Adapting an Integrated Model of Body Appreciation in Women:

The Role of Interoceptive Awareness

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Abstract

Body image concerns have become normative within current society and, while much research has demonstrated links between body image and overall wellbeing, the causes of positive and negative body image remain unclear. Interoceptive awareness (IA) is one construct that has been shown to have positive relationships with body appreciation, however body image literature lacks an integrative theoretical model which incorporates its influence. A convenience sample of 197 female participants from Australia completed an online questionnaire comprising several standardised measures including measures of IA, body appreciation and other proposed factors underlying positive body image. Results indicated that greater IA, self-compassion and perceived body acceptance by others, and lower self-objectification, social comparison and internalisation of the thin-ideal were related to greater body appreciation. Structural equation modelling demonstrated that appearance processing mechanisms – self-objectification, social comparison, and thin-ideal internalisation – negatively predicted body appreciation, and self-objectification and social comparison mediated the relationship between IA and body appreciation. The adapted model of positive body image provided a good fit to the data. Findings contribute to the understanding of body appreciation, suggesting that IA is an influential factor within body appreciation, and can help inform future practices to increase overall wellbeing.

Declaration

This thesis contains no material which has been accepted for the award of any other degree of diploma in any University, and, to the best of my knowledge, this thesis contains no material previously published except where due reference is made. I give permission for the digital version of this thesis to be made available on the web, via the University of Adelaide's digital thesis repository, the Library Search and through web search engines, unless permission has been granted by the School to restrict access for a period of time.

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Chapter 1: Introduction

1.1 Overview

With the overwhelming impact of the media and other social influences perpetuating explicit body ideals for men, women, and adolescents (Rousseau & Eggermont, 2018; Vartanian & Dey, 2013), body image concerns have become normative within society (Gillen & Lefkowitz, 2006). Research has demonstrated links between body image and psychosocial functioning and suggests that having a positive body image can decrease negative psychological experiences associated with objective body weight and size (Gillen, 2015; Pesa, Syre, & Jones, 2000). Consequently, recent research has focused on identifying means to reduce these concerns and promote positive body image. Body appreciation refers to the extent to which individuals accept, respect and hold favourable opinions of their bodies regardless of their shape, size or weight (Avalos, Tylka, & Wood-Barcalow, 2005; Tylka & Wood-Barcalow, 2015a), and is considered to be an important aspect of positive body image. Body appreciation is associated with many positive health-related outcomes and reduced negative outcomes (Andrew, Tiggemann, & Clark, 2016a; Halliwell, 2015; Satinsky, Reece, Dennis, Sanders, & Bardzell, 2012; Swami, Weis, Barron, & Furnham, 2018), prompting further need for understanding the mechanisms of the construct. Many attempts have been made to develop predictive models of body appreciation, with one recent integrated model developed by Andrew, Tiggemann, and Clark (2016b) highlighting several factors which contribute to body appreciation. However, the model neglected to include an important predictor, interoceptive awareness – the self-reported awareness of bodily sensations (Mehling, Acree, Stewart, Silas, & Jones, 2018). Recent research has suggested that the way in which individuals perceive their bodily signals has considerable effects on the way they view their bodies (Emanuelsen, Drew, & Koteles, 2015; Oswald, Chapman, & Wilson, 2017;

Todd, Aspell, Barron, & Swami, 2019). Therefore, this study will assist in developing a more comprehensive understanding of body appreciation and its predictors by exploring the influence of interoceptive awareness, and developing an adapted integrated model of body appreciation, building upon the understandings outlined by Andrew et al. (2016b).

1.2 Body Image and Body Appreciation

Body image is a complex construct comprising a number of diverse dimensions (Cash, 2004; Todd et al., 2019). Body image research has progressively evolved from the simple idea of how one pictures their own body, to now encompassing several body-related self-attitudes and perceptions including feelings, beliefs and behaviours (Bailey, Gammage, & van Ingen, 2017). Thompson, Heinberg, Altabe, and Tantleff-Dunn (1999) note that due to the construct's multifaceted nature, body image is difficult to define, and researchers are just now beginning to discern and understand the intricate interrelationships between its many components.

Recently, literature has shifted from a focus on negative body image – in particular, body image disturbances such as body dissatisfaction – to a more complex understanding of body image that includes positive body image (Tylka, 2012; Tylka & Wood-Barcalow, 2015b). Positive body image has previously been conceptualised as the absence of negative body image or body dissatisfaction (Wood-Barcalow, Tylka, & Augustus-Horvath, 2010). This understanding is problematic, however, as many body image interventions have consequently been designed based on the assumption that reducing negative body image increases positive body image (Wood-Barcalow et al., 2010). However, while often significantly and negatively correlated, people experience both positive body image and body dissatisfaction concurrently, indicating that negative and positive body image may be considered two related but distinct constructs (Halliwell, 2015; Todd et al., 2019; Tylka & Wood-Barcalow, 2015b). Since body dissatisfaction is perpetuated through socio-cultural

influences (Andrew, Tiggemann, & Clark, 2016c), developing strategies to increase positive body image may be more successful than attempting to reduce body dissatisfaction. Approaches aiming to improve positive body image can help individuals learn to appreciate their bodies, irrespective of whether they also hold some degree of body dissatisfaction (Andrew et al., 2016c).

Positive body image is now defined as a love and appreciation of one's own physical appearance and functionality (Andrew et al., 2016b; Bailey et al., 2017; Wood-Barcalow et al., 2010), and is frequently operationalised as body appreciation. Body appreciation has been connected to a number of positive psychological, emotional and social factors (Andrew, Tiggemann, & Clark, 2015; Andrew et al., 2016c; Avalos & Tylka, 2006; Oswald et al., 2017; Swami et al., 2018). Accounting for effects of age and Body Mass Index (BMI; a measure of an individual's weight in relation to their height), Swami et al. (2018) found that body appreciation was the strongest predictor amongst multiple facets of body image for overall emotional, psychological and social wellbeing. Body appreciation was significantly positively associated with specific components of wellbeing, including optimism, positive affect, subjective happiness, life satisfaction, and personal sense of growth (Avalos et al., 2005; Swami et al., 2018). Additionally, body appreciation has shown significant relationships with positive health behaviours including intuitive eating (eating based on physiological hunger and satiety cues rather than emotional and situational cues; Avalos & Tylka, 2006; Tribole & Resch, 1995), sexual satisfaction in women (Satinsky et al., 2012), and enjoyment-based activities (Homan & Tylka, 2014). While being positively associated with a number of positive constructs and behaviours, body appreciation is also negatively correlated with maladaptive behaviours including social physique anxiety, body checking, weight-loss behaviours, self-comparison and maladaptive perfectionism (Andrew et al., 2016a; Iannantuono & Tylka, 2012; Webb, Wood-Barcalow, & Tylka, 2015).

Given a number of indicators of good health and positive psychological constructs are associated with body appreciation – and thus positive body image – a better understanding of the underlying mechanisms of body appreciation would be useful in promoting overall wellbeing. Identifying potential predictors of body appreciation will further guide advancements in body image literature, while continuing to inform and develop healthy practices and interventions.

1.3 Factors that contribute to Body Image

Due to the multifaceted nature of body image, researchers have explored a range of potential influences of both positive and negative body image. As previously mentioned, much of this research has focused on negative body image, or body dissatisfaction, with the aim of reducing body image disturbances and pathology (Andrew et al., 2016c), and many correlates are consistent across both positive and negative body image. Slevec and Tiggemann (2011) noted that correlates of body dissatisfaction encompass biological, psychological and socio-cultural factors, which is also true of body satisfaction and other measures of positive body image (Algars et al., 2009; Swami et al., 2018). A range of research has found that gender is a key factor affecting body image. As noted by Calogero and Thompson (2010), gender informs body image through the different body ideals portrayed by the media and the customary biological and social roles and functions expected of men and women. While many studies have focused predominantly on women, those that have compared body image in men and women have found women tend to display lower scores of body appreciation than men (Hill, Ogletree, & McCrary, 2016), and body dissatisfaction is felt more strongly and commonly in women (Brennan, Lalonde, & Bain, 2010). This is thought to be in part due to contrasting considerations of the body's importance; where men tend to value their body's function over appearance, while women often value appearance over function (Halliwell & Dittmar, 2003). However, body image

research in male samples has shown that men experience many similar body image concerns, though they tend to manifest them differently to women due to different social and cultural ideals (Burlew & Shurts, 2013). Consequently, theoretical models of body image tend to differ for men and women to acknowledge the distinctive presenting factors associated with each gender. Age has also been associated with both positive and negative body image with research showing consistent negative correlations between body dissatisfaction and age, along with positive associations between body appreciation and age (Augustus-Horvath & Tylka, 2011; Tiggemann & McCourt, 2013). Littleton and Ollendick (2003) suggest those in adolescent and young adult age groups are at increased risk of dysfunctional body image. Additionally, BMI has been demonstrated as a risk factor for body dissatisfaction (Algars et al., 2009; Slevec & Tiggemann, 2011; Stice, 2002), while being negatively related to body appreciation (Robbins & Reissing, 2018).

Several other factors have been consistently found to contribute to body appreciation. Self-compassion, defined by Neff (2003) as being compassionate to one's self in times of failure, perceived inadequacy, or general suffering, is one of the most noteworthy correlates of body appreciation within the literature. While self-compassion has demonstrated significant positive associations with overall wellbeing (Zessin, Dickhauser, & Garbade, 2015) and significant negative associations with anxiety, depression and stress-related pathologies (MacBeth & Gumley, 2012), it too plays an important role in body image. In a systematic review by Braun, Park, and Gorin (2016), self-compassion was found to serve as a protective factor against negative body image and eating pathologies. High self-compassion has predicted fewer body concerns independently of self-esteem (Seekis, Bradley, & Duffy, 2017) while consistently demonstrating positive relationships with body appreciation in females (Andrew et al., 2016b; Seekis et al., 2017; Wasylkiw, MacKinnon, & MacLellan, 2012). It should be noted, however, that several appearance processing variables including

self-objectification, social comparison and thin-ideal internalisation have been found to limit the extent to which self-compassion predicts body appreciation (Andrew et al., 2016b). Along with self-compassion, body appreciation is associated with several other psychological factors including self-assessed attractiveness, neuroticism and extraversion (Swami, Hadji-Michael, & Furnham, 2008). The most consistent socio-cultural influence of body appreciation is perceived body acceptance by others, which has shown significant positive correlations across multiple studies (Andrew et al., 2016b, 2016c; Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006). Andrew et al. (2016c) found that girls who experienced weight and shape acceptance from those around them expressed greater appreciation for their bodies over time. This relationship was bidirectional such that girls with greater body appreciation tended to socialise with body-positive peers (Andrew et al., 2016c). However, while beneficial for body appreciation, the effect of perceived body acceptance by others has been found to be mediated by social comparison and thin-ideal internalisation (Andrew et al., 2016b).

1.4 Interoceptive Awareness (IA)

Interoception, defined as the sensing and understanding of internal physiological changes and stimuli (Khalsa et al., 2018), has recently been acknowledged as a potential contributing factor to body image (Garfinkel, Seth, Barrett, Suzuki, & Critchley, 2015; Todd et al., 2019). Research on interoception commonly distinguishes between interoceptive accuracy (IAcc), which denotes the accuracy of detection of internal bodily signals, and interoceptive awareness (IA), referring to the self-reported detections, or metacognitive awareness, of internal bodily sensations (Garfinkel et al., 2015; Mehling et al., 2018). IAcc has commonly been measured through heartbeat detection and counting tasks, although these have recently been suggested to be unacceptable indicators due to lack of reliability, and the finding that up to 40% of people have difficulty detecting their heartbeat accuracy to a level

greater than chance (Khalsa, Rudrauf, Sandesara, Olshansky, & Tranel, 2009). It has

therefore been suggested that the subjective interpretation of IA (i.e., through self-report) is a

more appropriate way to measure interoception than through such means as heartbeat

counting (Ferentzi, Horvath, & Koteles, 2019). Lower interoceptive ability has been found to

be related to several problematic outcomes; with lower IAcc linked to depression (Dunn,

Dalgleish, Lawrence, & Ogilvie, 2007), and lower IA associated with eating disorders

(Merwin, Zucker, Lacy, & Elliott, 2010) and schizophrenia (Critchley, Wiens, Rotshtein,

Ohman, & Dolan, 2004). Understandings of the relationship between IA and mental health

are still in its infancy, however, as higher interoceptive ability has been linked with anxiety

and panic disorders (Dunn et al., 2010; Lackner & Fresco, 2016).

Recent literature has shown interoception to be associated with different facets of

body image within both clinical and non-clinical samples. Lower IA and IAcc have been

highlighted within clinical samples in those with severe eating disturbances such as anorexia

nervosa (Pollatos & Georgiou, 2016; Pollatos et al., 2008). Significant findings have also

been produced in non-clinical samples, where lower IA and IAcc were associated with higher

body dissatisfaction and lower body satisfaction (Duschek, Werner, Reyes del Paso, &

Schandry, 2015; Emanuelsen et al., 2015). Additionally, positive associations have been

found between IA and body appreciation within a female university sample (Oswald et al.,

2017), and a more diverse sample of men and women (Todd et al., 2019). However, as noted

by Badoud and Tsakiris (2017), while much research has demonstrated clear associations

between IA and body image disturbances, relationships between IAcc and body image

disturbances have not been consistently replicated with several studies failing to significantly

reproduce the same findings (Eshkevari, Rieger, Musiat, & Treasure, 2014; Khalsa et al.,

2018). Rather, subjective IA has been found to be more clearly associated with outcomes

such as subjective wellbeing (Ferentzi et al., 2019).

Several dimensions have been identified within IA by Mehling et al. (2012), leading to its conceptualisation as a multidimensional construct. Components include elements of regulation, appraisal, and both functional and dysfunctional forms of attention towards interoceptive signals (Mehling et al., 2012). Aspects of IA have been associated with body appreciation including the extent to which a person 'trusts' their body signals and experiences them as 'safe', as well as their perceived ability to attend to their body's signals and use physiological strategies to induce calm (Todd et al., 2019). Notably, in an exploration of multiple dimensions of IA within multiple facets of body image, Todd et al. (2019) found that IA accounted for 44% of the variance in body appreciation after controlling for gender, BMI and age, adding further evidence towards the importance of IA within body image. Importantly, while research suggests that IA is an important factor contributing to body image, several appearance processing variables may limit the effect of IA on body appreciation. For instance, IA has been negatively correlated with self-objectification (and indices of self-objectification such as appearance orientation) in healthy female samples (Ainley & Tsakiris, 2013; Todd et al., 2019), and negatively correlated with a drive for thinness in a female sample suffering from binge eating disorder (Izydorczyk, 2013).

1.5 Theories of Body Image

As emphasised by Halliwell (2015), the development and testing of theoretical models is imperative in understanding and promoting positive body image. It is through such models that professionals can guide policies and practices to help individuals love and value their own bodies and increase their overall wellbeing (Halliwell, 2015). Taking into consideration the wide range of presumed influences, a number of models have attempted to demonstrate the predictors of positive and negative body image (Andrew et al., 2016b; Avalos & Tylka, 2006; Fredrickson & Roberts, 1997; Menzel & Levine, 2011; Thompson et al., 1999).

1.5.1 Tripartite model of influence.

The tripartite model of influence (Thompson et al., 1999) is one of the most influential models within body image research, suggesting that three primary sociocultural influences – peers, parents and media – affect body image and eating disturbances. The model contains two mediational variables – social appearance comparison and thin-ideal internalisation – which allow for both direct and indirect effects on body dissatisfaction; which often lead to eating disturbances (Thompson et al., 1999). The model has received much support, particularly within samples of young adult and adolescent females (Keery, van den Berg, & Thompson, 2004; Rodgers, Chabrol, & Paxton, 2011; van den Berg, Thompson, Obremski-Brandon, & Coovert, 2002).

1.5.2 Objectification theory.

Objectification theory (Fredrickson & Roberts, 1997) posits that repeated sexual objectification acculturates women to internalise an observer's perspective of their physical selves, leading to habitual body monitoring and increased opportunities for body-related shame and anxiety. Internalisation of these views leads to increased self-objectification, which is associated with increased body dissatisfaction and mental health issues including depression, sexual dysfunction and eating disorders (Fredrickson & Roberts, 1997). It is also proposed that factors that foster self-objectification will reduce positive body image (Halliwell, 2015). Objectification theory has received much empirical support in women of different ages (Augustus-Horvath, 2009) and ethnicities (Mitchell, 2009), and has been extended to boys and men (Parent & Moradi, 2011; Slater & Tiggemann, 2010).

1.5.3 Acceptance model of intuitive eating.

As proposed by Avalos and Tylka (2006), the acceptance model of intuitive eating infers that general and body acceptance of oneself by others contributes to women's emphasis on the way in which their bodies function and feel internally, rather than how they appear

externally. The model suggests that perceived acceptance of one's body by others leads to increased body appreciation, and engagement in body-positive behaviours such as intuitive eating (Avalos & Tylka, 2006). Contrary to objectification theory, individuals are suggested to develop the ability to be attentive to and connected with their bodies, and thus are more likely to develop increased appreciation and gratitude for function over appearance (Halliwell, 2015). Several examinations of the model have demonstrated that perceived body acceptance by others both directly and indirectly – via reduced social comparison and self-objectification – predicts higher body appreciation (Andrew et al., 2015, 2016b; Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006).

1.5.4 Embodiment model of positive body image.

The embodiment model of positive body image (Menzel & Levine, 2011) suggests that embodying activities – such as engagement in competitive athletics or yoga – reduces self-objectification and promotes positive body image. Engaging in activities that promote a focus on the function of the body, along with promoting a connection between the mind and the body, have been consistently associated with lower self-objectification and higher body appreciation (Cox & McMahon, 2019; Daubenmier, 2005; Menzel & Levine, 2011; Slater & Tiggemann, 2012; Tiggemann, Coutts, & Clark, 2014). Evidence for this model has been shown in activities including organised sport (Slater & Tiggemann, 2012), belly dancing (Tiggemann et al., 2014) and yoga (Cox & McMahon, 2019; Daubenmier, 2005). It should be noted that the mind-body connection has been frequently operationalised as IA (Hanley, Mehling, & Garland, 2017), and thus IA may be logically included in this model, such that embodying activities both improve and promote body appreciation.

1.5.5 Integrated model of positive body image.

While important within the literature, many models – such as those mentioned above – have been unable to capture the full complexity of body image, and consequently

researchers have begun to develop integrative models (Thompson et al., 1999). One attempt to synthesise several consistently-related variables within a positive body image framework has been made by Andrew et al. (2016b). In their integrated model of positive body image in women, Andrew et al. (2016b) proposed several psychological, behavioural, and sociocultural variables to be linked to body appreciation, both directly and indirectly. Based on the above-described empirically-supported theoretical models of body image, the integrated model proposed that body appreciation was predicted by perceived body acceptance by others, taken from the acceptance model of intuitive eating (Avalos & Tylka, 2006), media consumption from the tripartite influence model (Thompson et al., 1999), and embodying activities based on the embodiment model of positive body image (Menzel & Levine, 2011) and objectification theory (Fredrickson & Roberts, 1997). Additionally, self-compassion was included as a useful emotional regulation strategy with extensive evidence supporting its role in positive body image (Andrew et al., 2016b; Seekis et al., 2017; Wasylkiw et al., 2012). Autonomy was considered as a new, unexplored factor based on the idea that highly autonomous individuals may be less influenced by external negative appearance influences (Andrew et al., 2016b).

Their model provided an acceptable fit to the data: $\chi^2 = 69.49$, $df = 31$, $p < .001$, CFI = .93, TLI = .90, SRMR = .05, RMSEA = .07 (Andrew et al., 2016b). As expected, their analyses found body appreciation to be significantly positively correlated with perceived body acceptance by others and self-compassion, while demonstrating significant negative relationships with self-objectification, social comparison and thin-ideal internalisation (see Figure 1; Andrew et al., 2016b). Andrew et al. (2016b) also noted significant indirect effects between body appreciation and predictors including perceived body acceptance by others, self-compassion, appearance media and non-appearance media, mediated by appearance processing; a latent variable comprising self-objectification, social comparison and thin-ideal

internalisation. Autonomy and participation in sports and hobbies were not found to be significant predictors. While their proposed model takes into account many influences of positive body image, as well as important elements of appearance processing, Andrew et al. (2016b) neglected to include IA which has been established as a significant influence in several studies (Oswald et al., 2017; Todd et al., 2019). Additionally, it is important to note that the integrated model of positive body image has only been tested within young, principally Caucasian Australian university students and has not been examined in a more diverse sample (Andrew et al., 2016b).
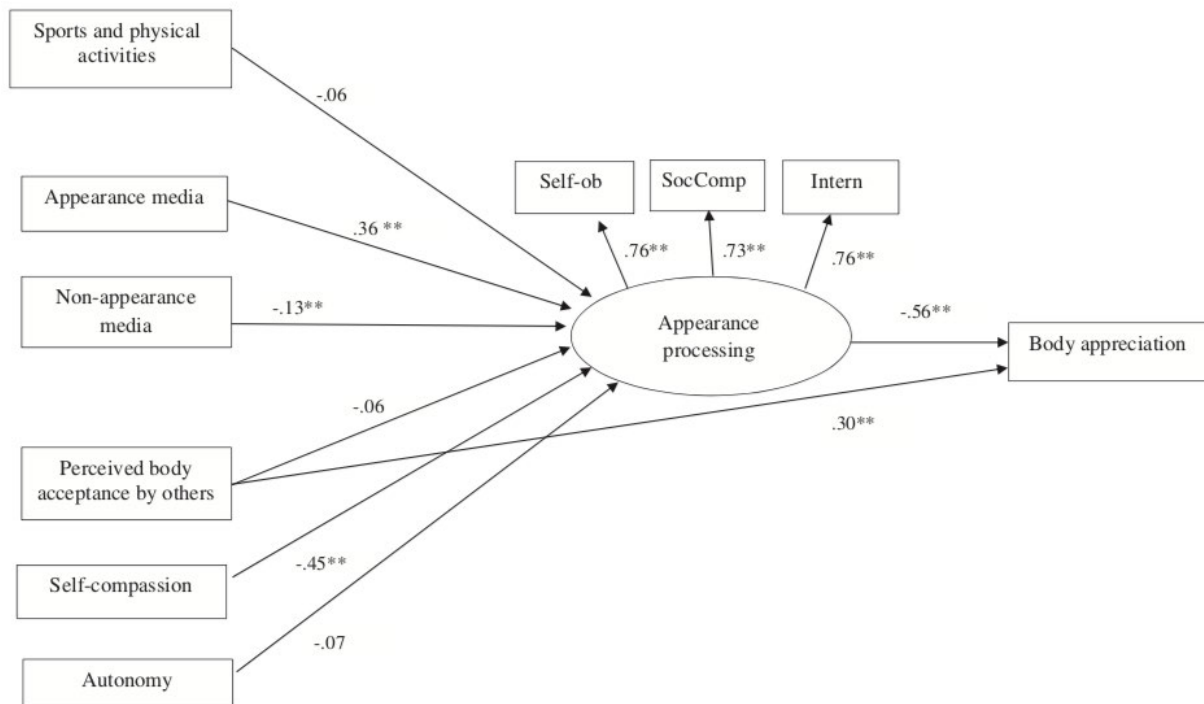
Figure 1. Integrated model of positive body image with factor loadings and path coefficients. Reprinted from *Predicting body appreciation in young women: An integrated model of positive body image* by R. Andrew, M. Tiggemann and L. Clark, 2016, *Body Image, 18*, p. 39. Copyright 2016 by Elsevier Ltd. Reprinted with permission. *Note*: Self-ob = Self-objectification; Soc-Comp = Social comparison; Intern = Thin-ideal internalisation. **p < .001.

1.6 Interoceptive Awareness within a Model of Positive Body Image

Though many theoretical models such as the integrated model of body appreciation (Andrew et al., 2016b) capture several factors related to body image, literature within the field still seeks a holistic framework which takes into account the many known influences and mediators. For this reason, the present study intends to revise the integrated model of positive body image proposed by Andrew et al. (2016b), with the addition of IA, in an attempt to capture a more complete framework of body appreciation in women, and therefore positive body image more generally. The adapted model (see Figure 2) follows a similar structure to the original model by Andrew et al. (2016b) but includes IA as a direct predictor of body appreciation, and an indirect predictor through appearance processing (self-objectification, social comparison and thin-ideal internalisation). Given the findings of numerous studies suggesting IA increases body appreciation (Duschek et al., 2015; Emanuelsen et al., 2015; Oswald et al., 2017; Todd et al., 2019), and its theoretical links with the embodiment model of body image (Menzel & Levine, 2011), it is proposed here that IA may have an important contribution within the original model put forward by Andrew et al. (2016b). The original model has been further modified for parsimony by removing two variables, sports and physical activities and autonomy, as they were not significantly associated with body appreciation (Andrew et al., 2016b).
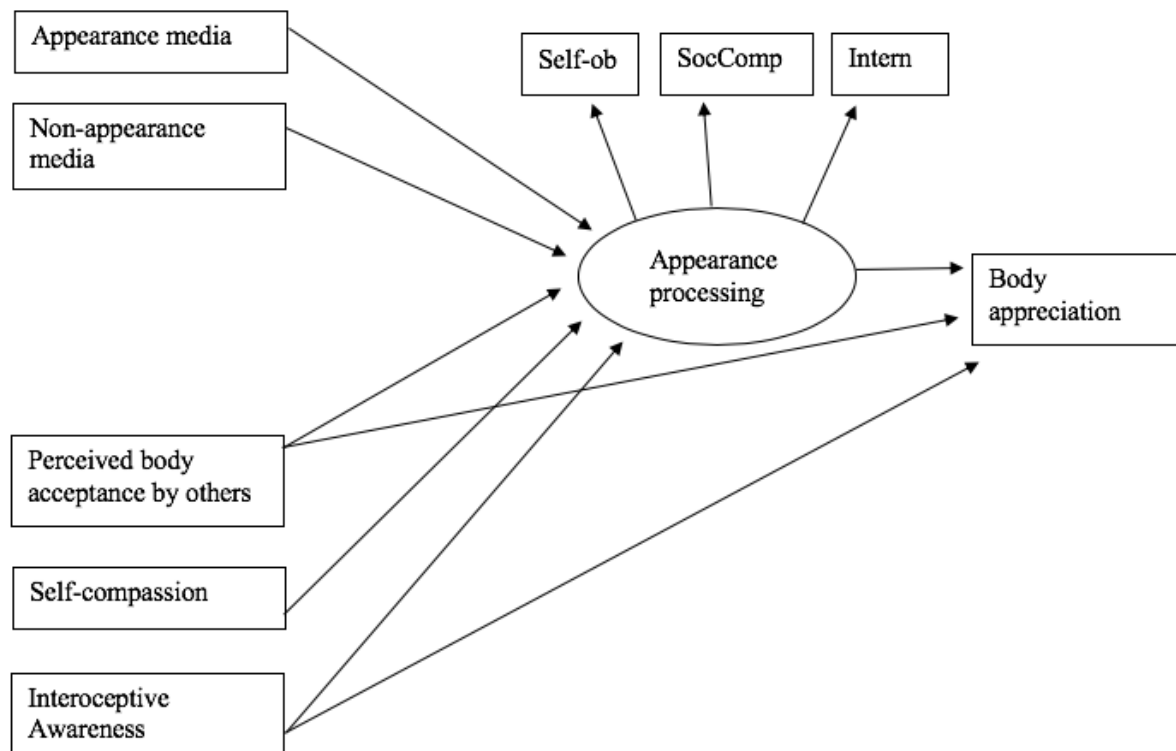
Figure 2. Proposed adapted model of positive body image with the addition of interoceptive awareness and hypothesised associations. Adapted from *Predicting body appreciation in young women: An integrated model of positive body image* by R. Andrew, M. Tiggemann and L. Clark, 2016, *Body Image, 18*, p. 39. Copyright 2016 by Elsevier Ltd. Adapted with permission.

1.7 Aims of the Present Study

The aims of the present investigation are as follows:

1. To investigate the associations between IA and body appreciation, along with other recognised predictors of body appreciation, by adapting the integrated model of positive body image posited by Andrew et al. (2016b), as depicted in Figure 2.

2. To determine whether IA has a direct effect on body appreciation, and/or an indirect effect through appearance processing mechanisms; self-objectification, self-comparison and thin-ideal internalisation.

3. To evaluate the effect of mediating variables including self-objectification, social comparison and thin-ideal internalisation on the relationship between IA and body appreciation

Based on these aims, the following hypotheses are proposed:

1. There will be a positive correlation between IA and body appreciation.

2. IA will have a positive direct effect on body appreciation over and above the influence of other predictors in the integrated model.

3. There will be an indirect effect between IA and body appreciation, mediated by appearance processing mechanisms; self-objectification, social comparison and thin-ideal internalisation.

4. The adapted integrated model of positive body image featuring IA will show a good fit to the data, as indicated by the relevant model fit indices.

Chapter 2: Method

2.1 Participants

The total convenience sample consisted of 260 participants aged 18 years and above, who lived in Australia and identified as female. As the majority of body image research has focused on females, and male and female body image presents differently, this study only used female data. Additionally, Andrew et al. (2016b) only studied female participants and this study aims to adapt their model. Participants were required to have proficient English literacy skills in order to understand and complete the online questionnaire. 62 participants (24%) had incomplete responses (i.e., had not completed the key measures for the present study). Therefore, their data were removed. One participant indicated a BMI above the biologically plausible upper limit (Ball, Ford, Russell, Williams, & Hockey, 2002), and thus this case was also removed. These exclusions resulted in a final sample of 197 aged between 18 and 66 ($M = 24.64$, $SD = 10.75$). The majority of participants identified as Caucasian (76.6%, $n = 151$) and had an average BMI of 23.44 ($SD = 5.20$).

2.2 Measures

2.2.1 Demographic information.

Participants were asked to provide their age, weight, height and ethnicity. BMI was calculated using the formula: weight (kg)/height^2 (m^2).

2.2.2 Body appreciation.

To assess body appreciation, participants completed the Body Appreciation Scale-2 (BAS-2; Tylka & Wood-Barcalow, 2015a). The 10-item BAS-2 is a widely used instrument measuring an individual's acceptance of, respect for, and positive opinions towards their body. Items were rated on a 5-point scale ranging from 1 (*never*) to 5 (*always*). Items include "I respect my body," and the mean of all items provided an overall score of body appreciation. Greater body appreciation is reflected by higher scores. The BAS-2 has

demonstrated good internal consistency within a female Australian sample (α = .93; Andrew

et al., 2016b), and has been shown to have a unidimensional factor structure and test-retest

reliability over a 3-week period (Tylka & Wood-Barcalow, 2015a). Internal reliability was

demonstrated to be similarly high in the current sample (α = .96).

2.2.3 Interoceptive awareness (IA).

IA was assessed using the Multidimensional Assessment of Interoceptive Awareness,

Version Two (MAIA-2; Mehling et al., 2018). The 37-item self-report measure comprises

eight subscales relating to elements of IA including attention, regulation and appraisal.

Responses to all items (example item: "I trust my body sensations,") were given on a 6-point

scale ranging from 0 (*never*) to 5 (*always*), with higher scores reflecting greater IA. Although

scores are often assessed as individual dimensions, the current study sought to investigate the

contribution of overall IA to the model, and past studies have found the overall MAIA

measure to show good internal consistency (α = .85; Mehling et al., 2012; Muir, Madill, &

Brown, 2017). Furthermore, Mehling et al. (2012) demonstrated that a model that included an

overall score showed similar adequacy of fit to a model with only eight subscales, thus it was

considered justified to use the overall score. The overall score was calculated by reverse

coding the negatively-worded items and summing the scores from each subscale. In the

present sample, overall IA internal reliability was good (α = .88).

2.2.4 Self-compassion.

Self-compassion was assessed using the Self-Compassion Scale (SCS; Neff, 2003).

Participants rated 26-items on a 5-point scale from 1 (*almost never*) to 5 (*almost always*),

with higher scores indicating greater self-compassion. An example item is, "I'm tolerant of

my own flaws and inadequacies." The SCS assesses six subscales – Self-Kindness, Self-

Judgement, Common Humanity, Isolation, Mindfulness and Over-Identification – and overall

self-compassion scores are calculated by reverse coding the Self-Judgement, Isolation and

Over-Identification items and taking the average of the six subscale means. There is evidence of high internal consistency for the SCS (α = .92), and high construct validity given significant correlations with other scales measuring similar constructs such as social connectedness (r = .41, p < .01; Neff, 2003). For the current sample, internal reliability was also high (α = .95).

2.2.5 Media consumption.

Media consumption was assessed through eight items constructed by Andrew et al. (2016b) for their study assessing an integrated model of positive body image. The items measured appearance-based media through six items and non-appearance-based media through the remaining two items; for example, "How often do you watch soapies or dramas?" Three items measured magazine consumption on a 4-point scale ranging from 1 (*never*) to 4 (*every time an issue comes out*), and five items measured television viewing on a 5-point scale from 1 (*never*) to 5 (*all the time*). Total appearance media consumption was measured by summing the six appearance media items, while the two items measuring non-appearance media were summed to measure total non-appearance media consumption. As the items were created by Andrew et al. (2016b) for their study, the psychometric properties of the items are unknown, although internal reliability was low in the present study for appearance (α = .51) and non-appearance media consumption (α = .29). It was expected that internal reliability may be low, however, given it assesses different forms of media. Nonetheless, as their integrated model of positive body image is being used as a basis for the present study, it is considered reasonable to use the same measure of appearance and non-appearance media consumption.

2.2.6 Perceived body acceptance by others.

Perceived body acceptance by others was measured using the Body Acceptance by Others Scale (BAOS; Avalos & Tylka, 2006). The scale measures body shape and weight

acceptance from external sources including friends, family, partners, society and the media.

The BAOS consists of 10 items (for example: "I've felt acceptance from my family regarding

my body shape and/or weight") on a 5-point scale ranging from 1 (*never*) to 5 (*always*),

where higher scores indicate greater perceived acceptance of body shape and weight. The

BAOS yielded high internal reliability in its original study ($\alpha = .90$), and displayed evidence

of good test-retest reliability over a 3-week period (Avalos & Tylka, 2006). High internal

consistency was also found in the current sample ($\alpha = .90$).

2.2.7 Self-objectification.

To assess self-objectification, participants completed the Body Surveillance Subscale

of the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996). The Body

Surveillance Subscale is commonly used within body image literature and comprises eight

items (example item: "During the day, I think about how I look many times") measuring the

extent to which an individual monitors and views their own body, with a focus on appearance

as opposed to how their body feels or functions. Participants rated each item on a 7-point

scale ranging from 1 (*strongly agree*) to 7 *(strongly disagree)*. Total scores are calculated

after reverse coding of six negatively worded items (for example: "I rarely think about how I

look"), with higher scores reflecting higher self-surveillance and thus self-objectification.

The Body Surveillance Subscale has shown good internal reliability in previous studies ($\alpha =$

.89; McKinley & Hyde, 1996), and likewise in the present study ($\alpha = .82$).

2.2.8 Social comparison.

Social comparison was measured using the Physical Appearance Comparison Scale

(PACS; Thompson, Heinberg, & Tantleff-Dunn, 1991). The scale consists of five items

(example item: "In social situations, I sometimes compare my figure to the figures of other

people") on a 5-point scale ranging from 1 (*never*) to 5 (*always*), measuring participants'

tendency to compare their appearance to others'. Higher scores are indicative of greater

social comparison. The PACS is one of the most-used measures of social comparison and has been shown to have adequate internal reliability within a female sample (α = .78; O'Brien, Hunter, Halberstadt, & Anderson, 2007). In the current sample, the PACS demonstrated close to adequate internal consistency (α = .65).

2.2.9 Thin-ideal internalisation.

Thin-ideal internalisation refers to the way in which individuals accept and endorse unrealistically thin body ideals as expressed through the media, and was assessed using the Internalisation Subscale of the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-4; Schaefer et al., 2015). The internalisation subscale features 10 items on a 5-point scale ranging from 1 (*definitely disagree*) to 5 (*definitely agree*), where higher scores denote greater internalisation of the thin or athletic ideal. An example item is, "I think a lot about looking thin." The present study only used data from the thin-ideal items. The thin-ideal internalisation subscale has yielded evidence of good internal reliability in both regional subgroups of U.S. females (α = .82 or higher) and non-U.S. females (α = .91; Schaefer et al., 2015). Internal reliability was found to be similar in the present study (α = .82).

2.3 Procedure

The study had a cross-sectional design allowing for associations to be understood within the population of Australian adult females. Following ethics approval from the Human Research Ethics Subcommittee in the School of Psychology, the questionnaire was uploaded to an online survey platform (SurveyMonkey) and first-year psychology students were recruited through the School of Psychology Research Participation System at the University of Adelaide. Additional participants were recruited through convenience sampling using social media posts (Facebook) and posters placed around the university (See Appendices A and B). Course credit provided an incentive for students to participate, while non-university students had the opportunity to go into the draw to win a $50 gift-voucher for participation.

After reading an information sheet and giving consent (See Appendices C and D), participants completed the questionnaire containing the above measures. This project was conducted as part of a larger study investigating the association between IA and psychological outcomes, however, only measures and procedures relevant to the present study are discussed here. The questionnaire took, on average, 26 minutes to complete. Upon completion, participants were provided researcher's contact information and offered links to several health and counselling services if required.

2.4 Data Analysis

Data analyses were conducted through the IBM Statistical Package for the Social Sciences (SPSS) version 25 (IBM Corp., 2017). Structural Equation Modelling (SEM) was conducted using the Analysis of Moment Structures (AMOS) package within SPSS to identify the processes underlying the proposed model of body appreciation. The PROCESS macro (Version 3.0; Hayes, 2013) was also used to test for indirect effects. Bootstrapping assists with robustness of findings and reduces the impact of any violations of the assumption of normality. The SEM model used 5,000 sample replicates while the test of indirect effects were based on 10,000 bootstrap samples, where the effect is significant when the 95% confidence interval does not contain zero (Hayes, 2013).

Chapter 3: Results

3.1 Data Screening

Initial screening was conducted to determine the data's suitability for parametric analyses. This was examined using the Kolmogorov-Smirnov and Shapiro-Wilk tests of normality, whereby nonsignificant results indicate normality (Pallant, 2016). These statistics indicated that only two variables, the MAIA-2 Overall and the SCS, were normally distributed. These tests, however, are sensitive to large samples with significant values caused by slight deviations from normality (Pallant, 2016; Tabachnick & Fidell, 2013). Thus, the shape of the distribution was inspected through histograms and quantile-quantile plots to further assess normality. Using this technique, all variables appeared to be normally distributed, bar a few minor deviations. Given the reasonably large sample size (N = 197), and the minimal differences between each variable mean and 5% trimmed mean, it was determined that the assumption of normality was sufficiently robust (Pallant, 2016).

Outliers were also examined for each variable. Inspection of histograms and boxplots demonstrated that 7 univariate outliers were present, however, upon inspection these cases tended to show consistently high or low responding across variables. Due to the general consistency across the variables, and given the outlier cases appeared to reflect genuine responses, these outliers were retained to capture the most reflective representation of the sample (Field, 2013).

3.2 Descriptive Statistics

Table 1 presents descriptive statistics for each measure included in the adapted integrated model of body appreciation. Overall, participants displayed relatively high levels of IA and moderate-to-high levels of body appreciation in comparison to previous studies (Muir et al., 2017; Neff, 2015; Tylka & Wood-Barcalow, 2015a).

Table 1

Means, Standard Deviations, Minimum and Maximum Scores for Predictor and Outcome Measures

Measure	*M (SD)*	Minimum	Maximum
IA (MAIA-2 Overall)	101.95 (19.35)	44.00	160.00
Self-Compassion (SCS)	2.94 (.72)	1.35	4.69
Body Appreciation (BAS-2)	3.25 (.93)	1.00	5.00
Perceived Body Acceptance by Others (BAOS)	3.44 (.82)	1.00	5.00
Self-Objectification (OBCS)	37.96 (8.23)	16.00	56.00
Self-Comparison (PACS)	15.15 (3.25)	5.00	25.00
Thin-Ideal Internalisation (SATAQ-4)	28.61 (7.28)	10.00	45.00
Appearance Media	14.81 (3.21)	7.00	23.00
Non-Appearance Media	4.72 (1.40)	2.00	8.00

Note. MAIA-2 = Multidimensional Assessment of Interoceptive Awareness (Version 2); SCS Overall = Self-Compassion Scale; BAS-2 = Body Appreciation Scale-2; BAOS (Body Acceptance by Others Scale); OBCS = Objectified Body Consciousness Scale (Body Surveillance Subscale); PACS = Physical Appearance Comparison Scale; SATAQ-4 = Sociocultural Attitudes Towards Appearance Questionnaire (Internalisation Subscale).

3.3 Correlations

Table 2 presents correlations between predictor variables, outcome variables and appearance processing variables. Specifically, correlations between the key variables of interest – IA, self-compassion and body appreciation – as well as their associations with other recognised predictors and mediators of body appreciation are shown. As expected, IA was significantly positively correlated with body appreciation and self-compassion, and showed

significant negative correlations with all three appearance processing variables; self-objectification, social comparison and thin-ideal internalisation. Additionally, body appreciation demonstrated significant negative correlations with all appearance processing variables.

Table 2

Correlation Matrix for Covariates, Predictor and Outcome Measures

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. IA (MAIA-2 Overall)	1	.46**	.54**	.34**	-.35**	-.30**	-.14*	.05	.27**
2. Self-Compassion (SCS)		1	.63**	.31**	-.49**	-.50**	-.25**	-.09	.13
3. Body Appreciation (BAS-2)			1	.61**	-.46**	-.52**	-.25**	.05	.09
4. Perceived Body Acceptance by Others (BAOS)				1	-.08	-.26**	-.02	.09	-.13
5. Self-Objectification (OBCS)					1	.58**	.40**	.14*	-.10
6. Social Comparison (PACS)						1	.46**	.13	.00
7. Thin-ideal Internalisation (SATAQ-4)							1	.14	-.09
8. Appearance Media								1	.23**
9. Non-Appearance Media									1

Note. MAIA-2 = Multidimensional Assessment of Interoceptive Awareness (Version 2); SCS = Self-Compassion Scale; BAS-2 = Body Appreciation Scale-2; BAOS (Body Acceptance by Others Scale); OBCS = Objectified Body Consciousness Scale (Body Surveillance Subscale); PACS = Physical Appearance Comparison Scale; SATAQ-4 = Sociocultural Attitudes Towards Appearance Questionnaire (Internalisation Subscale).

* = $p < .05$. ** = $p < .01$.

3.4 Structural Equation Modelling

The proposed adapted model of positive body image was tested using Structural Equation Modelling (SEM). Convention for acceptable sample size varies, although this type of analysis requires a generally large sample size to provide enough statistical power to detect relationships. Kline (2011) recommends a guideline of samples of 200 or more to classify as a large sample, while other suggestions indicate that sample size should be based upon the number of parameters estimated – such as five to 10 participants per parameter (Bentler & Chou, 1987). Given the current sample of 197 meets the requirements of 10 participants per parameter and falls only three participants short of Kline's (2011) definition of a large sample, the sample size was considered acceptable for SEM analysis.

3.4 Model Fit

Model fit can be determined using a number of fit indices. Chi-square is the most commonly reported index, with nonsignificant results representing a good fit, however the sensitivity of chi-square increases with number of cases and is rarely appropriate for larger sample sizes such as that of the present study (Barrett, 2007). Thus, following recommendations of Hu and Bentler (1999), the model fit to the data was evaluated using the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root-Mean Square of Approximation (RMSEA), and the Standardised Root-Mean Square Residual (SRMR). A good fit is indicated by values of .95 or higher for CFI and TLI, and .08 or lower for RMSEA and SRMR (Kline, 2011).

Initial testing of the model indicated a less than acceptable fit to the data; $\chi^2 = 38.75$, $df = 15$, $p = .001$, CFI = .956, TLI = .894, RMSEA = .090, SRMR = .042. Modification indices suggested the addition of a direct path from self-compassion to body appreciation, which is supported by empirical findings demonstrating a significant direct relationship between the two (Homan & Tylka, 2015; Wasylkiw et al., 2012). With the inclusion of this

path, the model fit indices indicated a good fit to the data; $\chi^2 = 26.67$, *df* = 14, *p* = .021, CFI = .976, TLI = .939, RMSEA = .068, SRMR = .038. This model is presented in Figure 3.
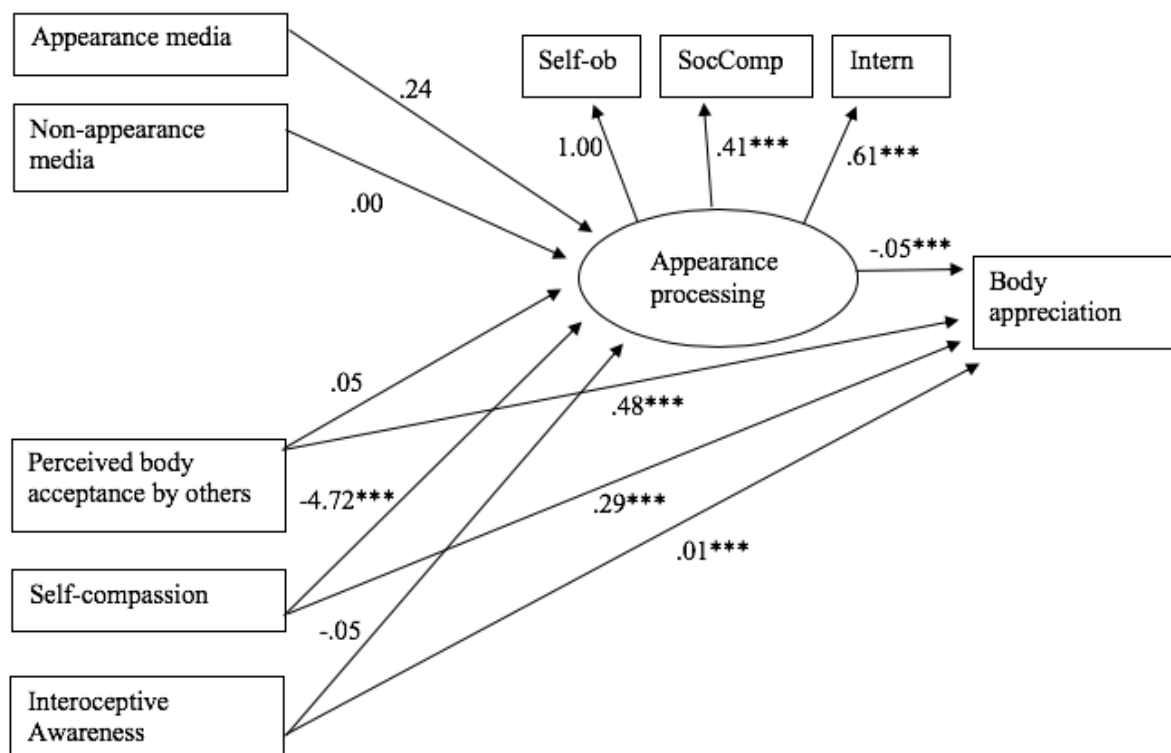
Figure 3. Simplified Final Structural Integrated Model of Positive Body Image with Factor Loadings and Path Coefficients. *Note*. Unstandardised estimates are given. Self-objectification was fixed to 1.00 to scale the corresponding latent factor (and remains so in the unstandardised solution; Kline, 2011). Self-ob = self-objectification; SocComp = social comparison; Intern = thin-ideal internalisation. ***p* < .001.

Overall, the adapted model accounted for 68% of the total variance in body appreciation. Specifically, body appreciation was directly predicted by perceived body acceptance by others (β = .42), self-compassion (β = .23) and IA (β = .17; see Table 3). Conversely, engagement in appearance processing mechanisms self-objectification, social comparison and thin-ideal internalisation negatively predicted body appreciation (β = -.32).

Self-compassion also had a significant negative association with appearance processing (β = -.54). Appearance media and non-appearance media had no significant effect on appearance processing.

Table 3

Path Estimates, Standard Errors and Critical Ratio for Final Model

Pathway	Unstandardised Estimate	Standardised Estimate	*SE*	C.R.
Appearance Media → AP	.24	.12	.14	1.74
Non-Appearance Media → AP	.00	.00	.33	.00
Perceived Body Acceptance by Others → AP	.05	.01	.58	.08
Self-Compassion → AP	-4.72***	-.54	.73	-6.43
IA (Overall) → AP	-.05	-.16	.03	-1.96
AP → Self-Objectification	1.00	.76		
AP → Social Comparison	.41***	.79	.04	9.33
AP → Thin-Ideal Internalisation	.61***	.53	.09	6.69
AP → Body Appreciation	-.05***	-.32	.01	-4.46
Perceived Body Acceptance by Others → Body Appreciation	.48***	.42	.05	9.07
IA (Overall) → Body Appreciation	.01***	.17	.00	3.38
Self-Compassion → Body Appreciation	.29***	.23	.08	3.66

Note. AP = Appearance Processing. Self-objectification was fixed to 1.00 to scale the corresponding latent factor (and remains so in the unstandardised solution; Kline, 2011).

***$p < .001$.

An indirect effect between IA and body appreciation was found via the appearance processing mechanisms, with self-objectification and social comparison significantly mediating the relationship (see Table 4). No significant indirect effect was found for thin-ideal internalisation.

Table 4

Indirect Effect of IA on Body Appreciation via Appearance Processing Variables

	Appearance Processing Variables		
Predictor	Self-Objectification b [CI]	Social Comparison b [CI]	Thin-ideal Internalisation b [CI]
IA (Overall)	.003 [.0003, .005]*	.004 [.002, .007]*	.000 [-.001, .001]

Note. * Significant indirect effect as confidence interval does not contain zero. Lower bound for CI via Self-Objectification displays four decimal points to show that CI does not cross zero.

Chapter 4: Discussion

The current study sought to further develop the current understanding of positive body image and adapt an integrated model of body appreciation. Specifically, this study examined the addition of IA to the integrated model of body appreciation proposed by Andrew et al. (2016b), and determined the extent to which appearance processing mechanisms – self-objectification, social comparison and thin-ideal internalisation – mediated the effect of IA on body appreciation. As hypothesised, results indicated that IA was positively related to body appreciation, along with other previously recognised predictors including self-compassion and perceived body acceptance by others. A SEM model demonstrated body appreciation to be directly positively predicted by perceived body acceptance by others, self-compassion and IA, and negatively predicted by the appearance processing mechanisms. An indirect effect was found between IA and body appreciation, with two appearance processing variables – self-objectification and social comparison – significantly mediating this relationship. Implications, strengths and limitations of the present study will be discussed in the following chapter.

4.1 Current Findings

The current findings are largely consistent with the hypotheses and previous research surrounding IA and body image. To explore these results in more detail, they will be addressed in relation to each individual hypothesis.

4.1.1 Hypothesis 1: There will be a positive correlation between IA and body appreciation.

Exploration of correlations demonstrated body appreciation to be significantly positively associated with IA, along with self-compassion and perceived body acceptance by others, supporting hypothesis one. Significant positive correlations between body appreciation, self-compassion and perceived body acceptance by others were similarly found

by Andrew et al. (2016b), and the significant positive correlation with IA was also expected due to previous literature (Oswald et al., 2017; Todd et al., 2019). These findings lend support to the idea that interoception plays an important role within the formation and maintenance of positive body image, and that this relationship should be further investigated.

4.1.2 Hypothesis 2: IA will have a positive direct effect on body appreciation, over and above the influence of other predictors in the integrated model.

SEM analysis indicated IA to have a direct, positive effect on body appreciation, supporting hypothesis two. This effect was also significant when the unique contribution of other variables was controlled for, though the effect was not as large as those of perceived body acceptance by others and self-compassion. While literature is increasingly beginning to acknowledge the positive relationship between IA and body appreciation, a direct link between the two has only been explored within the contexts of the individual dimensions of IA. Todd et al. (2019) explored direct effects of IA dimensions, and found MAIA subscales Attention Regulation, Self-Regulation, and Trusting to positively predict body appreciation. While this research was useful in distinguishing the effects of the different dimensions, the present study extends their findings noting that IA as an overall construct similarly predicts body appreciation.

Additionally, the adapted integrated model demonstrated similar findings to that of Andrew et al. (2016b), in that body appreciation was also directly positively predicted by perceived body acceptance by others. This lends support to existing literature suggesting perceived body acceptance by others to play an important role in positive body image by encouraging women to focus on how their bodies function and feel, and on their inner experiences (Andrew et al., 2016b; Avalos & Tylka, 2006). As suggested within the acceptance model of intuitive eating (Avalos & Tylka, 2006), women who receive feedback that their bodies do not need to be changed physically are unlikely to experience any

discrepancy between their own body and a cultural ideal, and thus less likely to experience body shame or dissatisfaction (Fredrickson & Roberts, 1997). Furthermore, contrasting what was found by Andrew et al. (2016b), self-compassion was demonstrated to have a significant effect on body appreciation. This direct effect implies that holding a self-accepting, non-judgemental, and compassionate view of one's self may translate to expressing compassion for one's own body and appearance (Wasylkiw et al., 2012). Importantly, while this understanding suggests a direct contribution of self-compassion to body appreciation, Liss and Erchull (2015) noted that self-compassion can also act as a buffer against appearance processing mechanisms such as self-objectification, and instead allow individuals to observe their own bodies with compassion and acceptance.

4.1.3 Hypothesis 3: There will be an indirect effect between IA and body appreciation, mediated by appearance processing mechanisms; self-objectification, social-comparison and thin-ideal internalisation.

Hypothesis three was partially supported as the model showed a significant indirect effect between IA and body appreciation; however significant mediation only occurred via two of the three appearance processing variables – self-objectification and social comparison. While these mediations were significant, their effect sizes were very small; suggesting that the indirect effect does not explain most of the relationship between these variables. Unexpectedly, thin-ideal internalisation did not emerge as a significant mediator. This lack of significant mediation was surprising given that Izydorczyk (2013) found a significant relationship between IA and a 'drive for thinness', however this finding was within a clinical sample of females suffering from binge eating disorder and thus is not generalisable to the general population of females.

Self-objectification was also expected to mediate the relationship between IA and body appreciation given findings of Ainley and Tsakiris (2013) and Todd et al. (2019) linking

IA to self-objectification in non-clinical female samples. As postulated by Fredrickson and Roberts (1997) in objectification theory, one explanation for this link could be that women who self-objectify tend to use their limited attentional resources to perceive their bodies from another's perspective, and subsequently have less attention available for interoception. In this regard, objectification theory views IA as a consequence of self-objectification, and reductions in self-objectification may assist with improvements in IA. Alternatively, as suggested by Ainley and Tsakiris (2013), women who experience interoceptive cues less clearly tend to direct attention to their bodies away from their own experience, and instead to an outsider's perspective. Here, IA is a cause of self-objectification, and improvements to IA can thus help reduce self-objectification and ultimately improve body appreciation. Several interventions have successfully reduced self-objectification in women (Alleva, Martijn, Van Breukelen, Jansen, & Karos, 2015; Canales de Anderson, Hall, Anderson, & Canada, 2016), demonstrating the possibility of using such interventions to increase body appreciation.

Similarly, social comparison was expected to limit the extent to which IA could predict body appreciation, based on its negative relationship with self-compassion (Neff & Vonk, 2009) and perceived body acceptance by others (Andrew et al., 2015, 2016b). However, to our knowledge, no studies have examined the relationship between IA and social comparison specifically. The mediation of body appreciation by social comparison could indicate that by comparing oneself to others, particularly those that have an 'ideal' physique or appearance, individuals are likely to pay less attention to – or place less importance on – how they feel physiologically. Furthermore, as suggested by Halliwell (2015), individual differences in social comparison habits may influence the degree to which comparisons are made and their bidirectional effect with body image. O'Brien et al. (2009) found that body dissatisfaction is associated with greater upward appearance-based social comparisons. That is, individuals tend to make physical appearance comparisons with people they deem more

attractive than themselves, resulting in dissatisfaction with their own body (O'Brien et al., 2009; Thompson, Coovert, & Stormer, 1999). This suggests that the type of comparisons people make – which may stem from their overall body image – may limit their awareness of internal signals.

4.1.4 Hypothesis 4: The adapted integrated model of positive body image featuring interoceptive awareness will show a good fit to the data, as indicated by the relevant model fit indices.

As indicated by the model fit indices displayed in the results, the final adapted model showed a good fit to the data, supporting hypothesis four. In comparison to the original model developed by Andrew et al. (2016b), the adapted model presented in the current study provided a better fit, suggesting an improved theoretical understanding of body appreciation. The inclusion of IA in the model demonstrated new relationships and effects regarding IA, self-compassion and appearance processing variables, and reproduced a number of key findings made by Andrew et al. (2016b). The adapted model accounted for 68% of the total variance within body appreciation suggesting that knowledge of the mechanisms underlying the construct is improving, however there is still a need for further investigation to explain the remaining variance. Standardised estimates of the model indicate that perceived body acceptance by others has the largest contribution to body appreciation, followed by self-compassion and IA as direct influences. Appearance processing variables – self-objectification, social comparison and thin-ideal internalisation – also negatively contributed to body appreciation, suggesting that limiting engagement in appearance processing may increase body appreciation.

4.2 Practical Implications

The findings of this study have a number of practical implications for maintaining positive body image and, specifically, increasing body appreciation. Examination of the

adapted model produced findings that were generally consistent with that of Andrew et al. (2016b); reinforcing the idea that body image has a number of protective factors including perceived body acceptance by others and self-compassion, and risk factors such as appearance processing variables; self-objectification, social comparison and thin-ideal internalisation. The current study extended these findings by adding IA to the range of protective factors, suggesting that increased awareness of bodily signals is an important factor which helps individuals love and appreciate their bodies. Given that IA (or one's mind-body connection) is considered a modifiable skill, and thus an appropriate target for intervention, this finding highlights the importance of improving IA as it has a range of benefits including an increased appreciation for both function and appearance of one's body.

Previous research has considered the application of various interventions to improve interoceptive processes including IA, with many showing significant improvements (Bornemann, Herbert, Mehling, & Singer, 2014; Fischer, Messner, & Pollatos, 2017; Price, Thompson, Crowell, & Pike, 2019; Weineck, Messner, Hauke, & Pollatos, 2019). An eight-week body-scan intervention focusing on increasing attention to bodily sensations demonstrated significant improvements in interoceptive processes across three time-points in a healthy sample (Fischer et al., 2017). Similarly, mindful awareness in body-oriented therapy, involving guided touch and mindfulness training, was successful in improving IA skills in a clinical sample of women who suffered from substance use disorder and previously had significantly impaired IA (Price et al., 2019). While the aims of these studies were not to improve positive body image, they show that IA is a modifiable skill, which can be used as part of an intervention.

Like IA, self-compassion can be trained and developed with the goal of increasing body appreciation. Self-compassion training has been demonstrated to improve self-compassion within adolescent and adult samples (Finlay-Jones, Kane, & Rees, 2017; Rodgers

et al., 2018). Results from the present study suggest body appreciation may be increased through a multifaceted intervention encompassing both IA and self-compassion training. A combined self-compassion and mind-body therapy approach, targeting recognition and understanding of bodily signals alongside encouraging self-directed messages of love and acceptance, may be a future intervention with the potential to benefit positive body image by increasing body appreciation. Furthermore, the intervention may incorporate social elements encouraging acceptance of one's own and others' bodies given the findings suggesting perceived body acceptance by others to play such an important role.

Additionally, the present study emphasised the role of appearance processing mechanisms and found variables self-objectification and social comparison to significantly mediate the effect of IA on body appreciation to a small extent. Therefore, another practical consideration could be to incorporate coping strategies to deal with these processes when they occur, and to reduce their frequency and magnitude. The concept of 'protective filtering' was developed by Wood-Barcalow et al. (2010), whereby women process and respond to information in a manner that is self- and body-preserving. Strategies such as intentionally rejecting the thin-ideal and monitoring appearance comparisons help to maintain and develop one's protective filter – and in turn limit the effect of factors such as self-objectification, social comparison and thin-ideal internalisation – such that individuals process information in a way that demonstrates acceptance and respect of oneself (Wood-Barcalow et al., 2010). Taken together, interventions targeting body appreciation should consider a biopsychosocial approach which acknowledges each of the influences presented in the integrated model.

4.3 Strengths and Limitations

While body image literature has explored a range of contributing factors and consequences, a major strength of this study is the incorporation of IA as part of the concept of body image and, specifically, within a new integrated theoretical model of body

appreciation. In her evaluation of future directions for positive body image research, Halliwell (2015) identified scope for expansion of the range of predictors that are addressed in current models of positive body image. Recommended on the basis of the embodiment model (Menzel & Levine, 2011), Halliwell (2015) suggested that future models should include elements of body awareness and mind-body integration. To our knowledge, this is the first model of positive body image to acknowledge the influence of IA. Research surrounding intuitive eating has recognised the contributions of IA and researchers have begun to include it in theoretical models (Oswald et al., 2017), however this is the first model of body image to adapt in light of new empirical findings. Given the significant findings of the present study linking IA to both body appreciation directly and indirectly through various appearance processing variables, further exploration of the effect of IA on body image is not only justified, but also important for the development of positive body image practices and interventions.

Another strength of the current study is the use of multiple standardised measures. While self-report can be considered a limitation due to associated potential for biases and data collection errors, the measures included were all widely used and psychometrically supported – with the exception of the media consumption measures which were taken from Andrew et al. (2016b) and require comprehensive psychometric evaluation. In particular, the BAS-2 – used to measure body appreciation – is highly regarded as a measure of body appreciation and is considered to be one of the best indices of positive body image (Halliwell, 2015). By using reliable, commonly-used measures, researchers can be more confident in findings, and results can easily be compared with other literature within the field. Additionally, the present study used a large sample size which extended beyond university students. Much research on body image is conducted using student samples, whereas this study used a more diverse sample including both students and the general public.

It is also important to acknowledge several limitations and methodological considerations. One limitation relates to the convenience sample, made up of predominantly young, Caucasian women, with many of these undergraduate university students. This results in a relatively narrow range of people regarding demographic and socio-economic characteristics, making it difficult to generalise findings to the wider population. While it was beyond the scope of the current study to explore the impact of psychopathologies, eating-related disorders or other developmental conditions such as Autism Spectrum Disorder (ASD) on the relationship between IA and body appreciation, such conditions were not screened for and thus it is possible that they may have impacted results. Given the known links between eating disorders and IA (Pollatos & Georgiou, 2016; Pollatos et al., 2008) and associations between ASD and IA (Fiene, 2015; Schauder, Mash, Bryant, & Cascio, 2015), future research should screen for these conditions to ensure these factors do not confound results, or, alternatively, look into these relationships directly in relation to IA and body appreciation.

Similarly, the sample only included female participants. While this may be deemed a limitation due to the lack of research on body image in males, and the lack of applicability to the general population, this choice was deliberate and warranted. Males were not included in this study for several reasons. Firstly, this study aimed to replicate the study conditions used by Andrew et al. (2016b) in order to appropriately adapt their model of positive body image and compare findings. Secondly, and perhaps more importantly, males are known to have different predictors of body image, such as a muscular-ideal rather than a thin-ideal (Calogero & Thompson, 2010; McCreary & Saucier, 2009), and thus it is not likely that the adapted model would apply to a male population.

Another limitation was the use of a cross-sectional design. Although many variables were conceptualised as 'predictor' variables based on previous literature, causation cannot be

inferred due to the design of the study. While it is important to know whether certain factors positively or negatively predict body appreciation, it is possible that many relationships within the model are bidirectional, which has been noted as a feature of positive body image (Andrew et al., 2016b; Tylka, 2012; Wood-Barcalow et al., 2010). Additionally, the order of questions in the survey was not counter-balanced, which may have resulted in order effects. Nevertheless, despite these caveats, this study has expanded on the literature surrounding positive body image by being the first to include IA within a model of body appreciation.

4.4 Future Research

A number of avenues for future research have been identified throughout this chapter within the context of this study's implications and limitations. Regarding implications, research should continue to explore predictors and mediators associated with body appreciation, with a focus on the newly-identified contributor, IA. Current literature has little knowledge surrounding the relationships between IA and appearance processing mechanisms, and a deeper understanding of these relationships would aid implementation of strategies to improve IA and ultimately foster body appreciation. While investigating the different dimensions of IA and their role within the model, as well as other aspects of interoception, was beyond the scope of the present study, this may be useful for exploring the role of IA in the context of body image given that Todd et al. (2019) found differences in effects between dimensions of IA. Further research on the relationship between IA and body appreciation could be undertaken within an experimental design, whereby activities that promote mind-body integration could act as independent variables predicting body appreciation, and causal relationships could be inferred. Additionally, there is scope for further adaptations to, or revisions of, the model, particularly in the context of a male population where many of the mechanisms are still largely unknown. Specifically, the model could consider a muscular-ideal or drive for muscularity (Hargreaves & Tiggemann, 2009),

as opposed to internalisation of a thin-ideal, in combination with exploration of other acknowledged influences such as social comparison (Karazsia & Crowther, 2010), self-esteem (Choma et al., 2010), physical activity and sexual orientation (Alleva, Paraskeva, Craddock, & Diedrichs, 2018).

To address the limitations of the present study, future research should aim to use more diverse samples in order to capture more representative conclusions. Measuring IA within a broader range of age groups including adolescents and across a wider range of ethnicities will present more generalisable results. A similar study could be conducted within a male sample with another adapted model considering factors that surround the mechanics of positive body image in males. As previously mentioned, future research should ensure to screen for individuals with conditions such as eating- or developmental-disorders, as these factors may affect IA and body appreciation. In addition to the need for experimental research to establish causal relationships, longitudinal research may be beneficial in developing a greater understanding of how these relationships change over time. Once the contribution of IA within body appreciation is better understood, research should shift to a focus on IA training and interventions to improve body appreciation and, ultimately, overall wellbeing.

4.5 Conclusions

The present study investigated the relationships between IA and body appreciation, amongst other recognised predictors, and adapted a theory-based integrated model of positive body image to recognise the influence of IA. This research is particularly important in developing a better understanding of the mechanisms underlying body image, and in turn identifying factors which can be targeted and improved to help increase body appreciation and general wellbeing. Findings indicated that IA has a place within the framework of positive body image, suggesting that researchers should focus on how IA can be trained or developed with the intention of increasing body appreciation. An integrated model of body

appreciation is important not only for theoretical understanding, but also to educate

individuals on positive practices to help improve body image and encourage them to love and

accept their own bodies.

References

Ainley, V., & Tsakiris, M. (2013). Body conscious? Interoceptive awareness, measured by heartbeat perception, is negatively correlated with self-objectification. *PLoS One, 8*(2), e55568. doi:10.1371/journal.pone.0055568

Algars, M., Santtila, P., Varjonen, M., Witting, K., Johansson, A., Jern, P., & Sandnabba, N. K. (2009). The adult body: how age, gender, and body mass index are related to body image. *Journal of Aging and Health, 21*(8), 1112-1132. doi:10.1177/0898264309348023

Alleva, J. M., Martijn, C., Van Breukelen, G. J., Jansen, A., & Karos, K. (2015). Expand Your Horizon: A programme that improves body image and reduces self-objectification by training women to focus on body functionality. *Body Image, 15*, 81-89. doi:10.1016/j.bodyim.2015.07.001

Alleva, J. M., Paraskeva, N., Craddock, N., & Diedrichs, P. C. (2018). Body appreciation in British men: Correlates and variation across sexual orientation. *Body Image, 27*, 169-178. doi:10.1016/j.bodyim.2018.09.004

Andrew, R., Tiggemann, M., & Clark, L. (2015). Predictors of intuitive eating in adolescent girls. *Journal of Adolescent Health, 56*(2), 209-214. doi:10.1016/j.jadohealth.2014.09.005

Andrew, R., Tiggemann, M., & Clark, L. (2016a). Positive body image and young women's health: Implications for sun protection, cancer screening, weight loss and alcohol consumption behaviours. *Journal of Health Psychology, 21*(1), 28-39. doi:10.1177/1359105314520814

Andrew, R., Tiggemann, M., & Clark, L. (2016b). Predicting body appreciation in young women: An integrated model of positive body image. *Body Image, 18*, 34-42. doi:10.1016/j.bodyim.2016.04.003

Andrew, R., Tiggemann, M., & Clark, L. (2016c). Predictors and health-related outcomes of positive body image in adolescent girls: A prospective study. *Developmental Psychology, 52*(3), 463-474. doi:10.1037/dev0000095

Augustus-Horvath, C. L., & Tylka, T. L. (2011). The acceptance model of intuitive eating: a comparison of women in emerging adulthood, early adulthood, and middle adulthood. *Journal of Counseling Psychology, 58*(1), 110-125. doi:10.1037/a0022129

Augustus-Horvath, C. L., Tylka, T. L. (2009). A test and extension of objectification theory as it predicts disordered eating: Does women's age matter? *Journal of Counseling Psychology, 56*, 253-265. doi:10.1037/a0014637

Avalos, L. C., & Tylka, T. L. (2006). Exploring a model of intuitive eating with college women. *Journal of Counseling Psychology, 53*(4), 486-497. doi:10.1037/0022-0167.53.4.486

Avalos, L. C., Tylka, T. L., & Wood-Barcalow, N. (2005). The Body Appreciation Scale: development and psychometric evaluation. *Body Image, 2*(3), 285-297. doi:10.1016/j.bodyim.2005.06.002

Badoud, D., & Tsakiris, M. (2017). From the body's viscera to the body's image: Is there a link between interoception and body image concerns? *Neuroscience and Biobehavioral Review, 77*, 237-246. doi:10.1016/j.neubiorev.2017.03.017

Bailey, K. A., Gammage, K. L., & van Ingen, C. (2017). How do you define body image? Exploring conceptual gaps in understandings of body image at an exercise facility. *Body Image, 23*, 69-79. doi:10.1016/j.bodyim.2017.08.003

Ball, J., Ford, J., Russell, A., Williams, L., & Hockey, R. (2002). Data Cleaning for Height and Weight – 1973-78 and 1946-51 cohorts. *Australian Longitudinal Study on Women's Health, The University of Queensland.* Retrieved from

https://www.alswh.org.au/images/content/pdf/InfoData/Data_Dictionary_Supplement/

DDSSection3Data%20Cleaning%20for%20Height%20and%20Weight.pdf

Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences, 42*(5), 815-824. doi:10.1016/j.paid.2006.09.018

Bentler, P. M., & Chou, C. (1987). Practical issues in structural modeling. *Sociological Methods and Research, 16*, 78-117. doi:10.1177/0049124187016001004

Bornemann, B., Herbert, B. M., Mehling, W. E., & Singer, T. (2014). Differential changes in self-reported aspects of interoceptive awareness through 3 months of contemplative training. *Frontiers in Psychology, 5*, 1504. doi:10.3389/fpsyg.2014.01504

Braun, T. D., Park, C. L., & Gorin, A. (2016). Self-compassion, body image, and disordered eating: A review of the literature. *Body Image, 17*, 117-131. doi:10.1016/j.bodyim.2016.03.003

Brennan, M. A., Lalonde, C. E., & Bain, J. L. (2010). Body image perceptions - Do gender differences exist? *Psi Chi Journal of Undergraduate Research, 50*(3), 130-138.

Burlew, L. D., & Shurts, W. M. (2013). Men and Body Image: Current Issues and Counseling Implications. *Journal of Counseling & Development, 91*(4), 428-435. doi:10.1002/j.1556-6676.2013.00114.x

Calogero, R. M., & Thompson, J. K. (2010). Gender and Body Image. In *Handbook of Gender Research in Psychology* (pp. 153-184). New York, NY, US: Springer.

Canales de Anderson, C., Hall, M. E., Anderson, T. L., & Canada, A. (2016). *Temptress or temple: The development of a religiously based intervention to reduce self-objectification* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses. (Order No. 10113238)

Cash, T. F. (2004). Body image: past, present, and future. *Body Image, 1*(1), 1-5.

> doi:10.1016/s1740-1445(03)00011-1

Choma, B. L., Visser, B. A., Pozzebon, J. A., Bogaert, A. F., Busseri, M. A., & Sadava, S. W.

> (2010). Self-objectification, self-esteem, and gender: Testing a moderated mediation

> model. *Sex Roles, 63*(9-10), 645-656. doi:10.1007/s11199-010-9829-8

Cox, A. E., & McMahon, A. K. (2019). Exploring changes in mindfulness and body

> appreciation during yoga participation. *Body Image, 29*, 118-121.

> doi:10.1016/j.bodyim.2019.03.003

Critchley, H. D., Wiens, S., Rotshtein, P., Ohman, A., & Dolan, R. J. (2004). Neural systems

> supporting interoceptive awareness. *Nature Neuroscience, 7*(2), 189-195.

> doi:10.1038/nn1176

Daubenmier, J. J. (2005). The relationship of yoga, body awareness, and body responsiveness

> to self-objectification and disordered eating. *Psychology of Women Quarterly, 29*,

> 207-219. doi:10.1111/j.1471-6402.2005. 00183x

Dunn, B. D., Dalgleish, T., Lawrence, A. D., & Ogilvie, A. D. (2007). The accuracy of self-

> monitoring and its relationship to self-focused attention in dysphoria and clinical

> depression. *Journal of Abnormal Psychology, 116*, 1-15. doi:10.1037/0021-

> 843X.116.1.1.

Dunn, B. D., Stefanovitch, I., Evans, D., Oliver, C., Hawkins, A., & Dalgleish, T. (2010).

> Can you feel the beat? Interoceptive awareness is an interactive function of anxiety-

> and depression-specific symptom dimensions. *Behaviour Research and Therapy,

> 48*(11), 1133-1138. doi:10.1016/j.brat.2010.07.006

Duschek, S., Werner, N. S., Reyes del Paso, G. A., & Schandry, R. (2015). The contributions

> of interoceptive awareness to cognitive and affective facets of body experience.

> *Journal of Individual Differences, 36*(2), 110-118. doi:10.1027/1614-0001/a000165

Emanuelsen, L., Drew, R., & Koteles, F. (2015). Interoceptive sensitivity, body image dissatisfaction, and body awareness in healthy individuals. *Scandinavian Journal of Psychology, 56*(2), 167-174. doi:10.1111/sjop.12183

Eshkevari, E., Rieger, E., Musiat, P., & Treasure, J. (2014). An investigation of interoceptive sensitivity in eating disorders using a heartbeat detection task and a self-report measure. *European Eating Disorders Review, 22*(5), 383-388. doi:10.1002/erv.2305

Ferentzi, E., Horvath, A., & Koteles, F. (2019). Do body-related sensations make feel us better? Subjective well-being is associated only with the subjective aspect of interoception. *Psychophysiology, 56*(4), e13319. doi:10.1111/psyp.13319

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics* (4th ed.). London, England: Sage Publications.

Fiene, L. (2015). Investigating interoception and body awareness in adults with and without autism spectrum disorder. *Autism Research, 8*(6), 709-716. doi:10.1002/aur.1486

Finlay-Jones, A., Kane, R., & Rees, C. (2017). Self-compassion online: A pilot study of an internet-based self-compassion cultivation program for psychology trainees. *Journal of Clinical Psychology, 73*(7), 797-816. doi:10.1002/jclp.22375

Fischer, D., Messner, M., & Pollatos, O. (2017). Improvement of interoceptive processes after an 8-week body scan intervention. *Frontiers in Human Neuroscience, 11*, 452. doi:10.3389/fnhum.2017.00452

Fredrickson, B. L., & Roberts, T. A. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly, 21*, 173-206. doi: 10.1111/j.1471-6402.1997.tb00108.x

Garfinkel, S. N., Seth, A. K., Barrett, A. B., Suzuki, K., & Critchley, H. D. (2015). Knowing your own heart: distinguishing interoceptive accuracy from interoceptive awareness. *Biol Psychol, 104*, 65-74. doi:10.1016/j.biopsycho.2014.11.004

Gillen, M. M. (2015). Associations between positive body image and indicators of men's and women's mental and physical health. *Body Image, 13*, 67-74. doi:10.1016/j.bodyim.2015.01.002

Gillen, M. M., & Lefkowitz, E. S. (2006). Gender role development and body image among male and female first year college students. *Sex Roles, 55*(1-2), 25-37. doi:10.1007/s11199-006-9057-4

Halliwell, E. (2015). Future directions for positive body image research. *Body Image, 14*, 177-189. doi:10.1016/j.bodyim.2015.03.003

Halliwell, E., & Dittmar, H. (2003). A qualitative investigation of women's and men's body image concerns and their attitudes toward aging. *Sex Roles, 49*, 675-684. doi: /10.1023/B:SERS.0000003137.71080.97

Hanley, A. W., Mehling, W. E., & Garland, E. L. (2017). Holding the body in mind: Interoceptive awareness, dispositional mindfulness and psychological well-being. *Journal of Psychosomatic Research, 99*, 13-20. doi:10.1016/j.jpsychores.2017.05.014

Hargreaves, D. A., & Tiggemann, M. (2009). Muscular ideal media images and men's body image: Social comparison processing and individual vulnerability. *Psychology of Men and Masculinity, 10*(2), 109-119. doi:10.1037/a0014691

Hayes, A. F. (2013). *Methodology in the social sciences. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY, US: Guilford Press.

Hill, B. M., Ogletree, S. M., & McCrary, K. M. (2016). Body modifications in college students: considering gender, self-esteem, body appreciation, and reasons for tattoos. *College Student Journal, 50*(2), 246-252. Retrieved from https://eric.ed.gov/?id=EJ1104223

Homan, K. J., & Tylka, T. L. (2014). Appearance-based exercise motivation moderates the relationship between exercise frequency and positive body image. *Body Image, 11*(2), 101-108. doi:10.1016/j.bodyim.2014.01.003

Homan, K. J., & Tylka, T. L. (2015). Self-compassion moderates body comparison and appearance self-worth's inverse relationships with body appreciation. *Body Image, 15*, 1-7. doi:10.1016/j.bodyim.2015.04.007

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. doi:10.1080/10705519909540118

Iannantuono, A. C., & Tylka, T. L. (2012). Interpersonal and intrapersonal links to body appreciation in college women: an exploratory model. *Body Image, 9*(2), 227-235. doi:10.1016/j.bodyim.2012.01.004

Izydorczyk, B. (2013). Selected psychological traits and body image characteristics in females suffering from binge eating disorder. *Archives of Psychiatry and Psychotherapy, 15*(1), 19-33.

Karazsia, B. T., & Crowther, J. H. (2010). Sociocultural and psychological links to men's engagement in risky body change behaviors. *Sex Roles, 63*(9-10), 747-756. doi:10.1007/s11199-010-9802-6

Keery, H., van den Berg, P., & Thompson, J. K. (2004). An evaluation of the Tripartite Influence Model of body dissatisfaction and eating disturbance with adolescent girls. *Body Image, 1*(3), 237-251. doi:10.1016/j.bodyim.2004.03.001

Khalsa, S. S., Adolphs, R., Cameron, O. G., Critchley, H. D., Davenport, P. W., Feinstein, J. S., . . . Interoception Summit, p. (2018). Interoception and Mental Health: A Roadmap. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 3*(6), 501-513. doi:10.1016/j.bpsc.2017.12.004

Khalsa, S. S., Rudrauf, D., Sandesara, C., Olshansky, B., & Tranel, D. (2009). Bolus
isoproterenol infusions provide a reliable method for assessing interoceptive
awareness. *International Journal of Psychophysiology, 72*(1), 34-45.
doi:10.1016/j.ijpsycho.2008.08.010

Kline, R. B. (2011). *Methodology in the Social Sciences: Principles and practice of
structural equation modeling* (3rd ed.). New York, NY, US: The Guilford Press.

Lackner, R. J., & Fresco, D. M. (2016). Interaction effect of brooding rumination and
interoceptive awareness on depression and anxiety symptoms. *Behaviour Research
and Therapy, 85*, 43-52. doi:10.1016/j.brat.2016.08.007

Liss, M., & Erchull, M. J. (2015). Not hating what you see: Self-compassion may protect
against negative mental health variables connected to self-objectification in college
women. *Body Image, 14*, 5-12. doi:10.1016/j.bodyim.2015.02.006

Littleton, H. L., & Ollendick, T. (2003). Negative body image and disordered eating behavior
in children and adolescents: What places youth at risk and how can these problems be
prevented? *Clinical Child and Family Psychology Review, 6*(1), 51-66. doi:
10.1023/A:1022266017046

MacBeth, A., & Gumley, A. (2012). Exploring compassion: a meta-analysis of the
association between self-compassion and psychopathology. *Clinical Psychology
Review, 32*(6), 545-552. doi:10.1016/j.cpr.2012.06.003

McCreary, D. R., & Saucier, D. M. (2009). Drive for muscularity, body comparison, and
social physique anxiety in men and women. *Body Image, 6*(1), 24-30.
doi:10.1016/j.bodyim.2008.09.002

McKinley, N. M., & Hyde, J. S. (1996). The objectified body consciousness scale:
Development and validation. *Psychology of Women Quarterly, 20*, 181-215.
doi:10.1111/j.1471-6402.1996.tb00467.x

Mehling, W. E., Acree, M., Stewart, A., Silas, J., & Jones, A. (2018). The Multidimensional Assessment of Interoceptive Awareness, Version 2 (MAIA-2). *PLoS One, 13*(12), e0208034. doi:10.1371/journal.pone.0208034

Mehling, W. E., Price, C., Daubenmier, J. J., Acree, M., Bartmess, E., & Stewart, A. (2012). The Multidimensional Assessment of Interoceptive Awareness (MAIA). *PLoS One, 7*(11), e48230. doi:10.1371/journal.pone.0048230

Menzel, J. E., & Levine, M. P. (2011). Embodying experiences and the promotion of positive body image: The example of competitive athletics. In R. M. Calogero, S. Tantleff-Dunn, & J. K. Thompson (Eds.) *Self-objectification in women: Causes, consequences, and counteractions.* (pp. 163-186). Washington, DC, US: American Psychological Association.

Merwin, R. M., Zucker, N. L., Lacy, J. L., & Elliott, C. A. (2010). Interoceptive awareness in eating disorders: Distinguishing lack of clarity from non-acceptance of internal experience. *Cognition & Emotion, 24*(5), 892-902. doi:10.1080/02699930902985845

Mitchell, K. S., Mazzeo, S. E. . (2009). Evaluation of a structural model of objectification theory and eating disorder symptomatology among European American and African American undergraduate women. . *Psychology of Women Quarterly, 33*, 384-395. doi:10.1111/j.1471-6402.2009.01516.x

Muir, K., Madill, A., & Brown, C. (2017). Individual differences in emotional processing and autobiographical memory: interoceptive awareness and alexithymia in the fading affect bias. *Cognition and Emotion, 31*(7), 1392-1404. doi:10.1080/02699931.2016.1225005

Neff, K. D. (2003). The Development and Validation of a Scale to Measure Self-Compassion. *Self and Identity, 2*(3), 223-250. doi:10.1080/15298860309027

Neff, K. D. (2015). The Self-Compassion Scale is a Valid and Theoretically Coherent
Measure of Self-Compassion. *Mindfulness, 7*(1), 264-274. doi:10.1007/s12671-015-0479-3

Neff, K. D., & Vonk, R. (2009). Self-compassion versus global self-esteem: two different
ways of relating to oneself. *Journal of Personality, 77*(1), 23-50. doi:10.1111/j.1467-6494.2008.00537.x

O'Brien, K. S., Caputi, P., Minto, R., Peoples, G., Hooper, C., Kell, S., & Sawley, E. (2009).
Upward and downward physical appearance comparisons: development of scales and
examination of predictive qualities. *Body Image, 6*(3), 201-206.
doi:10.1016/j.bodyim.2009.03.003

O'Brien, K. S., Hunter, J. A., Halberstadt, J., & Anderson, J. (2007). Body image and explicit
and implicit anti-fat attitudes: the mediating role of physical appearance comparisons.
Body Image, 4(3), 249-256. doi:10.1016/j.bodyim.2007.06.001

Oswald, A., Chapman, J., & Wilson, C. (2017). Do interoceptive awareness and interoceptive
responsiveness mediate the relationship between body appreciation and intuitive
eating in young women? *Appetite, 109*, 66-72. doi:10.1016/j.appet.2016.11.019

Pallant, J. (2016). *SPSS Survival Manual: A step by step guide to data analysis using IBM
SPSS* (6th ed.). Crows Nest, Australia: Allen & Unwin.

Parent, M. C., & Moradi, B. (2011). His biceps become him: a test of objectification theory's
application to drive for muscularity and propensity for steroid use in college men.
Journal of Counseling Psychology, 58(2), 246-256. doi:10.1037/a0021398

Pesa, J. A., Syre, T. R., & Jones, E. (2000). Psychosocial differences associated with body
weight among female adolescents: The importance of body image. *Journal of
Adolescent Health, 26*, 330–337.

Pollatos, O., & Georgiou, E. (2016). Normal interoceptive accuracy in women with bulimia nervosa. *Psychiatry Research, 240*, 328-332. doi:10.1016/j.psychres.2016.04.072

Pollatos, O., Kurz, A. L., Albrecht, J., Schreder, T., Kleemann, A. M., Schopf, V., . . . Schandry, R. (2008). Reduced perception of bodily signals in anorexia nervosa. *Eating Behaviors, 9*(4), 381-388. doi:10.1016/j.eatbeh.2008.02.001

Price, C. J., Thompson, E. A., Crowell, S., & Pike, K. (2019). Longitudinal effects of interoceptive awareness training through mindful awareness in body-oriented therapy (MABT) as an adjunct to women's substance use disorder treatment: A randomized controlled trial. *Drug and Alcohol Dependence, 198*, 140-149. doi:10.1016/j.drugalcdep.2019.02.012

Robbins, A. R., & Reissing, E. D. (2018). Appearance dissatisfaction, body appreciation, and sexual health in women across adulthood. *Archives of Sexual Behavior, 47*(3), 703-714. doi:10.1007/s10508-017-0982-9

Rodgers, R., Chabrol, H., & Paxton, S. J. (2011). An exploration of the tripartite influence model of body dissatisfaction and disordered eating among Australian and French college women. *Body Image, 8*(3), 208-215. doi:10.1016/j.bodyim.2011.04.009

Rodgers, R. F., Donovan, E., Cousineau, T., Yates, K., McGowan, K., Cook, E., . . . Franko, D. L. (2018). BodiMojo: Efficacy of a mobile-based intervention in improving body image and self-compassion among adolescents. *Journal of Youth and Adolescene, 47*(7), 1363-1372. doi:10.1007/s10964-017-0804-3

Rousseau, A., & Eggermont, S. (2018). Tween television and peers: Reinforcing social agents in early adolescents' body surveillance and self-objectification. *Journal of Research on Adolescence, 28*(4), 807-823. doi:10.1111/jora.12367

Satinsky, S., Reece, M., Dennis, B., Sanders, S., & Bardzell, S. (2012). An assessment of body appreciation and its relationship to sexual function in women. *Body Image, 9*(1), 137-144. doi:10.1016/j.bodyim.2011.09.007

Schaefer, L. M., Burke, N. L., Thompson, J. K., Dedrick, R. F., Heinberg, L. J., Calogero, R. M., . . . Swami, V. (2015). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4). *Psychological Assessment, 27*(1), 54-67. doi:10.1037/a0037917

Schauder, K. B., Mash, L. E., Bryant, L. K., & Cascio, C. J. (2015). Interoceptive ability and body awareness in autism spectrum disorder. *Journal of Experimental Child Psychology, 131*, 193-200. doi:10.1016/j.jecp.2014.11.002

Seekis, V., Bradley, G. L., & Duffy, A. (2017). The effectiveness of self-compassion and self-esteem writing tasks in reducing body image concerns. *Body Image, 23*, 206-213. doi:10.1016/j.bodyim.2017.09.003

Slater, A., & Tiggemann, M. (2010). Body image and disordered eating in adolescent girls and boys: A test of objectification theory. *Sex Roles, 63*(1-2), 42-49. doi:10.1007/s11199-010-9794-2

Slater, A., & Tiggemann, M. (2012). Time since menarche and sport participation as predictors of self-objectification: A longitudinal study of adolescent girls. *Sex Roles, 67*(9-10), 571-581. doi:10.1007/s11199-012-0200-0

Slevec, J. H., & Tiggemann, M. (2011). Predictors of body dissatisfaction and disordered eating in middle-aged women. *Clinical Psychology Review, 31*(4), 515-524. doi:10.1016/j.cpr.2010.12.002

Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin, 128*(5), 825-848. doi:10.1037/0033-2909.128.5.825

Swami, V., Hadji-Michael, M., & Furnham, A. (2008). Personality and individual difference
correlates of positive body image. *Body Image, 5*(3), 322-325.
doi:10.1016/j.bodyim.2008.03.007

Swami, V., Weis, L., Barron, D., & Furnham, A. (2018). Positive body image is positively
associated with hedonic (emotional) and eudaimonic (psychological and social) well-
being in British adults. *The Journal of Social Psychology, 158*(5), 541-552.
doi:10.1080/00224545.2017.1392278

Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics* (6th ed.). Boston,
Massachusetts: Pearson.

Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting Beauty:
Theory, Assessment, and Treatment of Body Image Disturbance*. Washington, DC,
US: American Psychological Association.

Thompson, J. K., Coovert, M. D., & Stormer, S. M. (1999). Body image, social comparison,
and eating disturbance: A covariance structure modeling investigation. *International
Journal of Eating Disorders, 26*(1), 43-51. doi:10.1002/(SICI)1098-
108X(199907)26:1<43::AID-EAT6>3.0.CO;2-R

Thompson, J. K., Heinberg, L. J., & Tantleff-Dunn, S. (1991). The Physical Appearance
Comparison Scale (PACS). *The Behavior Therapist, 14*, 174.

Tiggemann, M., Coutts, E., & Clark, L. (2014). Belly dance as an embodying activity?: A test
of the Embodiment Model of Positive Body Image. *Sex Roles, 71*(5-8), 197-207.
doi:10.1007/s11199-014-0408-2

Tiggemann, M., & McCourt, A. (2013). Body appreciation in adult women: relationships
with age and body satisfaction. *Body Image, 10*(4), 624-627.
doi:10.1016/j.bodyim.2013.07.003

Todd, J., Aspell, J. E., Barron, D., & Swami, V. (2019). Multiple dimensions of interoceptive awareness are associated with facets of body image in British adults. *Body Image, 29*, 6-16. doi:10.1016/j.bodyim.2019.02.003

Tribole, E., & Resch, E. (1995). *Intuitive eating: A recovery book for the chronic dieter*. New York, NY, US: St. Martin's Press.

Tylka, T. L. (2012). Positive Psychology Perspectives on Body Image. In *Encyclopedia of Body Image and Human Appearance* (pp. 657-663). San Diego, CA, US: Elsevier Academic Press.

Tylka, T. L., & Wood-Barcalow, N. L. (2015a). The Body Appreciation Scale-2: item refinement and psychometric evaluation. *Body Image, 12*, 53-67. doi:10.1016/j.bodyim.2014.09.006

Tylka, T. L., & Wood-Barcalow, N. L. (2015b). What is and what is not positive body image? Conceptual foundations and construct definition. *Body Image, 14*, 118-129. doi:10.1016/j.bodyim.2015.04.001

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

Vartanian, L. R., & Dey, S. (2013). Self-concept clarity, thin-ideal internalization, and appearance-related social comparison as predictors of body dissatisfaction. *Body Image, 10*(4), 495-500. doi:10.1016/j.bodyim.2013.05.004

Wasylkiw, L., MacKinnon, A. L., & MacLellan, A. M. (2012). Exploring the link between self-compassion and body image in university women. *Body Image, 9*(2), 236-245. doi:10.1016/j.bodyim.2012.01.007

Webb, J. B., Wood-Barcalow, N. L., & Tylka, T. L. (2015). Assessing positive body image:
Contemporary approaches and future directions. *Body Image, 14*, 130-145.
doi:10.1016/j.bodyim.2015.03.010

Weineck, F., Messner, M., Hauke, G., & Pollatos, O. (2019). Improving interoceptive ability
through the practice of power posing: A pilot study. *PLoS One, 14*(2), e0211453.
doi:10.1371/journal.pone.0211453

Wood-Barcalow, N. L., Tylka, T. L., & Augustus-Horvath, C. L. (2010). "But I Like My
Body": Positive body image characteristics and a holistic model for young-adult
women. *Body Image, 7*(2), 106-116. doi:10.1016/j.bodyim.2010.01.001

Zessin, U., Dickhauser, O., & Garbade, S. (2015). The relationship between self-compassion
and well-being: A meta-analysis. *Applied Psychology: Health and Well-Being, 7*(3),
340-364. doi:10.1111/aphw.12051

Appendix A

Advertisement to Study: Social Media Post

Would you like to be a part of a research project in psychology?

If so, then the University of Adelaide invites you to join a study exploring the links between interoceptive awareness (the ability to detect and interpret bodily sensations), self-compassion, attachment styles, emotional regulation and body appreciation.

If you are aged 18 or over, have around 30-40 minutes to spare, and are interested in being a part of this research, then please visit the following link for more information on how to participate: www.surveymonkey.com/xxxxxxxx

Participants will have the opportunity to go into the draw to **win one of 2 x $50 Coles/Myer gift vouchers!**

Please feel free to share this information with your family, friends and other networks – it will assist researchers in understanding the roles of interoceptive awareness, self-compassion and attachment styles on emotional regulation and body appreciation. This will enable us to better understand how people recognise and cope with emotions, and potentially help develop practices and interventions for more positive and sustainable wellbeing outcomes.

Appendix B

Advertisement to Study: Poster

Would you like to take part in a research project

in Psychology?

The University of Adelaide invites you to participate in a study that will form the basis for three Honours projects being conducted by Erina Barker, Jessica Szulc and Isabella Ferraro under the supervision of Dr. Amanda Taylor. These projects are interested in investigating how we understand our body-based experience of emotion (interoceptive awareness), and how this may link to other factors like our relationships, how we appreciate our bodies, and how we understand and cope with feelings.

If you are a current Australian resident aged 18+, have proficient English literacy and comprehension skills, and are interested in being part of this research, then please visit the following link for more information on how to participate:

www.surveymonkey.com/xxxxxxxx

The study is an online questionnaire-based survey and should not take longer than 45 minutes to complete. Please feel free to share this information with your family, friends, and other networks – it will assist these researchers in contributing to knowledge in the scientific and wider community.

Participants will have the opportunity to go into the draw to **win one of two $50 Coles/Myer gift vouchers!**

Appendix C

Participant Information Sheet

PARTICIPANT INFORMATION SHEET

PROJECT TITLE: Exploring Associations Between Multidimensional Interoceptive Awareness and Attachment, Body Image, And Emotional Regulation.
HUMAN RESEARCH ETHICS SUBCOMMITTEE IN THE SCHOOL OF PSYCHOLOGY APPROVAL NUMBER: ████
PRINCIPAL INVESTIGATOR: Dr. Amanda Taylor
STUDENT RESEARCHERS: Erina Barker, Isabella Ferraro and Jessica Szulc
STUDENT'S DEGREE: Honours Degree Bachelor of Psychological Science

Dear Participant,

You are invited to participate in a project being conducted by the School of Psychology at the University of Adelaide.

What is the project about?

Interoceptive awareness, the ability to understand and utilize body cues as markers of emotion, has been identified as a potential precursor to many positive and negative psychological outcomes. However, it has only relatively recently been understood as a multidimensional construct. The present study aims to explore its association with relevant psychological outcomes, and investigate factors that may contribute to and explain these relationships.

This survey comprises of several measures related to interoceptive awareness and relevant psychological factors to provide data for three individual thesis projects.

Who is undertaking the project?
This project is being conducted by Erina Barker, Jessica Szulc, and Isabella Ferraro. This research will form the basis of the thesis component for an Honours Degree of Bachelor of Psychological Science at the University of Adelaide under the supervision of Dr. Amanda Taylor.

Why am I being invited to participate?
Adults aged 18+ who are fluent in English and currently living in Australia are eligible to participate in this study.

What am I being invited to do?
We are seeking your consent to complete a questionnaire-based online survey. The survey may be completed at your convenience and at a location of your choosing.

How much time will my involvement in the project take?
The survey is expected to take no more than one 45 minute session to complete, with no follow up participation required at the completion and submission of the survey. Subjects drawn from the first-year undergraduate psychology cohort will receive one (1) course credit for their participation to contribute to their research participation requirements in Psych 1A or 1B.

Are there any risks associated with participating in this project?
There are no foreseeable risks, side effects, emotional distress, or inconveniences expected to arise from the study either immediately or following participation. However, if you at any point you begin to feel upset or uncomfortable while completing the survey, you should cease working on it. The contact details of the primary researcher (Dr. Amanda Taylor) and student researchers, along with various mental health support services will be included at the end of the survey.

What are the potential benefits of the research project?
We hope the results produced from this study will contribute to knowledge seeking to understand interoceptive awareness and related psychological outcomes. Outcomes of this research have the potential to inform or contribute to future research and interventions.

Can I withdraw from the project?
Participation in this project is completely voluntary. If you agree to participate, you can withdraw from the study at any time without consequence until the submission of the survey. Should you no longer wish to participate, the survey can be exited simply by closing the web browser. Course credit for first-year psychology participants can only be provided to those who have submitted their survey.

What will happen to my information?
This study will not be using any identifying information in its findings or in any subsequent publications, ensuring your confidentiality. Additionally, the data collected from this study will not be made accessible to any persons other than the researchers as per the University requirements, except as required by law.

Who do I contact if I have questions about the project?
If you have any questions about the research, please contact Dr. Amanda Taylor via email: amanda.taylor@adelaide.edu.au or phone: (08) 8313 4485.

What if I have a complaint or any concerns?
The study has been approved by the Human Research Ethics Subcommittee in the School of Psychology at the University of Adelaide (approval number 19/35) and will be conducted according to the NHMRC National Statement on Ethical Conduct in Human Research 2007 (Updated 2018).

If you have questions or problems associated with the practical aspects of your participation in the project, or wish to raise a concern or complaint about the project, then please contact the Principal Investigator Dr. Amanda Taylor (contact details above). If you wish to speak with an independent person regarding concerns or a complaint, the University's policy on research involving human participants, or your rights as a participant, please contact the Human Research Ethics Committee's Secretariat on:
Phone: +61 8 8313 6028

Email: hrec@adelaide.edu.au

Post: Level 4, Rundle Mall Plaza, 50 Rundle Mall, ADELAIDE SA 5000

Any complaint or concern will be treated in confidence and fully investigated. You will be informed of the outcome.

If I want to participate, what do I do?
Please continue to the following page, where you will be directed to a consent form. After you have given your consent, you will be directed through to the online survey.

Yours sincerely,

Erina Barker, Student
Jess Szulc, Student
Isabella Ferraro, Student

Dr. Amanda Taylor, Supervisor

Appendix D

Participant Consent Form

Human Research Ethics Subcommittee in the School of Psychology

THE UNIVERSITY
of ADELAIDE

CONSENT FORM

1. I have read the attached Information Sheet and agree to take part in the following research project:

Title:	Exploring associations between multidimensional interoceptive awareness and attachment, body image, and emotional regulation.
Ethics Approval Number:	▮▮▮▮

2. I have had the project, so far as it affects me, and the potential risks and burdens fully explained to my satisfaction by the research worker. I have had the opportunity to ask any questions I may have about the project and my participation. My consent is given freely.

3. Although I understand the purpose of the research project is to improve the quality of health/medical care, it has also been explained that my involvement may not be of any benefit to me.

4. I agree to participate in the activities as outlined in the participant information sheet.

5. I understand that as my participation is anonymous, I can withdraw any time up until submission of the survey. I am aware that if I decide to withdraw this will not affect medical advice in the management of my health, now or in the future.

6. I have been informed that the information gained in the project may be published in a journal article, thesis, and conference presentation.

7. I have been informed that in the published materials I will not be identified and my personal results will not be divulged.

8. I agree to my information being used for future research purposes as follows:
   - Research undertaken by these same researcher(s)   Yes ☐ No ☐
   - Related research undertaken by any researcher(s)   Yes ☐ No ☐
   - Any research undertaken by any researcher(s)   Yes ☐ No ☐

9. I understand my information will only be disclosed according to the consent provided, except where disclosure is required by law.

10. I am aware that I should keep a copy of this Consent Form, when completed, and the participant Information Sheet.

Appendix E

Online Questionnaire

Demographic Questions

What is your gender?

- o Female
- o Male
- o Other
- o Prefer not to specify

What is your age? (In whole years)

_____

What is the highest level of education you have completed?

- o Completed Primary School
- o Completed High School
- o Technical Qualification (e.g. Certificate III)
- o Degree or Diploma (e.g. Bachelor's Degree, Graduate Diploma)
- o Postgraduate Degree (e.g. Masters, Doctorate)

What is your current height (cm)?

_____

What is your current weight (kgs)?

_____

What is your ethnicity?

- o Caucasian or White
- o Aboriginal and/or Torres Strait Islander
- o Asian
- o African
- o Other (Please Specify…)

  _____

The Multidimensional Assessment of Interoceptive Awareness – Version 2 (MAIA-2)

Below you will find a list of statements. Please indicate how often each statement applies to you generally in daily life.

	Never					Always
1. When I am tense I notice where the tension is located in my body.	0	1	2	3	4	5
2. I notice when I am uncomfortable in my body.	0	1	2	3	4	5
3. I notice where in my body I am comfortable.	0	1	2	3	4	5
4. I notice changes in my breathing, such as whether it slows down or speeds up.	0	1	2	3	4	5
5. I ignore physical tension or discomfort until they become more severe.	0	1	2	3	4	5
6. I distract myself from sensations of discomfort.	0	1	2	3	4	5
7. When I feel pain or discomfort, I try to power through it.	0	1	2	3	4	5
8. I try to ignore pain	0	1	2	3	4	5
9. I push feelings of discomfort away by focusing on something	0	1	2	3	4	5
10. When I feel unpleasant body sensations, I occupy myself with something else so I don't have to feel them.	0	1	2	3	4	5
11. When I feel physical pain, I become upset.	0	1	2	3	4	5
12. I start to worry that something is wrong if I feel any discomfort.	0	1	2	3	4	5
13. I can notice an unpleasant body sensation without worrying about it.	0	1	2	3	4	5
14. I can stay calm and not worry when I have feelings of discomfort or pain.	0	1	2	3	4	5
15. When I am in discomfort or pain I can't get it out of my mind	0	1	2	3	4	5
16. I can pay attention to my breath without being distracted by things happening around me.	0	1	2	3	4	5
17. I can maintain awareness of my inner bodily sensations even when there is a lot going on around me.	0	1	2	3	4	5
18. When I am in conversation with someone, I can pay attention to my posture.	0	1	2	3	4	5

Circle one number on each line

How often does each statement apply to you generally in daily life? Circle one number on each line

	Never					Always
19. I can return awareness to my body if I am distracted.	0	1	2	3	4	5
20. I can refocus my attention from thinking to sensing my body.	0	1	2	3	4	5
21. I can maintain awareness of my whole body even when a part of me is in pain or discomfort.	0	1	2	3	4	5
22. I am able to consciously focus on my body as a whole.	0	1	2	3	4	5
23. I notice how my body changes when I am angry.	0	1	2	3	4	5
24. When something is wrong in my life I can feel it in my body.	0	1	2	3	4	5
25. I notice that my body feels different after a peaceful experience.	0	1	2	3	4	5
26. I notice that my breathing becomes free and easy when I feel comfortable.	0	1	2	3	4	5
27. I notice how my body changes when I feel happy / joyful.	0	1	2	3	4	5
28. When I feel overwhelmed I can find a calm place inside.	0	1	2	3	4	5
29. When I bring awareness to my body I feel a sense of calm.	0	1	2	3	4	5
30. I can use my breath to reduce tension.	0	1	2	3	4	5
31. When I am caught up in thoughts, I can calm my mind by focusing on my body/breathing.	0	1	2	3	4	5
32. I listen for information from my body about my emotional state.	0	1	2	3	4	5
33. When I am upset, I take time to explore how my body feels.	0	1	2	3	4	5
34. I listen to my body to inform me about what to do.	0	1	2	3	4	5
35. I am at home in my body.	0	1	2	3	4	5
36. I feel my body is a safe place.	0	1	2	3	4	5
37. I trust my body sensations.	0	1	2	3	4	5

The Self-Compassion Scale (SCS)

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

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

Almost never				Almost always
1	2	3	4	5

_____ 1. I'm disapproving and judgmental about my own flaws and inadequacies.

_____ 2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

_____ 3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.

_____ 4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.

_____ 5. I try to be loving towards myself when I'm feeling emotional pain.

_____ 6. When I fail at something important to me I become consumed by feelings of inadequacy.

_____ 7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.

_____ 8. When times are really difficult, I tend to be tough on myself.

_____ 9. When something upsets me I try to keep my emotions in balance.

_____ 10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

_____ 11. I'm intolerant and impatient towards those aspects of my personality I don't like.

_____ 12. When I'm going through a very hard time, I give myself the caring and tenderness I need.

_____ 13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.

_____ 14. When something painful happens I try to take a balanced view of the situation.

_____ 15. I try to see my failings as part of the human condition.

_____ 16. When I see aspects of myself that I don't like, I get down on myself.

_____ 17. When I fail at something important to me I try to keep things in perspective.

_____ 18. When I'm really struggling, I tend to feel like other people must be having an easier
time of it.

_____ 19. I'm kind to myself when I'm experiencing suffering.

_____ 20. When something upsets me I get carried away with my feelings.

_____ 21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.

_____ 22. When I'm feeling down I try to approach my feelings with curiosity and openness.

_____ 23. I'm tolerant of my own flaws and inadequacies.

_____ 24. When something painful happens I tend to blow the incident out of proportion.

_____ 25. When I fail at something that's important to me, I tend to feel alone in my failure.

_____ 26. I try to be understanding and patient towards those aspects of my personality I don't
like.

Body Appreciation Scale (BAS-2)

	Never	Seldom	Sometimes	Often	Always
1. I respect my body.	1	2	3	4	5
2. I feel good about my body.	1	2	3	4	5
3. I feel that my body has at least some good qualities.	1	2	3	4	5
4. I have a positive attitude towards my body.	1	2	3	4	5
5. I am attentive to my body's needs.	1	2	3	4	5
6. I feel love for my body.	1	2	3	4	5
7. I appreciate the different and unique characteristics of my body.	1	2	3	4	5
8. My behaviour reveals my positive attitude toward my body; for example, I hold my head high and smile.	1	2	3	4	5
9. I am comfortable in my body.	1	2	3	4	5
10. I feel like I am beautiful even if I am different from media images of attractive people (e.g. models, actresses/actors).	1	2	3	4	5

Body Acceptance by Others (BAOS)

1. I've felt acceptance from my friends regarding my body shape and/or weight.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

2. My friends have sent me the message that my body shape and weight are fine.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

3. I've felt acceptance from my family regarding my body shape and/or weight.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

4. My family has sent me the message that my body shape and/or weight are fine.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

5. I've felt acceptance from people I've dated regarding my body shape and/or weight.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

6. People I've dated have sent me the message that my body shape and weight are fine.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

7. I've felt acceptance from the media (e.g., TV, magazines) regarding my body shape and/or weight.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

8. I feel that the media has sent me the message that my body shape and weight are fine.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

9. I've felt acceptance from society (e.g., school, church) regarding my body shape and/or weight.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

10. I feel that society has sent me the message that my body shape and weight are fine.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

Objectified Body Consciousness Scale (OBCS)

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
1. I rarely think about how I look.	1	2	3	4	5	6	7
2. I think it is more important that my clothes are comfortable than whether they look good on me.	1	2	3	4	5	6	7
3. I think more about how my body feels than how my body looks.	1	2	3	4	5	6	7
4. I rarely compare how I look with how other people look.	1	2	3	4	5	6	7
5. During the day, I think about how I look many times.	1	2	3	4	5	6	7
6. I often worry about whether the clothes I am wearing make me look good.	1	2	3	4	5	6	7
7. I rarely worry about how I look to other people.	1	2	3	4	5	6	7
8. I am more concerned with what my body can do than how it looks.	1	2	3	4	5	6	7

Physical Appearance Comparison Scale (PACS)

Using the following scale please select a number that comes closest to how you feel:

Never	Seldom	Sometimes	Often	Always
1	2	3	4	5

1. At parties or other social events, I compare my physical appearance to the physical appearance of others.   1   2   3   4   5

2. The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others.   1   2   3   4   5

3. At parties or other social events, I compare how I am dressed to how other people are dressed.   1   2   3   4   5

4. *** Comparing your "looks" to the "looks" of others is a bad way to determine if you are attractive or unattractive.   1   2   3   4   5

5. In social situations, I sometimes compare my figure to the figures of other people.   1   2   3   4   5

Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ)

	Definitely Disagree				Definitely Agree
1. It is important for me to look athletic.	1	2	3	4	5
2. I think a lot about looking muscular.	1	2	3	4	5
3. I want my body to look very thin.	1	2	3	4	5
4. I want my body to look like it has little fat.	1	2	3	4	5
5. I think a lot about looking thin.	1	2	3	4	5
6. I spend a lot of time doing things to look more athletic.	1	2	3	4	5
7. I think a lot about looking athletic.	1	2	3	4	5
8. I want my body to look very lean.	1	2	3	4	5
9. I think a lot about having very little body fat.	1	2	3	4	5
10. I spend a lot of time doing things to look more muscular.	1	2	3	4	5

Appearance Media Consumption (and Non-Appearance Media Consumption)

* Items 3 and 8 summed to measure total non-appearance media consumption, remaining 6 items summed to measure total appearance media consumption.

On a four-point scale where 1 = never and 4 = every time an issue comes out:

1. How often do you read Fashion magazines (e.g. Grazia, Vogue)?

    1   2   3   4

2. How often do you read Women's magazines (e.g. Woman's Day, Cleo)?

    1   2   3   4

3. How often do you read magazines that are not Women's magazines (e.g. House and Garden)?

    1   2   3   4

On a five-point scale where 1 = never and 5 = all the time:

4. How often do you view Fashion websites/blogs/online material?

    1   2   3   4   5

5. How often do you use Social media (e.g. Facebook, Twitter, YouTube)?

    1   2   3   4   5

6. How often do you watch Soapies or dramas?

    1   2   3   4   5

7. How often do you watch Music television shows?

    1   2   3   4   5

8. How often do you watch Information-based shows (e.g. documentaries or the news)?

    1   2   3   4   5

Appendix F

SPSS: SEM (AMOS) Output: Final Structural Model

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 45
Number of distinct parameters to be estimated: 31
Degrees of freedom (45 - 31): 14

Result (Default model)

Minimum was achieved
Chi-square = 26.672
Degrees of freedom = 14
Probability level = .021

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	31	26.672	14	.021	1.905
Saturated model	45	.000	0		
Independence model	9	571.865	36	.000	15.885

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	1.782	.972	.909	.302
Saturated model	.000	1.000		
Independence model	10.524	.539	.424	.431

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.953	.880	.977	.939	.976
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.389	.371	.380
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	12.672	1.816	31.305
Saturated model	.000	.000	.000
Independence model	535.865	462.119	617.042

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.136	.065	.009	.160
Saturated model	.000	.000	.000	.000
Independence model	2.918	2.734	2.358	3.148

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.068	.026	.107	.203
Independence model	.276	.256	.296	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	88.672	92.005	190.451	221.451
Saturated model	90.000	94.839	237.744	282.744
Independence model	589.865	590.832	619.413	628.413

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.452	.397	.547	.469
Saturated model	.459	.459	.459	.484
Independence model	3.010	2.633	3.424	3.014

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	175	215
Independence model	18	21

Default model

Standardized RMR = .0381

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
AP	<---	AppMedia	.237	.136	1.737	.082	
AP	<---	NonAppMedia	.001	.330	.003	.997	
AP	<---	BAOSTotal	.045	.583	.077	.939	
AP	<---	SCTotalMean	-4.716	.733	-6.433	***	
AP	<---	MAIAtotal	-.052	.026	-1.960	.050	
OBCSTotal	<---	AP	1.000				
PACSTotal	<---	AP	.408	.044	9.328	***	
SATAQTotal	<---	AP	.612	.092	6.685	***	
BASTotal	<---	AP	-.047	.011	-4.455	***	
BASTotal	<---	BAOSTotal	.475	.052	9.071	***	
BASTotal	<---	MAIAtotal	.008	.002	3.383	***	
BASTotal	<---	SCTotalMean	.294	.080	3.661	***	

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
AP	<---	AppMedia	.121
AP	<---	NonAppMedia	.000
AP	<---	BAOSTotal	.006
AP	<---	SCTotalMean	-.540
AP	<---	MAIAtotal	-.159
OBCSTotal	<---	AP	.764
PACSTotal	<---	AP	.789
SATAQTotal	<---	AP	.529
BASTotal	<---	AP	-.317
BASTotal	<---	BAOSTotal	.415
BASTotal	<---	MAIAtotal	.169
BASTotal	<---	SCTotalMean	.226

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
SCTotalMean	<-->	MAIAtotal	6.301	1.087	5.797	***	
BAOSTotal	<-->	MAIAtotal	5.298	1.184	4.475	***	
NonAppMedia	<-->	MAIAtotal	7.214	1.988	3.629	***	
AppMedia	<-->	MAIAtotal	2.960	4.423	.669	.503	
BAOSTotal	<-->	SCTotalMean	.181	.044	4.154	***	
NonAppMedia	<-->	SCTotalMean	.130	.072	1.800	.072	
AppMedia	<-->	SCTotalMean	-.200	.165	-1.216	.224	
NonAppMedia	<-->	BAOSTotal	-.146	.082	-1.788	.074	
AppMedia	<-->	BAOSTotal	.235	.187	1.258	.209	
AppMedia	<-->	NonAppMedia	1.037	.327	3.168	.002	

Correlations: (Group number 1 - Default model)

			Estimate
SCTotalMean	<-->	MAIAtotal	.455
BAOSTotal	<-->	MAIAtotal	.337
NonAppMedia	<-->	MAIAtotal	.268
AppMedia	<-->	MAIAtotal	.048
BAOSTotal	<-->	SCTotalMean	.311
NonAppMedia	<-->	SCTotalMean	.130
AppMedia	<-->	SCTotalMean	-.087
NonAppMedia	<-->	BAOSTotal	-.129
AppMedia	<-->	BAOSTotal	.090
AppMedia	<-->	NonAppMedia	.232

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
AppMedia	10.267	1.037	9.899	***	
NonAppMedia	1.939	.196	9.899	***	
BAOSTotal	.662	.067	9.899	***	
SCTotalMean	.515	.052	9.899	***	
MAIAtotal	372.535	37.632	9.899	***	
e5	22.948	4.500	5.100	***	
e1	28.055	4.308	6.512	***	
e2	3.977	.668	5.950	***	
e3	37.942	4.207	9.019	***	
e4	.279	.031	9.060	***	

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
AP	.416
BASTotal	.678
SATAQTotal	.280
PACSTotal	.622
OBCSTotal	.584

Matrices (Group number 1 - Default model)

Implied Covariances (Group number 1 - Default model)

	MAIAtotal	SCTotalMean	BAOSTotal	NonAppMedia	AppMedia	BASTotal	SATAQTotal	PACSTotal	OBCSTotal
MAIAtotal	372.535								
SCTotalMean	6.301	.515							
BAOSTotal	5.298	.181	.662						
NonAppMedia	7.214	.130	-.146	1.939					
AppMedia	2.960	-.200	.235	1.037	10.267				
BASTotal	9.666	.420	.460	.062	-.075	.868			
SATAQTotal	-29.391	-1.710	-.639	-.454	1.983	-2.180	52.685		
PACSTotal	-19.598	-1.140	-.426	-.303	1.322	-1.453	9.830	10.532	
OBCSTotal	-48.000	-2.793	1.044	-.742	3.238	-3.560	24.076	16.054	67.374

Implied Correlations (Group number 1 - Default model)

	MAIAtotal	SCTotalMean	BAOSTotal	NonAppMedia	AppMedia	BASTotal	SATAQTotal	PACSTotal	OBCSTotal
MAIAtotal	1.000								
SCTotalMean	.455	1.000							
BAOSTotal	.337	.311	1.000						
NonAppMedia	.268	.130	-.129	1.000					
AppMedia	.048	-.087	.090	.232	1.000				
BASTotal	.538	.629	.607	.048	-.025	1.000			
SATAQTotal	-.210	-.328	-.108	-.045	.085	-.322	1.000		
PACSTotal	-.313	-.490	-.161	-.067	.127	-.481	.417	1.000	
OBCSTotal	-.303	-.474	-.156	-.065	.123	-.466	.404	.603	1.000

Residual Covariances (Group number 1 - Default model)

	MAIAtotal	SCTotalMean	BAOSTotal	NonAppMedia	AppMedia	BASTotal	SATAQTotal	PACSTotal	OBCSTotal
MAIAtotal	.000								
SCTotalMean	.000	.000							
BAOSTotal	.000	.000	.000						
NonAppMedia	.000	.000	.000	.000					
AppMedia	.000	.000	.000	.000	.000				
BASTotal	.000	.000	.000	.055	.225	.000			
SATAQTotal	9.351	.398	.551	-.433	1.170	.499	.000		
PACSTotal	.981	-.023	-.271	.284	.026	-.126	1.060	.000	
OBCSTotal	-7.058	-.115	.530	-.360	.461	.071	-.329	-.536	.000

Standardized Residual Covariances (Group number 1 - Default model)

	MAIAtotal	SCTotalMean	BAOSTotal	NonAppMedia	AppMedia	BASTotal	SATAQTotal	PACSTotal	OBCSTotal
MAIAtotal	.000								
SCTotalMean	.000	.000							
BAOSTotal	.000	.000	.000						
NonAppMedia	.000	.000	.000	.000					
AppMedia	.000	.000	.000	.000	.000				
BASTotal	.000	.000	.000	.596	1.056	.000			
SATAQTotal	.915	1.016	1.299	-.600	.702	.984	.000		
PACSTotal	.209	-.122	-1.416	.877	.035	-.526	.581	.000	
OBCSTotal	-.597	-.247	1.097	-.439	.243	.118	-.072	-.241	.000

Appendix G

Final Structural Model with Covariances
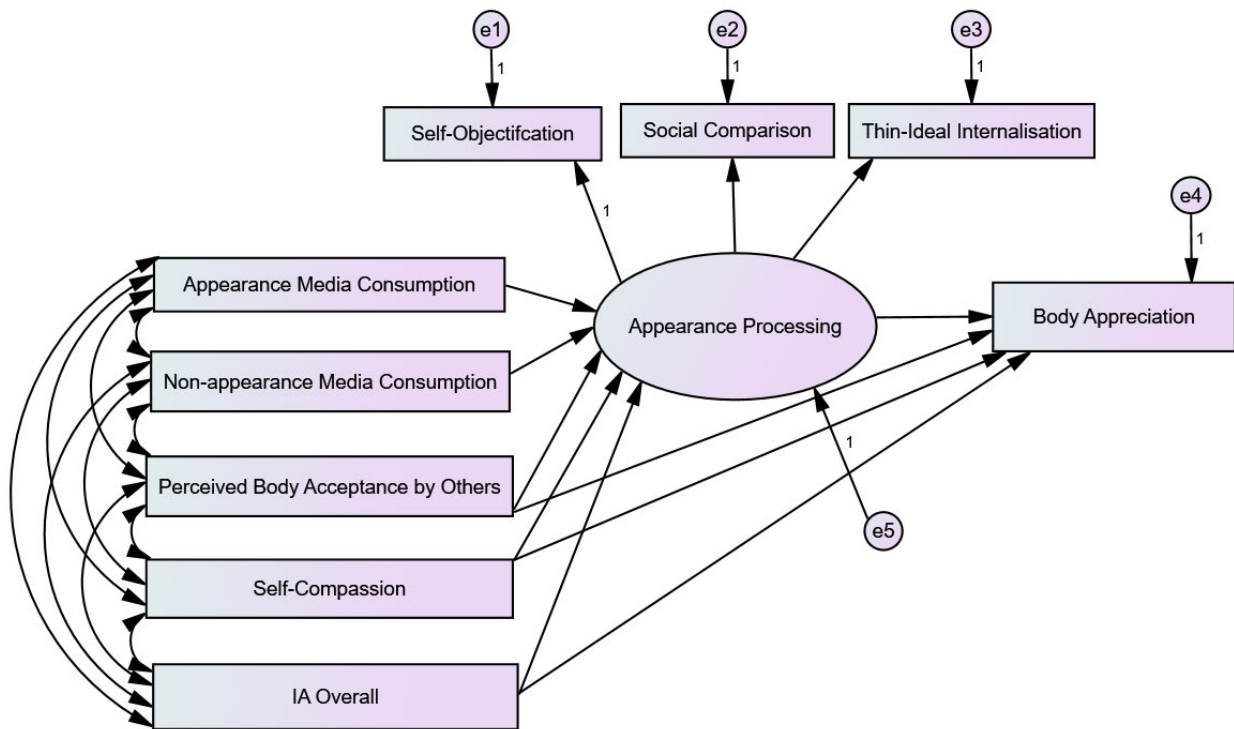
Appendix H

PROCESS Macro Output: Indirect Effects

```
Run MATRIX procedure:

*************** PROCESS Procedure for SPSS Version 3.3 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**********************************************************************
Model  : 4
    Y  : BASTotal
    X  : MAIAtota
   M1  : OBCSTota
   M2  : PACSTota
   M3  : SATAQTot

Covariates:
 Age      BMI

Sample
Size:  197

**********************************************************************
OUTCOME VARIABLE:
 OBCSTota

Model Summary
         R       R-sq       MSE          F        df1        df2
p
     .4267      .1821    56.2470    14.3242     3.0000   193.0000
.0000

Model
              coeff        se         t          p        LLCI       ULCI
constant    56.3274    3.7383    15.0677      .0000    48.9542    63.7005
MAIAtota     -.1389     .0278    -4.9986      .0000     -.1937     -.0841
Age          -.1948     .0544    -3.5789      .0004     -.3021     -.0874
BMI           .0255     .1121      .2276      .8202     -.1955      .2465

**********************************************************************
OUTCOME VARIABLE:
 PACSTota

Model Summary
         R       R-sq       MSE          F        df1        df2
p
     .3149      .0992     9.6840     7.0812     3.0000   193.0000
.0002

Model
              coeff        se         t          p        LLCI       ULCI
constant    20.4948    1.5511    13.2128      .0000    17.4354    23.5541
MAIAtota     -.0485     .0115    -4.2019      .0000     -.0712     -.0257
Age          -.0340     .0226    -1.5067      .1335     -.0786      .0105
BMI           .0184     .0465      .3947      .6935     -.0733      .1101
```

```
************************************************************************
OUTCOME VARIABLE:
 SATAQTot

Model Summary
          R       R-sq       MSE          F        df1        df2
p
      .3723      .1386    46.3244    10.3494     3.0000   193.0000
.0000

Model
              coeff         se          t          p       LLCI       ULCI
constant    38.7378     3.3926    11.4184      .0000    32.0465    45.4291
MAIAtota     -.0431      .0252    -1.7081      .0892     -.0928      .0067
Age          -.2336      .0494    -4.7295      .0000     -.3310     -.1362
BMI           .0008      .1017      .0078      .9938     -.1998      .2014

************************************************************************
OUTCOME VARIABLE:
 BASTotal

Model Summary
          R       R-sq       MSE          F        df1        df2
p
      .7124      .5075      .4432    32.6298     6.0000   190.0000
.0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     4.5518      .5266     8.6443      .0000     3.5131     5.5904
MAIAtota      .0189      .0026     7.1405      .0000      .0137      .0241
OBCSTota     -.0179      .0076    -2.3623      .0192     -.0328     -.0030
PACSTota     -.0883      .0193    -4.5849      .0000     -.1264     -.0503
SATAQTot     -.0039      .0079     -.5013      .6167     -.0195      .0116
Age          -.0024      .0052     -.4570      .6482     -.0126      .0079
BMI          -.0442      .0100    -4.4463      .0000     -.0639     -.0246

************************* TOTAL EFFECT MODEL *************************
OUTCOME VARIABLE:
 BASTotal

Model Summary
          R       R-sq       MSE          F        df1        df2
p
      .5892      .3471      .5784    34.2053     3.0000   193.0000
.0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     1.5803      .3791     4.1686      .0000      .8326     2.3280
MAIAtota      .0258      .0028     9.1592      .0000      .0203      .0314
Age           .0050      .0055      .9127      .3626     -.0058      .0159
BMI          -.0463      .0114    -4.0773      .0001     -.0687     -.0239
```

```
************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t           p         LLCI        ULCI
c_ps       c_cs
      .0258       .0028     9.1592      .0000       .0203       .0314
.0276      .5347

Direct effect of X on Y
     Effect         se          t           p         LLCI        ULCI
c'_ps      c'_cs
      .0189       .0026     7.1405      .0000       .0137       .0241
.0202      .3910

Indirect effect(s) of X on Y:
             Effect     BootSE    BootLLCI    BootULCI
TOTAL        .0069      .0017      .0037       .0103
OBCSTota     .0025      .0013      .0003       .0054
PACSTota     .0043      .0014      .0018       .0071
SATAQTot     .0002      .0004     -.0006       .0012

    Normal theory test for indirect effect(s):
             Effect       se          Z          p
OBCSTota     .0025      .0012      2.1017      .0356
PACSTota     .0043      .0014      3.0585      .0022
SATAQTot     .0002      .0004       .4194      .6749

Partially standardized indirect effect(s) of X on Y:
             Effect     BootSE    BootLLCI    BootULCI
TOTAL        .0074      .0017      .0041       .0107
OBCSTota     .0027      .0014      .0004       .0057
PACSTota     .0046      .0014      .0020       .0075
SATAQTot     .0002      .0005     -.0006       .0013

Completely standardized indirect effect(s) of X on Y:
             Effect     BootSE    BootLLCI    BootULCI
TOTAL        .1437      .0345      .0768       .2120
OBCSTota     .0515      .0264      .0070       .1116
PACSTota     .0887      .0281      .0364       .1463
SATAQTot     .0035      .0089     -.0126       .0250

********************** ANALYSIS NOTES AND ERRORS **********************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

NOTE: Variables names longer than eight characters can produce incorrect
output.
     Shorter variable names are recommended.

------ END MATRIX -----
```