

**Predictors and Outcomes of Positive Body Image in Young Women and Adolescent
Girls**

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Summary

The body image field has experienced a recent shift in focus to include the examination of positive, as opposed to negative, aspects of body image. However, as yet little is known about what predicts positive body image, and what outcomes result from possessing positive body image. Thus, the first aim of the current thesis was to investigate factors that might lead to positive body image (operationalised as body appreciation) in young women and adolescent girls. The second aim was to examine potential beneficial outcomes of positive body image, especially in the health domain. These aims were addressed in a series of studies utilising correlational, experimental and longitudinal research designs.

The thesis consists of five papers (three published, one accepted for publication and one under review). The first two studies addressed potential predictors and health behaviour outcomes of body appreciation in young women. Study 1 showed that less appearance media and more non-appearance media consumption and self-compassion predicted lower engagement in appearance processing, which along with perceived body acceptance by others, predicted body appreciation. Study 2 showed that body appreciation predicted more engagement in sun protection and skin screening, and less weight-loss behaviour, over and above levels of body dissatisfaction.

Study 3 experimentally investigated whether body appreciation could protect against thin-ideal media induced body dissatisfaction. Results showed that body appreciation was protective, such that women with low body appreciation experienced an increase in body dissatisfaction as a result of exposure to thin-ideal images, while those with high body appreciation did not. This paper also identified and investigated some specific media protective strategies.

Studies 4 and 5 examined positive body image in adolescent girls. Study 4 confirmed cross-sectionally a modified acceptance model of intuitive eating. Perceived body acceptance

by others was negatively related to both self-objectification and appearance comparison, both of which were negatively associated with body appreciation, which in turn was related to greater intuitive eating. Study 5 was a longitudinal follow-up, examining predictors and outcomes of body appreciation over a one-year time period. Findings supported a prospective modified acceptance model of intuitive eating, with body appreciation shown to be the strongest predictor of intuitive eating over one year. In addition, greater perceived body acceptance by others and less dieting was shown to prospectively predict body appreciation, and body appreciation prospectively predicted increased physical activity participation and decreased dieting, alcohol and cigarette use one year later.

Overall, the findings of the studies extend knowledge about factors predicting and stemming from positive body image. Accordingly, the results contribute to the theoretical and conceptual understanding of positive body image, as well as provide practical implications for interventions designed to enhance positive body image.

Declaration

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

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CHAPTER 1: General Introduction

Chapter Overview

This general introductory chapter aims to provide a brief background to positive body image research, with a view to setting the studies of the thesis within their theoretical and historical context. First, the development of positive body image as a distinct construct is outlined. Next, the research which had been conducted prior to the commencement of the current thesis is reviewed. The chapter concludes with the main aims and outline of the thesis.

Development of the Concept of Positive Body Image

Body image is a complex construct that refers to the multifaceted (e.g., perceptual, cognitive, affective and behavioural) experience of one's body, including physical appearance (Cash & Pruzinsky, 1990). Despite this broad conceptualisation, up until recently, body image theory and research had been largely pathology based and limited to investigations of body image dysfunction (Smolak & Cash, 2011). Positive body image was not previously examined independently, largely because it was conceptualised as existing at the opposite end of a continuum from negative body image, that is, as equivalent to body satisfaction (Tylka, 2011). This narrow research focus restricted the understanding of the multi-dimensional nature of body image and potential benefits of possessing positive body image. In the last decade, however, there has been a shift to broaden body image research to include positive and adaptive aspects. This may have been partially initiated by Cash and Pruzinsky (2002) in the first edition of the book, *Body Image: A Handbook of Theory, Research and Clinical Practice*. Here, scholars were challenged to direct research attention to the development and experience of positive body image. This call has been echoed more recently by Grogan (2008; 2010) and Smolak and Cash (2011).

In one of the first attempts to explore how positive body image differed from negative body image, Williams, Cash and Santos (2004) examined correlates of positive body image. In their study, women with positive body image, negative body image and normative body image discontent were identified based on cluster analysis. Results indicated that women with positive body image exhibited more appearance satisfaction, lower body image distress, and their body image had a more positive impact on their life than women with negative or normative body image discontent. Specifically, women with positive body image coped more adaptively with body image threats and engaged in less appearance fixing and avoidance. The positive body image group also reported less maladaptive eating behaviour, as well as higher optimism and self-esteem. This study provided insight into how positive body image was differentially associated with indicators of well-being, and was therefore separate from low or normal body dissatisfaction.

Around the same time, Avalos, Tylka and Wood-Barcalow (2005) published a seminal paper describing the development of a 13-item measure of one major aspect of positive body image, named body appreciation. This paper outlined how the Body Appreciation Scale (BAS) was constructed based on previous positive body image theorising to assess four aspects of body appreciation: a) possessing positive opinions about one's body; b) accepting one's body regardless of perceived flaws and objective weight and shape; c) showing respect for one's body by providing attention to bodily needs and engaging in healthy behaviours; and d) protection of body image through rejection of unrealistic thin-ideal media images. The scale was psychometrically evaluated and found to be reliable and valid in samples of college women. Importantly, body appreciation was found to be related to aspects of psychological well-being (e.g., self-esteem, optimism, proactive coping), above and beyond levels of negative body image. These findings provided support for the argument that positive body image (body appreciation) was more complex than low levels of negative

body image and thus deserved to be examined in its own right. Also indicative of the growing interest in positive body image, the first edition of Grogan's (1999) comprehensive text, *Body Image: Understanding Body Dissatisfaction in Men, Women and Children*, contained no chapter on positive body image, but by the second edition in 2008, this construct was viewed as important enough to warrant a specific chapter on its promotion (Grogan, 2008).

In their recent overview of the foundations and conceptualisation of positive body image, Tylka and Wood-Barcalow (2015a) identified two additional factors that drove increasing interest in the area. The first was the establishment of a new journal in 2004, *Body Image: An International Journal of Research*, which specifically encouraged submission of articles examining all (including positive and adaptive) aspects of body image. This gave researchers interested in studying positive body image reassurance that a journal would be receptive to their research (Tylka & Wood-Barcalow, 2015a). The second important factor was the inclusion of a chapter dedicated to positive body image (Tylka, 2011) in the second edition of *Body Image: A Handbook of Science, Practice, and Prevention* (Cash & Smolak, 2011), released almost 10 years after the first edition. This chapter was accompanied by an entry in the *Encyclopaedia of Body Image and Human Appearance* (Tylka, 2012).

In these latter two publications, Tylka (2011, 2012) described positive body image and outlined the rationale and evidence supporting its conceptualisation as a distinct construct. This was in part informed by qualitative research involving interviews with college-aged women and body image experts (Wood-Barcalow, Tylka, & Augustus-Horvath, 2010), and Swedish adolescent girls and boys (Frisén & Holmqvist, 2010). Some core features of positive body image identified were having love, respect and acceptance for one's body, appreciation for the body's uniqueness and function, broadly defining beauty, "filtering" information in a body protective manner, being media literate, having an awareness of one's physical needs and treating the body with care (Tylka, 2011, 2012).

Relationships between positive body image and environmental factors were also proposed to be reciprocal and bi-directional in nature. Tylka (2011, pp. 62-63) concluded by posing seven specific research questions in need of answer:

1. Whether qualitative studies would find similar characteristics associated with positive body image in men, different age groups and cultures.
2. Whether age, culture and other individual factors might influence expression of positive body image.
3. What makes “filtering” protective, and how does the transition from negative to positive body image occur.
4. What the strongest predictors and outcomes of positive body image are, utilising longitudinal studies.
5. Whether positive body image relates to detection of disease and physical self-care.
6. How positive body image might be fostered in overweight people who face weight discrimination.
7. Whether positive body image can prevent binge eating and eating in the absence of hunger.

These questions played a central role in the formulation of the aims and objectivities of the current thesis, and accordingly, several aspects of these questions were addressed. The questions were addressed by examining cross-sectional and longitudinal predictors and outcomes of positive body image (research question 4), exploring physical care and screening for disease as potential outcomes (question 5), testing whether positive body image is predictive of an adaptive style of eating (question 7), examining media-specific processing strategies potentially related to “filtering” (question 3), and expanding the examination of positive body image to adolescent girls (question 2).

Research in Adult Women

The publication of the BAS (Avalos et al., 2005) was the impetus for the expansion of research involving positive body image, as it provided researchers with a psychometrically sound tool with which to operationalise this aspect of body image. Since then, a number of correlational studies with adult female samples have reported significant associations between body appreciation and a range of positive psychological characteristics. These include greater self-compassion (Wasyliw, MacKinnon, & MacLellan, 2012), self-esteem (Swami, Stieger, Haubner, & Voracek, 2008), and optimism (Dalley & Vidal, 2013), and less attachment anxiety and avoidance, maladaptive perfectionism and depression (Iannantuono & Tylka, 2012). Body appreciation has also been shown to relate to greater perceived general unconditional acceptance (Augustus-Horvath & Tylka, 2011; Oh, Wiseman, Hendrickson, Phillips, & Hayden, 2012), perceived social support (Augustus-Horvath & Tylka, 2011), and perceived body acceptance by others (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Oh et al., 2012).

More general aspects of personality have also been investigated in relation to body appreciation in women. Body appreciation has been found to be positively associated with extraversion, conscientiousness (Swami, Hadji-Michael, & Furnham, 2008), and trait emotional intelligence (Swami, Begum, & Petrides, 2010), and negatively associated with neuroticism (Swami, Hadji-Michael, et al., 2008).

Finally, associations between body appreciation and aspects of negative body image have been examined. Studies have reported inverse relationships between body appreciation and thin-ideal and athletic-ideal internalisation (Swami, 2009; Swami et al., 2010; Swami et al., 2012). Negative associations between body appreciation and body dissatisfaction, drive for thinness, social physique anxiety, body image avoidance, body checking (Swami et al.,

2012), and self-objectification (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Oh et al., 2012) have also been demonstrated.

Although one proposed feature of positive body image and body appreciation is engagement in behaviours that benefit physical health (Avalos et al., 2005; Tylka, 2011, 2012), no health behaviours outside of intuitive eating had previously been examined. Intuitive eating refers to an adaptive style of eating that occurs in response to internal cues (Tribole & Resch, 1995; Tylka, 2006) and has been found to be positively associated with body appreciation in women (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Oh et al., 2012). One study also demonstrated a positive association between body appreciation and women's sexual functioning (Satinsky, Reece, Dennis, Sanders, & Bardzell, 2012).

Research in Adolescent Girls

Compared with adult women, considerably less research has examined the presentation of positive body image in adolescent girls. This is perhaps surprising given that adolescence is a period associated with substantial physical, cognitive and social change (Eccles, 1999), and in which there is a strong focus on appearance and weight control (Paxton et al., 1991). In particular, adolescent girls experience dramatic physical changes in body composition and shape, including increased fat deposits on areas such as the hips (Wertheim & Paxton, 2011). These changes move girls further away from society's narrowly defined view of beauty, i.e., the thin ideal (Calogero & Thompson, 2010), an appearance standard repeatedly communicated through various forms of media that girls consume (Levine & Chapman, 2011).

Two previous qualitative studies sought to explore positive body image in Swedish adolescent girls and boys. These studies found that adolescents with positive body image placed less emphasis on negative appearance comments (Frisén & Holmqvist, 2010), and were aware and critical of the media's unrealistic appearance ideals (Holmqvist & Frisé,

2012). The small amount of quantitative research that had examined body appreciation in adolescents before the current research commenced showed that in Spanish girls, body appreciation positively correlated with self-esteem and adaptive coping, and negatively related to disordered eating symptomatology (Lobera & Ríos, 2011; Lobera, Ríos, Fernández, & Casals Elsa Sánchez, 2011). These studies provided some initial insights, but further research examining the expression and trajectory of positive body image in adolescent girls was necessary.

Theoretical Models of Positive Body Image

After establishing empirical correlates of positive body image, the next step was to develop theoretical models. Thus far there have been three models involving positive body image that have been proposed. The first, the acceptance model of intuitive eating (Avalos & Tylka, 2006), proposes that perception of unconditional acceptance when growing up predicts greater perceived body acceptance by others, which in turn leads to greater emphasis on body function (i.e., lower self-objectification) and body appreciation. Body appreciation then directly predicts intuitive eating. This model has been confirmed in samples of undergraduate women (Avalos & Tylka, 2006), female college athletes (Oh et al., 2012), and young, early-adult and middle-aged women (Augustus-Horvath & Tylka, 2011). The confirmation of this model in several samples indicates that enhancing body appreciation may be one way to foster an adaptive and intuitive eating style in women.

Iannantuono and Tylka (2012) sought to test a specific empirical model of positive body image in college women. They postulated that certain interpersonal and intrapersonal factors would predict body appreciation, which in turn would influence depressive symptoms and intuitive eating. The findings indicated that less maladaptive perfectionism, eating-related caregiver messages and adult attachment anxiety were associated with greater body appreciation, which in turn was related to greater intuitive eating. Although body appreciation

was negatively correlated with depressive symptomatology, body appreciation did not contribute unique variance to depression after accounting for attachment anxiety and perfectionism.

Menzel and Levine (2011) put forth a model focusing on the ways in which positive body image might develop. Using competitive athletics as an example, engagement in embodying activities (i.e., activities that involve a mind-body connection) was proposed to influence positive body image, both directly and indirectly via decreased self-objectification. This model was recently supported in a sample of adult women who participated in one example of an embodying activity, namely, belly dance (Tiggemann, Coutts, & Clark, 2014). In this study, belly dance participants reported higher levels of body appreciation compared to non-belly dancers, a difference that was mediated by reduced self-objectification (Tiggemann et al., 2014).

The studies in the present thesis are situated at this point in time in relation to the progression of positive body image research. The three outlined models were useful in pinpointing potential predictors of positive body image, in particular, perceptions of body acceptance from other people, engagement in embodying activities and psychological variables. Intuitive eating was also identified as a potential outcome. Despite this, the range of potential predictors and outcomes that had been tested was still very limited. In particular, no health outcomes outside of intuitive eating had been examined. Likewise, minimal research had investigated the presentation of positive body image in groups other than young adult women. Thus, the research within the present thesis attempted to expand upon potential predictors and outcomes of positive body image, and to extend this examination to adolescent girls.

Subsequent to the completion of the studies presented in the thesis, the journal *Body Image* published a special issue in 2015 which focused on positive body image. This issue

highlighted the growing interest in positive and adaptive aspects of body image. Included were reviews of the foundation and conceptualisation of positive body image (Tylka & Wood-Barcalow, 2015a), the presentation of positive body image in special populations (Tiggemann, 2015), the potential utility of enhancing positive body image in the prevention of disordered eating (Piran, 2015) and treatment of disordered eating (Cook-Cottone, 2015), and future research directions (Halliwell, 2015).

In addition, the special issue presented the revision of the BAS, the Body Appreciation Scale-2 (BAS-2, Tylka & Wood-Barcalow, 2015b). The BAS-2 contains 10 items and measures positive body image more generally, including assessing body love and acceptance, broad definitions of beauty and the influence of inner positivity on outward behaviour (Tylka & Wood-Barcalow, 2015b). The authors also provided further evidence for the conceptualisation of positive body image as a distinct construct. Specifically, body appreciation (measured by the BAS-2) was found to account for unique variance in women's self-esteem, proactive coping, intuitive eating and disordered eating symptomatology, beyond levels of body dissatisfaction (Tylka & Wood-Barcalow, 2015b).

Aims of the Present Thesis

Despite the steady growth of positive body image research at the outset of the current thesis, literature was still in its infancy. Only a small number of potential predictors of positive body image had been identified. In addition, no research had examined positive health outcomes outside of intuitive eating. Finally, no quantitative studies had investigated the presentation of body appreciation in English-speaking adolescent girls.

The current thesis had two main aims. The first was to investigate predictors of positive body image in adult women and adolescent girls. This aim was addressed by examining both psychological variables and everyday activities as potential predictors of body appreciation in young women (Study 1) and in girls (Study 5). The second aim was to

examine whether possessing positive body image was beneficial for women and girls' well-being. Here, potential health outcomes, in terms of positive behaviours (e.g., using sun protection) and avoidance of harmful behaviours (e.g., cigarette smoking) were examined in both young women (Study 2) and adolescent girls (Study 4 and Study 5). Another potential outcome of positive body image, namely protection against media-induced body dissatisfaction, was investigated in young women (Study 3). Study 5 addressed the two aims with a prospective study of adolescent girls over a one-year time period. The use of a longitudinal design also allowed relationships to be tested for directionality (including bi-directionality).

Thesis Outline

The remainder of the thesis consists of six further chapters, reporting on five empirical studies. In each of the studies, positive body image was operationalised as body appreciation, as measured by the BAS (Avalos et al., 2005). The first three studies were conducted with young adult women. Chapter 2 presents the results of Study 1 which examined a range of potential predictors (everyday activities and psychological variables) of positive body image, as well as potential mechanisms. Chapter 3 presents the results of Study 2 which investigated health outcomes of positive body image (e.g., sun protection) in a sub-sample of young women from Study 1. Chapter 4 presents Study 3 which experimentally examined whether possessing positive body image protects against body dissatisfaction resulting from acute exposure to thin-ideal advertisements, undertaken with a smaller subset of women from Study 1.

Chapters 5 and 6 outline the results of a study involving a moderately large sample of adolescent girls. Chapter 5 contains a cross-sectional analysis of the acceptance model of intuitive eating (Avalos & Tylka, 2006), referred to as Study 4. Chapter 6 presents the

longitudinal follow-up, referred to as Study 5, examining predictors and outcomes of positive body image over a one-year time period.

Finally, Chapter 7 presents an integrated discussion of findings from the studies within the thesis, including their significance and contribution to the current literature. Both theoretical and practical implications are drawn.

All chapters have been formatted as manuscripts for publication. Three have been published (Chapters 3, 4 and 5), one has been accepted for publication (Chapter 6), and one is currently under review (Chapter 2). Each paper has been written in accord with individual journal requirements and so formatting may vary slightly. In addition, because the background information is largely similar for each study, there is some repetition in the Introduction and Discussion sections of the presented studies.

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CHAPTER 2: Study 1 - Predictors of Positive Body Image in Women

Predictors of Positive Body Image in Young Adult Women

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All authors were involved in the formulation of the study concept and design. Rachel Andrew collected the data, completed the data analysis and the initial draft of the manuscript. Marika Tiggemann and Levina Clark edited multiple revisions of the manuscript.

Abstract

This study aimed to examine a range of predictors of positive body image in young adult women. Participants were 266 women who completed an online questionnaire measuring body appreciation, sports and hobby participation, media consumption, perceived body acceptance, self-compassion and autonomy. Potential mechanisms in predicting body appreciation assessed were self-objectification, social appearance comparison and thin-ideal internalisation. Results indicated that greater perceived body acceptance and self-compassion, and lower appearance media consumption, self-objectification, social comparison and thin-ideal internalisation were related to greater body appreciation. An integrated structural model showed that appearance media (negatively) and non-appearance media and self-compassion (positively) were associated with lower self-objectification, social comparison and thin-ideal internalisation, which in turn were related to greater body appreciation. Additionally, perceived body acceptance shared a direct relationship with body appreciation. The results contribute to an understanding of the potential ways in which positive body image might develop, thereby highlighting intervention targets for fostering positive body image in women.

Key words: positive body image, body appreciation, predictors, structural equation modelling, young women

Body image is widely accepted to be a complex and multi-faceted construct (Pruzinsky & Cash, 2002). Increasingly, research is reflecting this understanding with a shift from a sole focus on the negative aspects of body image to a broader investigation of other facets, including positive body image (Tylka, 2011). Generally, positive body image can be defined as holding love, confidence, respect, appreciation and acceptance of one's physical appearance and abilities (Wood-Barcalow, Tylka, & Augustus-Horvath, 2010). Positive body image has been investigated thematically in qualitative studies (e.g., Bailey, Gammage, van Ingen, & Ditor, 2015; Frisén & Holmqvist, 2010; Holmqvist & Frisén, 2012; McHugh, Coppola, & Sabiston, 2014; Wood-Barcalow et al., 2010), but is now most often operationalised as body appreciation using the Body Appreciation Scale (BAS, Avalos, Tylka, & Wood-Barcalow, 2005; BAS-2, Tylka & Wood-Barcalow, 2015). The BAS measures positive opinions and acceptance of one's body, provision of attention to bodily needs and engagement in a style of cognitive processing that protects against potentially harmful body-image related messages (Avalos et al., 2005).

There is now considerable evidence linking body appreciation to a wide range of positive psychological constructs and indicators of good health. In women, body appreciation has been shown to be associated with factors related to well-being such as self-esteem, adaptive coping, life satisfaction, positive affect and optimism (Avalos et al., 2005; Dalley & Vidal, 2013; Swami, Stieger, Haubner, & Voracek, 2008; Tylka & Kroon Van Diest, 2013). Body appreciation is also related to positive health outcomes including intuitive eating (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Oh, Wiseman, Hendrickson, Phillips, & Hayden, 2012), sexual functioning (Satinsky, Reece, Dennis, Sanders, & Bardzell, 2012), and sun protection and cancer screening behaviours (Andrew, Tiggemann, & Clark, 2014; Gillen, 2015). In addition, experimental studies have demonstrated evidence of a

protective effect of body appreciation against media-induced body image dissatisfaction in young women (Andrew, Tiggemann, & Clark, 2015a; Halliwell, 2013).

Despite the increasing interest in positive body image, to date, only a handful of studies have examined predictors of positive body image. Yet the identification of predictors is important for both the theoretical conceptualisation of positive body image, as well as for locating potential points for intervention. Thus, the present study sought to examine a range of potential predictors, covering both everyday activities as well as several psychological variables. Some of the examined predictors were derived from existing models in the literature.

Menzel and Levine's (2011) embodiment model of positive body image contends that a key predictor is engaging in embodying activities (those that involve mind-body integration). Embodying activities are proposed to have both a direct effect on positive body image, as well as an indirect effect via reduced self-objectification (i.e., the adoption of an observer's perspective, Fredrickson & Roberts, 1997). Thus far, this model has been tested in women who participate in belly dance (one example of an embodying activity), who were shown to have higher body appreciation than non-belly dancers, mediated by reduced self-objectification (Tiggemann, Coutts, & Clark, 2014). Women who exercise for functional, health and enjoyment reasons (over appearance-based motivations) have also been shown to report greater body appreciation (Homan & Tylka, 2014; Tylka & Homan, 2015).

Accordingly, the first predictor tested in the current study was participation in sports and physical activities. In addition, Halliwell (2015) has proposed that participation in other activities that emphasise the mind-body connection and capabilities (e.g., playing a musical instrument) may also be related to positive body image. Thus, we also examined a range of engaging hobbies that allow individuals to be 'in' the body (Piran, 2002).

In addition to physical activities and hobbies, we wished to examine another type of everyday factor that might influence positive body image, namely media consumption. The mass media, including television, magazines and the internet, are a major source of messages regarding appearance standards and unhealthy beauty ideals, in particular the thin ideal (Levine & Chapman, 2011). Correlational and experimental research has shown that exposure to thin-ideal media images is linked to body image disturbance and endorsement of disordered eating (Grabe, Ward, & Hyde, 2008; Groesz, Levine, & Murnen, 2002). Therefore women who consume more media containing appearance messages (e.g., fashion magazines) would be expected to be more critical and less accepting of their own appearance and body. To date, greater exposure to Western media has been shown to be associated with lower body appreciation in British (Swami, Hadji-Michael, & Furnham, 2008), Malaysian (Swami, Kannan, & Furnham, 2012) and Zimbabwean women (Swami, Mada, & Tovée, 2012). On the other hand, consumption of media that are not focused on appearance (e.g., the news) might be protective of positive body image.

A range of psychological predictors were also investigated. The first, perceived body acceptance by others, has previously been investigated as part of the acceptance model of intuitive eating (Avalos & Tylka, 2006). In this model, perceived body acceptance by others is conceptualised as leading to increased body appreciation, and in turn, greater intuitive eating. Of particular relevance here, individuals who perceive that others accept their body as it is, despite any perceived flaws, are more likely to be accepting and appreciative of their own body (Avalos & Tylka, 2006). Cross-sectional examinations of the acceptance model of intuitive eating have shown that perceived acceptance of one's body by others predicts higher body appreciation, both directly and indirectly via reduced self-objectification and social comparison (Andrew, Tiggemann, & Clark, 2015b; Augustus-Horvath & Tylka, 2011;

Avalos & Tylka, 2006; Oh et al., 2012). Thus we included perceived body acceptance by others as a potential psychological predictor.

Two other psychological variables were also examined as potential predictors, namely, self-compassion and autonomy. Previous research has demonstrated a positive association between self-compassion and body appreciation in women (Albertson, Neff, & Dill-Shackleford, 2014; Wasyliw, MacKinnon, & MacLellan, 2012). Individuals with self-compassion treat themselves with non-judgemental kindness when personal inadequacies are brought to attention (Neff, 2003a). In relation to appearance, self-compassionate women who become aware of appearance-based shortcomings should respond with non-judgement and acceptance (Wasyliw et al., 2012). Thus, we should expect self-compassion to be predictive of greater body appreciation.

Autonomy was the final psychological variable to be examined as a predictor of positive body image. Autonomy has not previously been investigated in relation to body appreciation or to body image more generally. However, those who are self-determined and autonomous act on the basis of personal choice and not the influence of others (Deci & Ryan, 1985). Such individuals may be less receptive to outside negative appearance messages that emphasise beauty standards. In qualitative studies, adolescent girls and boys with positive body image report not placing importance on negative appearance comments (Frisén & Holmqvist, 2010) or societal appearance ideals (Holmqvist & Frisén, 2012). These qualitative findings may be indicative of a greater level of autonomy allowing independent evaluation of appearance messages, which may contribute to greater appreciation of one's body.

In order to better understand *how* different factors may lead to enhanced positive body image, the current study also sought to examine potential mechanisms involved in relationships between predictors and body appreciation. The three potential mechanisms tested were self-objectification, social appearance comparison and thin-ideal internalisation.

These three variables have been shown to be inter-correlated (e.g., Fitzsimmons-Craft et al., 2012), and all relate essentially to the importance placed on appearance or the way appearance is processed. Self-objectification refers to the surveillance and self-monitoring of one's own appearance from an outsider's perspective (Fredrickson & Roberts, 1997). Social appearance comparison involves gathering information for self-evaluation (Festinger, 1954) by assessing one's appearance against other people's appearance. Finally, thin-ideal internalisation refers to the adoption and incorporation of a thin-ideal appearance as a personal value system (Thompson & Stice, 2001). Importantly, body appreciation has previously been shown to be negatively associated with all the proposed mechanisms of self-objectification (e.g., Avalos & Tylka, 2006), social comparison (Andrew et al., 2015b; Homan & Tylka, 2015) and thin-ideal internalisation (Swami, 2009; Swami, Begum, & Petrides, 2010; Swami & Tovée, 2009).

Previous studies have also demonstrated significant relationships between the postulated predictors tested here and the three proposed mediating appearance processing mechanisms. Higher self-objectification has been shown to be associated with lower participation in sports in adolescent girls (Slater & Tiggemann, 2012), more appearance-based media consumption (e.g., Harper & Tiggemann, 2008), and also with lower perceived body acceptance by others (e.g., Augustus-Horvath & Tylka, 2011), self-compassion (Daye, Webb, & Jafari, 2014; Mosewich, Kowalski, Sabiston, Sedgwick, & Tracy, 2011) and autonomy (McKinley, 1999). Social comparison has been shown to be positively related to thin-ideal media exposure (Tiggemann & McGill, 2004), and negatively related to perceived body acceptance by others in adolescent girls (Andrew et al., 2015b), and self-compassion in adult women (Neff & Vonk, 2009). Finally, thin-ideal internalisation has been found to be positively associated with mass media consumption (see, Grabe et al., 2008; Levine & Murnen, 2009) and thinness pressure from family, friends, partners and the media (Tylka,

Russell, & Neal, 2015), and negatively associated with self-compassion (Tylka et al., 2015) and autonomy (Pelletier, Dion, & Lévesque, 2004).

In sum, the current study aimed to broaden the understanding of the ways in which positive body image might develop in young women by examining a range of predictors. Specific predictors examined were participation in sports and physical activities, engagement in hobbies, consumption of appearance and non-appearance media, and the psychological variables of perceived body acceptance by others, self-compassion and autonomy. In addition, we examined three other predictors conceptualised as potential mechanisms of influence in these relationships, namely, self-objectification, social comparison and internalisation of the thin ideal.

Method

Participants

Participants were 266 women aged 18 to 30 years ($M = 20.04$, $SD = 3.07$) who were undergraduate students at an urban university in South Australia. The majority of participants identified as Caucasian or White (88.8%), with 8.9% Asian, 0.4% Aboriginal or Torres Strait Islander, 0.4% African, and 1.5% identifying as an 'other' ethnicity.

Measures and Materials

Background information. Participants were asked to provide their age, height, weight, and ethnicity. Body mass index (BMI) was then calculated as $\text{weight [kg]} / \text{height}^2 [\text{m}^2]$.

Body appreciation. Body appreciation was measured with the Body Appreciation Scale (BAS) of Avalos et al. (2005). The BAS assesses the acceptance, respect, and attention given to one's bodily needs, and favourable opinions held for one's body. Participants rate 13 items on a 5-point scale (1 = *never*, to 5 = *always*). Items include "My self-worth is independent of my body shape or weight", and "I engage in healthy behaviours to take care

of my body”. Scores are averaged, ranging from 1 to 5 such that higher scores are indicative of greater body appreciation. The BAS has been found to conform to a unidimensional factor structure and has established good internal reliability ($\alpha = .91-.94$), three week test-retest reliability ($r = .90$), and convergent validity among U.S. college women (Avalos et al., 2005). A previous study with a sample of Australian women (Tiggemann & McCourt, 2013) found the BAS to have high internal reliability ($\alpha = .90$). The scale also had high internal reliability in the present sample ($\alpha = .93$).

Activities. Physical and other types of activities that women might engage in were assessed with a measure constructed for the study. Ten items addressed sports and physical activities (e.g., organised sports, running, hiking), and 10 items addressed hobbies or other engaging activities (e.g., playing a musical instrument, arts and crafts, volunteering). Participants indicated whether or not they engaged in each listed activity, and if so, how many sessions per week they engaged in that activity (frequency), and for how many minutes per session (duration). Time spent on each activity per week was calculated by multiplying each activity’s frequency by its duration. Time spent engaged in physical activities was calculated by totalling minutes spent on the 10 sporting and physical activities. Time spent on hobbies was calculated by totalling minutes spent on the 10 hobbies listed.

Media consumption. A set of eight items constructed for this study assessed media consumption. The first three questions examined magazine consumption. Participants were asked to rate how often they read “Fashion magazines (e.g., Grazia, Vogue)”, “Women’s magazines (e.g., Woman’s Day, Cleo)” and “Magazines that are not women’s magazines (e.g., House and Garden)”, on a 4-point scale (1 = *never*, 4 = *every time an issue comes out*). The remaining five items were rated on a 5-point scale (1 = *never*, 5 = *all the time*). The first two questions asked participants how often they view “Fashion websites/blogs/online material”, and how often they use “Social media (e.g., Facebook, Twitter, Youtube)”. Finally,

television viewing was assessed with three items asking participants to rate how often they watch “Soapies or dramas”, “Music television shows”, and “Information based shows (e.g., documentaries or the news)”. From these items, measures of total appearance and non-appearance media consumption were created. The measure of total appearance media summed the six items assessing consumption of fashion magazines, women’s magazines, fashion websites, social media, and watching soapies and music television. The two items measuring non-appearance media (reading magazines that are not women’s magazines and watching information based shows) were summed to create a measure of total non-appearance media consumption.

Body acceptance by others. Perceived body acceptance by others was measured using the Body Acceptance by Others Scale (BAOS, Avalos & Tylka, 2006). This scale assesses weight and shape acceptance from different sources (i.e., friends, family, dating partners, society and the media). We used six items to measure perceived acceptance of shape and weight from three sources: family, friends and people who they have dated. An example item is: “I’ve felt acceptance from my friends regarding my body shape and/or weight”. The six items were rated on a 5-point scale (1 = *never*, 5 = *always*), and were averaged with higher scores reflecting greater perceived acceptance of body weight and shape by others. In a sample of U.S. college women (Avalos & Tylka, 2006), the original scale was shown to have acceptable internal reliability ($\alpha = .90$). This was also the case in the current sample ($\alpha = .86$).

Self-compassion. Self-compassion was assessed by the Self-Compassion Scale-Short Form (SCS-SF, Raes, Pommier, Neff, & Van Gucht, 2011). Participants rate 12 items on a 5-point scale (1 = *almost never*, 5 = *almost always*), with higher scores representing greater self-compassion. An example item is: “I try to be understanding and patient towards those aspects of my personality I don’t like”. The SCS-SF total score has been shown to have good internal consistency ($\alpha = .86$) and near perfect correlation ($r = .98$) with the long version of

the Self-Compassion Scale (SCS, Raes et al., 2011). The SCS has been shown to have acceptable construct validity, and to not significantly correlate with a measure of social desirability (Neff, 2003b). Internal reliability in the current sample was acceptable ($\alpha = .85$).

Autonomy. Autonomy was measured with a 5-item measure of emotional autonomy (Noom, Dekovic, & Meeus, 2001). The scale measures degree of perceived independence, self-confidence and individuality. Participants rated the five items (e.g., “When I disagree with others, I tell them”) on a 5-point scale (1 = *this is a very bad description of me*, 5 = *this is a very good description of me*). Convergent and divergent validity have been demonstrated for this scale, with a stronger significant positive correlation with internal locus of control compared to significant correlations with perceptions of institutional goals and active coping (Noom et al., 2001). Although Noom et al. (2001) reported a low Cronbach’s alpha ($\alpha = .60$) with adolescents, a higher (and acceptable) internal reliability was found in the current study ($\alpha = .77$).

Self-objectification. Self-objectification was assessed with the Body Surveillance Subscale of the Objectified Body Consciousness Scale (OBCS, McKinley & Hyde, 1996). The subscale measures the extent of monitoring one’s body and thinking of it in terms of appearance as opposed to how it feels (McKinley & Hyde, 1996). Eight items (e.g., “I think more about how my body feels than how my body looks”) are rated on a 7-point scale (1 = *strongly agree*, 7 = *strongly disagree*), with a ‘NA’ (not applicable) option available. Scores range from 8 to 56, with higher scores indicative of higher self-surveillance. The scale has been shown to have good construct, convergent and discriminant validity, and good internal consistency ($\alpha = .89$) with undergraduate women (McKinley & Hyde, 1996). Internal reliability was similar in the current sample ($\alpha = .82$).

Social appearance comparison. Social appearance comparison was assessed with the Physical Appearance Comparison Scale (PACS, Thompson, Heinberg, & Tantleff-Dunn,

1991). Participants rate five items measuring tendency to compare overall appearance with other people's appearance on a 5-point scale (1 = *never*, 5 = *always*). An exemplar item is: "In social situations, I sometimes compare my figure to the figures of other people". Internal consistency has been shown to be acceptable ($\alpha = .78$) in a female university sample (O'Brien, Hunter, Halberstadt, & Anderson, 2007), as was the case in the current sample ($\alpha = .74$).

Thin-ideal internalisation. Endorsement and acceptance of media messages regarding unrealistic beauty ideals was assessed by the Internalization Scale of the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ, Heinberg, Thompson, & Stormer, 1995). Participants rate eight items on a 5-point scale (1 = *completely disagree*, 5 = *completely agree*). An exemplar item is: "I wished I looked like a swimsuit model". The subscale has demonstrated good convergent validity and internal consistency ($\alpha = .88$, Heinberg et al., 1995). For the present sample, internal reliability was high ($\alpha = .90$).

Procedure

The present study was approved by the relevant institutional ethics committee. After reading an information sheet, participants completed an online questionnaire hosted on a secure website which contained the measures listed above. Participant consent was indicated by completion of the questionnaire. Participants were awarded course credit for their participation, and were provided with a debriefing letter after data collection was complete.

Results

Characteristics of the Sample

Participants were women aged between 18 to 30 years, with a mean age of 20.04 years ($SD = 3.07$). Participants' mean self-reported body mass index (BMI) was 23.22 ($SD = 4.65$), which falls within the 'normal range' for adult women (World Health Organization, 2015).

The Relationship between Proposed Predictors, Mediators, and Body Appreciation

Table 1 presents the correlations between proposed predictors and mediators, with body appreciation. As can be seen in the first column, appearance media (negatively), and perceived body acceptance by others and self-compassion (both positively) were significantly correlated with body appreciation. Participation in sports and hobbies, non-appearance media and autonomy were not significantly related to body appreciation. In addition, all three proposed mediators were inter-correlated and were individually negatively correlated with body appreciation.

Table 1

Correlations between proposed predictors, mechanisms, and body appreciation

| | Body appreciation | Mediators | | |
|---------------------------------|-------------------|----------------------|-------------------|----------------------------|
| | | Self-objectification | Social comparison | Thin-ideal internalisation |
| <i>Everyday predictors</i> | | | | |
| Sports and physical activities | .06 | -.16* | -.08 | -.03 |
| Hobbies and other activities | .02 | -.03 | -.04 | -.09 |
| Appearance media | -.16* | .37** | .25** | .35** |
| Non-appearance media | .10 | -.15* | -.15* | -.14* |
| <i>Psychological predictors</i> | | | | |
| Perceived body acceptance | .39** | -.10 | -.14* | -.13* |
| Self-compassion | .53** | -.38** | -.37** | -.33** |
| Autonomy | .05 | -.13* | -.23** | -.18* |
| <i>Mediators</i> | | | | |
| Self-objectification | -.47** | - | .60** | .56** |
| Social comparison | -.39** | | - | .60** |
| Thin-ideal internalisation | -.51** | | | - |

* $p < .05$. ** $p < .001$.

The table also shows relationships between predictors and the proposed mediators. As can be seen, participation in sports was negatively correlated with self-objectification, but no other proposed mediating variable, and engagement in hobbies was not significantly related to any proposed mediating variable. On the other hand, appearance media was correlated positively, while non-appearance media was correlated negatively, with all three proposed mediators. Perceived body acceptance by others was negatively related to social comparison and thin-ideal internalisation, but was not significantly related to self-objectification. Finally, both self-compassion and autonomy were negatively correlated with all three mediator variables.

Tests of Indirect Effects of Predictors on Body Appreciation via Proposed Mechanisms

Bootstrapping of 5000 samples using PROCESS macros (Hayes, 2013) was used to examine indirect (mediating) effects of proposed predictor variables on body appreciation via self-objectification, social comparison and thin-ideal internalisation. In this approach mediation is deemed significant if the 95% bias-corrected confidence interval (CI) of the indirect path does not contain zero. Individual tests of mediation were performed for each predictor variable on body appreciation, separately for each of the three proposed mediators.

For sports, results showed that there was a significant indirect effect on body appreciation via self-objectification, $b = .003$, CI [.001, .006], but not via social comparison, $b = .001$, CI [-.001, .003] or thin-ideal internalisation, $b = .000$, CI [-.002, .003]. For hobbies, there were no significant indirect effects on body appreciation (self-objectification, $b = .000$, CI [-.000, .001]; social comparison, $b = .000$, CI [-.000, .001]; thin-ideal internalisation $b = .001$, CI [-.000, .001]). For appearance media, significant indirect effects on body appreciation were found via self-objectification, $b = -.034$, CI [-.050, -.021], social comparison, $b = -.018$, CI [-.030, -.009] and thin-ideal internalisation, $b = -.037$, CI [-.053, -.023]. The same pattern (but in the opposite direction) was found for indirect effects of non-

appearance media on body appreciation (self-objectification, $b = .036$, CI [.007, .071]; social comparison, $b = .030$, CI [.006, .065]; thin-ideal internalisation, $b = .040$, CI [.004, .082]).

For the psychological variables, significant indirect effects of perceived body acceptance by others on body appreciation were found through social comparison, $b = .043$, CI [.007, .090], and thin-ideal internalisation, $b = .057$, CI [.001, .117], but not self-objectification, $b = .043$, CI [-.006, .101]. There were significant indirect effects of self-compassion on body appreciation via all of self-objectification, $b = .126$, CI [.070, .197], social comparison, $b = .086$, CI [.039, .151] and thin-ideal internalisation, $b = .138$, CI [.083, .207]. Autonomy also indirectly influenced body appreciation via social comparison, $b = .084$, CI [.037, .153] and thin-ideal internalisation, $b = .088$, CI [.023, .167], but not self-objectification, $b = .057$, CI [-.001, .120].

Test of an Integrated Model Predicting Body Appreciation

In order to integrate the findings, an overall structural model predicting body appreciation was constructed (See Figure 1). Participation in hobbies was not included because of the lack of significant correlations with any other variable. Because the three proposed mediating variables were highly inter-correlated (Table 1), they were taken as indicators of one latent variable, here called appearance processing. All other variables were measured variables. The model was examined using the maximum likelihood method of structural equation modelling (AMOS v.22). Mean substitution was used to replace the small amount of missing data. As recommended by Hu and Bentler (1999), the comparative fit index (CFI), the Tucker-Lewis index (TLI), the standardised root-mean square residual (SRMR), and the root-mean square error of approximation (RMSEA) were used to evaluate adequacy of model fit to the data. Values of .95 or higher for CFI and TLI, and .08 and .06 or lower for SRMR and RMSEA respectively, are indicative of a good fit (Hu & Bentler, 1999).

Values of .90-.94 for CFI and TLI, .09-.10 for SRMR and .07-.10 for RMSEA indicate acceptable model fit.

The fit indices for the initially tested model suggested a less than acceptable fit to the data: $\chi^2 = 103.57$, $df = 32$, $p = < .001$, CFI = .87, TLI = .82, SRMR = .06, RMSEA = .09. Modification indices indicated a direct path from perceived body acceptance to body appreciation. This same direct pathway has been included in previous studies (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Oh et al., 2012). With the addition of this direct path, the fit indices moved to an overall acceptable fit: $\chi^2 = 69.49$, $df = 31$, $p = < .001$, CFI = .93 (acceptable), TLI = .90 (acceptable), SRMR = .05 (good), RMSEA = .07 (acceptable). The structural coefficients for the model are presented in Figure 1. As can be seen, consumption of appearance media (positively), non-appearance media (negatively) and self-compassion (negatively) predicted appearance processing. Engagement in appearance processing in turn negatively predicted body appreciation. Perceived body acceptance by others did not have an indirect effect through appearance processing, but did directly predict body appreciation. In the integrated model, participation in sports and autonomy were not predictive of appearance processing or body appreciation.

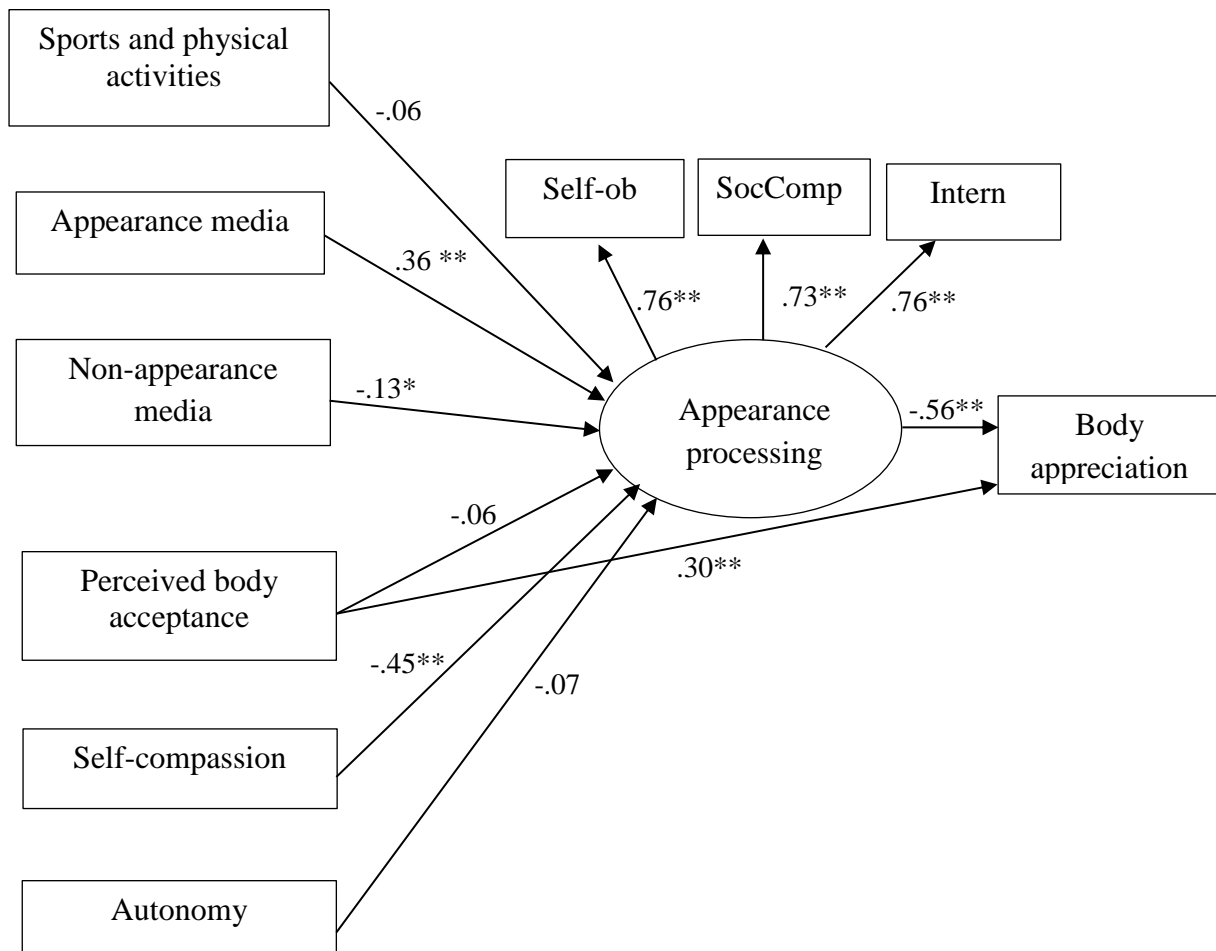


Figure 1. Factor loadings and path coefficients for the final structural model. Self-ob = Self-objectification; SocComp = Social comparison; Intern = Thin-ideal internalisation.

* $p < .05$. ** $p < .001$.

Discussion

The present study sought to expand upon the current understanding of factors that predict positive body image in young women. Specifically, the study examined participation in sports and hobbies, media consumption and psychological variables as predictors of body appreciation, as well as potential mechanisms involved in these relationships. Our first finding was that body appreciation was significantly related to a range of potential predictors, specifically greater perceived body acceptance by others and self-compassion, and lower

appearance media consumption, self-objectification, social comparison and thin-ideal internalisation. The integrated model indicated that lower appearance media and greater non-appearance media consumption and self-compassion predicted lower appearance processing (consisting collectively of self-objectification, social comparison and thin-ideal internalisation), which in turn predicted higher body appreciation. Greater perceived body acceptance by others also directly predicted higher body appreciation.

One contribution of the current study was the examination of everyday activities, including participation in sports and hobbies, as predictors of positive body image. Contrary to expectations, neither participation in sports or hobbies was found to be significantly related to body appreciation. It may be that the full range of activities relevant to women's body appreciation was not captured adequately in this study. It is also possible that women's earlier experiences with sports and other engaging activities may be more important for current body appreciation. Young women's participation in sports during childhood and adolescence have previously been shown to be a stronger predictor of body image concerns than current activity levels (Slater & Tiggemann, 2006). Nevertheless, the current study did find that engagement in sports and physical activity was related to lower self-objectification, in accord with a previous study showing an association between adolescent girls' participation in organised sports and lowered self-objectification one year later (Slater & Tiggemann, 2012). Greater sports and physical activity participation also indirectly influenced body appreciation via lowered levels of self-objectification, in accord with Tiggemann et al.'s (2014) test of the embodiment model of positive body image for female belly dance participants.

The current study also examined the relationship between body appreciation and another type of everyday activity, namely media consumption, which surprisingly has received minimal previous research attention. The present study's finding that women who reported that they consumed more appearance media also reported lower body appreciation

parallels the large amount of evidence demonstrating negative effects of exposure to appearance media on body image disturbance (Grabe et al., 2008; Groesz et al., 2002). Women's exposure to both appearance and non-appearance media was related, in opposite directions, to self-objectification, social comparison and thin-ideal internalisation, and also influenced body appreciation via these processes. The current study's finding of an indirect effect of non-appearance media on body appreciation is novel. Based on these findings, future research investigating whether watching news, documentaries or other types of non-appearance media sources may be protective for body appreciation is warranted. More generally, future studies may wish to pay particular attention to how internet-based media impacts positive body image, given that the internet is the most common source of media exposure for contemporary young women (Bair, Kelly, Serdar, & Mazzeo, 2012).

Our examination of potential predictors of body appreciation included the psychological variables of perceived body acceptance by others, self-compassion and autonomy. Results indicated that greater perceived body acceptance and self-compassion (but not autonomy) were associated with greater body appreciation. As shown in previous samples (Andrew et al., 2015b; Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Oh et al., 2012), women who perceived more acceptance regarding shape and weight from those closest to them also reported greater respect and appreciation for their body. The positive association between self-compassion and body appreciation also replicates previous findings (Albertson et al., 2014; Wasylikiw et al., 2012). Self-compassion might be particularly relevant in predicting body appreciation because the self-acceptance and non-judgemental stance associated with self-compassion should translate to greater acceptance of one's own appearance. A recent study found that women who engaged in self-compassion meditation training reported increased body appreciation compared to a control condition (Albertson et al., 2014). Albertson et al. (2014) suggested that self-compassion training may operate by

allowing women to be less critical of their body, to increase awareness of body diversity and the consequences of comparisons, and to be more mindful of narrow appearance ideals, suggestions which are all closely linked to decreasing the appearance processing mediators tested in the present study.

The current study investigated whether self-objectification, social comparison and thin-ideal internalisation would act as mediating mechanisms in the relationships between potential predictors and body appreciation. As expected, reduced levels of self-objectification, social comparison and thin-ideal internalisation were themselves related to higher levels of body appreciation. Conceptualising these proposed mediators as indicators of appearance processing, the integrated model indicated that consuming less appearance focussed media and greater non-appearance media, and self-compassion predicted greater body appreciation via less engagement in appearance processing. Taken together, these findings replicate and expand the small number of explanatory mechanisms that have been tested within models of positive body image. In particular, the findings of the current study demonstrate a mediating role for social comparison in the prediction of body appreciation, a finding previously only shown in adolescent girls (Andrew et al., 2015b). They also highlight internalisation of the thin ideal as a new mediating pathway.

The results of the current study have a number of practical implications. Although not individually associated with body appreciation, women's participation in sports and physical activity did influence their body appreciation via reduced self-objectification. This finding supports previous recommendations to encourage women and girls to engage in physical activities that emphasise body function as opposed to appearance (Tiggemann et al., 2014; Tylka, 2012). Results also suggest that increased interest in and exposure to non-appearance media, such as documentaries, may be another step that might foster body appreciation. This may prove a less challenging task than attempting to reduce exposure to the more pervasive

appearance-based media (Levine & Chapman, 2011). Finally, interventions might consider targeting what we have broadly termed appearance processing to assist in the promotion of body appreciation. This would involve consciously rejecting the thin ideal and working to not monitor or compare one's outward appearance with others. This strategy might be a component of the "protective filtering" (Wood-Barcalow et al., 2010) which has been shown to be important for positive body image in qualitative studies (Frisén & Holmqvist, 2010; Holmqvist & Frisén, 2012; Wood-Barcalow et al., 2010). In addition, a recent dissonance-based intervention with adolescent girls that included rejection of the thin ideal demonstrated improvements in body appreciation (Halliwell, Jarman, McNamara, Risdon, & Jankowski, 2015).

There are several limitations of the current study that should be acknowledged. First, our sample was limited to young, mainly Caucasian college women in Australia, and therefore findings may not generalise to other populations in other settings. Future research should sample more diverse participants in terms of age, ethnicity and educational background. Second, although we investigated a range of potential predictors, there are other potentially important variables not examined here. Social aspects of women's lives may be important in predicting positive body image, such as the types of conversations they engage in with their friends. Our measures of activities and media consumption were also specifically constructed for the current study and likely do not encompass all potentially relevant activities or media forms.

Finally, while we have conceptualised the variables tested in the current study as predictors of body appreciation, the data are of a cross-sectional nature and cannot demonstrate causality. However, it is likely that the observed relationships are bi-directional. For example, while decreased consumption of media containing appearance ideals may strengthen body appreciation, it is also possible that individuals with greater body

appreciation would consciously limit their exposure to such media, which might then serve to further foster body appreciation. This type of reciprocal relationship involving bi-directional shaping and strengthening of positive body image has been noted as a specific feature of positive body image (Tylka, 2011, 2012; Wood-Barcalow et al., 2010). Longitudinal research over some time (e.g., from adolescence through to adulthood) is necessary in order to empirically demonstrate the nature of these relationships.

Despite the limitations, the current study has made an important start on investigating a range of potential predictors and mechanisms of positive body image. Taken together, the results suggest that greater participation in sports, consumption of non-appearance media, perceived body acceptance by others, self-compassion and autonomy may play a role (either directly or indirectly) in promoting body appreciation in young women. On the other hand, greater consumption of appearance focused media and engagement in appearance processing were shown to be related to lower levels of body appreciation. Overall, the results contribute to our understanding of factors that influence positive body image in young women, and in so doing, identify a number of potential points for intervention.

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CHAPTER 3: Study 2 – Health Outcomes in Women

Positive Body Image and Young Women’s Health: Implications for Sun Protection, Cancer Screening, Weight-Loss and Alcohol Consumption Behaviours

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Abstract

The study examined the link between positive body image and a range of health behaviours. Participants were 256 women who completed an online questionnaire measuring body appreciation, body dissatisfaction, sun protection, cancer screening, seeking medical attention, weight-loss behaviour and alcohol and tobacco consumption. Results indicated that body appreciation was positively related to sun protection, skin screening and seeking medical attention and negatively related to weight-loss behaviour. Body appreciation explained unique variance, over and above body dissatisfaction, in sun protection, skin screening and weight-loss behaviour. These results have implications for interventions to improve adherence to health behaviours.

Keywords: body appreciation, cancer, health behaviour, sun protection, women's health

Body image has been conceptualised as a complex and multidimensional construct that has the ability to influence quality of life, as well as affective, cognitive and behavioural functioning (Pruzinsky & Cash, 2002). Despite the broad understanding of body image as a multi-faceted concept, theory and research in the body image field have previously been pathology focused (Williams, Cash, & Santos, 2004), and has concentrated on negative aspects of body image (Tylka, 2011). In particular, body dissatisfaction had been the major focus (Grogan, 1999). This focus has meant that the multi-faceted nature of body image has not been acknowledged (Pruzinsky & Cash, 2002). More specifically, there has been little research on the positive aspects of body image (Frisén & Holmqvist, 2010).

Broadly defined, positive body image refers to the love, respect, acceptance, and appreciation held for one's body (Tylka, 2011). Having positive body image allows individuals to accept all aspects of their body, even those which are contrary to media-portrayed ideals, and to appreciate the functions their body performs for them. Such individuals feel confident and happy with their body, and treat their body with care and attention (Tylka, 2012). Importantly, this construct is argued to be more than just the presence of low negative body image (Tylka, 2011), or the mere absence of body dissatisfaction (Wood-Barcalow, Tylka, & Augustus-Horvath, 2010). The small amount of literature examining the general construct of positive body image suggests that positive body image is associated with variables beyond body satisfaction such as optimism and self-esteem (e.g., Williams et al., 2004).

Until recently, research examining positive body image has been hampered by the absence of any reliable and valid measurement tool. Recognition of the need to operationalise positive body image beyond a lack of body dissatisfaction led to the construction of the Body Appreciation Scale (BAS) by Avalos, Tylka and Wood-Barcalow (2005). This scale has now been used in a small but growing number of empirical studies. Body appreciation has been

shown to be related positively to self-esteem (e.g. Lobera & Ríos, 2011) and self-compassion (Wasylikiw, MacKinnon, & MacLellan, 2012), which refers to an attitude of kindness and caring towards oneself (Neff, 2003). A positive relationship has also been found with perceived social support and acceptance within personal relationships (Augustus-Horvath & Tylka, 2011). Negative associations have been reported between body appreciation and self-objectification (Augustus-Horvath & Tylka, 2011), which is the internalisation of an observer's perspective of the body (Fredrickson & Roberts, 1997), as well as with having a non-anxious relationship with one's God (Homan & Cavanaugh, 2013).

In her review of positive body image theorizing and research, Tylka (2011) suggested that future research should examine more tangible real-world outcomes, and in particular, how positive body image relates to attentiveness to the body and detection of disease. As yet, there has been no research investigating health-related outcomes of positive body image (operationalised as body appreciation) outside of the eating realm. Here, positive body image has been related to an intuitive eating (i.e., eating in response to internal physiological cues, Tribole & Resch, 1995; Tylka, 2006) style (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006), and negatively related to drive for thinness (Langdon & Petracca, 2010), eating disorder symptomology (Avalos et al., 2005) and engaging in weight-loss-related conversations with friends (Wasylikiw & Butler, 2013). Thus, this study aimed to investigate a broader range of health-related outcomes that could potentially result from positive body image. An understanding of the role (if any) that positive body image plays in specific health behaviours will not only assist in clarifying the theoretical conceptualisation of positive body image, but may also benefit interventions and initiatives that attempt to increase health behaviour compliance.

There are many health-promotion campaigns, programs and policies (in Australia, and elsewhere) that are designed to influence particular modifiable health behaviours in the

population (Australian Institute of Health and Welfare, 2012). Such campaigns target either increases in health-promoting behaviours or decreases in health-compromising behaviours, or both. This study focused on health behaviours that feature in contemporary Australian health campaigns. In particular, the health-promoting behaviours of sun protection, and skin, breast and cervical cancer screening, and the health-compromising behaviours of unhealthy weight-loss behaviour and alcohol and tobacco consumption were examined as possible outcomes of positive body image. In addition, seeking medical attention when needed was included as a more general measure of engagement in health and because body image has been previously implicated as a barrier to engaging in medical care (Alegria Drury & Louis, 2002).

Australia has the highest incidence of skin cancer in the world (International Agency for Research on Cancer, 2008), with skin cancer accounting for approximately 80 per cent of all newly diagnosed cancers each year (Cancer Council Australia, 2012a). As a result, different behaviours which provide protection from harmful ultraviolet radiation (UVR) are encouraged through specific campaigns, for example the 'Slip, Slop, Slap, Seek, Slide' (Cancer Council Australia, 2012b) and the 'No tan is worth dying for' (Cancer Council Australia, 2012c) campaigns. Although some links between tanning behaviour and higher body satisfaction (Yoo & Kim, 2012) and weight concern (O'Riordan et al., 2006) have been reported, minimal attention has been directed toward other sun protection behaviours such as hat or sunscreen use.

A related health behaviour is skin screening for moles and other abnormalities, which has been targeted by Australian health-promotion initiatives. In Australia, people are encouraged to scan for various cancers, including regularly inspecting all skin areas for suspicious looking moles (Cancer Council Australia, 2007). A cervical cancer screening program for women between the ages of 18 and 69 recommends Papanicolaou (pap) tests every two years (Department of Health and Ageing, 2009). Programs for mammogram breast

screenings presently target women aged 50 to 69 years, although younger women are also encouraged to be vigilant for any breast abnormalities (Department of Health and Ageing, 2012).

As noted by Ridolfi and Crowther (2012) in their review of body image disturbance and cancer screening, screening behaviours are especially pertinent to body image, as they require inspection (personally, and sometimes from a medical professional) of the body. Here, links between body dissatisfaction and discomfort (Chait, Thompson, & Jacobsen, 2009; Jensen & Moriarty, 2008; Risica et al., 2008) and lower frequency of skin examinations have been reported. There is less research examining body image disturbance and breast and cervical cancer screening. One study (Chait et al., 2009) found no association between body disturbance and women's breast screening behaviour or intention, while another (DeMaria, Hollub, & Herbenick, 2011) reported no association with gynaecological exam behaviour. More generally, however, Clark et al. (2009) reported that body image concern was one of the most frequently reported barriers to avoiding breast, cervical or colorectal screening.

Unhealthy weight-loss practices and alcohol and tobacco consumption are behaviours that can compromise health and have been a focus of health initiatives in Australia. Due to the increasing incidence of overweight and obesity in Australia, current dietary guidelines advocate for healthy weight management strategies (National Health and Medical Research Council, 2013). However, not all weight-loss strategies are healthy, for example, the diet industry promotes a variety of products such as shakes and pills (Ogden, 2003). Many previous studies have shown associations between body dissatisfaction and unhealthy weight-loss strategies and dieting (see Stice & Shaw, 2002).

Alcohol and tobacco consumption have been shown to be leading causes of disease and death in Australia, with tobacco consumption the largest risk factor for cancer-related

burden of disease (Begg, Vos, Barker, Stanley, & Lopez, 2008). Associations between body dissatisfaction (Kendzor, Adams, Stewart, Baillie, & Copeland, 2009; Stice & Shaw, 2003) or weight preoccupation (Clark et al., 2005) with cigarette smoking have been reported. One focus area of Australian alcohol-related guidelines is single occasion excessive alcohol use (or 'binge-drinking'), and reducing risk of injury when binge-drinking (National Health and Medical Research Council, 2009). Binge drinking has itself been found to be associated with body dissatisfaction (Nelson, Lust, Story, & Ehlinger, 2009).

In sum, the major aim of the present study was to examine a range of diverse health behaviour outcomes of positive body image, which to our knowledge is the first study to do so. Relationships were also compared with body dissatisfaction, the most common measure of (negative) body image. It was hypothesised that body appreciation would be positively related to the health-promoting behaviours and negatively related to the health-compromising behaviours. Furthermore, body appreciation was predicted to explain additional unique variance in health behaviours over and above that explained by body dissatisfaction.

Method

Participants

Participants were 256 women aged 18-29 years ($M = 20.11$, standard deviation (SD) = 3.11) who were students at an urban university in South Australia. Participants' mean body mass index (BMI) was 23.50 ($SD = 6.01$), which falls within the 'normal range' (World Health Organization, 2015). The majority of participants identified as Caucasian or White (89.1%), with 8.5% Asian, 0.4% Aboriginal or Torres Strait Islander, 0.4% African, and 1.6% 'other'.

Materials

Participants completed an online questionnaire which contained the measures listed below, and was approved by the relevant institutional ethics committee. Participant consent was indicated by completion of the questionnaire.

Background information. Participants were asked their age, height, weight, and ethnicity. Body mass index (BMI) was then calculated as $\text{weight [kg]} / \text{height}^2 [\text{m}^2]$.

Positive body image. Positive body image, operationalised as body appreciation, was assessed by the Body Appreciation Scale (BAS) of Avalos et al. (2005) which measures the appreciation, acceptance, respect, and attention given to one's body. Participants rate 13 items on a 5-point Likert scale (from 1 = *never*, to 5 = *always*). Exemplar items are "Despite my flaws, I accept my body for what it is", and "I am attentive to my body's needs". Responses are averaged, and range from 1 to 5, with higher scores reflecting greater body appreciation. The BAS has been found to have a unidimensional factor structure, good internal reliability ($\alpha = .91-.94$), three week test-retest reliability ($r = .90$), and convergent validity with samples of U.S. college women (Avalos et al., 2005). In a previous study with Australian women (M age = 39.93 years, $SD = 13.27$), the BAS was found to have high internal reliability ($\alpha = .90$, Tiggemann & McCourt, 2013). For the present sample, the scale was also found to have high internal reliability ($\alpha = .93$).

Body dissatisfaction. Body dissatisfaction was measured by the Body Areas Satisfaction Scale (BASS) of Brown, Cash and Mikulka (1990), and Cash (2000). Participants rate on a 5-point Likert scale how dissatisfied or satisfied they are with their appearance overall, and with eight specific areas (e.g., face) or elements (e.g., muscle tone) of their body (from 1 = *very dissatisfied* to 5 = *very satisfied*). All items were reverse scored, summed and averaged to create a measure of body dissatisfaction. For women, the BASS has been reported to have good one month test-retest reliability (Cash, 2000), internal consistency ($\alpha = .82$, Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002), and good incremental

validity (Giovannelli, Cash, Henson, & Engle, 2008). For the present sample, internal reliability was acceptable ($\alpha = .80$).

Sun protection. Five questions related to sun protection were adopted from the Cancer Council Australia's National Sun Protection Survey (see Dobbinson et al., 2008). These questions examined specific behaviours such as wearing sunscreen and staying in the shade during peak UV hours in summer. Participants rated how often they performed each sun protection behaviour (from 1 = *never* to 5 = *always*). The five items were summed to create a total sun protection behaviour score ranging from 5 to 25. Internal reliability for this scale fell just short of acceptable ($\alpha = .64$) in the current sample of women.

Cancer screening. There were three forms of cancer screening, those for skin, breast and cervical cancer. Skin screening was assessed with two questions regarding checking for sun spots and moles regularly, and getting moles and sun spots checked by a health professional ($r = .52, p < .001$), which were summed and averaged to create a skin screening measure. Similar questions assessed checking for breast lumps ($r = .34, p < .001$). A single item asked participants whether they receive pap tests when they are required. Participants rated all items on a 5-point Likert scale (1 = *never* to 5 = *always*), with higher scores reflecting more participation in the health behaviour.

Medical attention. One additional question asked whether participants see a doctor when needed and assessed general engagement in health which was rated on 5-point Likert scale (from 1 = *never* to 5 = *always*).

Weight-loss behaviours. Participants were asked to rate the extent to which they "Use weight-loss shakes, supplements or pills", and had "Been on a diet in order to lose weight" on a 5-point Likert scale (from 1 = *never* to 5 = *always*). These two items were moderately correlated ($r = .53, p < .001$), and were summed and averaged to create a single measure of 'weight-loss behaviours'.

Alcohol consumption. Participants' consumption of alcohol at risky levels was assessed using two questions from the Alcohol Use Disorders Identification Test (AUDIT) Alcohol Screen (Commonwealth Department of Veterans' Affairs, 2003). The questions were "How many standard drinks do you have on a typical day when you are drinking?" (from '*1 or 2*' to '*10 or more*') and "How often do you have six or more standard drinks on one occasion?" (from '*never*' to '*daily or almost daily*'). Responses for the two questions were standardised and summed to create one risky alcohol consumption score.

Tobacco consumption. Participants were asked two questions regarding their tobacco use from the National Drug Strategy Household Survey (Australian Institute of Health and Welfare, 2011). First, they were asked whether or not they smoke cigarettes, and second, with what frequency ('*Daily*', '*At least weekly (but not daily)*', '*Less often than weekly*', '*Not at all*').

Results

Body Appreciation and Health-Promoting Behaviours

Descriptive statistics for body image and health behaviour variables are displayed in Table 1. The mean score for sun protection behaviours indicates that on average, participants 'sometimes' performed behaviours such as wearing sunscreen and staying in the shade. As can be seen in Table 2 which displays the correlations between positive body image (body appreciation) and health behaviours, body appreciation was significantly positively related to sun protection.

Participants on average performed cancer screening behaviours between 'rarely' and 'sometimes', and as can be seen in Table 2, the correlations between body appreciation and cancer screening behaviours were all positive. However, only the correlation with skin screening reached statistical significance.

Table 1

Descriptive Statistics of Body Image Variables and Health Behaviours

| | <i>M</i> | <i>SD</i> | Range |
|---------------------------------------|----------|-----------|---------|
| Body appreciation | 3.23 | 0.79 | 1 - 5 |
| Body dissatisfaction | 2.92 | 0.67 | 1 - 5 |
| <i>Health-promoting behaviours</i> | | | |
| Sun protection | 14.54 | 3.73 | 5 - 25 |
| <i>Screening behaviours</i> | | | |
| Skin screening | 2.32 | 0.98 | 1 - 5 |
| Breast screening | 2.03 | 0.96 | 1 - 5 |
| Pap tests | 2.88 | 1.74 | 1 - 5 |
| Medical attention | 3.81 | 1.14 | 1 - 5 |
| <i>Health-compromising behaviours</i> | | | |
| Weight-loss behaviours | 2.01 | 1.04 | 1 - 5 |
| Alcohol consumption | 0.13 | 1.77 | -4 - +4 |
| Cigarette smoking | 1.93 | 0.26 | 1 - 2 |

For medical attention, participants reported that they sought medical attention when they needed ‘often’, and as predicted, body appreciation was significantly positively related to this behaviour.

Body Appreciation and Health-Compromising Behaviours

Participants on average reported performing weight-loss behaviours ‘rarely’. As predicted, body appreciation was significantly negatively correlated with weight-loss behaviours.

For alcohol consumption, the median category for the number of standard alcoholic drinks consumed when drinking was ‘3 or 4’ alcoholic drinks (24.8%). The median category for the frequency with which participants consumed six or more standard alcoholic drinks on

single occasions was “less than monthly” (30.6%). Body appreciation was not found to be significantly related to total alcohol consumption.

Table 2

Correlations between Body Appreciation, Body Dissatisfaction and Health Behaviours

| | Body appreciation <i>r</i> | Body dissatisfaction <i>r</i> |
|---------------------------------------|-------------------------------|----------------------------------|
| <i>Health-promoting behaviours</i> | | |
| Sun protection | .17** | -.09 |
| Screening behaviours | | |
| Skin screening | .16* | -.14* |
| Breast screening | .10 | -.12 |
| Pap tests | .08 | -.05 |
| Medical attention | .18** | -.20** |
| <i>Health-compromising behaviours</i> | | |
| Weight-loss behaviours | -.41*** | .35*** |
| Alcohol consumption | -.09 | .14* |
| Cigarette smoking | .06 | -.04 |
| <i>Multiple R²</i> | .239*** | .215*** |

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

The vast majority of participants did not smoke cigarettes ($N = 232$), with 91.6% indicating they do not smoke cigarettes at all, 4.4% smoked cigarettes less often than weekly, 0.8% smoked cigarettes at least weekly, and only 3.2% smoked daily. As seen in Table 2, smoking status was not significantly correlated to body appreciation. Although body appreciation was found to be higher in non-smokers ($M = 3.24$, $SD = 0.76$) than smokers ($M = 3.05$, $SD = 0.91$), an independent samples t -test revealed this difference was not significant, $t(242) = -0.99$, $p = .32$.

Relative Contribution of Body Appreciation to Health Behaviours

Participants' body appreciation was found to be negatively correlated with their body dissatisfaction as would be expected, $r = -.80, p < .001$. Table 2 displays the correlations between body dissatisfaction and the various health behaviours. As can be seen, the pattern of correlations for body dissatisfaction was somewhat different from that for body appreciation. In particular, while both variables were related (in the opposite direction) to skin screening, seeking medical attention and weight-loss behaviours, only body appreciation was related to sun protection, and only body dissatisfaction was related to alcohol consumption.

To formally test whether positive body image contributed unique variance, over and above body dissatisfaction, to any of the health behaviours, a series of hierarchical multiple regressions were carried out for each of the health behaviours. In each hierarchical multiple regression, body dissatisfaction was entered in Step 1, and body appreciation was entered in Step 2, to predict the health behaviour. The results of these analyses are provided in Table 3, with R^2_{change} and F_{change} values in Step 2 indicating whether or not body appreciation offered additional prediction over and above body dissatisfaction.

As can be seen in Table 3, body appreciation explained significant unique variance in sun protection, skin screening and weight-loss behaviours. That is, body appreciation offered predictive value in these three health behaviours, over and above body dissatisfaction. The only initially significant behaviour for which body appreciation did not explain unique variance was seeking medical attention.

Table 3

Summary of Hierarchical Multiple Regression Analyses Predicting Health Behaviours from Body Appreciation and Body Dissatisfaction

| | Step 1 | | Step 2 | |
|---------------------------------------|----------------------|----------|-------------------|--------------|
| | Body dissatisfaction | | Body appreciation | |
| | R^2 | F | R^2_{change} | F_{change} |
| <i>Health-promoting behaviours</i> | | | | |
| Sun protection | .008 | 1.83 | .034 | 8.36** |
| Screening behaviours | | | | |
| Skin screening | .018 | 4.28* | .018 | 4.48* |
| Breast screening | .015 | 3.69 | .003 | 0.77 |
| Pap tests | .003 | 0.82 | .008 | 1.92 |
| Medical attention | .044 | 11.07** | .004 | 0.99 |
| <i>Health-compromising behaviours</i> | | | | |
| Weight-loss behaviours | .118 | 32.18*** | .049 | 14.15*** |
| Alcohol consumption | .021 | 4.54* | .002 | 0.37 |
| Cigarette smoking | .001 | 0.33 | .000 | 0.00 |

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

Discussion

This study examined the relationship between positive body image and a range of health-promoting and health-compromising behaviours. While negative body image or body dissatisfaction has previously been found to be associated with some health behaviours, this was the first study to investigate how positive body image related to health behaviours beyond eating. Specifically, body appreciation was found to be positively related to sun protection, skin screening and seeking medical attention, and negatively related to weight-loss behaviours. On the other hand, body appreciation was not significantly related to breast

screening, pap tests or alcohol-related or smoking behaviours. The finding for weight-loss behaviours confirms previous results demonstrating a negative association between positive body image and unhealthy eating behaviour (e.g., Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Avalos et al., 2005; Langdon & Petracca, 2010). However, the relationships found between body appreciation and other health behaviours are novel.

This study found links between body appreciation and both skin screening and sun protection which have not previously been reported. Importantly, the results also demonstrated that body appreciation contributed unique variance in sun protection and skin screening, over and above that previously reported for body dissatisfaction (Chait et al., 2009; Risica et al., 2008). Given that Australia has the highest incidence of skin cancer in the world (International Agency for Research on Cancer, 2008) and that skin cancers account for the overwhelming majority of new cancers diagnosed in Australia every year (Cancer Council Australia, 2012a), these findings suggest a potential avenue for interventions and campaigns specifically aimed at young women to increase sun protection behaviours and screening for skin cancer. Such campaigns might choose to focus on the benefits of sun protection and skin screening for the body, as opposed to emphasising appearance-based negative consequences of not engaging in these behaviours (e.g., developing wrinkles).

Although not significant, the correlations between body appreciation and breast screening and receiving pap tests lay in the predicted direction. It may be that breast screening is not an appropriate measure in a young sample given that recommendations are strongly geared toward women aged 40 years and over (Department of Health and Ageing, 2012). However, no significant relationship between body dissatisfaction and breast screening in a more diverse sample of older women was reported in a previous study (Chait et al., 2009). Thus, the lack of significant association may be due to the nature of breast screening which involves a tactile rather than visual inspection of a relatively small and

specific area of the body (Chait et al., 2009). This contrasts with screening for skin abnormalities which requires close visual attention directed to the whole surface of the body, consistent with the positive correlation found here between positive body image and skin, but not breast, screening. Similar to DeMaria et al. (2011), no relationship existed between body appreciation (or body dissatisfaction) and cervical cancer screening. This study's findings add to the small body of work examining cancer screening, but support Ridolfi and Crowther's (2012) call for more research in order to make definitive conclusions about the nature of the relationships between body image and cancer screening behaviours.

More generally, body appreciation was positively related to seeking medical attention when required, demonstrating a potential role for positive body image in overall motivation to enhance health. Seeking medical attention is a more global and far-reaching behaviour than specific cancer screening, and can contribute to the detection and prevention of a range of diseases. In addition, general practitioners have the ability to encourage regular screening practices and to promote a whole range of health behaviours in people who seek professional advice for medical problems (Dobson et al., 2012).

The results support previous links reported between body dissatisfaction and alcohol consumption (Littleton, Radecki Breitkopf, & Berenson, 2005; Nelson et al., 2009), but interestingly no relationship with body appreciation was found. Alcohol intake is an important health issue in Australia, and is the focus of various campaigns as well as specific health guidelines. Our results suggest that targeting body dissatisfaction in health initiatives that aim to reduce risky alcohol consumption may be useful. Contrary to some previous findings (Clark et al., 2005; Kendzor et al., 2009; Stice & Shaw, 2003), the present study found no links between body image and cigarette smoking. However, this result is not surprising given the very low proportion of smokers in the present sample (8.4%).

In general, while body appreciation and body dissatisfaction were correlated with each other and were found to be related to some of the same variables, the pattern of correlations was not the same. In particular, the overall pattern suggests that positive body image might be more related to health-promoting behaviours, while negative body image might be more related to health-compromising behaviours. Future research might usefully investigate this interesting proposition. In addition, the regression analyses indicated that body appreciation was able to explain unique variance in some of the health behaviours, beyond that explained by body dissatisfaction. The unique contribution of positive body image to sun protection, skin screening and weight-loss behaviours presents convincing evidence that body appreciation does play a role in these health behaviours. Nevertheless, further research needs to comprehensively address the conceptual difference between positive body image and the absence of body dissatisfaction by examining multiple measures of the two constructs and how they relate to a range of social, health and well-being variables.

This study's findings have some practical implications. Given that body dissatisfaction is now viewed as normative among young women (Rodin, Silberstein, & Striegel-Moore, 1985) and that they are confronted with flawless media images portraying the thin ideal on virtually a daily basis (Levine & Chapman, 2011), it is possible that strategies that seek to enhance positive body image may prove more successful than strategies that attempt to reduce body dissatisfaction. In particular, if girls and women can be explicitly encouraged to accept and appreciate all parts of their body, including its flaws, they should be better able to withstand media pressures.

One way that women and girls might actively learn to develop their appreciation for their bodies is by engaging in metacognitive acceptance techniques which have begun to show some success for general body image (Atkinson & Wade, 2012). Such techniques emphasise that thoughts, feelings and physical sensations are to be observed and experienced

but not judged or actively modified (Baer, 2003). Thus, they may serve to prevent or ameliorate women's tendency to engage in social comparison or rumination about their appearance. More broadly, engaging in mindful meditation may assist in the accurate and early detection of bodily needs or changes (Bishop et al., 2004). Another way that women and girls might increase body appreciation is to participate in embodying activities, that is, activities in which the mind and body are interconnected (Piran, 2002). These include organised sports and other physical pursuits such as rock climbing or yoga, which are not self-objectifying (e.g. Prichard & Tiggemann, 2008), and are postulated as potential precursors to positive body image (Menzel & Levine, 2011). Encouraging women to discuss exercise and physical activity with peers may also foster positive body image, as those women who engage in more exercise (as opposed to appearance) related conversations have been shown to hold more functional (as opposed to objectifying) views of their body (Wasylikiw & Butler, 2013).

Taken together, the findings allow us to add women's physical health to the list of potential benefits associated with positive body image. Accordingly, they suggest that targeting positive body image might be one way to effect tangible improvements in women's health. Thus, public health and other interventions designed to modify health-related behaviours, in particular health-promoting behaviours, might usefully incorporate positive body image into their protocols. Public health campaigns commonly deliver messages about the harmful consequences of an unhealthy behaviour (known as fear appeals) rather than offering a positive behaviour as an alternative (Rice & Atkin, 2001). Reframing these in the positive direction might improve their effectiveness.

There are some limitations to this study that should be noted. First, the sample comprised mainly young Caucasian university students, and so results may not generalise to other groups of women. Second, the self-report nature of the questionnaire may also have

limited participants' ability to accurately remember and report the degree to which they did or did not perform health behaviours. Third, the just below acceptable internal reliability for the sun protection measure means that results for this variable should be viewed with caution. Finally, the cross-sectional design means that it is not possible to determine causal or temporal relationships between the different variables. Although as suggested by Tylka (2011), it is more logical to treat health behaviours as an outcome of possessing positive body image, it is also theoretically possible that engaging in healthy behaviours could lead to the development of positive body image. Alternatively, there might be a third variable that explains both. Future research should employ longitudinal designs that track the development of both positive body image and health-related behaviours over some time for a more definitive casual conclusion.

Despite its limitations, to our knowledge this is the first study to examine non-eating health-related outcomes of positive body image. In particular, the results demonstrate that positive body image is linked to the health-promoting behaviours of sun protection, skin screening and seeking medical attention, and negatively associated with the health-compromising behaviour of unhealthy weight-loss. These findings have both theoretical and practical implications: first, in expanding the scope of positive body image; and second; in identifying a new target for promoting healthy behaviours.

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CHAPTER 4: Study 3 – Protection Against the Thin Ideal

The Protective Role of Body Appreciation against Media-Induced Body Dissatisfaction

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Abstract

This study aimed to examine the protective role of positive body image against negative effects produced by viewing thin-idealised media. University women ($N = 68$) completed trait measures of body appreciation and media protective strategies. At a subsequent session, participants viewed 11 thin-ideal advertisements. Body dissatisfaction was assessed before and after advertisement exposure, and state measures of self-objectification, appearance comparison, and media protective strategies were completed. Results indicated that body appreciation predicted less change in body dissatisfaction following exposure, such that participants with low body appreciation experienced increased body dissatisfaction, while those with high body appreciation did not. Although state appearance comparison predicted increased body dissatisfaction, neither state self-objectification nor appearance comparison accounted for body appreciation's protective effect. Trait and state media protective strategies positively correlated with body appreciation, but also did not account for body appreciation's protective effect. The results point to intervention targets and highlight future research directions.

Key words: body appreciation, positive body image, self-objectification, appearance comparison, body dissatisfaction, media protective strategies

Introduction

The body image field has recently experienced a shift from a strong emphasis on negative aspects of body image to a broader focus and understanding of different elements of body image (Tylka, 2011). Specifically, researchers have begun to examine positive body image and the ways in which it may foster well-being. Positive body image can be defined as a foundation of love, respect, appreciation, and acceptance of the appearance and functionality of one's body (Wood-Barcalow, Tylka, & Augustus-Horvath, 2010). Positive body image is conceptualised as more than merely the absence of body dissatisfaction (Tylka, 2011; Tylka & Wood-Barcalow, 2015; Wood-Barcalow et al., 2010), and is most commonly operationalised as body appreciation (Avalos, Tylka, & Wood-Barcalow, 2005). Previous research demonstrates that body appreciation correlates with a broad range of positive well-being indices including self-esteem (e.g., Avalos et al., 2005), adaptive coping (Avalos et al., 2005; Lobera & Ríos, 2011), self-compassion (Wasylikiw, MacKinnon, & MacLellan, 2012) and optimism (Avalos et al., 2005; Dalley & Vidal, 2013).

Tylka (2011) sets out a number of core characteristics of positive body image based on findings from qualitative and quantitative research. One identified characteristic is “protective filtering” (Wood-Barcalow et al., 2010), which involves schema activation that allows negative body-related information to be rejected and positive information to be accepted. Negative information can potentially be received from a variety of sources, including family members or peers, but the most likely source is the mass media, a major transmitter of sociocultural messages regarding unattainable standards of appearance, in particular the thin ideal (Grabe, Ward, & Hyde, 2008). Both experimental and correlational research shows that exposure to thin-ideal media images is linked to body dissatisfaction and disordered eating (for meta-analyses, see Grabe et al., 2008; Groesz, Levine, & Murnen, 2002). One potential strategy to counter the negative effects of media exposure on body

image is increased media literacy, which Tylka (2012) proposes is an important component of protective filtering. Media literacy involves critically evaluating the media's depiction of appearance ideals, for example, by being aware of portrayed narrow ideals of beauty and the widespread digital modifications of media images (Levine & Smolak, 2001). People with positive body image are proposed to be able to better protect their body image from potentially harmful appearance messages by engaging in protective filtering and media literacy (Tylka, 2011; Tylka & Wood-Barcalow, 2015).

As yet, only one study has experimentally examined the protective effect of body appreciation against thin-ideal media exposure. Halliwell (2013) compared the responses of young women with high and low body appreciation (groups created by median split). For women high in thin-ideal internalisation, the low body appreciation group reported larger and more salient appearance-discrepancies (i.e., difference between ideal and actual appearance) after viewing advertisements with models versus products, relative to the high body appreciation group. The present study aimed to extend this research by examining whether body appreciation protects against increases in body dissatisfaction, the construct most commonly measured in studies of media effects on body image (Grabe et al., 2008), in response to viewing thin-ideal advertisements. In addition, we conceptualised body appreciation as a continuous dimension (as opposed to low/high categories, Halliwell, 2013), in order to assess prediction by degree of body appreciation.

The second aim of the current study was to begin the investigation of possible mechanisms to explain body appreciation's protective effects. Specifically, decreased self-objectification and decreased social appearance comparison were examined for their ability to account for body appreciation's protective role against negative effects on body image after exposure to thin-ideal images. Recent correlational research has shown that body appreciation is associated with reduced self-objectification and appearance comparison at the trait level

(Andrew, Tiggemann, & Clark, 2015). We reasoned that women who approach their appearance with acceptance and appreciation should be less likely to feel the need to compare and evaluate their appearance to other people when confronted with appearance-based stimuli. These women should also engage in less state self-objectification because they respect and appreciate their body, in spite of perceived flaws, and thus do not need to monitor outward appearance. Thus, lower levels of engagement in self-objectification and appearance comparison were proposed as explanatory concepts in the protective role played by body appreciation on body dissatisfaction.

In addition, we wished to explore some more specific protective strategies that participants may engage in while viewing thin-ideal media images, an important next step, as suggested by Halliwell (2015). We investigated both strategies that women might use generally (i.e., trait-level dispositions) and also those that they actually engage in while viewing thin-ideal images (i.e., state-level strategies). Although there are some measures assessing general reactions to body-related threats (see Webb, Wood-Barcalow, & Tylka, 2015), there is no existing measure of body image protective strategies against media images. Thus, we constructed a media-specific measure to examine behavioural and cognitive techniques related to protective filtering as identified in qualitative positive body image studies (Tylka, 2011; Wood-Barcalow et al., 2010). Such strategies included being conscious of the fact that images may have been digitally altered, being aware that the media present only a narrow view of beauty, and understanding that substantial time and professional assistance is required for models to look the way they do (Holmqvist & Frisén, 2012; Wood-Barcalow et al., 2010).

In sum, the present study had two major aims. The first was to determine whether degree of body appreciation protects against increases in body dissatisfaction after viewing thin-ideal media images. The second was to begin the examination of potential mechanisms

to explain this protective effect, in particular, reduced state self-objectification and appearance comparison. In addition, more specific strategies that women may engage in when exposed to thin-ideal media were explored.

Method

Participants

Participants were 68 women aged 18-29 years ($M = 20.03$, $SD = 3.02$) who were students at an urban university in South Australia. Participants' mean body mass index (BMI) was 21.76 ($SD = 4.43$), which falls within the "normal range" according to the World Health Organization (2015). The majority of participants identified as Caucasian or White (77.9%), with 17.6% Asian, and 4.5% identifying as "other."

Measures and Materials

Experimental stimuli. A set of 15 full-page magazine advertisements printed on high quality photographic paper was presented in a folder to replicate the format of a typical fashion magazine. In a separate study, this particular set of advertisements led to greater body dissatisfaction than a set of control advertisements (Tiggemann, Slater, Bury, Hawkins, & Firth, 2013). There were 11 advertisements representing the thin ideal that contained the face and at least three-quarters of a thin and attractive female model's body, plus four product only advertisements. The advertisements were sourced from common locally-available Australian fashion magazines such as *Cosmopolitan* and *Vogue*.

Body appreciation. Body appreciation was assessed by the Body Appreciation Scale (BAS) of Avalos et al. (2005) which measures the acceptance, respect, and attention towards bodily needs and favourable opinions towards one's body. The 13 items are rated on a 5-point scale (1 = *never*, 5 = *always*). Exemplar items are "Despite my flaws, I accept my body for what it is," and "I am attentive to my body's needs." Scores are averaged to range from 1 to 5, with higher scores reflecting greater body appreciation. Scores on the BAS have been

found to conform to a unidimensional factor structure and demonstrate evidence of internal reliability ($\alpha = .91-.94$), 3-week test-retest reliability ($r = .90$), and convergent validity with samples of U.S. college women (Avalos et al., 2005). In a previous sample of Australian women (Tiggemann & McCourt, 2013), scores on the BAS were found to have high internal reliability ($\alpha = .90$). This was also the case in the present sample ($\alpha = .93$).

Trait media protective strategies. A small focus group was conducted with five young adult women (M age = 24 years) who were university educated, of average socio-economic status, who indicated that they had positive body image. They were asked to describe general hypothetical strategies (cognitive, behavioural, and emotional) that they used to deal with information from the media that could negatively impact on their body image. Two overarching themes emerged from the focus group discussion. The first theme involved avoidance and encompassed strategies that the women used to intentionally limit exposure to media featuring the thin ideal, including limiting reading of fashion magazines and not paying attention to photos on social media. The second theme involved use of protective processing strategies and included women reminding themselves that it is a model's job to look the way she does and that images are constructed, altered, and manipulated in a number of ways. On the basis of the focus group, a questionnaire consisting of four strategies for the theme of media avoidance and eight strategies for the protective processing theme was constructed. The items were rated on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*) and scores were averaged to create media avoidance and protective processing scales. The internal reliability for the media avoidance subscale was low ($\alpha = .36$). However, omitting the one negatively worded item improved internal reliability to a somewhat higher level for the 3-item scale ($\alpha = .50$). The internal reliability for the protective processing subscale was acceptable ($\alpha = .72$), but slightly increased with the exclusion of the

one negatively-worded item ($\alpha = .74$). Internal reliability for the overall scale's scores (minus the two negatively worded items) was acceptable ($\alpha = .73$). Items are presented in Table 2.

State body dissatisfaction. Participants completed seven Visual Analogue Scales (VAS, Heinberg & Thompson, 1995) before and after exposure to advertisements. The first five measured mood (Anxiety, Depression, Happiness, Anger, and Confidence - not analysed here) and were included to decrease the focus on body dissatisfaction. The last two items measured Weight Dissatisfaction and Overall Appearance Dissatisfaction. Each scale consisted of a 100mm horizontal line with end points of "none" and "very much." Participants were asked to draw a small vertical line at the point which represents how they feel at that particular moment for each item. The distance to the nearest millimetre was then measured from the anchor of "none" to yield a score for each scale out of 100. VAS measures of body dissatisfaction were used as they are quickly administered, can detect small changes in state body dissatisfaction (Heinberg & Thompson, 1995), and have been shown to significantly correlate with the Body Dissatisfaction Subscale of the Eating Disorder Inventory (Garner, Olmstead, & Polivy, 1983). The two body dissatisfaction VAS scores were averaged to create a measure of body dissatisfaction. To assess inter-rater reliability, a subsample (25% of the VAS) was measured by a second independent rater. The two measurements corresponded exactly on 93% of measurements, with the remaining 7% of cases within ± 1 mm.

State self-objectification. State self-objectification was assessed using the 8-item state adaptation of the Body Surveillance Subscale of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996). Following Breines, Crocker and Garcia (2008), the words "Right now" were placed in front of the statements of the subscale. The items were rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with a midpoint of 4 (*neither agree nor disagree*). Scores were averaged and higher scores represented higher

levels of body monitoring and thinking of one's body in terms of appearance as opposed to how it feels. Acceptable internal consistencies ($\alpha = .74-.83$) were reported for this state adaption in a previous Australian sample of undergraduate women (Tiggemann & Andrew, 2012). The internal consistency in the present sample fell within this range ($\alpha = .82$).

State appearance comparison. State appearance comparison was assessed using a short 3-question measure constructed by Tiggemann and McGill (2004). These questions assessed the amount of appearance comparison participants engaged in with the models in the fashion advertisements. They were embedded in other questions regarding focus on products and creativity of the advertisements. Participants first rated the extent to which they thought about their appearance while viewing the advertisements on a 7-point scale (1 = *no thought at all*, 7 = *a lot of thought*). The second and third questions asked participants to rate the extent to which they compared their overall appearance, and specific body parts, to the models in the advertisements on a 7-point scale (1 = *no comparison*, 7 = *a lot of comparison*). The scores from the three items were summed and averaged. Tiggemann and McGill (2004) reported high internal consistency in a female undergraduate sample ($\alpha = .91$), as was the case in the present sample ($\alpha = .92$).

State media protective strategies. Participants completed five questions assessing potential protective strategies actually used to minimise harm on body image from viewing media images. These items were based on those strategies in the trait measure of media protective strategies designed for the current study. Participants rated the extent to which they thought about how: "The advertisements might have been digitally altered to improve appearance," "The women in the advertisements may have had their hair and make-up done by professionals," "The women in the advertisements were not a true representation of women in society," "The women in the advertisements look the way they do because it is their job" and "The women in the advertisements might not necessarily be healthy or happy,"

on a 7-point scale (1 = *not a lot of thought at all*, 7 = *a lot of thought*). Internal reliability was acceptable for the overall 5-item scale ($\alpha = .88$).

Background information. Participants were asked to provide their age and ethnicity, and with their consent measurements of weight and height were taken. Body mass index (BMI) was then calculated as $\text{weight [kg]} / \text{height}^2 [\text{m}^2]$.

Procedure

Ethics approval was gained from the relevant institutional ethics board. Participants gained course credit for their involvement in the current study. As part of another study on health behaviours (Andrew, Tiggemann, & Clark, 2014), participants completed trait measures of body appreciation and the created measure of trait media protective strategies. These measures were collected separately to the experimental session in an attempt to reduce demand characteristics, as suggested in previous experimental media studies (Mills, Polivy, Herman, & Tiggemann, 2002). Participants completed the experimental session approximately eight weeks after trait measures were taken. The study was promoted as evaluating the effectiveness of advertisements targeted at women. Participants first completed measures of negative mood and state body dissatisfaction. They were then given a folder containing the 15 advertisements and viewed each for 45 seconds. To ensure attention was maintained and to support the cover story, participants were asked to rate two items on the effectiveness and appeal of each advertisement. Participants then completed state measures of negative mood and body dissatisfaction, self-objectification, appearance comparison processing, and media protective strategies. Weight and height were then measured by the first author. Participants were debriefed via an email following the completion of the whole study.

Results

Change in Body Dissatisfaction

Overall, there was a difference between body dissatisfaction before and after exposure to the fashion magazine advertisements. A paired-samples *t*-test confirmed a significant increase in body dissatisfaction from pre-advertisement exposure ($M = 48.79$, $SD = 25.43$) to post-advertisement exposure ($M = 53.15$, $SD = 24.83$), $t(67) = -2.03$, $p < .05$. Thus, the typically reported negative effect of thin-ideal media on body dissatisfaction was found in the current sample.

Body Appreciation as a Predictor of Change in Body Dissatisfaction

Table 1 shows the zero-order correlations between body appreciation and other study variables. As can be seen, body appreciation was significantly negatively related to body dissatisfaction both initially, and following exposure to thin-ideal advertisements.

Table 1

Zero-order Correlations among Trait Body Image Measures, Proposed Mechanisms and State Body Dissatisfaction (N = 68)

| | 1 | 2 | 3 | 4 | 5 |
|---------------------------------------|--------|-------|-------|-------|---|
| 1. Body appreciation | - | | | | |
| 2. State self-objectification | -.40* | - | | | |
| 3. State social comparison | -.34* | .63** | - | | |
| 4. Pre-exposure body dissatisfaction | -.50** | .49** | .34* | - | |
| 5. Post-exposure body dissatisfaction | -.65** | .46** | .44** | .75** | - |

* $p < .01$. ** $p < .001$.

To examine whether body appreciation predicted *change* in body dissatisfaction following exposure to the thin ideal, a hierarchical multiple regression was conducted with post-exposure body dissatisfaction as the outcome variable. Pre-exposure body dissatisfaction was entered in Step 1 and proved significant, $R^2 = .564$, $F(1, 66) = 85.41$, $p < .001$, $\beta = .75$. More importantly, the addition of body appreciation at Step 2 significantly improved prediction, $R^2_{change} = .097$, $F_{change}(1, 65) = 18.52$, $p < .001$, $\beta = -.36$. Thus, degree of body appreciation predicted the degree of change in body dissatisfaction. The negative sign of the regression coefficient (beta) for body appreciation (Step 2) indicates that with greater body appreciation, there was less change in body dissatisfaction following exposure to advertisements.

This finding is illustrated by dividing participants into tertiles based on their body appreciation score: tertile one ($n = 21$, 1.46-2.92); tertile two ($n = 24$, 3.00-3.67); and tertile three ($n = 23$, 3.69-5.00). Figure 1 shows pre- and post-exposure body dissatisfaction scores for each of the three groups. It can be seen that participants with low and medium body appreciation both experienced more body dissatisfaction initially, and reported an increase in body dissatisfaction following exposure to the thin-ideal advertisements. In contrast, participants with high body appreciation did not report any increase in body dissatisfaction in response to exposure to the advertisements.

The Role of State Self-objectification and Appearance Comparison

Table 1 also displays correlations between body appreciation and the two hypothesised explanatory mechanisms, state self-objectification and appearance comparison, as well as their relationship to pre-and post-exposure body dissatisfaction. As can be seen, body appreciation was negatively correlated with both state self-objectification and appearance comparison. These two state measures were in turn positively correlated with body dissatisfaction at both time points.

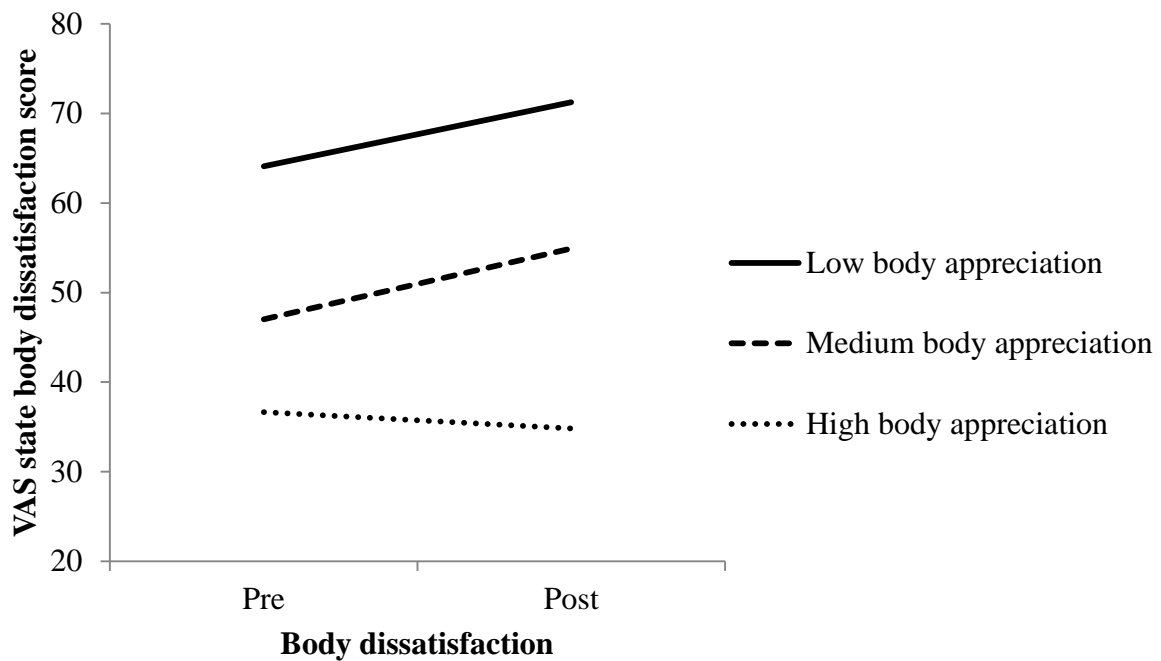


Figure 1. State body dissatisfaction change from pre- to post-exposure by body appreciation tertiles.

Two separate hierarchical multiple regressions were conducted in order to test whether state self-objectification and appearance comparison predicted change in body dissatisfaction in their own right. In both regressions, pre-exposure body dissatisfaction was controlled for in Step 1. In the first regression, state self-objectification was entered at Step 2, and did not significantly add any additional variance, $R^2_{change} = .011$, $F_{change}(1, 64) = 1.59$, $p = .21$, $\beta = .12$. However, when appearance comparison was entered at Step 2 in the second regression, the model proved significant and indicated that appearance comparison predicted change in body dissatisfaction, $R^2_{change} = .037$, $F_{change}(1, 65) = 5.96$, $p = .02$, $\beta = .20$. Here, the positive sign of the beta indicates that more engagement in state appearance comparison with the models in the advertisements predicted a greater increase in body dissatisfaction.

PROCESS macros (Hayes, 2013) were used to assess whether body appreciation influenced state body dissatisfaction indirectly via state appearance comparison or state self-

objectification. Indirect effects were examined using bootstrapping of 5000 samples and subsequent confidence intervals (CI), with mediation significant if the 95% bias-corrected CI of the indirect path does not contain zero. Pre-exposure state body dissatisfaction was controlled for in each mediation model. Results showed a significant direct effect of body appreciation on state body dissatisfaction, $b = -10.811$, CI [-16.327, -5.295], but no significant indirect effect from body appreciation to state body dissatisfaction via state appearance comparison, $b = -1.036$, CI [-4.681, 0.176]. The same pattern of results was found for state self-objectification, with a significant direct effect of body appreciation on state body dissatisfaction, $b = -11.755$, CI [-17.465, -6.045], but no indirect effect through state self-objectification, $b = -.306$, CI [-3.472, 0.912].

Exploration of Media Protective Strategies

The general (trait) media protective strategies that may help shield against potentially harmful messages from media were explored. Correlations between general trait media protective strategies and body appreciation are displayed in Table 2. It can be seen that all media protective strategies (apart from the two negatively worded items, Items 8 and 10) were positively related to body appreciation as would be expected. In particular, body appreciation was significantly positively related to consciously thinking about digital modifications in images (Item 2), reminding oneself of the variability in body shapes (Item 5), and not focusing on images that contain unattainable physiques (Item 7). Body appreciation was also significantly positively related to the overall 7-item protective processing subscale.

Table 2

Correlations between Trait Media Protective Strategies and Body Appreciation

| Trait Media Protective Strategy | Body Appreciation |
|---|-------------------|
| <i>Protective Processing</i> | |
| 1. Attractive women in media images are not necessarily happy just because they are attractive | .15 |
| 2. When I view 'thin ideal' media, I try to think about the digital modifications that might have been made | .32** |
| 3. Slender women in media images are not necessarily healthy just because they are slender | .17 |
| 4. I think about how women in advertisements have had make-up artists, hair dressers and stylists to enhance their appearance | .23 ^a |
| 5. I try to remind myself that all people are born with different body shapes when I look at attractive and slender models | .46*** |
| 6. When I view images of models, I think that it is the model's job to look that way | .20 |
| 7. When I view media images that are physically not attainable for me, I don't focus on them | .50*** |
| 8. I do not question portrayals of women in media images, I automatically accept them (reversed) | -.11 |
| Total Protective Processing subscale ^b | .36** |
| <i>Media Avoidance</i> | |
| 9. I intentionally avoid viewing television programs and movies that contain 'thin-ideal' images | .02 |
| 10. I try to read as many fashion magazines as possible (reversed) | -.12 |
| 11. I try not to pay attention to other people's photos posted on social media sites | .16 |
| 12. I pay attention to media images of women that do not make me feel bad about myself | .15 |
| Total Avoidance subscale ^c | .11 |

Note. ^b Contains Items 1 to 7, ^c Contains Items 9, 11 and 12; ^a $p < .07$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Next, the strategies that participants reported they had actually used whilst viewing the magazine advertisements (i.e., state media protective strategies) were explored in relation to body appreciation and body dissatisfaction. Table 3 displays correlations between body appreciation and each of the five state media protective strategies. As shown, body appreciation was positively related with each of the five strategies, with significant correlations for thinking about how models were not true representations of women in society (Item 3) and how models look the way they do because it is their job (Item 4). A positive correlation between the overall measure of state media protective strategies and body appreciation was also found.

Table 3

Correlations between State Media Protective Strategies and Body Appreciation

| State Media Protective Strategy | Body Appreciation |
|--|-------------------|
| <i>“Extent to which you thought about how...”</i> | |
| 1. The advertisements might have been digitally altered to improve appearance | .21 ^a |
| 2. The women in the advertisements may have had their hair and make-up done by professionals | .20 |
| 3. The women in the advertisements were not a true representation of women in society | .34** |
| 4. The women in the advertisements look the way they do because it is their job | .25* |
| 5. The women in the advertisements might not necessarily be healthy or happy | .10 |
| Total scale | .27* |

^a $p < .10$. * $p < .05$. ** $p < .01$.

A hierarchical multiple regression analysis was then undertaken to determine whether state media protective strategies could predict change in body dissatisfaction following media exposure. Post-exposure body dissatisfaction was entered as the outcome variable. Pre-exposure body dissatisfaction was entered at Step 1. At Step 2, the five state strategies were entered together. Step 2 did not provide additional variance, $R^2_{change} = .038$, $F_{change}(5, 61) = 1.18$, $p = .33$, indicating that the state media protective strategies did not predict change in body dissatisfaction.

Discussion

The current study aimed to extend knowledge regarding the ability of body appreciation to protect women against harmful impacts of viewing thin-ideal media images. The major finding was clear. Body appreciation predicted change in body dissatisfaction after exposure to thin-ideal advertisements, such that higher body appreciation proved protective in a way that lower levels of body appreciation did not. That is, women with lower body appreciation reported increased body dissatisfaction following exposure to the thin ideal, whereas women with high body appreciation reported no such change. In addition, state self-objectification and state appearance comparison were examined as potential explanatory mechanisms. While state appearance comparison was related to body appreciation and predicted increased body dissatisfaction after viewing the advertisements, it did not account for body appreciation's protective effect. Finally, several trait and state media protective strategies correlated positively with body appreciation, but use of state strategies did not predict change in body dissatisfaction.

The current study has extended the findings reported by Halliwell (2013), using a continuous measure of body appreciation and examining media-induced body dissatisfaction as the outcome. In support of Halliwell (2013), body appreciation was found to be protective, in that women with higher body appreciation reported less change in body dissatisfaction in

response to thin-ideal exposure. When faced with thin-ideal stimuli, women with higher body appreciation dealt with this information in a body protective manner (Tylka, 2011), such that their body satisfaction was not adversely affected at that time. Thus, the protective role played by body appreciation has now been shown in two separate studies, with different samples (United Kingdom, Australia), using different methodology and measures of body image disturbance. Together, they present a convincing case that body appreciation in young adult women serves a protective function against negative impacts from thin-ideal media exposure. Future work could usefully examine this role in an adolescent sample, a group particularly vulnerable to the development of body dissatisfaction (Striegel-Moore & Cachelin, 1999). The ability of body appreciation to shield against potentially negative consequences of exposure to other sources of negative body-related information, e.g., appearance-related comments (Tiggemann & Boundy, 2008), fat-talk (Stice, Maxfield, & Wells, 2003), and exercising in objectifying environments (Prichard & Tiggemann, 2005), should also be explored.

Although not the major aim of the study, implications regarding the potential for body appreciation to protect against body dissatisfaction over the longer term may be drawn. In a previous study, Hargreaves and Tiggemann (2003) found that those adolescent girls most negatively affected by a single experimental exposure to thin-ideal images reported greater body dissatisfaction and drive for thinness two years later. The authors reasoned that the observed reaction to the experimental exposure was representative of daily encounters with thin-ideal media, and that over time, individual experiences with such media would reinforce and cumulate, resulting in increased body dissatisfaction (Hargreaves & Tiggemann, 2003). In the present study, women who had little negative reaction to the thin-ideal images (women with higher body appreciation) would likewise be expected to not experience increases in body dissatisfaction in response to everyday thin-ideal stimuli, and so would not accumulate

body dissatisfaction. In line with this, participants who had higher body appreciation (and reported less change in state body dissatisfaction) reported lower levels of initial body dissatisfaction prior to the experimental exposure. Thus, body appreciation's protective role against negative effects from a single exposure to thin-ideal images may extend to cumulative body dissatisfaction over time.

The present study also sought to examine potential mechanisms involved in body appreciation's protective effect on body satisfaction. Although, as predicted, body appreciation was negatively correlated with state self-objectification, which was in turn positively correlated with body dissatisfaction, state self-objectification did not predict change in body dissatisfaction. However, appearance comparison with the model in the advertisements did predict increased body dissatisfaction, supporting previous studies (e.g., Tiggemann & Polivy, 2010). Despite this, state appearance comparison did not account for body appreciation's protective effect. This indicates that body appreciation was protective for reasons beyond decreasing comparison with the models in the advertisements. Future research needs to explore exactly which mechanisms (if any) are responsible for body appreciation's influence on body dissatisfaction. For example, body appreciation and self-compassion have been shown to be strongly correlated (Wasylikiw et al., 2012), and a self-compassionate stance may help women to successfully reject negative messages from media images.

Endorsement of media protective strategies was also explored in relation to body appreciation. Results showed that body appreciation was positively related to general awareness of widespread digital modifications, diversity of bodies, not focusing on images with unattainable appearance, and to the overall (trait) protective processing scale. The media avoidance scale was not significantly related to body appreciation. One explanation for this finding is that women with higher body appreciation might acknowledge the difficulty in

avoiding thin-ideal media, so instead choose to actively engage in strategies to process information. Further, it is probable that the relationship between body appreciation and media protective strategies is reciprocal (Tylka, 2011, 2012), in that women with higher body appreciation might be more inclined to use strategies to protect against media-related appearance information, and use of such strategies likely strengthens body appreciation by reinforcing acceptance of one's own body. Future research should longitudinally investigate the endorsement of (trait) media protective strategies in relation to the development of body appreciation over some time to clarify this relationship.

The active use of (state) media protective strategies during thin-ideal exposure was also examined. Body appreciation correlated positively with thinking about how models in the viewed advertisements were not accurate representations of women in society, and thinking about how it is the model's job to look the way she does. However, state strategies did not predict change in body dissatisfaction following thin-ideal exposure. In this, it is important to note that participants retrospectively rated strategies that they may have spontaneously used while undertaking the required tasks (i.e., focusing on the advertisement and rating effectiveness and appeal). Providing explicit instructions to use strategies while viewing the advertisements may have proved more successful in decreasing subsequent body dissatisfaction. Thus, future investigations might consider experimental manipulations of instructional set (requiring participants to engage in protective strategies) when exposed to thin-ideal images.

The results of the present study point to several practical implications. Two targets were identified as protective against media-induced body dissatisfaction. The first, appearance comparison, has consistently been shown to be a predictor of body dissatisfaction in the literature (for a meta-analysis, see Myers & Crowther, 2009). Here, however, body appreciation emerged as a stronger target, in that it explained more variance in post-exposure

body dissatisfaction than did appearance comparison. Body appreciation (as a trait variable) is also less susceptible to moment-to-moment influences. Thus, body appreciation appears to be a worthwhile target for interventions that aim to reduce the impact of thin-ideal images on body dissatisfaction. Furthermore, it has been suggested that attempting to increase body appreciation may be an easier task than working to decrease levels of body dissatisfaction (Andrew et al., 2014). Suggested strategies include encouraging participation in embodying activities that emphasise the function, as opposed to the appearance, of one's body, such as athletics and yoga (Menzel & Levine, 2011; Tylka, 2012). Women might also be encouraged to surround themselves with peers and social networks that focus on positive non-appearance related qualities, and do not engage in body shaming and "fat-talk" (Tylka, 2012). These strategies may assist in creating a healthy environment that fosters respect and appreciation for one's own body and simultaneously increases perceived acceptance of one's body by other people (Cook-Cottone, 2015), which has shown to predict body appreciation in young women (Avalos & Tylka, 2006). Increasing body appreciation may also have other additional benefits for women, including a more adaptive and intuitive eating style (Avalos & Tylka, 2006) and engaging in positive health care behaviour (Andrew et al., 2014).

There are some limitations of the present study that should be noted. First, the sample consisted of mostly Caucasian, female undergraduate university students. Replication of the present findings with a more diverse sample of women in terms of age, socio-economic status and ethnicity is needed. Second, the current study was conducted under laboratory conditions. In particular, participants were asked to pay attention to the magazine advertisements in a different way from normal everyday reading of fashion magazines at home or in other natural settings. On the other hand, our results showed that exposure to only 11 thin-ideal images (far less than in a single issue of a fashion magazine) was sufficient to result in increased body dissatisfaction. Third, the current study did not include a control group who were not exposed

to thin-ideal images. Inclusion of such a control condition would more conclusively demonstrate that the effects on body dissatisfaction were attributable to the thin-ideal images, rather than other aspects of the stimuli. Finally, although the majority of measures used were well-established, the trait and state measures of media protective strategies needed to be specifically constructed for this study. Hence, it is possible that important strategies that women engage in may not have been included. The trait media avoidance subscale was also found to have low internal reliability. Therefore, further psychometric investigation of the created measures is required, along with exploration of other potentially important strategies, such as focusing on body function and/or positive personality attributes.

Despite the limitations of the current study, the results have contributed to a clearer understanding of body appreciation's protective capacity against negative consequences of media exposure. In short, the study has shown that body appreciation is able to some extent shield young women against body dissatisfaction resulting from acute thin-ideal exposure. Further work is needed to understand more fully the processes by which this occurs. Overall, the findings have theoretical and practical implications, in particular in identifying positive body image as an important target for minimising the negative impact of exposure to idealised media images.

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CHAPTER 5: Study 4 – Cross-sectional Analysis in Adolescent Girls

Predictors of Intuitive Eating in Adolescent Girls

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Abstract

Purpose: To examine proposed predictors of intuitive eating, including social appearance comparison, and to test a modified acceptance model of intuitive eating in adolescent girls.

Methods: Participants were 400 adolescent girls aged 12-16 years who completed measures of body acceptance by others, self-objectification, social appearance comparison, body appreciation and intuitive eating. **Results:** Correlations showed that all proposed predictors were related to intuitive eating in the expected direction. In particular, social appearance comparison was negatively related to body appreciation and intuitive eating. After controlling for other predictors, social appearance comparison was shown to explain unique variance in intuitive eating. Using structural equation modeling, an integrated modified acceptance model of intuitive eating yielded an overall good fit to the data. Mediation analyses showed that there was a significant indirect effect of body acceptance by others on both body appreciation and intuitive eating through social appearance comparison and self-objectification.

Conclusions: The findings extend the acceptance model of intuitive eating to adolescent girls, but also identify social comparison as an important mechanism in this process. Practically, the findings highlight several areas that may be targeted to foster adaptive eating patterns in girls.

Key words: intuitive eating, adolescent girls, acceptance model, body appreciation, social appearance comparison

Implications and contribution

This study found that predictors of intuitive (or adaptive) eating established for women also apply to adolescent girls. In addition, girls' social appearance comparison was associated with lower levels of intuitive eating. These findings offer several targets for interventions that attempt to increase adaptive eating in adolescent girls.

Research investigating eating behaviour has strongly focused on eating pathology and has been less concerned with identifying predictors of adaptive eating (Tylka, 2006). A similar trend is evident in the body image field with the bulk of previous research centred on negative body image and body dissatisfaction (Tylka, 2011). Recently, however, there has been an increase in examinations of adaptive eating and positive body image. In particular, studies have examined intuitive eating (Tribole & Resch, 1995; Tylka, 2006) as a measure of adaptive eating, and body appreciation as an index of positive body image (Avalos, Tylka, & Wood-Barcalow, 2005).

Intuitive eating reflects a strong trust and connection with the internal hunger and satiety cues that signal when and how much to eat (Tribole & Resch, 1995; Tylka, 2006). As opposed to restrained eating, intuitive eating occurs in response to internal cues and not in response to difficult emotions or distress. Those who eat intuitively are not preoccupied with dieting and food, do not categorise food as “forbidden”, and food choices are a reflection of preferred taste and a desire to assist the body’s functioning. In support of this conceptualisation of intuitive eating, studies have shown that individuals who eat in response to internal hunger and satiety cues engage in less overeating in the absence of hunger (Birch, Fisher, & Davison, 2003), less eating in response to emotional or situational triggers (Woody, Costanzo, Liefer, & Conger, 1981), and less food preoccupation (Faith, Scanlon, Birch, Francis, & Sherry, 2004).

Correlational studies have reported significant associations between intuitive eating and women’s health and psychological well-being. Intuitive eating has been shown to be negatively related to disordered eating symptomatology, and positively associated with optimism, life satisfaction, proactive coping, and self-esteem in young adult women (Tylka, 2006). Experimental studies of intuitive eating intervention programs have also reported beneficial outcomes for psychological and physical well-being (Schaefer & Magnuson,

2014), for example, improved body satisfaction (Gagnon-Girouard et al., 2010), self-acceptance, blood pressure (Bacon, Stern, Van Loan, & Keim, 2005) and increased physical activity (Katzner et al., 2008). Importantly, intuitive eating is not associated with increased Body Mass Index (BMI), but rather with no weight change (Katzner et al., 2008) or with weight loss (Gagnon-Girouard et al., 2010).

Thus far, research on intuitive eating has mainly sampled adult women. Yet examining intuitive eating in adolescent girls is imperative, because of the focus on appearance, weight control and high rate of eating pathology (Paxton et al., 1991) during this developmental period. Adolescence is also the time when attitudes and behaviours regarding eating develop and can have negative impacts into young adulthood (Graber, Brooks-Gunn, Paikoff, & Warren, 1994). To our knowledge, there are only two published studies examining intuitive eating in adolescence. The first found that intuitive eating negatively related to dieting pressure and negative emotions (e.g., sadness), and positively related to life and body satisfaction and positive emotions (e.g., confidence, Dockendorff, Petrie, Greenleaf, & Martin, 2012). In the second study, dieting for weight management was negatively related to intuitive eating (Moy, Petrie, Dockendorff, Greenleaf, & Martin, 2013).

Drawing on Humanistic Theory (Rogers, 1961) and Objectification Theory (Fredrickson & Roberts, 1997), Avalos and Tylka (2006) developed a model of intuitive eating in adult women, termed “the acceptance model of intuitive eating”. This model was first examined in college women (Avalos & Tylka, 2006), and subsequently in female college athletes (Oh, Wiseman, Hendrickson, Phillips, & Hayden, 2012) and emerging, early- and middle-aged adult women (Augustus-Horvath & Tylka, 2011). The model posits that body acceptance by others assists women to resist self-objectification. Self-objectification occurs when women internalise an observer’s perspective of themselves as an object to be evaluated, and is characterised by habitual appearance monitoring (Fredrickson & Roberts, 1997).

Women who resist self-objectification are proposed to have higher levels of body appreciation, which refers to the acceptance of, favourable opinions toward, and respect for the body, irrespective of perceived flaws (Avalos et al., 2005). Body appreciation is conceptualised as the proximal predictor of intuitive eating because women who appreciate their bodies are more aware of bodily needs, and so respect their bodies by eating according to internal cues (Avalos & Tylka, 2006).

In the acceptance model of intuitive eating, perceived body acceptance is postulated to indirectly lead to body appreciation, via reduced self-objectification (Avalos & Tylka, 2006). People who perceive that others are accepting of their bodies are proposed to feel less need to self-objectify by habitually monitoring their appearance (Avalos & Tylka, 2006). Women who resist self-objectification should appreciate their own body to a greater extent, regardless of perceived flaws. Self-objectification is also suggested to directly lead to intuitive eating. Objectification Theory (Fredrickson & Roberts, 1997) posits that women who do not focus on their external appearance have more resources available to attend to internal bodily experiences (e.g., hunger and satiety cues), and so should eat more intuitively (Avalos & Tylka, 2006).

It seems likely that the predictors contained within the acceptance model will also predict intuitive eating in adolescent girls. It is particularly necessary to explore predictors and mechanisms that influence intuitive eating in adolescence, while eating attitudes and behaviours are still forming, as this may reveal appropriate intervention points to enhance adaptive eating (Dockendorff et al., 2012). In addition to those predictors outlined in the acceptance model of intuitive eating, one factor likely to be especially important for adolescent girls is social appearance comparison.

Social Comparison Theory postulates that people compare their own qualities with other people's qualities to obtain information for self-evaluation (Festinger, 1954). In a recent

meta-analysis, social comparison in the appearance domain was shown to be a strong predictor of body dissatisfaction (Myers & Crowther, 2009), and has been reported to be associated with body dissatisfaction in adolescent girls in particular (Jones, 2004; McLean, Paxton, & Wertheim, 2013). Direction and target of comparison have been shown to impact body image. Upward appearance comparison (e.g., to someone more physically attractive) is related to lower appearance evaluation, whereas downward appearance comparison predicts higher appearance evaluation (O'Brien et al., 2009), with adolescents' target of comparison more frequently peers than models (Jones, 2001). Girls' social appearance comparison has also been shown to relate to maladaptive eating indicators, such as extreme weight-loss behaviour and binge eating (Schutz, Paxton, & Wertheim, 2002). Thus, social appearance comparison was proposed as an additional mediator in the acceptance model. It was reasoned that girls who receive body acceptance from family and friends will not only self-objectify less, but will also have less need to evaluate and compare their appearance with others. In sum, they are more likely to accept their bodies as they are, and experience higher body appreciation and intuitive eating.

Taken together, the main aim of the present study was to examine whether the predictors (body acceptance by others, self-objectification, and body appreciation) contained within the acceptance model of intuitive eating (Avalos & Tylka, 2006) predict intuitive eating in girls. In addition, social appearance comparison was examined as a potentially useful addition to the acceptance model. The modified acceptance model, as outlined in Figure 1, proposes that perceived body acceptance will be associated with reduced self-objectification and reduced social appearance comparison. In turn, reduced self-objectification and social appearance comparison are expected to be associated with both increased body appreciation and intuitive eating.

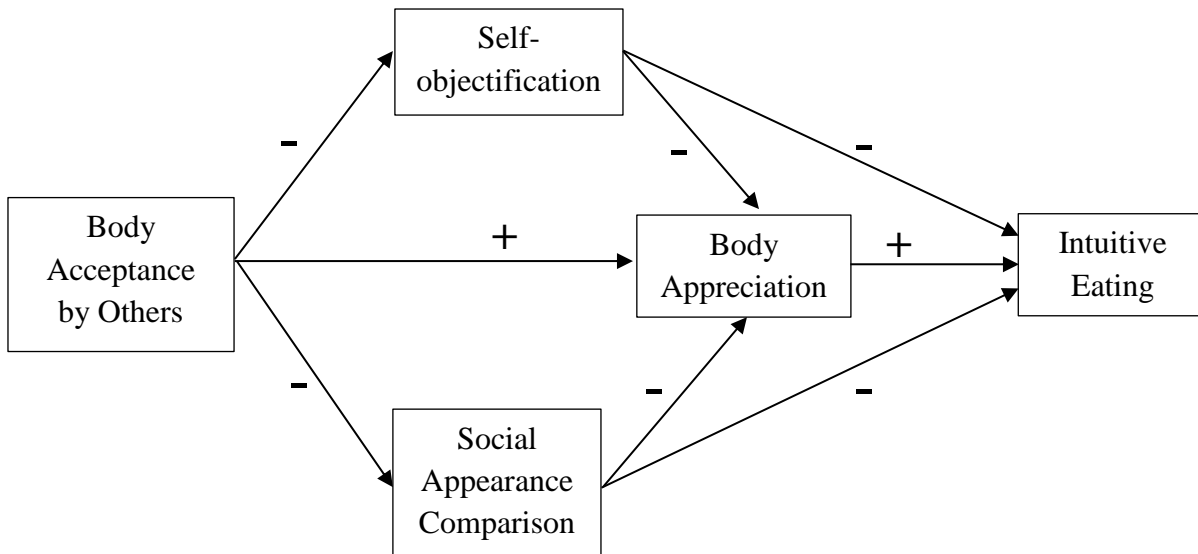


Figure 1. Hypothesised modified acceptance model of intuitive eating for adolescent girls.

Methods

Design and Sample

This study utilised a cross-sectional design with participants assessed at one time point. Participants were 400 adolescent girls between 12 and 16 years of age ($M = 14.08$, $SD = .90$) who were in their first three years of secondary schooling: Year 8 ($N = 178$), Year 9 ($N = 155$), Year 10 ($N = 67$). Participants were recruited from five (three private and two public) secondary schools across metropolitan South Australia. The girls had a mean BMI of 20.90 ($SD = 3.94$), which is classified in the “normal weight” category (World Health Organization, 2015). Most girls self-identified as white/Caucasian (83.9%), with 10.3% Asian, 1.3% African, 0.8% Aboriginal or Torres Strait Islander and 3.7% “other”.

Procedure

The protocol used in this study was approved by the relevant institutional research board, the Catholic Education Office and the Department for Education and Child Development Research Unit. Principals of schools were contacted to give permission for

school participation. Parental consent was obtained through a Letter of Introduction, Information Sheet and Consent Form. Girls also gave their own assent to participate. Questionnaires were completed during normal class time in groups under the supervision of teachers and the first author. As a token of appreciation, participants could enter into a raffle to win one of five \$20 vouchers for a clothing store.

Measures

Body acceptance by others. Perceived body acceptance by others was measured using the Body Acceptance by Others Scale (Avalos & Tylka, 2006). Participants rate weight and shape acceptance with regard to their friends, family, people whom they have dated, society, and media, on a five-point scale from 1 (*never*) to 5 (*always*). For the present study, this measure was abridged to assess only family and friend messages as these are of most relevance for adolescent girls. The resulting scale had four items. An exemplar item is “I’ve felt acceptance from my family regarding my shape and/or weight”. Items were averaged with higher scores reflecting greater perceived body acceptance. The original scale has been shown to have good internal consistency ($\alpha = .91$), test-retest reliability ($r = .85$), and construct validity in college women (Avalos & Tylka, 2006). For this sample, internal consistency was acceptable ($\alpha = .75$).

Self-objectification. Self-objectification was measured by the Body Surveillance Subscale of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996). The subscale measures the extent to which participants monitor their bodies and view them in terms of appearance as opposed to how they feel (McKinley & Hyde, 1996). The scale consists of eight items (e.g., “I rarely think about how I look”), with responses rated from 1 (*strongly agree*) to 7 (*strongly disagree*), with a “not applicable” option coded as missing. Scores are averaged with higher scores indicating higher levels of self-objectification. This measure has been shown to be reliable and valid in adults (McKinley & Hyde, 1996), and

internally consistent in adolescent girls ($\alpha = .86$, Slater & Tiggemann, 2002). In the present sample the reliability was acceptable ($\alpha = .80$).

Social appearance comparison. Social appearance comparison was assessed using the five-item Physical Appearance Comparison Scale (Thompson, Heinberg, & Tantleff-Dunn, 1991). Participants rate on a scale from 1 (*never*) to 5 (*always*) their tendency to compare their overall appearance with other people's appearance. An exemplar item is "In social situations, I sometimes compare my figure to the figures of other people". This scale has been shown to have high test-retest reliability ($\alpha = .78$) in adolescent girls (Schutz et al., 2002), and correlated highly with upward and downward appearance comparison in college students (O'Brien et al., 2009). The internal reliability in the present sample of adolescents fell just short of acceptable ($\alpha = .67$). Examination of the item-scale correlations indicated that this was due to the one negatively-worded item (item 4), as has been found previously with adolescents (Tiggemann & Miller, 2010). Therefore, item 4 was removed, and the remaining four items were summed with scores ranging from 4 to 20. The resulting internal reliability was acceptable ($\alpha = .79$).

Body appreciation. Body appreciation was measured with the Body Appreciation Scale of Avalos et al. (2005) which measures appreciation, acceptance, respect, and protection of one's body. Participants rate 13 items (e.g., "Despite my flaws, I accept my body for what it is") on a five-point Likert scale from 1 (*never*) to 5 (*always*). Items are averaged with higher scores reflecting more body appreciation. This scale has been shown to demonstrate good test-retest reliability ($r = .90$), construct and discriminant validity (Avalos et al., 2005), and is internally consistent ($\alpha = .88$) with adolescents (Lunde, 2013). For the present sample, internal reliability was high ($\alpha = .93$).

Intuitive eating. Intuitive eating was measured with the Intuitive Eating Scale for Adolescents (Dockendorff et al., 2012). This was designed to address unconditional

permission to eat, eating for physical rather than emotional reasons, awareness of internal satiety and hunger cues, and trust in these cues. Participants rate 17 items (e.g., “I try to avoid certain foods high in fat, carbohydrates, or calories”) on a Likert-scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The scale has demonstrated validity, and although no overall reliability coefficient is provided (Dockendorff et al., 2012), in the current sample overall internal consistency was acceptable ($\alpha = .83$).

Results

Correlational Analysis

Table 1 displays the means and inter-correlations for all variables. As can be seen, all variables were significantly related to each other (at $p < .001$). Importantly, all proposed predictors correlated with intuitive eating. Specifically, body acceptance by others (positively), self-objectification (negatively), social appearance comparison (negatively), and body appreciation (positively) were significantly related to intuitive eating.

Table 1

Means (and Standard Deviations [SD]) and Correlations Among Study Measures (N = 400)

| | <i>M</i> | <i>(SD)</i> | Response range | 1 | 2 | 3 | 4 | 5 |
|------------------------------------|----------|-------------|-------------------|-------|-------|-------|------|---|
| 1. Body acceptance by others | 4.04 | (.82) | 1 - 5 | - | | | | |
| 2. Self- objectification | 4.54 | (1.11) | 1 - 7 | -.21* | - | | | |
| 3. Social appearance Comparison | 12.17 | (3.39) | 4 - 20 | -.27* | .56* | - | | |
| 4. Body appreciation | 3.39 | (.81) | 1 - 5 | .45* | -.52* | -.51* | - | |
| 5. Intuitive eating | 3.22 | (.57) | 1 - 5 | .31* | -.42* | -.47* | .53* | - |

* $p < .001$.

Predictors of Intuitive Eating in Adolescent Girls

The variables contained within the acceptance model were examined for their ability to predict intuitive eating in girls. A hierarchical multiple regression was performed with body acceptance by others, self-objectification and body appreciation entered in Step 1, and intuitive eating entered as the outcome variable. This showed that the predictors together explained a significant 31.5% of variance in intuitive eating, $R^2 = .315$, $F(3,391) = 59.98$, $p < .001$.

To determine whether social appearance comparison explained additional variance in intuitive eating, over and above those variables contained in the original acceptance model, social appearance comparison was entered in Step 2 of the hierarchical multiple regression. Social comparison explained a significant additional 2.8% of variance in intuitive eating, $R^2_{Change} = .028$, $F_{Change}(1,390) = 16.54$, $p < .001$, after controlling for predictors from the acceptance model. As can be seen from the regression coefficients in Table 2, self-objectification, social appearance comparison, and body appreciation offered independent unique prediction of intuitive eating, with social appearance comparison the second strongest predictor of intuitive eating (after body appreciation).

Test of the Proposed Acceptance Model of Intuitive Eating

The modified acceptance model of intuitive eating in adolescent girls was examined using structural equation modeling. The maximum likelihood method of structural equation modeling was used (AMOS version 20). All variables were treated as observed variables. Less than 1% of cases were missing for any one variable, with mean substitution used to replace missing data. As recommended by Hu and Bentler (1999), the comparative fit index (CFI), the Tucker-Lewis index (TLI), the standardised root-mean square residual (SRMR), and the root-mean square error of approximation (RMSEA), were used to evaluate adequacy of model fit. Hu and Bentler (1999) suggest that values of .95 or higher for CFI and TLI, and

.08 and .06 or lower for SRMR and RMSEA respectively, indicate a relatively good fit.

Values of .90 - .94 for CFI and TLI, .09 - .10 for SRMR and .07 - .10 for RMSEA indicate acceptable fit.

Table 2

Summary of Hierarchical Multiple Regression of Variance Explained in Intuitive Eating (N = 395)

| | <i>B</i> | <i>SE B</i> | β |
|------------------------------|----------|-------------|---------|
| Step 1 | | | |
| Constant | 2.51 | .22 | |
| Body acceptance by others | .06 | .03 | .09 |
| Self-objectification | -.10 | .03 | -.20** |
| Body appreciation | .27 | .04 | .39** |
| Step 2 | | | |
| Constant | 2.92 | .24 | |
| Body acceptance by others | .05 | .03 | .08 |
| Self-objectification | -.06 | .03 | -.11* |
| Body appreciation | .23 | .04 | .33** |
| Social appearance comparison | -.04 | .01 | -.21** |

Note. $R^2 = .315$ for Step 1. $\Delta R^2 = .028$ for Step 2, ($p < .001$); *SE* = standard error of the unstandardised coefficient; * $p < .05$. ** $p < .001$.

The fit indices for the proposed model suggested a less than acceptable fit: $\chi^2 = 134.99$, $df = 2$, $p < .001$, CFI = .77, TLI = -.18, SRMR = .15, RMSEA = .41. Examination of the modification indices indicated an additional pathway from self-objectification to social appearance comparison. The model was re-estimated with the inclusion of this pathway, and demonstrated an overall acceptable to good fit to the data: $\chi^2 = 2.97$, $df = 1$, $p = .09$, TLI = .97 (good), CFI = .99 (good), SRMR = .02 (good), RMSEA = .07 (acceptable). Figure 2

presents the standardised path coefficients for the final model. Perceived body acceptance was negatively associated with self-objectification and social appearance comparison, and positively related to body appreciation. Self-objectification and social appearance comparison were negatively associated with both body appreciation and intuitive eating. Finally, body appreciation was positively related to intuitive eating.

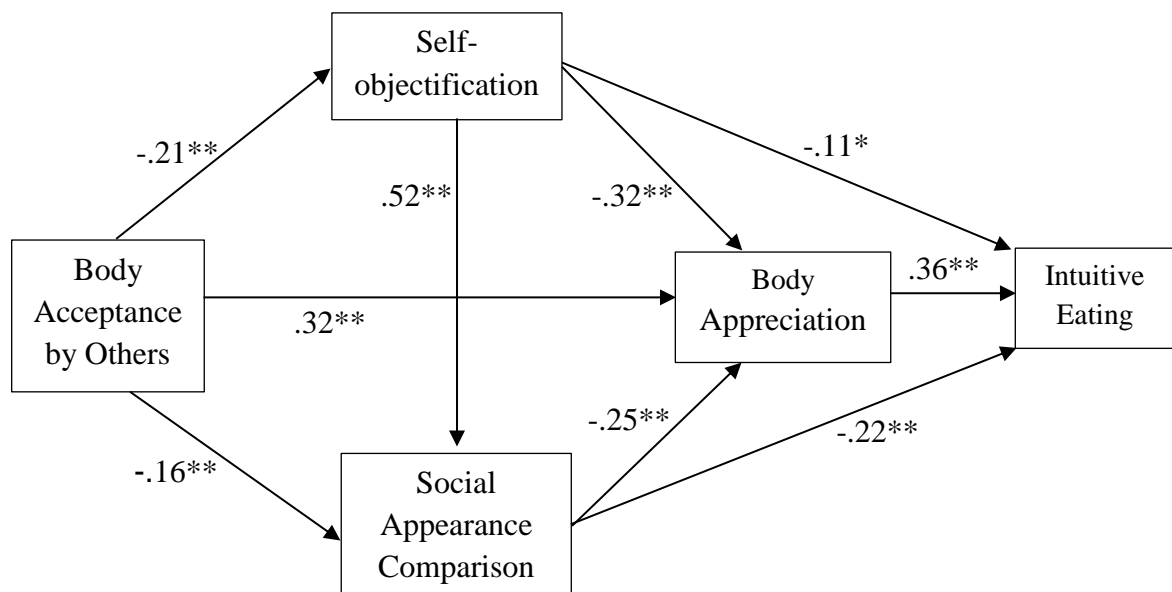


Figure 2. Structural parameters for the final model of the acceptance model of intuitive eating in adolescent girls. Standardised regression coefficients shown. Fit indexes: $\chi^2 = 2.97$, $df = 1$, $p = .09$, Tucker-Lewis index = .97 (good), comparative fit index = .99 (good), standardised root-mean-square residual = .02 (good), root-mean-square error of approximation = .07 (acceptable). * $p < .05$. ** $p < .001$.

Mediation was formally tested using a bootstrapped multiple mediation model as described by Hayes (2013). Bootstrapping of 5000 samples was used to examine indirect effects and related confidence intervals (CI), with mediation significant if the 95% bias-

corrected CI of the indirect path does not contain zero. Results showed significant indirect effects from body acceptance by others to body appreciation via both social appearance comparison, $b = .067$, CI [.035 - .112], and self-objectification, $b = .065$, CI [.030 - .111]. This was also the case for the significant indirect effects of body acceptance by others on intuitive eating, via social appearance comparison, $b = .054$, CI [.029 - .088] and self-objectification, $b = .031$, CI [.013 - .059].

Discussion

The present study sought to extend knowledge regarding the predictors of intuitive eating in adolescent girls. The major findings are clear. First, the variables outlined in the acceptance model of intuitive eating, namely body acceptance by others, self-objectification and body appreciation, showed significant associations with intuitive eating in our sample of girls. Second, social appearance comparison was significantly related to both body appreciation and intuitive eating. Finally, the modified acceptance model of intuitive eating was supported in this age group.

The primary aim of the present study was to extend examination of the predictors of intuitive eating, as outlined in the acceptance model of intuitive eating (Avalos & Tylka, 2006), to adolescent girls. As previously shown in adult women (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Oh et al., 2012), we found that perceived friend and family body acceptance influences levels of self-objectification, which is in turn associated with body appreciation and intuitive eating. Our results have extended the two previous studies of intuitive eating in adolescents (Dockendorff et al., 2012; Moy et al., 2013). Together, the studies confirm that intuitive eating is an important and relevant concept for adolescent girls. Indeed, intuitive eating may be particularly important for girls during adolescence when attitudes toward eating are developing (Graber et al., 1994), and when girls may be vulnerable to disordered eating (Paxton et al., 1991). Chronic eating problems during

adolescence have been shown to be related to depressed mood and maladaptive eating in young adulthood (Graber et al., 1994). On the other hand, intuitive eating has been shown to have positive benefits for physical and psychological health (Schaefer & Magnuson, 2014). Longitudinal research should address whether intuitive eating during adolescence helps promote adaptive eating and other healthy outcomes into young adulthood.

The present study also demonstrated that social appearance comparison is an additional significant mediator between body acceptance by others and both body appreciation and intuitive eating. Female adolescents have been shown to engage in social appearance comparison more than their male counterparts (Jones, 2001), and engaging in social appearance comparison may be a particularly relevant and informative process for girls. Meeting perceived appearance expectations is one strategy used to earn acceptance within adolescent peer groups, and social comparison can be utilised to measure one's own appearance against standards (Jones, 2001). If comparisons are unfavourable, continued comparison will reinforce the discrepancy between current and ideal appearance (Tylka & Sabik, 2010), and negatively impact body image. In support, one longitudinal investigation showed that girls' initial levels of social appearance comparison predicted increased body dissatisfaction one year later (Jones, 2004). Our own results showed that reduced engagement in social appearance comparison was associated with higher levels of both body appreciation and increased intuitive eating.

Body appreciation was shown to be the strongest predictor of intuitive eating in the present sample. Encouraging body appreciation in adolescent girls may be particularly useful because of the physiological and appearance changes that occur during puberty, which can be a source of body-related concern, especially for those girls who mature earlier, or later, compared to peers (Wertheim & Paxton, 2011). Girls with higher levels of body appreciation may be able to better appreciate and accept these changes as normal and functional for the

body (i.e., leading to a more embodied experience, Piran & Teall, 2013), and thus may not feel the need to ignore internal eating signals in order to modify appearance.

The results suggest three targets to increase body appreciation in adolescent girls: body acceptance by others, self-objectification and social appearance comparison. While it is difficult to change the first of these (the views of others), the latter two processes may more readily be modifiable. In particular, school run media literacy programs could incorporate information about the media's presentation of body ideals and image manipulation to decrease social comparison (Myers & Crowther, 2009). Social appearance comparison has previously been successfully decreased through targeted experimental interventions that highlight the unrealistic and artificial nature of images or genetic predisposition to weight (Posavac, Posavac, & Weigel, 2001). Girls could also be assisted with strategies to resist and respond to sexual and self-objectification (Tylka & Augustus-Horvath, 2011). Participation in activities that emphasise the body's functionality and physical competence rather than appearance (e.g., basketball or yoga) have been suggested as one way to resist self-objectification (Tylka & Augustus-Horvath, 2011).

As with all research, the limitations of the present study should be acknowledged. Although the sample of participants was relatively large and was drawn from schools from varying geographical locations in metropolitan South Australia, the sample was limited to Australian girls aged 12 to 16 years who were predominantly white. Thus, the results cannot necessarily be generalised to adolescents from other cultures and ethnicities. In particular, the modified model needs to be confirmed in further samples of girls and extended to adolescent boys and adult women. In addition, our ability to draw firm causal conclusions is limited by the cross-sectional design. Structural equation modeling techniques assess the strength of relationships, which are based on prior findings or theory (in this case, the acceptance model of intuitive eating), but do not of themselves indicate causation or directionality. Therefore,

the tested model provides one possible combination of the relationships tested. Although less plausible, it is possible, for example, that girls who eat intuitively engage in less social appearance comparison. Only studies that employ longitudinal designs that track factors over time can offer more definitive causal conclusions.

Despite these limitations, the present study has contributed to the understanding of intuitive eating in contemporary adolescent girls. As the first examination of the acceptance model in this age group, it has not only extended knowledge regarding predictors of intuitive eating in adolescent girls, but also has theoretical implications for the acceptance model as a framework for understanding intuitive eating. Social appearance comparison was shown to be an additional predictor. In sum, we have provided an extended acceptance model of intuitive eating in adolescent girls, one which offers a more complete description and highlights potential targets for intervention in this population.

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CHAPTER 6: Study 5 – Longitudinal Follow-up of Adolescent Girls

Predictors and Health-Related Outcomes of Positive Body Image in Adolescent Girls: A Prospective Study

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Statement of co-authorship:

All authors were involved in the formulation of the study concept and design. Rachel Andrew collected the data, completed the data analysis and the initial draft of the manuscript. Marika Tiggemann and Levina Clark edited multiple revisions of the manuscript.

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Abstract

This study aimed to investigate prospective predictors and health-related outcomes of positive body image in adolescent girls. In so doing, the modified acceptance model of intuitive eating was also examined longitudinally. A sample of 298 girls aged 12 to 16 years completed a questionnaire containing measures of body appreciation, potential predictors, and a range of health outcomes, at two time points separated by one year. Longitudinal change regression models showed that perceived body acceptance by others (positively), self-objectification and social comparison (negatively) and body appreciation (positively) prospectively predicted intuitive eating one year later, consistent with the acceptance model of intuitive eating. Perceived body acceptance by others was the only proposed predictor to prospectively predict an increase in body appreciation over time. Time 1 body appreciation prospectively predicted a decrease in dieting, alcohol and cigarette use, and an increase in physical activity one year later. In particular, girls with low body appreciation were more likely than girls with high body appreciation to take up alcohol and cigarette use between time points. The results highlight body appreciation as an important target for interventions designed to prevent or delay the uptake of alcohol and cigarette consumption among girls. More broadly, they suggest that a positive body image can confer considerable benefit for adolescent girls.

Key words: adolescent girls, positive body image, body appreciation, prospective study, intuitive eating, health behaviours

Body image is recognised as a complex and multi-faceted construct that affects cognitive, behavioural and emotional functioning (Pruzinsky & Cash, 2002). Despite this broad conceptualisation of body image, the majority of body image research has focused on understanding and investigating negative aspects of body image (Tylka, 2011). Recently, however, there has been an increase in examinations of positive and adaptive components of body image. Positive body image is broadly described as the love, respect and acceptance of one's appearance and physical function (Wood-Barcalow, Tylka, & Augustus-Horvath, 2010), and is distinct from body satisfaction or a lack of negative body image (Tylka, 2011; Tylka & Wood-Barcalow, 2015a; Wood-Barcalow et al., 2010). Qualitative studies have revealed common characteristics of people with positive body image, including body acceptance, taking a functional view of the body, filtering appearance information in a protective manner, and advocating a broad conceptualisation of beauty (Bailey, Gammage, van Ingen, & Ditor, 2015; Frisén & Holmqvist, 2010; Holmqvist & Frisén, 2012; McHugh, Coppola, & Sabiston, 2014; Wood-Barcalow et al., 2010).

Positive body image is most commonly measured by the Body Appreciation Scale (Avalos, Tylka, & Wood-Barcalow, 2005). This scale assesses acceptance, respect and attention toward bodily needs, favourable opinions towards one's body and rejection of media messages depicting narrow beauty ideals (Avalos et al., 2005). Body appreciation has been shown to relate to adaptive psycho-social indicators of well-being including self-esteem, optimism (e.g., Avalos et al., 2005), and self-compassion (Albertson, Neff, & Dill-Shackleford, 2014; Wasyliw, MacKinnon, & MacLellan, 2012). In experimental studies, body appreciation has been shown to protect against media-induced body image disturbance (Andrew, Tiggemann, & Clark, 2015a; Halliwell, 2013). To date, the majority of research examining body appreciation has used samples of adult women. Given that a considerable proportion of adolescent girls report marked body dissatisfaction (Thompson, Heinberg,

Altabe, & Tantleff-Dunn, 1999), it is important that development of positive body image be investigated before adulthood.

Adolescence is a time associated with significant social, physical and emotional change (Eccles, 1999). For girls, puberty brings about physical transitions in body composition, including increased fat deposits on areas such as the hips (Wertheim & Paxton, 2011), that move appearance further away from cultural definitions of beauty (e.g., thinness). Although the study of negative body image in adolescent girls is extensive, as yet only a small number of studies have investigated positive body image in adolescents. In a sample of Spanish adolescent girls, body appreciation correlated positively with self-esteem and adaptive coping, and negatively with eating disorder symptomology (Lobera & Ríos, 2011; Lobera, Ríos, Fernández, & Casals Elsa Sánchez, 2011). In Australian adolescent girls, positive relationships were found with perceived body acceptance by others and intuitive eating (Andrew, Tiggemann, & Clark, 2015b). The current study aims to expand upon these limited findings by investigating a range of potential predictors and outcomes of body appreciation in adolescent girls.

The Acceptance Model of Intuitive Eating

Halliwell (2015) recently emphasised the importance of testing theoretical models in advancing the study of positive body image. The acceptance model of intuitive eating (Avalos & Tylka, 2006) considers body appreciation to proximally predict an adaptive style of eating called intuitive eating. Intuitive eating involves attending to internal hunger and satiety cues to inform eating behaviour, as opposed to eating in response to external cues or restricting intake (Tribole & Resch, 1995; Tylka, 2006). This model proposes that perceived body acceptance by others indirectly predicts body appreciation and intuitive eating through decreased self-objectification (the adoption of an observer's perspective of the body, Fredrickson & Roberts, 1997). People who feel others accept their body should feel less need

to monitor their outward appearance (Avalos & Tylka, 2006). Reduced self-objectification is proposed to predict increased body appreciation and intuitive eating, as those who pay attention to body function should appreciate their body for its abilities, instead of focusing on perceived flaws, and should have more resources to attend to physical hunger cues (Avalos & Tylka, 2006; Fredrickson & Roberts, 1997). Body appreciation directly predicts intuitive eating because people with higher body appreciation should have a heightened awareness of bodily needs and act with respect towards their body (Avalos & Tylka, 2006).

The acceptance model of intuitive eating has been tested and confirmed cross-sectionally in undergraduate women (Avalos & Tylka, 2006), college athletes (Oh, Wiseman, Hendrickson, Phillips, & Hayden, 2012) and in young and middle-aged adult women (Augustus-Horvath & Tylka, 2011). More recently the model was shown to hold in a sample of Australian adolescent girls (Andrew et al., 2015b). These authors also reported that reduced social appearance comparison was an additional (negative) mediator in the positive relationships between perceived body acceptance by others and both body appreciation and intuitive eating. Thus, their modified acceptance model of intuitive eating included both self-objectification and social appearance comparison as mediators (Andrew et al., 2015b).

The current study sought to longitudinally examine the modified acceptance model of intuitive eating in adolescent girls, a group undergoing a period of development associated with eating attitude formation (Graber, Brooks-Gunn, Paikoff, & Warren, 1994) and heightened risk of disordered eating (Paxton et al., 1991). All previous tests of the acceptance model of intuitive eating have been limited to correlational designs. Correlational studies cannot confidently determine the direction of causality between variables. For example, while the acceptance model postulates that body appreciation leads to intuitive eating, the converse causal direction is also plausible. That is, engaging in an adaptive and intuitive eating style might lead to greater body appreciation. A minimum requirement for causality is temporal

precedence (Menard, 1991). This can be tested using longitudinal methodology by examining whether a proposed cause (e.g., body appreciation) is temporally antecedent to (occurs before) the proposed effect (e.g., intuitive eating). Thus the use of a longitudinal research design allows for a more rigorous test of proposed causal relationships within a model.

Predictors of Body Appreciation

Beyond tests of the acceptance model of intuitive eating, other predictors of positive body image have not yet been explored in any age group. Understanding factors associated with body appreciation is critical in identifying potential practical targets to enhance body appreciation (Tylka, 2011). This may be particularly important for adolescents who are still in the process of developing and managing self-esteem, individuality and sense of identity (Eccles, 1999). The current study explored three potential classes of predictors. The first was perceived body acceptance by others (as postulated in the acceptance model of intuitive eating). This has been shown cross-sectionally to relate to body appreciation in both women (e.g., Avalos & Tylka, 2006) and adolescent girls (Andrew et al., 2015b), but has not yet been investigated longitudinally. The second type of predictor was consumption of various forms of media, and the third was engagement in different types of activities. Both of these aimed to assess the impact of girls' engagement in everyday behaviours on body appreciation.

In general, girls' media consumption has been shown to have negative effects on body image. For example, a recent meta-analysis concluded that there was a relationship between exposure to mass media emphasising the thin-ideal and vulnerability to body image disturbances (Grabe, Ward, & Hyde, 2008). Thus, we propose that adolescent girls who consume less appearance-based media will show greater body appreciation, as a result of decreased levels of exposure to messages emphasising the importance of appearance. Likewise, greater exposure to non-appearance media that highlight ability (e.g., cooking shows) or that engage girls intellectually (e.g., documentaries) may enhance body

appreciation. In addition, Menzel and Levine (2011) have proposed that engaging in embodying activities, i.e., activities which involve a mind-body integration (Piran, 2001, 2002), is key to positive body image. Accordingly, we propose that playing sports or other physical activities that place emphasis on body function (e.g., soccer) should enhance body appreciation. We also expected that participating in hobbies and other engaging activities, such as playing a musical instrument, may also foster body appreciation because, as suggested by Halliwell (2015), such activities emphasise one's physical capabilities and the mind-body connection.

Outcomes of Body Appreciation

One facet of positive body image is investment in the care of the body and its physical needs (Tylka, 2011, 2012), and thus Tylka and Wood-Barcalow (2015a) have suggested that positive body image may be protective of physical health. To our knowledge, there have been only two studies, both correlational, investigating the health-related outcomes of body appreciation outside of intuitive eating. In the first, Andrew, Tiggemann and Clark (2014) found that body appreciation was positively associated with sun protection, skin screening and seeking medical attention when needed, and negatively related to weight-loss behaviour in adult women. In the second, Gillen (2015) reported that body appreciation was positively correlated with intentions to protect skin from sun damage and negatively related with dieting in young adult men and women.

As yet, potential health outcomes of positive body image (other than intuitive eating) have not been examined in adolescents; nor has there been any longitudinal study of health outcomes in any age group. The adolescent period is associated with the development of personal autonomy (Eccles, 1999), including increased choices around behaviours that impact on health. In addition, healthy habits developed during this period can have benefits into adulthood (Aarts, Paulussen, & Schaalma, 1997). In the current study, we examined a range

of health behaviour outcomes, both adaptive and harmful. The adaptive health behaviours included consumption of the recommended intake of fruit and vegetables, sun protection, adequate sleep and seeking medical attention. Potentially harmful behaviours examined were dieting, consumption of takeaway food, and alcohol and cigarette use.

The Current Study

In sum, the current study sought to extend the understanding of both predictors and health outcomes of body appreciation in adolescent girls, using a longitudinal research design. The study had three specific aims. The first aim was to longitudinally test the modified acceptance model of intuitive eating (Andrew et al., 2015b; Avalos & Tylka, 2006) in adolescent girls. The second aim was to explore prospective predictors of body appreciation in adolescent girls, in particular, perceived body acceptance by others, consumption of appearance and non-appearance-based media, and engagement in sports and hobbies. The third aim was to longitudinally examine a range of health-related outcomes of body appreciation, namely, dieting, fruit, vegetable and takeaway consumption, sun protection, sleep, medical attention and alcohol and cigarette use.

Method

Participants

Participants were 298 girls recruited from five schools (two co-educational public schools and three private single-sex schools) in metropolitan South Australia. The girls were a subset of a larger cross-sectional study (Time 1, $N = 400$) investigating a model of intuitive eating in girls (Andrew et al., 2015b). The retention rate was 74.5% at Time 2. The girls were in Years 8, 9 or 10 at Time 1 and had a mean age of 14.03 years ($SD = 0.88$). At Time 2, one year later, the girls were in Years 9, 10 or 11 and had a mean age of 15.02 years ($SD = 0.85$). Attrition was mostly due to absenteeism or girls having left the school. Attrition analyses showed that there were no significant differences between girls who did and did not complete

the Time 2 follow-up on any Time 1 study variable. The sample was predominantly Caucasian (> 85%). The schools ranged in socio-economic status, with Socio-Economic Indexes for Areas (SEIFA; Australian Bureau of Statistics, 2011) based on school postcodes ranging from decile 2 (low) to decile 8 (high).

Measures

Participants completed a questionnaire at Time 1 and then again approximately one year later (Time 2). The questionnaire contained measures of activities and media consumption, followed by the key measures of body appreciation, self-objectification, social appearance comparison and perceived body acceptance (in that order), followed by health behaviours including intuitive eating, and general demographic information.

Body appreciation. Body appreciation was measured by the Body Appreciation Scale (BAS) of Avalos and colleagues (2005). Participants rate 13 items (e.g., “Despite my flaws, I accept my body for what it is”) on a 5-point scale ranging from *never* (1) to *always* (5). Items are averaged with higher scores reflecting higher levels of body appreciation. The BAS has demonstrated 3-week test-retest reliability ($r = .90$), construct and discriminant validity (Avalos et al., 2005), and has been shown to have high internal reliability ($\alpha = .88$) in an adolescent sample (Lunde, 2013). For the present sample, internal reliability was high at both Time 1 ($\alpha = .93$) and Time 2 ($\alpha = .94$).

Media consumption. A set of 11 items assessing media consumption was constructed for the study. The first three questions assessed magazine consumption. Participants were asked to rate how often they read “Teen (e.g., Dolly)”, “Fashion (e.g., Vogue)”, and “Other magazines (e.g., Rolling Stone, Better Homes and Gardens)”, on a scale ranging from *never* (1) to *every time an issue comes out* (5). The remaining eight items were rated from *never* (1) to *all the time* (5). The first two questions asked participants to rate how often they view “Fashion websites/blogs/online material”, and how often they use “Social media (e.g.,

Facebook)”. Finally, television viewing was assessed with six items asking participants to rate how often they watch “Soapies or dramas”, “Music television shows”, “Talent-based reality television (e.g., Top Model)”, “Non-talent based reality television (e.g., Big Brother)”, “Cooking (e.g., Master Chef) or construction (e.g., The Block) shows”, and “Information based shows (e.g., documentaries or the news)”. From these items, measures of appearance and non-appearance media consumption were created. The measure of appearance media summed items assessing consumption of teen magazines, fashion magazines, fashion websites, social media, and watching soapies, music television, and talent and non-talent-based reality television. Internal reliability was acceptable (Time 1, $\alpha = .70$, Time 2, $\alpha = .73$). The three items measuring non-appearance media (reading other magazines, watching cooking or construction television shows and watching information based television) did not cohere together at Time 1 ($\alpha = .48$) or Time 2 ($\alpha = .47$), and thus were examined separately.

Activities. Two types of activities were assessed with a measure constructed for the study. Nine items addressed sports and physical activities. These were walking, yoga/pilates, swimming, running, bike riding, hiking, martial arts, dance and organised sports (e.g., soccer). Seven items addressed hobbies or other engaging activities: reading, playing a musical instrument, attending church, volunteering, belonging to a group/organisation, doing drama and arts/crafts. Participants indicated whether or not they engaged in each activity, how many sessions per week they engaged in that activity (frequency), and for how many minutes per session (duration). Time spent on each activity was calculated by multiplying each activity’s frequency by its duration. Time spent engaged in physical activities was calculated by summing minutes spent on each of the nine sporting and physical activities. Time spent on hobbies was calculated by summing minutes spent on the seven hobbies listed.

Body acceptance by others. Perceived body acceptance by others was measured using the Body Acceptance by Others Scale (Avalos & Tylka, 2006). Participants rate items

relating to perception of how accepting important others are of their weight and shape on a 5-point scale ranging from *never* (1) to *always* (5). The original 10-item scale assessed body acceptance by family, friends, dating partners, society and the media. In the current study, these questions were asked in relation to family and friends. The resulting scale had four items (e.g., “I’ve felt acceptance from my family regarding my shape and/or weight”). Items were averaged with higher scores indicative of greater perceived body acceptance by others. The original measure has been shown to have good internal consistency ($\alpha = .91$), 3-week test-retest reliability ($r = .85$), and construct validity in college women (Avalos & Tylka, 2006). In the present sample, internal reliability was acceptable at Time 1 ($\alpha = .74$) and Time 2 ($\alpha = .79$).

Self-objectification. Self-objectification was measured by the Body Surveillance Subscale of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996). The subscale examines monitoring of one’s body and perceiving it in terms of appearance as opposed to function (McKinley & Hyde, 1996). The scale consists of eight items (e.g., “I rarely think about how I look”). Participants rate each item on a scale ranging from *strongly agree* (1) to *strongly disagree* (7), with a *not applicable* option coded as missing. Scores are averaged and higher scores reflect higher self-objectification. This measure has been shown to be reliable and valid in adults (McKinley & Hyde, 1996), and internally consistent in a sample of Australian adolescent girls ($\alpha = .86$, Slater & Tiggemann, 2002). In the current study, internal reliability was acceptable at Time 1 ($\alpha = .79$) and Time 2 ($\alpha = .84$).

Social comparison. Social appearance comparison was assessed using the Physical Appearance Comparison Scale (Thompson, Heinberg, & Tantleff-Dunn, 1991). Participants rate five items (e.g., “In social situations, I sometimes compare my figure to the figures of other people”) on a 5-point scale from *never* (1) to *always* (5). This scale has demonstrated high 3-week test-retest reliability ($r = .78$) in adolescent girls (Schutz, Paxton, & Wertheim,

2002), and was highly correlated with upward and downward appearance comparison in college students (O'Brien et al., 2009). At Time 1, the internal reliability fell short of acceptable ($\alpha = .66$). Item-scale correlations indicated that low internal reliability was due to the one negatively-worded item (item 4), which has been previously reported in adolescent samples (Tiggemann & Miller, 2010). Therefore, item 4 was removed from Time 1 and Time 2 scales, and the remaining four items were summed with scores ranging from 4 to 20. The resulting internal reliability was acceptable at Time 1 ($\alpha = .80$) and Time 2 ($\alpha = .81$).

Intuitive eating. Intuitive eating was measured with the Intuitive Eating Scale for Adolescents (Dockendorff, Petrie, Greenleaf, & Martin, 2012). This scale aims to assess unconditional permission to eat, eating for physical rather than emotional reasons, and awareness and trust in internal satiety and hunger cues. Seventeen items (e.g., "I trust my body to tell me how much to eat") are rated on a 5-point scale from *strongly disagree* (1) to *strongly agree* (5). Scores are averaged with higher scores reflecting greater intuitive eating. The scale has demonstrated validity (Dockendorff et al., 2012). Internal reliability was acceptable at Time 1 ($\alpha = .80$) and Time 2 ($\alpha = .83$) in the current sample.

Dieting behaviour. Frequency of dieting was assessed with one question asking participants to rate the extent to which they have ever been on a diet in order to lose weight, on a scale ranging from *never* (1) to *always* (5).

Fruit, vegetable and takeaway consumption. Girls responded to three questions regarding their food intake. In Australia, dietary guidelines recommend the consumption of two serves of fruit and five serves of vegetables daily (National Health and Medical Research Council, 2013), with this quantity advertised widely through television and print campaigns that aim to assist parents in increasing their children's intake of fruit and vegetables (Commonwealth of Australia, 2008). The first question asked participants to indicate (on average) how many days during the week (i.e., 0 to 7) they consume at least two serves of

fruit. The second question asked how many days (on average) they consume at least five serves of vegetables. The final question asked how many days in an average week participants consume a takeaway (i.e., “fast food”) meal.

Sun protection. Sun protection was examined with five items adopted from the Cancer Council Australia’s National Sun Protection Survey (see Dobbinson et al., 2008) used previously with an adult female sample (Andrew et al., 2014). These questions examined specific behaviours such as wearing sunscreen and staying in the shade during peak UV hours in summer. Participants rated how often they performed each sun protection behaviour on a 5-point scale ranging from *never* (1) to *always* (5). The five items were summed to create a total sun protection score (ranging from 5 to 25). Internal reliability for this scale was acceptable ($\alpha = .70$) at Time 1, and a little short of acceptable ($\alpha = .60$) at Time 2.

Alcohol consumption. Participants were asked how many times they had ever consumed alcohol with a choice of five responses ranging from *zero* (1) to *10 or more* (5). This question was considered the most appropriate assessment of alcohol consumption for this sample, given that participants were under the age of legal alcohol consumption in South Australia (18 years old) and legally should not have consumed any alcohol.

Cigarette smoking. Participants were asked how many cigarettes they had smoked in their lifetime with four possible responses: *none* (1), *1 to 2* (2), *2 to 10* (3) and *10 or more* (4). Due to the small number of participants who had ever smoked any cigarettes, responses were dichotomised to none/some categories.

Weekly sleep. Participants were asked to indicate what time they fall asleep and wake up on an average day during the week and on the weekend. Weekly sleep was calculated by multiplying weekday sleep by five, and weekend sleep by two, and summing.

Seeking medical attention. One question asked how often participants go to a doctor when they feel ill, rated on a 5-point scale ranging from *never* (1) to *always* (5).

Demographics. The girls were asked to provide their age, year level at school and ethnicity, and reported their weight and height measurements.

Procedure

The protocol used in the current study was approved by the relevant institutional research ethics board, the Department for Education and Child Development Research Unit and the Catholic Education Office. The Principal of each participating school was contacted for permission to take part in the study. After permission was granted, parental consent was obtained for both Time 1 and Time 2 participation through a package sent home with each eligible girl containing a Letter of Introduction, Information Sheet and Consent Form. Girls who were given parental consent also gave their own assent to participate on the day of data collection. Participants completed both Time 1 and Time 2 questionnaires in normal class time in groups. At each school, girls were offered the opportunity to enter into a raffle to win one of several \$20 vouchers for a clothing store as a gesture of appreciation for their time.

Results

Preliminary Analysis

Data were examined for missing values and deviations from normality. There was only a small amount of missing data ranging from 0% (sports and physical activities) to 2.68% (takeaway consumption), and no substitution was undertaken. All continuous variables were normally distributed, with low levels of skew (< 3) and kurtosis (< 10).

Changes Over Time

Table 1 displays the means and standard deviations for all variables at Time 1 and Time 2. It can be seen that body appreciation increased significantly over time. Perceived body acceptance by others, watching information based television, alcohol consumption and cigarette smoking also increased significantly. On the other hand, appearance media consumption and weekly sleep decreased over time. All correlations between Time 1 and

Time 2 ranged from moderate to strong ($r = .47$ to $r = .78$).

Table 1

Mean and Standard Deviations, and t Values for Study Variables

| Variable | Time 1 | Time 2 | t value |
|-------------------------------------|-----------------|-----------------|---------|
| <i>Main variable</i> | | | |
| Body appreciation | 3.39 (0.80) | 3.49 (0.80) | 2.84* |
| <i>Predictors</i> | | | |
| Appearance media | 25.24 (5.40) | 24.00 (5.25) | -5.50** |
| Non-appearance media | | | |
| Non-fashion magazines | 1.80 (0.96) | 1.86 (0.97) | 0.10 |
| Cooking and construction T.V. | 2.69 (1.04) | 2.74 (1.08) | 0.82 |
| Information based television | 2.63 (1.05) | 2.76 (1.04) | 2.30* |
| <i>Activities</i> | | | |
| Sports and physical activity | 483.73 (483.04) | 515.44 (487.02) | 1.17 |
| Hobbies | 380.89 (522.70) | 370.03 (472.46) | -0.37 |
| Perceived body acceptance by others | 4.04 (0.84) | 4.15 (0.83) | 2.65* |
| Self-objectification | 4.54 (1.08) | 4.52 (1.12) | -0.16 |
| Social comparison | 12.19 (3.44) | 11.98 (3.35) | -1.27 |
| <i>Outcomes</i> | | | |
| Intuitive eating | 3.22 (0.55) | 3.20 (0.57) | -0.52 |
| Dieting behaviour | 2.48 (1.44) | 2.58 (1.38) | 1.46 |
| Fruit consumption | 5.03 (1.88) | 4.97 (1.78) | -0.41 |
| Vegetable consumption | 3.56 (2.02) | 3.44 (2.18) | -0.65 |
| Takeaway consumption | 1.09 (1.05) | 1.06 (1.13) | -0.73 |
| Sun protection | 13.85 (3.93) | 14.08 (3.51) | 1.70 |
| Alcohol consumption | 1.68 (1.03) | 2.20 (1.29) | 7.81** |
| Cigarette smoking | 1.05 (0.21) | 1.12 (0.33) | 4.45** |
| Weekly sleep (hours) | 62.36 (6.24) | 59.91 (6.83) | -6.41** |
| Medical attention | 3.29 (1.13) | 3.26 (1.12) | -0.55 |

* $p < .05$. ** $p < .001$.

Longitudinal Test of the Modified Acceptance Model of Intuitive Eating

Table 2 displays the correlations between variables contained within the modified acceptance model of intuitive eating at Time 1, at Time 2, and cross-lagged (between Time 1 and Time 2). As can be seen, all variables were significantly correlated with each other at all time points. In particular, in line with the modified acceptance model, the cross-lagged correlations showed that perceived body acceptance by others at Time 1 was negatively related to Time 2 self-objectification and social comparison, and positively related to Time 2 body appreciation and intuitive eating. Time 1 self-objectification and social comparison were negatively related to Time 2 body appreciation and intuitive eating. Finally, Time 1 body appreciation was positively related to Time 2 intuitive eating.

The modified model of intuitive eating was examined using longitudinal change regression models (Allison, 1990). Four regression models were performed representing different steps in the model. In each model, age and intuitive eating at Time 1 were controlled for by being entered in Step 1. Model variables and their respective change scores were entered in Step 2. Time 2 intuitive eating was the outcome variable in all models. Results for the four models are shown in Table 3, which presents the standardised coefficients (Betas).

It can be seen that in Model 1, Time 1 perceived body acceptance by others predicted an increase in intuitive eating. In Model 2, which added Time 1 and change scores on self-objectification and social comparison to Model 1, lower initial social comparison and decreased self-objectification and social comparison from Time 1 to Time 2 predicted increased intuitive eating, with perceived body acceptance by others still a significant predictor. In Model 3, Time 1 body appreciation and change in body appreciation were added to variables in Model 1. Here, higher Time 1 body appreciation and increased body appreciation predicted increased intuitive eating. The addition of body appreciation in Model 3 decreased the effect of perceived body acceptance by others to non-significance. In Model

4, all model variables were collectively entered. Body appreciation was the strongest (positive) predictor of subsequent intuitive eating, reducing the significant effect of change in self-objectification to non-significance, and decreasing the strength of the negative prediction by social comparison.

Table 2

Correlations Within and Between Time for Modified Acceptance Model Variables

| Within Time 1 | PBA | SO | SC | BA | IE |
|---------------------------------|--------|-------|--------|-------|-------|
| Perceived body acceptance (PBA) | - | | | | |
| Self-objectification (SO) | -.19* | - | | | |
| Social comparison (SC) | -.23* | .53* | - | | |
| Body appreciation (BA) | .44* | -.51* | -.49* | - | |
| Intuitive eating (IE) | .27* | -.39* | -.45* | .48* | - |
| <hr/> | | | | | |
| Within Time 2 | | | | | |
| Perceived body acceptance | - | | | | |
| Self-objectification | -.23* | - | | | |
| Social comparison | -.30* | .70* | - | | |
| Body appreciation | .49* | -.56* | -.54* | - | |
| Intuitive eating | .42* | -.45* | -.51* | .56* | - |
| <hr/> | | | | | |
| Cross-lagged | | | | | |
| | Time 1 | | Time 2 | | |
| Perceived body acceptance | - | -.21* | -.25* | .40* | .32* |
| Self-objectification | | - | .46* | -.40* | -.30* |
| Social comparison | | | - | -.42* | -.38* |
| Body appreciation | | | | - | .40* |
| Intuitive eating | | | | | - |

* $p < .001$.

Table 3

Results (Standardised Regression Beta Coefficients) of Regression of Change in Intuitive Eating on Perceived Body Acceptance by Others, Self-objectification, Social Comparison and Body Appreciation

| | Model 1 | Model 2 | Model 3 | Model 4 |
|------------------------------|---------|---------|---------|---------|
| Step 1 | | | | |
| Age | .03 | .03 | .03 | .03 |
| Intuitive eating T1 | .61** | .63** | .61** | .63** |
| Step 2 | | | | |
| Perceived body acceptance T1 | .17** | .11* | .09 | .07 |
| Self-objectification T1 | | -.08 | | -.02 |
| Δ Self-objectification | | -.16* | | -.07 |
| Social comparison T1 | | -.20* | | -.16* |
| Δ Social comparison | | -.23** | | -.16* |
| Body appreciation T1 | | | .25** | .17* |
| Δ Body appreciation | | | .36** | .26** |
| Final model adjusted R^2 | .395 | .508 | .507 | .546 |

Note. Δ = change; * $p < .05$. ** $p < .001$.

Overall, these results provide prospective support for the modified acceptance model of intuitive eating. Specifically, perceived body acceptance by others and body appreciation predicted a subsequent increase in intuitive eating, and social comparison and self-objectification predicted a decrease in intuitive eating over a one-year time period. The final model (Model 4) showed that body appreciation followed by social comparison were the strongest prospective predictors of subsequent intuitive eating.

Predictors of Time 2 Body Appreciation

Table 4 displays the correlations between proposed predictors and body appreciation separately within Time 1 and Time 2, and between Time 1 predictors and Time 2 body

appreciation. As can be seen, at both time points, perceived body acceptance by others was positively related to body appreciation. In addition, appearance media was related negatively, and reading non-fashion magazines was related positively, to Time 1 body appreciation. Sports participation was positively related to body appreciation at Time 2. The cross-lagged correlations showed a positive relationship between perceived body acceptance by others at Time 1 and body appreciation at Time 2. There was also a positive relationship between Time 1 reading of non-fashion magazines and body appreciation at Time 2 ($p = .050$).

Table 4

Correlations Within and Between Time for Predictor Variables and Body Appreciation

| Predictor variable | Within T1 | Within T2 | Cross-lagged: T1 predictor, T2 BA |
|-------------------------------------|--------------|--------------|--------------------------------------|
| Perceived body acceptance by others | .44** | .49** | .40** |
| Appearance media | -.14* | -.10 | -.07 |
| Non-Appearance media | | | |
| Non-fashion magazines | .12* | .09 | .11 ^a |
| Cooking and construction T.V. | .06 | .07 | .06 |
| Information based television | .06 | -.04 | .02 |
| Activities | | | |
| Sports and physical activities | -.07 | .14* | -.02 |
| Hobbies | -.00 | .01 | -.02 |

Note. BA = body appreciation; ^a $p = .05$. * $p < .05$. ** $p < .001$.

A series of hierarchical multiple regression analyses was conducted to test the temporal precedence of the proposed predictor variables to body appreciation. Temporal precedence occurs when one variable predicts change in another variable, whilst controlling for initial levels of the outcome variable (Stice, 2002). For each regression, Time 1 body

appreciation was entered in Step 1, and the proposed predictor entered in Step 2. Time 2 body appreciation was the outcome variable. Analyses showed that perceived body acceptance by others at Time 1 was the only proposed predictor to temporally precede body appreciation, $R^2_{change} = .007$, $F_{change}(1, 291) = 4.55$, $\beta = .09$, $p = .03$. The sign of the beta indicates that greater perceived body acceptance by others at Time 1 predicted an increase in body appreciation from Time 1 to Time 2.

We also examined the potential for reverse causation, that is, whether initial levels of body appreciation predicted change in any of the postulated predictors. Here we found that body appreciation at Time 1 predicted increased perceived body acceptance by others at Time 2, $R^2_{change} = .019$, $F_{change}(1, 294) = 9.37$, $\beta = .15$, $p = .002$, indicating that the relationship between perceived body acceptance by others and body appreciation was bi-directional. Body appreciation at Time 1 also predicted an increase in sports and physical activity participation at Time 2, $R^2_{change} = .015$, $F_{change}(1, 295) = 6.45$, $\beta = .12$, $p = .01$.

Outcomes of Body Appreciation

A number of health-related outcomes were examined in relation to body appreciation. Table 5 presents the correlations between body appreciation and health behaviours separately at Time 1 and Time 2 (within time), as well as the correlations between Time 1 body appreciation and Time 2 health behaviours. As can be seen, at both Time 1 and Time 2 girls with higher body appreciation reported significantly more sun protection behaviours, weekly sleep, seeking medical attention, and significantly less dieting, cigarette and alcohol consumption. At Time 2, an additional negative relationship was found between body appreciation and takeaway consumption. Cross-lagged correlations showed that body appreciation at Time 1 was positively related to Time 2 sun protection, weekly sleep and seeking medical attention, and negatively related to Time 2 dieting behaviour, alcohol consumption and cigarette smoking.

Table 5

Correlations Within and Between Time for Body Appreciation and Outcome Variables

| Outcome variable | Within T1 | Within T2 | Cross-lagged: T1 BA, T2 outcome |
|-----------------------|-----------|-----------|---------------------------------------|
| Dieting behaviour | -.59** | -.59** | -.50** |
| Fruit consumption | -.02 | .05 | .04 |
| Vegetable consumption | .03 | .02 | .08 |
| Takeaway consumption | -.05 | -.19* | -.09 |
| Sun protection | .21** | .21** | .22** |
| Alcohol consumption | -.23** | -.22** | -.30** |
| Cigarette smoking | -.11* | -.12* | -.19* |
| Weekly sleep | .22** | .25** | .23** |
| Medical attention | .19* | .16* | .12* |

Note. BA = body appreciation; * $p < .05$. ** $p < .001$.

Separate hierarchical multiple regressions were undertaken to examine whether Time 1 body appreciation temporally preceded change in health behaviours over a one year period. In each regression, the Time 1 health behaviour was entered in Step 1, with Time 1 body appreciation entered in Step 2. The Time 2 health behaviour was the outcome variable. Table 6 displays the results for Step 2 of the individual regressions. It can be seen that Time 1 body appreciation significantly predicted decreased dieting behaviour, alcohol consumption and cigarette smoking one year later. Time 1 body appreciation did not predict change in fruit, vegetable or takeaway consumption, sun protection, weekly sleep or medical attention.

Table 6

Hierarchical Regression Results Predicting Outcomes from Time 1 Body Appreciation

| Variable | B | SE B | β | ΔR^2 | ΔF |
|-----------------------|------|------|---------|--------------|------------|
| Dieting behaviour | -.25 | .09 | -.15* | .014 | 7.77* |
| Fruit consumption | .05 | .11 | .02 | .001 | 0.22 |
| Vegetable consumption | .08 | .14 | .03 | .001 | 0.38 |
| Takeaway consumption | -.08 | .07 | -.06 | .001 | 1.40 |
| Sun protection | .23 | .16 | .05 | .003 | 2.02 |
| Alcohol consumption | -.30 | .08 | -.18** | .032 | 13.77** |
| Cigarette smoking | -.05 | .02 | -.13* | .017 | 6.70* |
| Weekly sleep | .61 | .42 | .07 | .005 | 2.13 |
| Medical attention | .01 | .07 | .01 | .000 | 0.01 |

* $p < .05$. ** $p < .001$.

Because there was generally low reported use of alcohol and cigarette consumption at both time points, but these behaviours increased significantly over time (see Table 1), they were examined in more detail. To do this, participants were split into quartiles based on Time 1 body appreciation, and the uptake of alcohol and cigarettes was examined for the lowest ($M = 2.33$, $SD = 0.47$) and the highest body appreciation quartiles ($M = 4.43$, $SD = 0.24$). For alcohol consumption, 53.4% of girls with low body appreciation had consumed some alcohol at Time 1, with 71.9% reporting use by Time 2, representing an increase of 18.5%. In contrast, for girls with high body appreciation, only 25.6% had consumed alcohol at Time 1, increasing to 38.5% at Time 2, representing (a lesser) 12.9% increase. For cigarette consumption, 6.7% of girls with low body appreciation had tried cigarettes at Time 1, increasing markedly to 21.3% at Time 2, an increase of 14.6%. For girls with high body appreciation, however, rates increased only a little, from 1.3% at Time 1 to 5.2% at Time 2, an increase of only 3.9%. It can be seen that those girls with high body appreciation were not

only less likely to consume alcohol or cigarettes initially, but were also less likely to take up the behaviours over a one-year time period.

In order to examine the reverse relationships, that is, whether any of the postulated health outcome variables predicted change in body appreciation over time, another series of hierarchical multiple regressions was conducted. It was found that lower levels of Time 1 dieting predicted increased body appreciation at Time 2, $R^2_{change} = .009$, $F_{change}(1, 291) = 5.51$, $\beta = -.12$, $p = .02$, indicating that the relationship between body appreciation and dieting was bi-directional.

Discussion

The current study sought to extend knowledge regarding prospective predictors and outcomes of positive body image in adolescent girls. To date, few studies have explored body appreciation in adolescents. Further, no longitudinal examinations of body appreciation have been previously reported for any age group. The key findings from our study are clear. First, a longitudinal test of the modified acceptance model of intuitive eating showed that perceived body acceptance by others (positively), self-objectification and social comparison (negatively), and body appreciation (positively) predicted an increase in intuitive eating over one year in adolescent girls. Second, perceived body acceptance by others also prospectively predicted an increase in body appreciation one year later. Finally, body appreciation itself predicted decreased dieting behaviour, and alcohol and cigarette consumption, and increased physical activity, one year later.

The first aim of the present study was to longitudinally examine the modified acceptance model of intuitive eating in adolescent girls. Consistent with the postulated causal model, we found that initially higher perceived body acceptance by others, lower self-objectification and social comparison, and greater body appreciation predicted higher intuitive eating over time. Our findings support previous correlational tests of the model in

adult female samples (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Oh et al., 2012). However, the longitudinal research design of the current study has enabled confirmation of the postulated temporal sequence of variables in the model, consistent with their proposed causal role. Thus the findings highlight factors important in the development of a healthy and adaptive eating style in adolescent girls.

In order to examine potential predictors of body appreciation, we measured several variables that we reasoned might have a positive impact on body image. However, of the postulated predictors tested, only perceived body acceptance by others prospectively predicted an increase in body appreciation. Specifically, girls who initially felt more weight and shape acceptance from their family and peers expressed greater appreciation for their body one year later. This confirms longitudinally the association that has been shown in a number of cross-sectional studies (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Kroon Van Diest & Tylka, 2010; Oh et al., 2012). It is likely that the girls in our study who perceived that their body was accepted by those important to them, possibly through subtle non-judgemental messages about appearance, may have been less likely to experience preoccupation with appearance and instead feel respect and appreciation for their body (Tylka & Wood-Barcalow, 2015a). In addition, prediction in the reverse direction was also found, indicating that the relationship between perceived body acceptance by others and body appreciation was bi-directional. Thus, girls with greater body appreciation may have intentionally surrounded themselves with peers who were body positive and communicated body acceptance (Tylka, 2011, 2012). This type of reciprocal relationship has been suggested as a core feature of positive body image, and one that should serve to strengthen and maintain positive body image (Tylka, 2011, 2012; Wood-Barcalow et al., 2010).

Although neither of our proposed classes of predictors regarding media or sports was found to prospectively predict body appreciation, Time 1 appearance media consumption

(negatively) and reading non-fashion magazines (positively) were related to Time 1 body appreciation. Given the decreasing levels of appearance media consumption found between Time 1 and Time 2, it may be that any effect of media consumption on body appreciation has already been established by early adolescence, perhaps as a result of media saturation and transmission of beauty ideals in Western society (Levine & Chapman, 2011). Furthermore, it may not be the *amount* of media viewed by girls that is critical, but rather *how* it is viewed. For example, girls with higher body appreciation may process appearance media more critically, by analysing its content and consciously “filtering” messages in a way that is protective and strengthens body image (Tylka, 2011; Wood-Barcalow et al., 2010). This is consistent with results from two experimental studies which have shown body appreciation to ameliorate negative effects on body image resulting from exposure to thin-ideal media (Andrew et al., 2015a; Halliwell, 2013). Similar to media consumption, participation in sporting activities was correlated with body appreciation within time but not over time.

The final aim of the present study was to examine a range of potential health outcomes of body appreciation over one year. The only two other studies to have examined health outcomes of body appreciation (Andrew et al., 2014; Gillen, 2015) were cross-sectional in nature and sampled young adults. In our sample of adolescent girls, we found that body appreciation predicted decreased dieting over a one year period, and that this relationship was bi-directional. Our prospective findings extend previous correlational results indicating a negative association between body appreciation and dieting behaviour in adult women (Andrew et al., 2014; Gillen, 2015). Although we conceptualised participation in physical activity as a potential predictor of body appreciation, we found instead that greater initial body appreciation in our sample of girls was associated with increased participation in sports and physical activity one year later. Future research might usefully examine more

precisely the nature of the relationship between body appreciation and engagement in physical activity in samples of different ages.

Importantly, we found a significant prospective relationship between body appreciation and alcohol and cigarette consumption. In particular, body appreciation was found to predict uptake over time. Specifically, girls with high body appreciation were less likely to take up smoking cigarettes or drinking alcohol between time points than their counterparts with low body appreciation. This is a key finding of the current study because alcohol and other drug use can have a negative impact on adolescent development in both cognitive and social domains, and such use also increases the risk of accidental injury (Hawkins, Catalano, & Miller, 1992). Collectively, these results provide empirical support to the suggestion that individuals with body appreciation will engage in self-care behaviours that benefit physical health, and actively avoid behaviours that could physically harm their body (Tylka, 2011, 2012).

Practical Implications

Our results suggest that body appreciation has important implications for adolescent girls. Indeed, body appreciation may have benefits for girls across a wide range of domains. In particular, the findings from the current study suggest that fostering body appreciation may be beneficial and protective for girls' health, in terms of decreased dieting, increased physical activity, and protection against alcohol and cigarette use. Given the high rates of dieting among adolescent girls (e.g., Paxton et al., 1991), our finding in relation to decreased dieting suggests that enhancing body appreciation might be one way to tackle the development of maladaptive eating behaviours. The observed reciprocal relationship between body appreciation and dieting also suggests that encouraging girls to take a balanced and non-restrictive approach to food intake might help foster their body appreciation. Thus, interventions and public health programs targeted at adolescents that focus on controlling

weight and diet may negatively impact on their body appreciation. More holistic programs such as Health at Every Size® (Bacon, Stern, Van Loan, & Keim, 2005) or *BodiMojo* (Franko, Cousineau, Rodgers, & Roehrig, 2013) that focus on a healthy lifestyle, body acceptance and challenging weight stigma are likely to be more beneficial for physical and psychological health (Tylka et al., 2014).

Our results indicate that enhancing body appreciation may also improve girls' participation rates in sports and physical activity. Australian figures show that participation in sporting activities declines across adolescence at a considerably faster rate for girls than boys (Australian Bureau of Statistics, 2013). This decrease may have a broad impact on the well-being of adolescent girls, as physical activity has a wide range of demonstrated psychological and physical health benefits (e.g., Warburton, Nicol, & Bredin, 2006). Thus, enhancing girls' body appreciation may assist in increasing their participation in physical activity throughout adolescence.

The findings from the current study suggest that body appreciation may influence the uptake of alcohol consumption and cigarette smoking. Due to the known detrimental impacts on physical health, current Australian national alcohol guidelines recommend that the safest option for adolescents is to delay alcohol consumption for as long as possible (National Health and Medical Research Council, 2009), and the uptake of adolescent cigarette smoking is specifically targeted in the National Tobacco Strategy (Commonwealth of Australia, 2012). Our findings indicate that middle adolescence may be an effective time point for interventions to target alcohol and cigarette use. They also point to enhancing positive body image as one way in which to protect adolescent girls from taking up, or at least delaying engagement in, these unhealthy behaviours.

As previously suggested by Andrew and colleagues (2014), developing strategies that aim to increase positive body image to target beneficial outcomes may prove a less

challenging task than attempting to reduce body dissatisfaction. As positive body image has been shown to be distinct from negative body image (see Andrew et al., 2014; Avalos et al., 2005; Tylka & Wood-Barcalow, 2015b), it may be possible to increase positive body image, even in spite of some level of body dissatisfaction. This is particularly salient for adolescent girls who are constantly confronted with media messages emphasising a narrow and often unattainable standard of beauty (Levine & Chapman, 2011), and a high proportion of whom are dissatisfied with their appearance (Wertheim & Paxton, 2011).

In order to better locate potential targets for increasing body appreciation, we investigated a range of possible predictors, but had limited success. Perceived body acceptance by others, but not media consumption or engagement in sporting or other activities, prospectively predicted body appreciation one year later. Perceived body acceptance by others may be targeted in two main ways. The first is to increase the acceptance of girls' appearance by significant others. Thus interventions might aim to increase parental or peer awareness of the importance of displaying an accepting and non-judgemental stance toward their daughters' or friends' appearance and body shape. The second is to target adolescent girls themselves. Unhelpful thinking styles described in cognitive behaviour therapy such as catastrophizing and black and white thinking (Beck, 1979; Beck, 2011) may contribute to an inaccurate and negatively biased perception of body-related messages. Thus, cognitive behavioural interventions could incorporate training for girls on unhelpful thinking styles and thought challenging. Alternatively, girls might be trained in mindfulness and acceptance techniques that emphasise observation, but not judgement or modification of thoughts, emotions or physical sensations (Baer, 2003).

Although we only found one major significant prospective predictor of body appreciation in the current study, there may be other potential ways in which positive body image can be fostered in adolescent girls. One possibility is to encourage engagement in more

embodying activities (see Menzel & Levine, 2011). Apart from yoga, we did not measure other mindfulness-based activities like mindful meditation, which emphasise the mind-body connection and might be more likely to enhance body appreciation. Increasing self-compassion may be another way to enhance body appreciation. One study has shown self-compassion to protect body appreciation against body image-related threats such as appearance comparison in women (Homan & Tylka, 2015). Self-compassionate meditation has also been shown to increase body appreciation in adult women (Albertson et al., 2014). Thus, future research might explore whether self-compassion, via self-compassion training, may be one way to increase body appreciation in adolescents. As suggested by Piran (2015), already established body image intervention programs may also assist in increasing body appreciation whilst simultaneously tackling negative body image. For example, a recent study found that a one-hour dissonance-based intervention in which adolescent girls took part in several activities that encouraged rejection of the thin ideal, not only decreased body dissatisfaction but also increased body appreciation (Halliwell, Jarman, McNamara, Risdon, & Jankowski, 2015). Therefore future body image interventions could usefully include positive body image measures to explore which aspects of established intervention programs assist in enhancing positive body image (Halliwell, 2015; Piran, 2015).

Limitations and Future Directions

As with all research, the current study contains limitations that need to be acknowledged. First, although participating schools from which participants were sourced ranged in socio-economic status, the sample comprised mainly girls in middle adolescence who were Caucasian. This limits our ability to generalise findings to younger and older adolescents, and to girls of different ethnicities. Future studies should attempt to survey a more diverse range in terms of age, ethnicity, and geographical location. Second, we explored only a limited number of potential predictors of body appreciation. Future studies might

attempt to include a greater range of predictors and use validated measures of these variables, as our measures of media consumption and activities needed to be specifically constructed for the current study. In addition, the most recent body appreciation (BAS-2, Tylka & Wood-Barcalow, 2015b) and intuitive eating (IES-2, Tylka & Kroon Van Diest, 2013) scales were not used as they were published after the commencement of the study. Finally, a one-year time period between measurement points may not have been sufficient to detect some changes. Nor may the measures have been administered at the critical developmental stage for some aspects assessed. However, we were able to observe significant change and prospective prediction of intuitive eating, dieting, physical activity, alcohol, and cigarette use. Future research should endeavour to track adolescents over a longer time period, ideally from early adolescence to young adulthood, in order to capture change more comprehensively. Assessing body appreciation over several more time points would also be useful in ruling out third variable explanations. More generally, longitudinal examination of predictors and outcomes of body appreciation should also be extended to adult female samples.

Conclusions

Despite the above limitations, the current study has contributed to our understanding of positive body image in adolescent girls. As one of few studies to examine body appreciation in an adolescent population and the first to do so longitudinally, the findings show that it is possible to detect prospective predictors and outcomes of positive body image in adolescent girls over a relatively short time period of one year. The results provide longitudinal support for the modified acceptance model of intuitive eating and highlight perceived body acceptance by others as a predictor of body appreciation, and body appreciation as a prospective predictor of decreased dieting, increased physical activity, and decreased alcohol and cigarette use, over time. Taken together, the results suggest that body

appreciation is indeed a very salient concept in this age group, one associated with a wide range of potential benefits.

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CHAPTER 7: General Discussion

Chapter Overview

The present thesis aimed to examine aspects of positive body image in young women and adolescent girls. This was addressed in five studies that utilised cross-sectional, experimental and longitudinal research designs. This final chapter seeks to integrate and discuss the results and implications from these studies. The chapter first presents a brief summary of the results, followed by a discussion of the research findings and their theoretical and practical implications.

Summary of Findings

Studies 1 and 2 examined predictors and health outcomes of positive body image in an undergraduate sample of women. Study 1 found that less appearance media and more non-appearance media consumption and self-compassion predicted lower appearance processing (i.e., lower self-objectification, social comparison and thin-ideal internalisation) which, along with more perceived body acceptance by others, predicted greater body appreciation. Study 2 showed that body appreciation predicted more use of sun protection, greater screening for moles and sun spots, and less weight-loss behaviour. Importantly, the level of prediction offered was over and above that provided by body dissatisfaction.

Study 3 investigated a different type of positive outcome, specifically, whether positive body image could protect women against negative effects resulting from thin-ideal media exposure. The study found that women with higher body appreciation did not experience an increase in body dissatisfaction after viewing fashion advertisements featuring thin models, whereas women with lower levels did. This protective effect was not explained by reduced state self-objectification, social comparison or greater use of the protective processing strategies examined.

Studies 4 and 5 turned to the investigation of positive body image in adolescent girls. Study 4 cross-sectionally confirmed a modified acceptance model of intuitive eating, whereby greater perceived body acceptance by others and lower self-objectification and social comparison predicted greater body appreciation and intuitive eating in girls. Study 5 longitudinally confirmed the modified model. This study also identified a number of prospective relationships. Specifically, girls who perceived others as more accepting of their body and engaged in less dieting, reported greater body appreciation one year later. In addition, girls who initially had higher body appreciation were more likely to eat intuitively and participate in sport, and were less likely to diet, smoke cigarettes or drink alcohol over the one-year time period.

Implications for the Major Aims

The first major aim of the thesis was to examine predictors of positive body image in women and girls. Together, the set of studies have identified a number of predictors. In particular, greater perceived body acceptance by others emerged as the most consistent predictor of body appreciation cross-sectionally and prospectively, in both women and girls (Studies 1, 4 and 5). This finding lends support to previous results for adult women (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006; Oh, Wiseman, Hendrickson, Phillips, & Hayden, 2012), and extends the finding to adolescent girls. Lower self-objectification and social comparison also predicted greater body appreciation in women and girls (Studies 1, 3, 4 and 5), replicating and extending prior studies with women (e.g., Avalos & Tylka, 2006; Homan & Tylka, 2015). In addition, lower thin-ideal internalisation and self-compassion were shown to be associated with greater body appreciation in women (Study 1), as has been demonstrated previously (e.g., Swami, 2009; Wasylikiw, MacKinnon, & MacLellan, 2012).

In an effort to expand upon previous research, we also sought to examine physical activity and media consumption as two types of everyday activities that may predict positive body image. Although participation in sports and physical activity was not correlated with body appreciation in women, it was in girls (Studies 1 and 5). Women's physical activity was, however, related to lower self-objectification, itself associated with greater body appreciation. Overall, media consumption was found to be relevant for positive body image. Lower consumption of appearance-focussed media was related to greater body appreciation in women and girls (Studies 1 and 5). Relatedly, the consumption of non-appearance media predicted body appreciation indirectly via lower appearance processing in women (Study 1), and the reading of non-fashion magazines was positively correlated with body appreciation in girls (Study 5).

Overall, the results addressing the first aim of the thesis not only lend support to some previous findings, but also extend the literature in at least three important ways. First, the studies have considerably broadened the scope of possible predictors of positive body image. In particular, the everyday activities of sports participation and media consumption were identified as predictors, adding to those psychological predictors previously confirmed in women. Second, the investigation of predictors was extended to adolescent girls for the first time. The significant predictors that were identified largely mirrored those found for women. Third, prospective predictors of positive body image were identified in the longitudinal follow-up with girls, with greater perceived body acceptance by others and less dieting behaviour predicting positive body image over one year. Thus, the studies have made a start on Tylka's (2011) suggestions to identify the strongest predictors (including prospective predictors) of positive body image (research question 4), and to examine how positive body image presents in populations outside of young women (research question 2). Future studies

should explore other types of predictors. Such research should also be extended to groups other than young women and adolescent girls.

The second major aim of the thesis was to examine outcomes of positive body image. The findings provided evidence for a number of positive health consequences. Intuitive eating was confirmed as an outcome of positive body image in adolescent girls cross-sectionally (Study 4) and prospectively (Study 5), thereby extending previous correlational results among women (e.g., Avalos & Tylka, 2006). Importantly, body appreciation was also associated with a number of other previously untested health outcomes. Women and girls with greater body appreciation were more likely to protect their skin from the sun, see a doctor when needed and not engage in dieting behaviour (Studies 2 and 5). In the longitudinal study, girls with greater initial body appreciation were less likely to start drinking alcohol or smoke cigarettes (Study 5). On the other hand, women's body appreciation was not related to their alcohol or cigarette consumption. This illustrates how the role of positive body image in relation to certain health behaviours may vary depending on stage of development. Accordingly, it would be useful to examine the prospective relationships between positive body image and health behaviours across the period of time spanning childhood to adulthood.

In addition to outcomes related to physical health, women with higher body appreciation were less likely to experience an increase in body dissatisfaction as a result of viewing advertisements containing thin models. This result adds to the one previous experiment that has shown a protective role for body appreciation against thin-ideal induced body image disturbance (Halliwell, 2013). In addition, the study was able to identify some protective processing strategies that women use to manage thin-ideal media. For example, women with greater body appreciation reported that they were more aware that images are altered, understood that the majority of the population do not look like models, and paid little attention to images with body types that are personally unattainable.

Overall, the findings across the studies have identified a range of possible outcomes stemming from positive body image. In so doing, the research has helped to address Tylka's (2011) call for investigations of physical health benefits of positive body image (research question 5), and the identification of outcomes of positive body image more generally (research question 4). Future studies might explore other health outcomes, such as keeping up to date with required vaccinations or the use of illicit substances, as well as outcomes in different domains, such as educational or occupational settings.

Theoretical Implications

The results have a number of implications for the theoretical understanding of positive body image. First, additional evidence has been provided for the conceptualisation of positive body image as distinct from low body dissatisfaction. Specifically, Study 2 demonstrated a different pattern of correlations between body appreciation and body dissatisfaction and some health outcomes. In particular, only body appreciation was related to sun protection behaviours, and only body dissatisfaction was related to alcohol consumption. Regression analysis also showed that body appreciation predicted sun protection behaviours, skin screening for sun spots and weight-loss behaviour, over and above levels of body dissatisfaction. As such, the findings demonstrate the utility of specifically investigating positive body image, as was called for over a decade ago (Cash & Pruzinsky, 2002).

Second, the present thesis has advanced testing of the acceptance model of intuitive eating (Avalos & Tylka, 2006). This model involving body appreciation as a key predictor was shown to apply in the sample of adolescent girls both cross-sectionally and prospectively (Studies 4 and 5). The application of the model in girls is particularly useful because of the high rates of body image disturbance and disordered eating in this population (Paxton et al., 1991; Wertheim & Paxton, 2011). The acceptance model of intuitive eating was also modified to include appearance comparison, which was shown to be the strongest predictor of

intuitive eating behind body appreciation. Thus, appearance comparison might be considered for inclusion in future tests of the model.

Third, the thesis also sought to expand on the understanding of “protective filtering” (Tylka, 2011, 2012; Wood-Barcalow, Tylka, & Augustus-Horvath, 2010), which is proposed to be one component of positive body image. Protective filtering was examined in the context of exposure to thin-ideal media (Study 3). Young women with greater body appreciation were more likely to process (i.e., “filter”) appearance ideals portrayed in thin-ideal advertisements in a way that was protective for body image. This was the case for both reported general use of processing strategies in everyday life, and use of processing strategies during the experiment. Thus the results have begun to address Tylka’s (2011) suggestion to examine how filtering is protective (research question 3).

Finally, as was noted in Chapter 1, the relationships between positive body image and different environmental factors are proposed to exist in reciprocal manner which serves to maintain and strengthen positive body image (Tylka, 2011, 2012; Wood-Barcalow et al., 2010). For example, individuals who perceive others as accepting of their appearance are likely to possess greater body appreciation, which in turn will encourage them to surround themselves with like-minded people who have an accepting stance toward appearance, further enhancing perceptions of body acceptance. The longitudinal study with girls enabled such postulated bi-directional relationships to actually be tested (Study 5). Indeed, significant bi-directional relationships were found between body appreciation and greater perceived body acceptance by others as well as lower dieting. To the best of our knowledge, these findings provide the first demonstration of reciprocal relationships involving positive body image.

Practical Implications

The results also have a number of practical implications. As identified in the studies, there are several benefits to possessing positive body image, and thus increasing positive

body image is a worthwhile aim for interventions. Indeed, it is possible that interventions that specifically seek to increase levels of body appreciation will be more successful than those that attempt to reduce body dissatisfaction. Body dissatisfaction has become normative for women and girls in Western cultures and is difficult to change because of continual reinforcement by appearance messages (e.g., in the media) that place importance and emphasis on being thin. In addition, initial research suggests that it may be possible for individuals to experience body appreciation while still experiencing some level of body dissatisfaction (Tiggemann & McCourt, 2013). Thus positive body image can potentially be fostered without needing to simultaneously reduce levels of body dissatisfaction.

Importantly, a number of predictors were identified that might be targeted to enhance positive body image. In particular, given that perceived body acceptance by others was the most consistent predictor, the results suggest that one way to increase body appreciation is to modify how accepting other people are of one's appearance. This could be achieved by educating those people closest to women and girls, for example, their mothers, fathers, spouses or friends, about the importance of showing an accepting stance towards the appearance of the women and girls in their lives. Alternatively, women and girls' *perceptions* could be targeted, particularly if the perceptions held are negatively biased and inaccurate. For example, cognitive behaviour therapy techniques (e.g., Beck, 1979; Beck, 2011) could be used to highlight and critically examine negative appearance related automatic thoughts and perceptions.

Another predictor identified in women was self-compassion. In Western societies, people are continuously confronted with different types of appearance-related information and feedback from sources such as the media, peers, and one's own personal judgements. As a great deal of this information can be negative, possessing an accepting, kind and non-judgemental outlook may assist in dealing with information in a way that strengthens positive

body image. A recent study examining a meditation intervention that included self-compassion training was shown to improve levels of reported body appreciation in women (Albertson, Neff, & Dill-Shackleford, 2014). Thus, interventions that enhance self-compassion could be explored as a way to foster body appreciation.

Consistent with the embodiment model of positive body image (Menzel & Levine, 2011) and the acceptance model of intuitive eating (Avalos & Tylka, 2006), lowered self-objectification was consistently associated with greater body appreciation across several of the studies. Thus, decreasing self-objectification is another possible option to enhance body appreciation. One way to achieve this might be to increase the focus on the body's functionality, as opposed to the focus on appearance inherent in self-objectification. For example, women and girls could be encouraged to engage in activities such as yoga, rock climbing or acrobatics. Alternatively, interventions might specifically direct attention and thought to body functionality. A recent study found that an intervention involving structured writing assignments about the functions of one's body resulted in reduced self-objectification and increased body appreciation in young women (Alleva, Martijn, Van Breukelen, Jansen, & Karos, 2015). Such a brief and non-invasive strategy could be relatively easily implemented in school and university settings.

Finally, lower social comparison on the basis of appearance was also associated with greater body appreciation among women and girls in a number of the studies, and so could be targeted to influence body appreciation. For example, interventions could focus on emphasising the inappropriateness of comparison targets. This could be achieved by increasing awareness of the artificial nature of media images, including how only a narrow range of body types (i.e., very thin) are commonly represented, and that digital modifications and enhancements are regularly made to images. Another strategy is to increase awareness that our body shape and composition is largely genetically pre-determined and therefore the

majority of the population simply cannot look like the models in the media. Similar strategies have previously been shown to lessen negative impacts on body image as a result of thin-ideal media exposure (Posavac, Posavac, & Weigel, 2001).

A broader practical implication of the findings is that increasing body appreciation should have a wide range of beneficial outcomes for women and girls. In particular, fostering body appreciation should encourage behaviours that benefit health, and lessen or prevent engagement in behaviours that might compromise health. Such behaviours include those identified in the thesis (e.g., more sun protection, less dieting), but may also extend to others such as decreasing the use of illicit substances or engagement in other risky behaviours. Thus, community and government-led health and well-being programs might consider enhancing body appreciation as a way to influence a range of health outcomes in young adult women and adolescent girls.

Conclusion

The present thesis has examined positive body image in young women and adolescent girls across five studies using different methodologies. The studies have identified a number of predictors and positive outcomes of body appreciation. Theoretically, the findings contribute to the conceptualisation of positive body image as distinct from negative body image. Practically, the findings identify a number of ways in which to enhance body appreciation, and show that this may offer a broad range of benefits. Overall, the results indicate that positive body image is an important contributor to the well-being of adolescent girls and young adult women.

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