic significance and assessment. *European Eating Disorders Review*, 14(5), 341–351. <https://doi.org/10.1002/erv.721>
- Vartanian, L. R. (2012). Self-discrepancy theory and body image. *Encyclopedia of Body Image and Human Appearance*, 2, 711–717. <https://doi.org/10.1016/B978-0-12-384925-0.00112-7>
- Volpe, U., Tortorella, A., Manchia, M., Monteleone, A. M., Albert, U., & Monteleone, P. (2016). Eating disorders: What age at onset? *Psychiatry Research*, 238, 225–227. <https://doi.org/10.1016/j.psychres.2016.02.048>
- Vuković, M. B., Lucić, M., & Štulhofer, A. (2018). Internet use associated body-surveillance among female adolescents: Assessing the role of peer networks. *Sexuality & Culture: An Interdisciplinary Quarterly*, 22(2), 521–540. <https://doi.org/10.1007/s12119-017-9480-4>
- Wade, T. D., Byrne, S., & Bryant-Waugh, R. (2008). The eating disorder examination: Norms and construct validity with young and middle adolescent girls. *International Journal of Eating Disorders*, 41(6), 551 – 558. <https://doi.org/10.1002/eat.20526>
- Walker, C. E., Krumhuber, E. G., Dayan, S., & Furnham, A. (2019). Effects of social media use on desire for cosmetic surgery young women. *Current Psychology*. <https://doi.org/10.1007/s12144-019-00282-1>

- Walker, M., Thornton, L., De Choudhury, M., Teevan, J., Bulik, C. M., Levinson, C. A...& Zerwas, S. (2015). Facebook use and disordered eating in college-aged women. *Journal of Adolescent Health, 57*, 157 -163. <http://dx.doi.org/10.1016/j.jadohealth.2015.04.026>
- Ward, L. M., Merriwether, A., & Caruthers, A. (2006). Breasts are for men: Media, masculinity ideologies, and men's beliefs about women's bodies. *Sex Roles, 55*, 703 – 714. <https://doi.org/10.1007/s11199-006-9125-9>
- Wartberg, L., Kriston, L., Bröning, S., Kegel, K., & Thomasius, R. (2017). Adolescent problematic Internet use: Is a parental rating suitable to estimate prevalence and identify familial correlates? *Computers in Human Behavior, 67*, 233–239. <https://doi.org/10.1016/j.chb.2016.10.029>
- Webb, J. B., Warren-Findlow, J., Chou, Y.-Y., & Adams, L. (2013). Do you see what I see? An exploration of inter-ethnic ideal body size comparisons among college women. *Body Image, 10*(3), 369 – 379. <https://doi.org/10.1016/j.bodyim.2013.03.005>
- Weiss, M. D., Baer, S., Allan, B. A., Saran, K., & Schibuk, H. (2011). The screens culture: Impact on ADHD. *Attention Deficit and Hyperactivity Disorders, 3*(4), 327–334. <https://doi.org/10.1007/s12402-011-0065-z>
- White, H. J., Haycraft, E., Goodwin, H., & Meyer, C. (2014). Eating disorder examination questionnaire: Factor structure for adolescent girls and boys. *International Journal of Eating Disorders, 47*(1), 99–104. <https://doi.org/10.1002/eat.22199>
- Wong W. I., Shi, S. Y., & Chen, Z. (2018). Students from single-sex schools are more gender-salient and more anxious in mixed-gender situations: Results from high school and college samples. *PLoS ONE, 13*(12): e0208707. <https://doi.org/10.1371/journal.pone.0208707>

- Woods, H. C., & Scott, H. (2016). #Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of Adolescence*, 51, 41–49. <https://doi.org/10.1016/j.adolescence.2016.05.008>
- Yau, J. C., & Reich, S. M. (2018). “It’s just a lot of work”: Adolescents’ self-presentation norms and practices on Facebook and Instagram. *Journal of Research on Adolescence*, 29(1), 196 – 209. <https://doi.org/10.1111/jora.12376>
- Young, S. D. & Jordan, A. H. (2013). The influence of social networking photos on social norms and sexual health behaviours. *Cyberpsychology, Behaviour, and Social Networking*, 16(4), 243- 247. <http://dx.doi.org/10.1089/cyber.2012.0080>
- Zaitsoff, S. L., Geller, J., & Srikameswaran, S. (2002). Silencing the self and suppressed anger: Relationship to eating disorder symptoms in adolescent females. *European Eating Disorders Review*, 10, 51-60.<http://dx.doi.org/10.1002/erv.418>
- Zhao, X., Salehi, N., Naranjit, S., Alwaalan, S., Volda, S., & Cosley, D. (2013). *The many faces of Facebook: Experiencing social media as performance, exhibition, and personal archive*. Session: Managing Social Media, CHI 2013: Changing Perspectives, Paris, France.



## APPENDICES

### Appendix A: Demographics Questionnaire

When is your birthday? Please give the month and year (e.g., April 2003).

My birthday is \_\_\_\_\_.

☐ Prefer not to say.

How old are you?

I am \_\_\_\_\_ years old.

☐ Prefer not to say.

With which gender do you most identify?

The gender which with I most identify is: \_\_\_\_\_.

☐ Prefer not to say.

What grade are you in?

I am in grade \_\_\_\_\_.

☐ Prefer not to say.

Please estimate your weight: \_\_\_\_\_ lbs

☐ Prefer not to say.

Please estimate your height: \_\_\_\_\_ feet \_\_\_\_\_ inches

☐ Prefer not to say.

Which ethnicity do you identify with the most?

- ☐ White / Caucasian
- ☐ Chinese
- ☐ South Asian (e.g., East Indian, Pakistani, Sri Lankan, etc.)
- ☐ Black
- ☐ Filipino
- ☐ Latin American
- ☐ Southeast Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese, etc.)
- ☐ Arab
- ☐ West Asian (e.g., Afghan, Iranian, etc.)
- ☐ Japanese
- ☐ Korean
- ☐ Aboriginal

- ☐ Other (please specify): \_\_\_\_\_  
☐ Prefer not to say.

In which country were you born?

- ☐ Canada  
☐ United States of America  
☐ Other: \_\_\_\_\_  
☐ Prefer not to say.

Are you currently receiving any counselling (professional mental health) services?

- ☐ Yes  
☐ No  
☐ Prefer not to say.

Have you ever received any counselling (professional mental health) services?

- ☐ Yes  
☐ No  
☐ Prefer not to say.

Have you ever been diagnosed with a psychological illness?

- ☐ Yes  
☐ No  
☐ Prefer not to say.

Do you currently have a psychological illness?

- ☐ Yes  
☐ No  
☐ Prefer not to say.

Have you ever been diagnosed with an eating disorder?

- ☐ Yes  
☐ No  
☐ Prefer not to say.

Do you currently have an eating disorder?

- ☐ Yes  
☐ No  
☐ Prefer not to say

## Appendix B: Other Social Media Use

The social media network that I use most often is: \_\_\_\_\_.

- ☐ Prefer not to say

How often do you check this network (even if you are logged in all day)?

- ☐ Not at all
- ☐ Every few days
- ☐ Once per day
- ☐ Every few hours
- ☐ Every hour
- ☐ Every 30 minutes
- ☐ Every 10 minutes
- ☐ Every 5 minutes
- ☐ I do not use social media
- ☐ Prefer not to say

Overall, how long do you spend on this network on a typical day?

- ☐ 5 minutes or less
- ☐ 15 minutes
- ☐ 30 minutes
- ☐ 1 hour
- ☐ 2 hours
- ☐ 3 hours
- ☐ 4 hours
- ☐ 5 hours
- ☐ 6 hours
- ☐ 7 hours
- ☐ 8 hours
- ☐ 9 hours
- ☐ 10 hours or more
- ☐ I do not use social media
- ☐ Prefer not to say

Please answer the following questions about your Instagram use. If you already identified Instagram as the social media network that you use most often, please skip the following two questions.

How often do you check Instagram (even if you are logged in all day)?

- ☐ Not at all
- ☐ Every few days
- ☐ Once per day
- ☐ Every few hours
- ☐ Every hour
- ☐ Every 30 minutes
- ☐ Every 10 minutes
- ☐ Every 5 minutes
- ☐ I do not use social media
- ☐ Prefer not to say

Overall, how long do you spend on Instagram on a typical day?

- ☐ 5 minutes or less

- ☐ 15 minutes
- ☐ 30 minutes
- ☐ 1 hour
- ☐ 2 hours
- ☐ 3 hours
- ☐ 4 hours
- ☐ 5 hours
- ☐ 6 hours
- ☐ 7 hours
- ☐ 8 hours
- ☐ 9 hours
- ☐ 10 hours or more
- ☐ I do not use social media
- ☐ Prefer not to say

Please answer the following questions about your Facebook use. If you already identified Facebook as the social media network that you use most often, please skip the following two questions.

How often do you check Facebook (even if you are logged in all day)?

- ☐ Not at all
- ☐ Every few days
- ☐ Once per day
- ☐ Every few hours
- ☐ Every hour
- ☐ Every 30 minutes
- ☐ Every 10 minutes
- ☐ Every 5 minutes
- ☐ I do not use social media
- ☐ Prefer not to say

Overall, how long do you spend on Facebook on a typical day?

- ☐ 5 minutes or less
- ☐ 15 minutes
- ☐ 30 minutes
- ☐ 1 hour
- ☐ 2 hours
- ☐ 3 hours
- ☐ 4 hours
- ☐ 5 hours
- ☐ 6 hours
- ☐ 7 hours
- ☐ 8 hours
- ☐ 9 hours
- ☐ 10 hours or more
- ☐ I do not use social media
- ☐ Prefer not to say

Please complete the following statements:

I would be happy if I received approximately \_\_\_\_\_ “Likes” on a photo that I posted on social media

I would be unhappy if I received approximately \_\_\_\_\_ “Likes” on a photo that I posted on social media

### Photo Based Social Media Use [Original Version]

How often do you use social media to...

	Never	Rarely	Sometimes	Often	Very Often	
... post photos or videos of yourself?	1	2	3	4	5	Prefer not to say
... post photos (or videos) of yourself with others (e.g., friends, family)?	1	2	3	4	5	Prefer not to say
... post photos (or videos) of others (e.g., friends or family) without you?	1	2	3	4	5	Prefer not to say
... post photos (or videos) of things other than yourself or other people (e.g., objects or events)?	1	2	3	4	5	Prefer not to say

How often do you use social media to...

	Never	Rarely	Sometimes	Often	Very Often	
...browse photos (or videos) of friends?	1	2	3	4	5	Prefer not to say
...browse photos (or videos) of celebrities?	1	2	3	4	5	Prefer not to say
...browse photos (or videos) of acquaintances (i.e., people you know of)?	1	2	3	4	5	Prefer not to say
...browse photos (or videos) of strangers (i.e., people you do not know at all)?	1	2	3	4	5	Prefer not to say

How often do you use social media to...

	Never	Rarely	Sometimes	Often	Very Often	
... read comments on photos (or videos) of others?	1	2	3	4	5	Prefer not to say

... comment on photos (or videos) of friends?	1	2	3	4	5	Prefer not to say
... comment on photos (or videos) of celebrities?	1	2	3	4	5	Prefer not to say
... comment on photos (or videos) of acquaintances (i.e., people you know of)?	1	2	3	4	5	Prefer not to say
... comment on photos (or videos) of strangers (i.e., people you do not know at all)?	1	2	3	4	5	Prefer not to say
How often do you use social media to...						
	Never	Rarely	Sometimes	Often	Very Often	
... “Like” photos (or videos) of friends?	1	2	3	4	5	Prefer not to say
... “Like” photos (or videos) of celebrities?	1	2	3	4	5	Prefer not to say
... “Like” photos (or videos) of acquaintances (i.e., people you know of)?	1	2	3	4	5	Prefer not to say
... “Like” photos (or videos) of strangers (i.e., people you do not know at all)?	1	2	3	4	5	Prefer not to say
When using social media, how often do you...						
	Never	Rarely	Sometimes	Often	Very Often	
...edit your photos using ‘filters’ provided by the app (before you post them)?	1	2	3	4	5	Prefer not to say
...edit your photos using editing tools provided by the app (e.g., brightness, contrast, saturation, etc.) before you post them?	1	2	3	4	5	Prefer not to say

...edit your photos using external apps (e.g., Photoshop, Facetune, etc.) before you post them?	1	2	3	4	5	Prefer not to say
... alter your figure/ body size (with apps or editing tools) before you post a photo of yourself?	1	2	3	4	5	Prefer not to say
... alter your facial features (with apps or editing tools) before you post a photo of yourself?	1	2	3	4	5	Prefer not to say
When using social media, how often do you...						
	Never	Rarely	Sometimes	Often	Very Often	
...take multiple versions of a photograph before deciding to post it on social media?	1	2	3	4	5	Prefer not to say
...ask others for their opinions on your photo before deciding to post it on social media?	1	2	3	4	5	Prefer not to say
... spend time thinking of photo captions before posting a photo on social media?	1	2	3	4	5	Prefer not to say
“... spend time planning your post before posting a photo on social media?”	1	2	3	4	5	Prefer not to say

Appendix C: Parts 2 and 3 – Self and Other Assessments

Task 1 Template [Self-Actual Assessment]

**I look like the ideal girl.**

Completely agree \_\_\_\_\_ Completely disagree

☐ Prefer not to say

**I would make changes to my appearance if I could.**

Completely agree \_\_\_\_\_ Completely disagree

☐ Prefer not to say

**My body is...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**I am...**

Very short \_\_\_\_\_ Very tall

☐ Prefer not to say

**My arms are...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**My thighs are...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**My abdomen is...**



Very fat	_____	Very thin
<input type="checkbox"/> Prefer not to say		
Completely lacking muscle tone	_____	Very muscular
<input type="checkbox"/> Prefer not to say		
<b>My breasts are...</b>		
Very small (flat)	_____	Very big
<input type="checkbox"/> Prefer not to say		
<b>My waist is...</b>		
Very narrow	_____	Very wide
<input type="checkbox"/> Prefer not to say		
<b>My hips are...</b>		
Very narrow	_____	Very wide
<input type="checkbox"/> Prefer not to say		
<b>My buttocks is...</b>		
Very small	_____	Very big
<input type="checkbox"/> Prefer not to say		
Completely lacking muscle tone	_____	Very muscular
<input type="checkbox"/> Prefer not to say		
<b>My hair is...</b>		
Very short	_____	Very long
<input type="checkbox"/> Prefer not to say		
Very curly	_____	Very straight
<input type="checkbox"/> Prefer not to say		
<b>My skin is...</b>		
Very white	_____	Very dark
<input type="checkbox"/> Prefer not to say		
<b>My nose is...</b>		

Very narrow \_\_\_\_\_ Very wide

☐ Prefer not to say

Very small \_\_\_\_\_ Very big

☐ Prefer not to say

**My lips are...**

Very thin \_\_\_\_\_ Very full

☐ Prefer not to say

**My eye colour is \_\_\_\_\_.**

☐ Prefer not to say

**My hair colour is \_\_\_\_\_.**

☐ Prefer not to say

Task 1 Template [Self-Ideal]

**I would like my body to be...**

Very fat \_\_\_\_\_

Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_  
muscle tone

Very muscular

☐ Prefer not to say

**I would like to be...**

Very short \_\_\_\_\_

Very tall

☐ Prefer not to say

**I would like my arms to be...**

Very fat \_\_\_\_\_

Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_  
muscle tone

Very muscular

☐ Prefer not to say

**I would like my thighs to be...**

Very fat \_\_\_\_\_

Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_  
muscle tone

Very muscular

☐ Prefer not to say

**I would like my abdomen to be...**

Very fat \_\_\_\_\_

Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_  
muscle tone

Very muscular

☐ Prefer not to say

**I would like my breasts to be...**

Very small (flat) \_\_\_\_\_

Very big

☐ Prefer not to say

**I would like my waist to be...**

Very narrow \_\_\_\_\_ Very wide

☐ Prefer not to say

**I would like my hips to be...**

Very narrow \_\_\_\_\_ Very wide

☐ Prefer not to say

**I would like my buttocks to be...**

Very small \_\_\_\_\_ Very big

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**I would like my hair to be...**

Very short \_\_\_\_\_ Very long

☐ Prefer not to say

Very curly \_\_\_\_\_ Very straight

☐ Prefer not to say

**I would like my skin to be...**

Very white \_\_\_\_\_ Very dark

☐ Prefer not to say

**I would like my nose to be...**

Very narrow \_\_\_\_\_ Very wide

☐ Prefer not to say

Very small \_\_\_\_\_ Very big

☐ Prefer not to say

**I would like my lips to be...**

Very thin \_\_\_\_\_ Very full

☐ Prefer not to say

**I would like my eye colour to be \_\_\_\_.**

☐ Prefer not to say

**I would like my hair colour to be \_\_\_\_.**

☐ Prefer not to say

Tasks 2, 3, 4 Templates [Other-Actual]

<div style="border: 1px solid black; width: 80%; margin: 0 auto; padding: 10px;"> <p>Frontal Photo [Confederate 1/2/3]</p> </div>	<div style="border: 1px solid black; width: 80%; margin: 0 auto; padding: 10px;"> <p>Side Photo [Confederate 1/2/3]</p> </div>
---	--

**She looks like the ideal girl.**

Completely agree \_\_\_\_\_ Completely disagree

☐ Prefer not to say

**She would make changes to her appearance if she could.**

Completely agree \_\_\_\_\_ Completely disagree

☐ Prefer not to say

**Her body is...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking muscle tone \_\_\_\_\_ Very muscular

☐ Prefer not to say

**She is...**

Very short \_\_\_\_\_ Very tall

☐ Prefer not to say

**Her arms are...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking muscle tone \_\_\_\_\_ Very muscular

☐ Prefer not to say

**Her thighs are...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**Her abdomen is...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**Her breasts are...**

Very small (flat) \_\_\_\_\_ Very big

☐ Prefer not to say

**Her waist is...**

Very narrow \_\_\_\_\_ Very wide

☐ Prefer not to say

**Her hips are...**

Very narrow \_\_\_\_\_ Very wide

☐ Prefer not to say

**Her buttocks is...**

Very small \_\_\_\_\_ Very big

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**Her hair is...**

Very short \_\_\_\_\_ Very long

☐ Prefer not to say

Very curly \_\_\_\_\_ Very straight

☐ Prefer not to say

**Her skin is...**

Very white \_\_\_\_\_ Very dark

☐ Prefer not to say

**Her nose is...**

Very narrow \_\_\_\_\_ Very wide

☐ Prefer not to say

Very small \_\_\_\_\_ Very big

☐ Prefer not to say

**Her lips are...**

Very thin \_\_\_\_\_ Very full

☐ Prefer not to say

**Her eye colour is \_\_\_\_\_.**

**Her hair colour is \_\_\_\_\_.**



Tasks 2, 3, 4 Templates [Other-Ideal]

<div style="border: 1px solid black; width: 80%; margin: 0 auto; padding: 10px;"> <p>Frontal Photo [Confederate 1/2/3]</p> </div>	<div style="border: 1px solid black; width: 80%; margin: 0 auto; padding: 10px;"> <p>Side Photo [Confederate 1/2/3]</p> </div>
---	--

**She would like her body to be...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**She would like to be...**

Very short \_\_\_\_\_ Very tall

☐ Prefer not to say

**She would like her arms to be...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**She would like her thighs to be...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**She would like her abdomen to be...**

Very fat \_\_\_\_\_ Very thin

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**She would like her breasts to be...**

Very small (flat) \_\_\_\_\_ Very big

☐ Prefer not to say

**She would like her waist to be...**

Very narrow \_\_\_\_\_ Very wide

☐ Prefer not to say

**She would like her hips to be...**

Very narrow \_\_\_\_\_ Very wide

☐ Prefer not to say

**She would like her buttocks to be...**

Very small \_\_\_\_\_ Very big

☐ Prefer not to say

Completely lacking \_\_\_\_\_ Very muscular  
muscle tone

☐ Prefer not to say

**She would like her hair to be...**

Very short \_\_\_\_\_ Very long

☐ Prefer not to say

Very curly \_\_\_\_\_ Very straight

☐ Prefer not to say

**She would like her skin to be...**

Very white \_\_\_\_\_ Very dark

☐ Prefer not to say

**She would like her nose to be...**

Very narrow \_\_\_\_\_ Very wide

☐ Prefer not to say

Very small \_\_\_\_\_ Very big

☐ Prefer not to say

**She would like her lips to be...**

Very thin \_\_\_\_\_ Very full

☐ Prefer not to say

**She would like her eye colour to be \_\_\_\_.**

☐ Prefer not to say

**She would like her hair colour to be \_\_\_\_.**

☐ Prefer not to say

### Task 5 Template

[Subjects randomly assigned to Idealized vs. Non-Idealized conditions (between subjects)]

<div style="border: 1px solid black; width: 80%; margin: 0 auto; padding: 10px;"><p>Idealized Condition Photo [Confederate 4]</p></div>	<div style="border: 1px solid black; width: 80%; margin: 0 auto; padding: 10px;"><p>Non-Idealized Condition Photo [Confederate 4]</p></div>
---	---

**She looks like the ideal girl.**

Completely agree \_\_\_\_\_ Completely disagree

☐ Prefer not to say

**She would make changes to her appearance if she could.**

Completely agree \_\_\_\_\_ Completely disagree

☐ Prefer not to say

How many 'Likes' would the girl in the photo receive if she were to post this photo on a social media account?

☐ \_\_\_\_\_

☐ Prefer not to say

## VITA AUCTORIS

NAME: Annamaria Janice McAndrew

PLACE OF BIRTH: Scarborough, ON

YEAR OF BIRTH: 1990

EDUCATION: St. John Henry Newman Catholic High School  
Scarborough, ON  
2004 – 2008

Queen's University  
BScH (Psychology)  
Kingston, ON  
2008 – 2013

University of Windsor  
MA, Clinical Psychology (Child)  
Windsor, ON  
2014 – 2016